3.7 MIDLAND ACTIVITY CENTRE MASTER PLAN

Ward: (Midland/Guildford Ward) (Strategic Planning)

Disclosure of Interest: Nil

Authorised Officer: (Executive Manager Planning)

KEY ISSUES

- The Western Australian Planning Commission gazetted 'State Planning Policy 4.2 - Activity Centres for Perth and Peel' (SPP 4.2) on 31st August 2010. SPP 4.2 describes Activity Centres as community focus points which include activities such as commercial, retail, higher-density housing, entertainment, tourism, civic/community, higher education, medical services, and which are well serviced by public transport. The Policy requires Local Authorities to prepare Activity Centre Structure Plans for their centres, which are to be adopted as statutory instruments to guide the development of those centres.

- Midland is classified as a Strategic Metropolitan Centre under the State Government's 'Directions 2031 and Beyond' and therefore requires an Activity Centre Structure Plan. A part of the Midland centre however falls within the jurisdiction of the Metropolitan Redevelopment Authority (MRA) who manages that area under different legislation. A document that will provide strategic guidance across the two jurisdictions is therefore required to ensure a coordinated approach to development within the Strategic Metropolitan Centre.

- Accordingly, the City of Swan in conjunction with the MRA and the Department of Planning commenced work on an Activity Centre Structure Plan for Midland CBD with preparation of a draft **Midland Activity Centre Master Plan** and associated **Design Guidelines**, which are to form the basis, not only to the statutory Structure Plan for the area under the City's control, but also as the basis for development control within the area under the jurisdiction of the MRA.

- The statutory Structure Plan required under 'State Planning Policy 4.2 - Activity Centres for Perth and Peel' (SPP 4.2) for the part of the centre under the jurisdiction of the City will inform the City of Swan's Local Planning Scheme No. 17 and the introduction of new planning policies relative to the Midland CBD.

- The Plan and Guidelines were developed to translate the vision for Midland determined through the Midland Charette (1997), the Enquiry by Design (2007) and the objectives of SPP 4.2 into a planning control framework, so that real guidance, certainty and advocacy is provided to landowners and developers promoting investment and economic development.

- The draft Midland Activity Centre Master Plan and Guidelines were referred to Council for consideration on 27/02/13 where Council granted permission to advertise for public comment. The documents were advertised for 60 days from 23/03/13 to 24/05/13, through local newspapers and through an "Open House" event which was held on the evening of 11/04/13. In addition the City held briefings with the Swan Chamber of Commerce and met and worked closely with the Midland representatives of the Metropolitan Redevelopment Authority.

- Submissions received were given detailed consideration by the City and the issues raised were addressed as appropriate through modifications to the Plan and Design Guidelines. A summary of these submissions and the City's response is attached under separate cover. A copy of the modified Midland Activity Centre Master Plan and Midland Activity Centre Design Guidelines are attached under separate cover.

- It is recommended that the Council resolve to:

    1. Adopt the modified Midland Activity Centre Master Plan and associated Design Guidelines, as a basis for preparation of the Midland Activity Centre Structure Plan.
    2. Approve the preparation of a statutory structure plan for the Midland Activity Centre consistent with the Western Australian Planning Commission State Planning Policy 4.2 'Activity Centres for Perth and Peel'.
    3. Approve the development of the Midland Activity Centre Design Guidelines as a Local Planning Policy to be adopted in the future under Part 2 of City of Swan Local Planning Scheme No. 17, in order to guide upcoming development within the Activity Centre area.
    4. Forward the modified Midland Activity Centre Master Plan and associated Design Guidelines to the Metropolitan Redevelopment Authority for adoption as guiding principles for development within the Midland area under their jurisdiction.
    5. Forward the modified Midland Activity Centre Master Plan and associated Design Guidelines to the Western Australian Planning Commission for notification and acknowledgement as the basis to the statutory Activity Centre Structure Plan required under 'State Planning Policy 4.2 - Activity Centres for Perth and Peel' (SPP 4.2) for the part of Midland under the City's control.

BACKGROUND

The Western Australian Planning Commission gazetted 'State Planning Policy 4.2 - Activity Centres for Perth and Peel' on 31st August 2010. This policy requires Local Authorities to prepare 'statutory' Activity Centre Structure Plans for those centres with classifications of 'District Centre' or above. Midland is classified as a 'Strategic Metropolitan Centre' under the State Government's 'Directions 2031 and Beyond' and, accordingly, requires an Activity Centre Structure Plan. A part of the Midland Centre

however falls within the jurisdiction of the Metropolitan Redevelopment Authority (MRA) who manages that area under different legislation. A document that will provide strategic guidance across the two jurisdictions is required to ensure a coordinated approach to development within the Strategic Metropolitan Centre. The City of Swan in conjunction with the MRA and in liaison with the Department of Planning commenced work on an Activity Centre Structure Plan for Midland CBD with preparation of a draft **Midland Activity Centre Master Plan** and associated **Design Guidelines**, which are to form the basis, not only to the statutory Structure Plan for the area under the City's control, but also as the basis for development control within the area under the jurisdiction of the MRA.

Following on from the Midland Charette in 1997, the City of Swan undertook an Enquiry by Design for Midland in 2007 in conjunction with the then Midland Redevelopment Authority, community representatives and government agencies. A need for the revitalisation of Midland was identified along with a number of required actions. A strategic document 'Midland 2017 - the challenge' was adopted to guide the City's work plans and efforts for Midland.

The Activity Centre Master Plan has been developed based on this and prepared as an updated document for implementation through the mechanism of statutory planning to provide guidance, certainty and advocacy to landowners and developers promoting investment and economic development.

The City engaged planning consultant firm Hassell to assist with the planning component of the work, and transport consultant Cardno Eppell Olsen to undertake a transport assessment in line with State requirements and to provide advice regarding the movement network and parking. Economic input was provided by Real Estate consultant, Collier's International.

The Metropolitan Redevelopment Authority or the Midland Redevelopment Authority as it was known at project inception (MRA), contributed towards the cost of the project and has been closely involved throughout through a number of meetings with City of Swan and the project consultants.

DETAILS

An Activity Centre Structure Plan is required to address the elements of centre context, activity, movement, urban form, resource conservation and implementation, under the provisions of State Planning Policy 4.2 (SPP 4.2).

The City utilised this format to prepare the Master Plan and Design Guidelines which are to form the basis of the Activity Centre Structure Plan. A brief description of the key aspects is provided below.

Centre Context

Through an analysis of the context of Midland centre, the City was required to assess the performance of Midland CBD against the criteria established in SPP 4.2 relative to Strategic Metropolitan Centres and their function/role, transport connectivity and accessibility, typical retail and office development types, future indicative service population, walkable catchment, residential density target per gross hectare and diversity performance target (i.e. mix of land uses).

The most notable outcome of this analysis is that, due to Midland's historical setting as a major commercial centre, there is currently limited residential development within the

CBD. Densities in excess of R60-80 south of the railway line, and R80-100 in the north east & west corners of the CBD are suggested. However fragmented ownership, including strata titles in some of these areas, will present a major challenge to comprehensive redevelopment at higher densities. Midland Oval Precinct is generally under one ownership and largely undeveloped, and therefore presents the best opportunity for high density residential development within the CBD. In addition, proposed minimum height and frontage provisions for some precincts will assist in safeguarding against underdevelopment (i.e. low density residential strata developments) to ensure future opportunities for medium-high density residential development can be realised.

Activity

The Master Plan includes an analysis of the centre of Midland's development intensity and land use mix, with a view to planning for a wide range of retail and commercial premises, increasing the range of employment within the centre, and increasing population (and therefore density) and diversity of housing in and around the centre to support economic development.

Due to the size of the Midland CBD in comparison to other major centres, it has evolved to include a number of precincts each with their own defined character and clusters of similar type development. Therefore it makes sense to plan the centre within delineated precincts, each with their own detailed objectives and planning requirements.

A key challenge for Midland will be to generate sufficient levels of activity, intensity and diversity across the centre as a whole, over time. Given the size of the centre, it is unlikely that the whole CBD will be able to be activated and revitalised concurrently. Therefore, priority areas need to be singled out for focus in the short to medium term. Those most suited to activation initially will be areas that demonstrate high public exposure and quality of the public realm, which will in turn maximise commercial activity.

The corridor which presently exhibits the greatest potential for activation is Cale Street, from the Railway Parade junction in the south to the Midland Oval site in the north. This road links key nodes of activity, including the new Midland Health Campus, proposed future relocated Midland Train Station and bus interchange, Midland Gate Shopping Centre, and the future redevelopment opportunities on Midland Oval (which could comprise high density residential, mixed use, entertainment, civic, office and retail uses). East to west, The Crescent will become a focal point for activation intersecting with Cale Street to harness the pedestrian traffic and interest created between the major activity nodes. In acknowledgment of the importance of these streets, priority should be given to improvements to public realm, pedestrian comfort, activation of uses at street level to provide pedestrian interest and good built-form decisions.

Movement

In order to meet SPP 4.2 requirements, the City undertook an analysis of the existing local and regional movement network in respect of vehicular transport, as well as other transport modes including public transport, cycling and pedestrian infrastructure. A capacity assessment was completed for the centre to determine the potential land use mix and intensity of development which would be possible to be serviced by the transport network in a complete "build out" scenario. This information was then utilised by the City's engineering consultant to undertake a transport assessment for the centre and develop an approach to traffic and management of the movement network, including parking.

Public Transport & Cycling

Modifications to the core movement network are required to facilitate a mode shift towards alternative transport - including upgrades to train and bus infrastructure, as well as to cycling infrastructure. The City needs to maintain pressure on State Government to prioritise support and funding for key projects which are out of the City's control, such as:

- Midland Station relocation;
- Park & Ride facility at the new Midland Train Station;
- Midland Shuttle extension to incorporate activity nodes such as the new Midland Health Campus;
- Petal Bus routes - high frequency connection between the city centre and peripheral commuter car parks, to reduce parking pressures created by those commuters who reside close to and yet park at nearby park and ride stations;
- Investment in cycling infrastructure to cater for both commuter and recreational cyclists.

Parking Management Principles

Midland operates as a significant strategic centre for both the local community and a wider catchment that extends into the Wheatbelt and to relatively remote residential catchments such as Ellenbrook and Mundaring. For this reason there will always be an important place for private vehicles as these represent the only viable transport modes for a large proportion of this catchment. Viable parking will be required to accommodate this demand, as well as demand from visitors, other residents and commuters. Car parking management methodologies will need to be introduced to maintain a level of supply and demand which can be sustained by the local road network. According to census data, 95% of inbound trips are currently made by private cars and so, on this basis and considering existing land uses in the centre, there is an existing 'peak theoretical demand' of 7,900 bays. This shows an 'over supply', despite a general perception of under supply in the CBD, and demonstrates that the existing parking in Midland is poorly utilised. This is primarily due to the fact that it is dispersed over a wide area with a proportion in private management.

The next step was to look at what the likely 'future unrestrained demand' for parking would be, i.e. how many bays would be required to accommodate the uses and density proposed in the Master Plan if the centre was "built out"?. This was calculated on the basis that transport behaviour and existing parking demands won't change, and 95% of inbound trips to the centre will continue to be made by private cars, resulting in approximately 14,900 bays being required to accommodate development proposed in the Plan. This essentially equates to the number of bays Midland centre currently has, plus those that are proposed as part of Midland Gate's future proposed expansion.

To comprehend the impact of this volume of parking on the movement network of Midland's CBD, it is vital to consider a road capacity analysis to determine what amount of parking the centre can sustain before traffic congestion reaches unacceptable limits. Based on this assessment the demand would be in the order of 11,500 bays - a few thousand less than the 'future unrestrained demand'. This indicates a need to, over time, rationalise the location, management and nature of parking to improve efficiency of its use. It is also necessary to concurrently alter travel behaviour with the aim of moving towards a maximum of 65% of private car inbound trips to Midland.

Shared Parking Approach

Increased efficiency can be achieved by reducing the volume of parking provided by individual developments that are inaccessible or inconvenient to users of the centre, and moving towards an approach where parking is centralised in shared parking arrangements. This demonstrates the importance of selecting locations for multi-decked car parks in strategic locations within the CBD, in order to limit the need for unnecessary vehicle movements through the centre's core.

Parking Ratios for Development

Department of Transport's Activity Centres Parking Discussion Paper suggests parking ratio's which are significantly lower than those currently required under the City's Local Planning Scheme No 17 (e.g. it suggests 3-4 bays per 100sq m for retail and 1-2 bays per 100 sq m for office, as opposed to 8 bays per 100sq m for retail and 4 bays per 100 sq m for office required under LPS 17). The City's transport consultant tested these suggested ratios against the land use breakdown in the Master Plan. Calculations showed that at the lower end of these suggested rates, the ultimate development would result in approximately the desired parking quantum for the centre into the future. As a result, these lower end rates are proposed in the Plan as a maximum requirement in the ultimate development scenario.

However, it is acknowledged that the current use of public transport in Midland centre is not equivalent to that in other Metropolitan Activity Centres due to the current low level of service and behavioural reasons. It is also acknowledged that there will always be some limitations given Midlands' location at the end of the train line and its role as an intermodal transit point for the eastern catchment. It is therefore considered that a transitional plan which allows additional interim parking on a mandated schedule, may be necessary to reflect the commercial realities of development until a higher proportion of employees reside within the centre itself and there is less reliance on private vehicles for inbound trips.

Transitional Parking Plan

A transitional parking plan will need to be developed, as part of a policy on parking provision and cash-in-lieu, utilising parking ratios that are currently appropriate. While retaining the maximum ratio as suggested by the SPP as the long term vision for parking in Midland, the City could allow or require an additional component of non-residential parking to be provided as cash-in-lieu by the developer to contribute to nearby temporary car parks. It would be the intention that these could be constructed at-grade on future redevelopment sites. At this time, it is anticipated that improvements to public transport and increased take up of alternative travel modes to the private car will have occurred. Increased population in the centre and the development of multi-deck car park(s) would also have occurred.

Residential Parking

With regard to residential parking within the centre, it is considered appropriate to reflect the standards from the WA Planning Commission's adopted Multi-Unit Housing Code, which requires a ratio dependent on the size of the apartment and proximity to a train station. For example: a development within 800m of a train station and with units less that 75m² or 1 bed - 0.75 bays would be required; for units 75-110m² - 1 bay would be required; for large units greater than 110m² - 1.25 bays would be required plus visitor parking at a ratio of 0.25. These rates would be 25% higher where the development was not within 800m of a train station and, given that Midland's train line

only captures part of the catchment due to its location at the end of the line, it is recommended that the City utilise the higher standards.

While initially there is going to be scope for reciprocal use of commercial city centre parking by residential developments outside of business hours, the need for commercial city centre parking is likely to increase over time. Notwithstanding, it would be expected that, with new commercial and office development in the centre, a greater number of residents will also work nearby and behavioural changes associated with car use will occur and so reduce demand. In the interim therefore, residential parking ratios do not need to be a maximum provision (future surplus on site parking could be converted to other uses). The City could also investigate transitional requirements for residential parking, in the same way discussed for commercial parking, requiring developers to provide additional parking initially.

Urban Form

The key elements of the Master Plan which form the principles behind the desired urban form include:

- Intensification of development focused around public transport;
- Creation of a network of green spaces characterised by small to medium urban greens and public squares;
- Relocation of the Midland Train Station and bus interchange to a more centralised location;
- Creation of a taller spine of development along the railway line, south of Great Eastern Highway and Victoria Street - up to 12 storeys in height within a landscaped setting;
- Formalisation of a network of pedestrian orientated and activated streets with complementary building form especially around Midland's West End linked to Midland Gate Shopping Centre;
- Improvement of southern links across the railway line;
- Creation of attractive and well-treed entry boulevards to Midland along Great Eastern Highway, Lloyd Street and Morrison Road;
- Identification of locations for development of public parking facilities to increase efficient use of bays;
- Midland West End revitalisation and heritage building protection.

The urban form intent for the Midland Activity Centre is geared towards promoting the development of appropriately scaled built form to promote new business opportunities, linking key health, educational, service and commercial activities, and maximising the benefit from a high amenity and comfortable public realm.

<u>Design Guidelines</u>

A separate document providing design principles for the Activity Centre has been prepared to ensure progressive built form, in a precinct specific format. The precincts include entry streets, Morrison Rd West, Midland West End, Midland Oval, Morrison Road East, Midland Gate and Central Core. The comprehensive design guidelines will provide

general provisions as well as specific provisions relative to design intent, indicative street sections, height, landscaping and the uniqueness of each precinct.

For the City of Swan's controlled areas, the guidelines will be adopted through Midland Activity Centre Structure Plan as local planning policy under Local Planning Scheme No. 17. For the Midland Redevelopment Scheme areas, modifications to the existing MRA's policy will be required consistent with the guidelines document or as agreed with the City of Swan.

Building Height

Within Midland centre, development should support the following key outcomes with respect to height:

- Tallest buildings to be located around key public transport nodes within the railway core;
- Building height in areas of significant heritage character to respect existing scale and grain;
- Buildings along pedestrian orientated and activated streets to be scaled down in height to form a human scaled interface while promoting surveillance.

These elements have been translated through the Design Guidelines, and also through minimum and maximum building height plans in the Master Plan document.

'Minimum height' provisions are an important component in realising the intended urban form and built form outcomes desired for the centre. In some areas, minimum provisions of one to three storeys may initially cause development to be slower to realise. However these provisions will ultimately protect against underdevelopment of key areas.

Maximum building height provisions are also provided. However, it is proposed that Council has discretion to vary these more readily to enable high quality or innovative development, particularly where the intended built form outcomes are met in accordance with the precinct objectives and Design Guidelines.

Site Amalgamation

Site amalgamations are required in order to achieve the urban form intent and built form objectives intended by this Plan, particularly within the Morrison Road West and Central Core precincts. Without site amalgamation the overall development intensity of Midland will be compromised in areas where lot sizes are small. It is proposed that plot ratio bonuses be provided as an incentive to amalgamation.

It is intended to provide a clause through the statutory implementation of the Plan and Design Guidelines which requires a minimum lot frontage where substantial redevelopment is sought. This will ensure that the plot ratio and detailed site design requirements in the Design Guidelines are implementable in the manner intended, so that the desired built form outcome can be achieved.

Areas requiring additional structure plans

Key sites have been identified at the intersections of Railway Parade with Cale St and with Padbury Terrace. These sites are particularly important for encouraging pedestrian movement between the Midland Health Campus and other nodes along Cale St. Therefore, local structure plans will be required for these sites to ensure development is consistent with the intent of the Activity Centre Plan, particularly with regard to

achieving active frontages, building setbacks, minimum building height, land use mix, and car parking access arrangements.

In addition two pockets within the Morrison Rd West precinct have been identified as requiring local structure plans to achieve consolidation of lots, access arrangements and to attain sufficient development intensity and identity for the landmark sites which direct pedestrian movement between the city centre and Swan River.

Resource Conservation

The Midland Activity Centre Master Plan proposes environmentally sustainable urban development through improvement of urban density and design principles aimed at reducing energy consumption, minimisation of private car use and maximisation of public transport opportunities.

Implementation

The City is seeking to finalise the Midland Activity Centre Master Plan and Design Guidelines following feedback from the community and government agencies, and then pursue its statutory endorsement from the Western Australian Planning Commission through Scheme Amendments to the City of Swan Local Planning Scheme No. 17 and through the Midland Activity Centre Structure Plan. This would become the key strategic plan for the Midland CBD.

The City would seek to pursue Scheme Amendments to the City of Swan Local Planning Scheme No. 17 to embed the Strategic Metropolitan Centre as a 'Special Use' Area, with specific development requirements applicable through Schedule 4 of the Scheme. Within Schedule 4, the following provisions would be inserted:

- Land Use Table; (Specific to the Strategic Metropolitan Centre)
- Objectives for each precinct and precinct plan (as identified in the Urban Form chapter);
- Minimum building heights;
- Amalgamation requirements;
- Areas requiring additional structure plans.

There would also be a need to develop additional local planning policies under the provisions of the Scheme to embed the Design Guidelines and Parking Provisions - (including cash in lieu, parking ratios and transitional parking provisions).

CONCLUSION

The purpose of this Activity Centre *Master Plan* and Design Guidelines is to build on previous work undertaken and to review and update desired outcomes for Midland centre.

The Activity Centre *Structure Plan* will combine this Master Plan and Design Guidelines to provide a mechanism for implementation through the statutory planning environment.

The City is seeking Council's endorsement of the draft Activity Centre Master Plan and Design Guidelines. Following this, based on the Master Plan and Design Guidelines, a

Midland Activity Centre Structure Plan will be compiled as a statutory planning framework for the implementation of the Master Plan. The Midland Activity Centre Structure Plan will inform amendments to City of Swan Local Planning Scheme No. 17 as well as the creation of new planning policy. This will provide the City with the means to implement the strategic vision for Midland as an attractive, vibrant and prosperous Strategic Metropolitan Centre.

CONSULTATION

Following the Council briefing on 16/01/13 and formal Council consent to advertise on 27/02/13, the Midland Activity Centre Plan and Design Guidelines were advertised for a 60 day period from 23/03/13 to 24/05/13. This included an "Open House" event on 11/04/13.

Submissions from a total of sixteen land owners and agencies were received, most of which have been positive with comments and suggestions made.

These comments and suggestions mainly relate to the need for:

- Green space and access to the Swan and Helena Rivers;
- Minor changes to land use permissibility in the Midland West End Precinct;
- Preservation of character areas and heritage value;
- Revitalisation of the historical town centre;
- Improved vehicular and pedestrian movement network;
- Improved public transport; and
- Future provision of efficient and effective parking.
- Building height and scale.

Together with the Midland (now Metropolitan) Redevelopment Authority, City staff and its consultants worked to address all the comments and suggestions provided. The details of all the submissions received and the City's response to these submissions are set out in the Schedule of Submissions attached under separate cover. (Attachment 1) As detailed in the Schedule, the Plan and Design Guidelines have been amended as appropriate in response to the submissions and comments. The resultant documents are also attached under separate cover.

ATTACHMENTS

(Under separate cover)

1. Schedule of Submissions

2. Draft Midland Activity Centre Master Plan

3. Transport Assessment and Economic Advice (Appendices to the Draft Midland Activity Centre Master Plan)

4. Draft Midland Activity Centre Structure Plan Design Guidelines

STRATEGIC IMPLICATIONS

The Midland Activity Centre Master Plan and Design Guidelines are consistent with the vision and objectives of the City's Strategic Community Plan, 'Directions 2031 and Beyond' and the City's Local Planning Strategy.

STATUTORY IMPLICATIONS

The Midland Activity Centre Structure Plan will represent the statutory planning framework for implementation of the Master Plan and Design Guidelines as it will inform amendments to City of Swan Local Planning Scheme No. 17 as well as the development or amendment of new planning policies.

FINANCIAL IMPLICATIONS

Recommendations will impact on the work plans of relevant Business Units through the City's normal business planning procedures where actions and funding availability will be prioritised.

VOTING REQUIREMENTS

Simple majority

RECOMMENDATION

That the Council resolve to:

1) Adopt the modified Midland Activity Centre Master Plan and associated Design Guidelines, as a basis for preparation of the Midland Activity Centre Structure Plan.
2) Approve the preparation of a statutory structure plan for the Midland Activity Centre consistent with the Western Australian Planning Commission State Planning Policy 4.2 'Activity Centres for Perth and Peel'.
3) Approve the development of the Midland Activity Centre Design Guidelines as a Local Planning Policy to be adopted in the future under Part 2 of City of Swan Local Planning Scheme No. 17, in order to guide upcoming development within the Activity Centre area.
4) Forward the modified Midland Activity Centre Master Plan and associated Design Guidelines to the Metropolitan Redevelopment Authority for adoption as guiding principles for development within the Midland area under their jurisdiction.
5) Forward the modified Midland Activity Centre Master Plan and associated Design Guidelines to the Western Australian Planning Commission for notification and acknowledgement as the basis to the statutory Activity Centre Structure Plan required under 'State Planning Policy 4.2 - Activity Centres for Perth and Peel' (SPP 4.2) for the part of Midland under the City's control.

CARRIED

SCHEDULE OF SUBMISSIONS
Midland Activity Centre Master Plan (MACMP)

No.	Name/Address	Summary of Submission	Response/Recommendation
1	**Mr Graeme Taylor** ACIS 57 Forrest Street Subiaco	Block bounded by William Street, Burgess Street and Poynton Ave be changed from Residential, as indicated in the MACMP, to Mixed Residential/Commercial - to reflect the existing zoning which allows office use, as per existing established land use.	Supported. Existing zoning of this area is 'City Centre - Residential', permitting office use. There is no rationale to take away this right and substitute with residential only. The MACMP has been amended accordingly.
2	**Department of Water** 7 Ellam Street Victoria Park	The Plan does not contain sufficient information on water management. A Local Water Management Strategy should be produced to support the application.	This is currently a Master Plan and therefore does not require a Local Water Management Strategy (LWMS). However, it is acknowledged that a LWMS will be required as part of the Midland Activity Centre Structure Plan - though it will need to be acknowledged that the Structure Plan relates to an existing town centre, built on clay, which is covered by an existing approved Detailed Drainage Plan.
3	**Public Transport Authority** PO Box 8125 Perth Business **Centre**	**Part 1:** **1.** Section 2.0 Context: Opportunities - It should be made clear that while the proposed relocation of the Midland Train Station and Bus Station to Cale Street is proposed by MRA, no commitment has been provided by government for this to occur and there are operational benefits to retaining the station's current location. **Part 2:** **2.** Section 4.0: Movement - Reference to park 'n' ride as a short term solution should be deleted. The park 'n' ride will need to remain in the long term as demand will continue to increase as population and patronage growth increases. **3.** Section 4.0: Movement - Bellevue Station - Demand modelling was undertaken in close consultation with the MRA and found that a station at Bellevue could not be justified as a result of a poor cost benefit ratio. **4.** Section 4.0: Movement - Petal bus routes - The statement that the PTA park 'n' ride license plate survey shows a significant proportion of cars parked at Midland Station have their origin within a 3km radius is untrue. **5.** Section 4.3.3: Impacts of Public Transport - Reference to peripheral parking to accommodate park 'n' ride in the	**1.** Noted. The relocation of the train and bus station is the subject of ongoing negotiation. It has a significant strategic value which should be supported. This has been further emphasised in the MACMP. **2.** Noted. It is understood that there is a need for the park'n'ride in the immediate future, but also recognised that there is a need for Midland centre to transition to peripheral parking stations (with the benefits of taking vehicles out of the centre and making it more pedestrian friendly) as well as to less private vehicle dependency in the long term future. **3.** Noted. However, the City will continue to promote a Bellevue Station, particularly in the longer term. **4.** This is a typographical error. The report was amended to refer to 5 km as per the Park 'n' Ride study undertaken in 2010. **5.** Noted. However, it is recognised that there is a need to transition to peripheral parking stations (with the benefits of taking

		longer term is not supported as it discourages utilisation of the transport system through requiring an additional interchange and increasing overall travel times. **6.** Figure 22 does not show stop locations, although the text states that it does. **7.** Route 297 now operates every 30 minutes in peak and every 60 minutes off-peak; Table 7 needs to be amended. **8.** We see limited benefit in extending the Midland Shuttle. It is important to note that this service is currently funded by Midland Gate and any extension would not be supported by us; other parties would have to provide the additional funding required. **9.** We do not support the development of 'petal' bus routes as they are circuitous and illegible. Previous experience with circular bus routes indicates that passengers do not find them attractive as they only provide an attractive journey in one direction, as the other requires a passenger to circulate through the rest of the suburb to get where they are going. We do however support increasing the frequency of our current routes, or other more direct routes, as patronage warrants it. But current patronage is not at levels that justify many additional services.	vehicles out of the centre and bringing pedestrians through the Centre) as well as to less private vehicle dependency in the long term future. **6.** Supported. Figure 22 was amended accordingly. **7.** Supported. The report was amended accordingly. **8.** Noted. However, the City recognises the benefits of the shuttle and continues to encourage the use and development of the Midland Shuttle. **9.** Midland is at the end of the train line, therefore 'petal' services (as commonly used by the PTA - such as the 345 route) are intrinsic to serving Midland centre, and the City believes these will continue to serve the centre well. The City also supports improvement and expansion of other bus routes to serve Midland centre.
4	**Lois and Gerry Crowley** 1 Plymouth Street Woodbridge	Consideration be given to expanding open space that lies south of the railway line (Figure 01) and extending this to include the natural vegetation corridor along the Helena River, through Woodbridge to Guildford.	Supported. Much of the area referred to is outside the boundaries of the MACMP. However, the City will continue to work together with the MRA towards this end.
5	**Raine & Horne** 3/11 Old Great Northern Highway Midland	**1.** "Is this what the local residence and business owners want"? **2.** "Will this be a land mark for our town, a "Wow Factor"?	**1.** The MACMP follows on from extensive consultation with the City, MRA, and community through the 2007 'Enquiry by Design'. Furthermore, it has recently been extensively advertised for public comments which are addressed in this document. **2.** The recommendations in the MACMP aim to realise its vision for Midland centre (The MACMP was amended to more strongly elucidate the vision for Midland centre). Further, the MACMP strives to address the character of the individual precincts through its Design Guidelines.

		3. "Will the future generations appreciate and enjoy what we design today? **4.** Nothing is been planned to improve the old Centre of Midland, all the effort is put in the Midland Gate area. **5.** Is anyone really interested in protecting and appreciating what the previous planning designers have built in the old centre of Midland years ago? Today this is our land mark of Midland, (Midland Town Hall clock) where we can admire the architectural structure and design from the past - today we can say "Wow" to this land mark. **6.** We also have the Swan River, going through Midland. What are we doing about it?	**3.** Achieving the vision set out in the MACMP and addressing the character of its precincts is intended to benefit future generations. **4.** The Master Plan sets a framework for the activity, movement, urban form and resource enhancements associated with Midland's city centre in accordance with State Planning Policy 4.2. It takes a precinct based approach for renewed land use and development standards across Midland's centre to support its role as a Strategic Metropolitan Centre. The vision and recommendations aim to improve the quality of the public realm throughout Midland, including the 'old centre'. Increased development standards are provided for the Midland West End through both the Master Plan and Design Guidelines. **5.** The City is committed to protecting the heritage value of Midland. Certain buildings in the MACMP area are formally protected by the State under the State Register (see submission 12 below) Others are listed as significant in the City's Heritage List, affording protection by the City through the Development Application process as per the Scheme's relevant provisions. Furthermore, Design Guidelines within the MACMP identify the character elements contributing to the West End's character in relation to the public realm and seek to ensure these are enhanced through any new development. **6.** The area covered by MACMP does not directly include the Swan River. However the City is committed to improving linkages and visibility to the river from Midland centre. To this end, the MACMP contains recommendations to improve legible and physical connection to the Swan River, such as land marks, improved pedestrian connections and a public realm strategy that enables improved way finding from Midland's centre to the rivers.
6	**Swan Chamber of Commerce** 27 Old Great Northern Highway	**1.** Require confidence in the City's capacity to adopt and expedite changes to the regulatory and planning schemes needed to implement the Plan. **2.** Consolidation of parking in the Midland town centre is	**1.** Noted. **2.** Noted. This is a key focus of the MACMP.

	Midland	imperative to any future development and investment. **Desired Character of Midland:** **3.** Imperative that the character of Midland (referred to on p. 19) is defined and clearly elucidated in the Plan to deliver a bold vision for the city and recognition of the valued assets of our community, future investors and stakeholders. **4.** Role of the MRA in the future development of the Midland Town Centre requires renewed clarification. An increase in jurisdiction of the MRA should be considered/explored in the interests of achieving a uniform development of the town centre. **5.** "Historic character has important cues for building scale, character and materiality"(p. 19). The historic character is not clearly identified in the Plan, nor its longer-term preservation addressed. **Maximising our competitive advantage - Swan and Helena Rivers:** **6.** Need for a 'wow' factor in the Plan not only to provide a point of difference from competing activity centres, but to satisfy the 'once in a lifetime' opportunity that this plan represents. **7.** The Plan does not satisfactorily address the access and inclusion of the rivers (including Swan Regional Park) with the Midland town centre; e.g. "Improved connections to the forgotten presence of the Swan and Helena Rivers" (p. 81). To merely "improve connections" constituents a fundamental design deficit of the Plan. Develop a 'green belt arc' joining the two rivers from Helena Street through the town centre to the Swan River (via Poynton Avenue precinct).	**3.** Supported. The MACMP was amended to more strongly elucidate the vision for Midland centre (page 7). The MACMP strives to address the character of the individual precincts through its Design Guidelines. **4.** Noted. The City recognises the need for MRA's continued involvement in Midland centre and will continue to work closely with it and encourage its contribution. **5.** The Master Plan has been amended to more clearly identify those heritage buildings for retention. Further, development standards within the Master Plan and Design Guidelines will enable preservation of Midland's character. These require complementary development to maintain street interface conditions, appropriate materials and taller development set back from the street to minimise bulky intrusion. **6.** The recommendations in the MACMP aim to realise its vision for Midland centre. Further, the MACMP strives to address the character of the individual precincts through its Design Guidelines. Midland's point of difference can be enhanced through improvements to the public realm, particularly in terms of pedestrian amenity and comfort. A public realm strategy is recommended to be developed to support the MACMP. **7.** Noted. The boundary of the MACMP does not include the Swan and Helena Rivers. Furthermore, the Helena River falls under the MRA's jurisdiction. However, the City is committed to working with the MRA to improve linkages to and between the centre and the Swan and Helena Rivers. It will continue to encourage the MRA to improve public access to the proposed new Helena River foreshore road. Because of existing development, linkage to the Swan River can only be achieved via existing streets, including Poynton Avenue. Figure 39. However, through the MACMP, these will be made more pedestrian and cycle friendly

			(refer Movement chapter of the MACMP). Furthermore, MACMP contains recommendations to improve legible and visual connection to the rivers, streetscape and public realm strategies. Design and implementation will be addressed in more detail in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		8. Link The Avenue through the current Police Station to Poynton Avenue.	**8.** Noted. The MACMP includes a pedestrian/vehicular link through the parking area at the end of The Avenue (future parking station). This is more feasible than expropriating the police station. Plans in the report wrre amended to better indicate this.
		9. Establish a Pedestrian Causeway to the Swan River. The proposed Spring Park Road link would make an ideal entrance that could then continue through the old Midland Primary School grounds and beyond.	**9.** Supported. A pedestrian link from Spring Park Road (and through the old Midland Primary School) to the Swan River is part of the MACMP (Figure 39). Design and implementation will be addressed in more detail in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		10. The Metropolitan Redevelopment Authority must be called on to clearly elucidate their intentions for linking the Helena River (p. 81) and work in tandem with the City to achieve a workable solution for access to both water courses, for the benefit of future generations.	**10.** Noted. See comment at 4. and 7. above.
		Civic/Town Centre - Green Spaces	
		11. Whilst recognising that the City has several established "activity" areas, the current Plan has no provision for an area suitable for civic activities and congregations. Suggestions for the location of this amenity include: a. Midland Oval location noting that any such amenity in this vicinity must be surrounded/in close proximity to commercial buildings (as opposed to private housing - as a configuration such as this does not lend itself well to public civic spaces e.g. Juniper Gardens), and must be clearly visible from the commercial/retail hub of the town - not closed in by building infrastructure. (See additional comments re	**11.** The City supports the idea of providing a civic space in the Midland Activity Centre. The public open space on MRA land on Helena Street, south of the railway, between Yelverton Drive and Clayton Street, Railway Square, is an extensive purpose designed civic space and the MRA is keen to see it well utilised for this purpose. In addition, with relation to point a, the Midland Oval precinct is expected to include a civic space suitable for civic activities and congregations. The details of this, including its location, are still to be addressed in the City's future proposed Midland Oval Master Plan, where the Chamber's comment will be given due consideration.

		Midland Oval, at 5 above.) b. Centrepoint Shopping Centre site (given its advantageous proximity to current civic buildings) c. Current train station location **Historic Civic Precinct** **12.** There is an excellent opportunity provided by buildings such as the Town Hall, Old Court House and others, to create a civic space while reinforcing access into the commercial precinct. While it is important to keep the concept of the traditional street layout, in parts it is currently overly focussed on traffic through flow rather than on encouraging people to enjoy the heritage ambiance of this area. Recommendations include: a. Widen footpaths, particularly around the Town Hall, to provide more pedestrian ambiance b. Consider having the southern end of Old Great Northern Highway as one way traffic into the historic core c. Reinstate the park (corner Old Great Northern Highway/Spring Park Road currently a car park adjacent to the Ascension Church), to provide a civic space near the Town Hall and Ascension Church - perhaps consider linking this park and the small park area opposite(Carnegie Gardens), with a narrow one way road link from Great Eastern Highway to Old Great Northern Highway d. Reinstate Helena St as a two way street, thus reinforcing the Design Guideline concept of this - and Cale St being the main north-south access link, and acknowledging Helena St as one of the former main commercial streets. e. Remove the "right of way" to west bound traffic turning left into Helena St (towards the train station) - this does not encourage traffic into the heart of the old town centre and confuses the traditional	**12.** Noted. Regarding point b, the Centrepoint Shopping Centre site is not available to the City. With regard to point c: if and when the train station is vacated, the recommendation of the MACMP is to provide Public Open Space as an appropriate portion of the site.

		vehicular access in the already constrained area. **Public Open Spaces/Green spaces, Streetscapes of Midland:**	
		13. Acknowledge and support the planned avenues/tree planting in the Plan.	**13.** Noted. To be given detailed consideration in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		14. Throughout both documents, there is reference to greening streets and creating public open spaces, yet there is little guidance on how this will be achieved, the overall design of these elements nor a framework for this design. This work will set the stage for residents and visitors alike, and can be implemented well prior to the longer-term development proposed.	**14.** Noted. Planting design and implementation is to be addressed in detail in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report), and the proposed future Street Tree Strategy which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		15. Considers that "rest points" (p. 39) will be essential in providing a pedestrian scale to the multi-story development proposed. It will be important that these are integrated into an overall plan for the beatification of the streets. At this stage of the Plan, the Chamber notes there are little guidance on what is intended and how this will be implemented to determine the "feel" of the City Centre.	**15.** As for 13 above.
		16. Require clearer/guidance on what is intended for the aforementioned "rest points".	**16.** As for 13 above.
		17. Correct the omission of Carnegie Gardens from the Plan's maps (p. 93, Public Open Space).	**17.** Supported. The report was modified accordingly.
		18. Juniper Gardens is highlighted in the report as providing significant current and future amenity as a major/public open space, however the Chamber notes the limited success to date of this amenity, enclosed as it is with private buildings and off set from the street frontage. This precinct has not enjoyed popular support due to its set back off the street and the nature of private housing on its immediate perimeter.	**18.** As for 13 above.
		19. Increase provision of green spaces linking the various precincts of the town	**19.** As for 13 above.
		20. Midland Oval - (p. 61, Section 5.5.2 p. 82) - it is proposed to	**20.** To be determined through detailed design of Midland Oval

		place an urban green within the centre of this area - it is questioned whether this may be better placed at the periphery of the area so that it is more available to other people in the vicinity rather than being closed off within the higher density development. Visible, accessible and well located spaces will be highly beneficial not only to residents, but promote the city to those visiting for business and other reasons. Ideally a large green space should be adjacent to the commercial heart of the city and accessible to all.	precinct.
		21. Ensure that public open spaces have adequate street frontage to ensure maximum use as places for gathering and as links between precincts.	**21.** As for 13 above, plus this comment will be taken into account in the City's future Proposed Midland Oval Master Plan.
		22. It is essential that the types of trees, public spaces, use of furniture, footpaths etc are of high quality, cohesive in style, and selected with intent to portray the city as attractive, inviting and one with a purpose. Currently, many of the public areas lack these qualities.	**22.** As for 13 above.
		Implementation of the Plan:	
		23. Concern that there are no implementation timelines (aspirational or otherwise), included in the Plan?	**23.** Timelines will be established for all recommendations of the MASCP (and for those coming out of the City's subsequent Public Realm and Street Tree strategies) through the City's Business Planning Process.
		24. Can the City provide timelines for the introduction of re-zoning/Town Planning amendments/regulatory amendments etc, needed to accommodate increase dwelling ratios; mixed use development?	**24.** As for 23 above.
		25. Can the City provide timelines for the purchase of private land (e.g. potential link between The Avenue/Spring Park Road (p. 128, Figure 46), Midland Oval precinct etc.) so that fundamental routes and thoroughfares can be confirmed and established?	**25.** As for 23 above.
		26. Can the City provide timelines for the introduction of street scaping/tree planning (boulevards)?	**26.** As for 23 above.
		Access/routes:	
		27. Great Eastern Highway/Victoria Street - Use Victoria Street	**27.** Noted. MRWA does not support the reintroduction of two-way

		as a two way regional traffic route and the" Great Eastern Highway section of road as a two way but slower, local road which is more connected to the old city centre. This would then also provide the opportunity to enhance the old civic centre with streetscape improvements and greater sense of pedestrian space.	traffic for the Great Eastern Highway/Victoria Street couplet. However if, in the future, it is possible to gain the support of MRWA, the MACMP could comfortably accommodate this.
		28. Helena Street - See recommendation under Historic Civic Precinct, above	**28.** Noted. To be given detailed consideration in the City's future proposed Public Realm Strategy which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		29. The Avenue/Spring Park Road link (p. 128, Figure 46) - can the City confirm that this link is a priority? Why it is not included on other maps in the Plan?	**29.** Noted, the link is a priority. The report has been modified accordingly.
		30. City circle - Cale Road and The Avenue link to Old Great Northern Highway, Helena Street and The Crescent will create a circuit that will improve internal traffic circulation. To complete the efficiency of this circuit Helena Street must become two -way.	**30.** Noted. To be followed through in implementation and through the city's future proposed Public Realm Strategy which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		31. Piazza/ Old Great Northern Highway - The current pedestrian space adjacent to the existing City of Swan and Landgate buildings is underutilised, currently benefiting only the businesses in the immediate vicinity (City of Swan/ Landgate). Would the City consider opening this space to traffic to maximise direct access (from Morrison Road) to the historic hub of Midland, and opening access to St Brigid's Convent (currently enjoying limited exposure)?	**31.** The City does not support the reopening of the Old Great Northern Highway. However, the comment concerning Midland Square will be taken into consideration in the City's future proposed Public Realm Strategy which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		32. Width of Roads - The Chamber seeks confirmation that the consideration of the safety of pedestrians and cyclists is paramount in determining the width of roads, particularly if narrowing roads is being considered.	**32.** Confirmed, and to be taken into consideration.
		33. Design for the future train station; a need for dual exit access	**33.** Noted. To be considered during more detailed design if/when

		from platform at Cale Street and Helena Street to maximise business and pedestrian opportunities in both vicinities.	train station is relocated.
		34. Immediate upgrade of current pedestrian infrastructure through the transit/bus terminal to Helena Street. Setting in place the dual access from the proposed station will facilitate much needed redevelopment of Helena Street in the short term.	**34.** Noted. To be considered in the City's future proposed Public Realm Strategy which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		Urban Character in area of Byers Road, Morrison Road and Spring Park Road:	
		35. The Chamber does not oppose high density development in this precinct, but recommends future development consider the historic value of current stock and maximise the "village" amenity and access to the Swan River	**35.** Noted. None of the current housing stock is listed on the State Register of Heritage Places (see submission 12 below). However, some are listed as significant in the City's Heritage List (Design Guidelines, Figure 40) and recommended for retention in the MACMP. Furthermore, to reflect the development form of these houses, the MACMP development guidelines limit the height at street interface to 2 storeys. It should be noted that higher densities in the precinct will be necessary to meet design targets of SPP 4.2. Access to the Swan River via Poynton Avenue is to be reinforced via street treatment and landmark buildings. More detailed consideration will be given to improving this link in the City's future proposed Public Realm Strategy which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		Building heights/setbacks/pedestrian cover:	
		36. A mix of heights and densities through the CBD is essential to achieve vibrancy and interest throughout the precincts.	**36.** Noted.
		37. Consider variations in the setbacks for buildings to create interest.	**37.** Noted.
		38. Consider Cale Street building to provide cover for pedestrians from the train station to at least Midland Gate.	**38.** Pedestrian awnings are required for important pedestrian streets as part of the Design Guidelines. Future development on Cale Street is required to include awnings over the foot path for pedestrian comfort; however the construction of structures within the public realm would create visual clutter.
		Further recommendations and clarifications:	
		39. Include suburb of Hazelmere in the section: "Gaps and Deficiencies: Connecting bus services from the eastern hills catchment are infrequent."	**39.** Supported. The report was amended accordingly.

		40. Shuttle Bus - Stock used for this bus service be different to normal bus stock in size and appearance to provide a point of difference, increased visibility, add to the character of Midland town centre and "sense of place". **41.** P. 66 Cycle map: Define shared path and principal shared path. **42.** P. 67. Public "end of facility" provision: This is included along with onerous private building requirements (p. 36). Is it realistic to expect both will be necessary? Are the private building requirements too onerous?	**40.** Supported. The City to work together with the owners of Midland Gate (who provide the shuttle) to achieve this. **41.** Supported. The map was modified accordingly. **42.** Supported. The Design Guidelines have been reviewed and the report modified accordingly.
7	**Water Corporation - Land Planning Development Services Branch** PO Box 100 Leederville WA 6902	**1.** The proposed Plan area is relatively well served with headwork's sized mains for water supply and sewerage, however some parts of the networks may need upgrading. **2.** Water efficiency is a key component for redevelopment areas, as this will reduce upgrading of the existing network. Development should take this into account (refer "Water Forever 2010" and "Better Urban Water Management" - Department of Water, "Waterwise Developers H20 options" and "Waterwise Developers Alternative Water Supplies" - Water Corporation). **3.** Development Plans need to contain a water management plan and engineering report, staging and cost information and developer contribution scheme.	**1.** Noted. **2.** Noted. This is to be taken into account in all Development Applications. **3.** Noted. These are to be included in Development Applications.
8	**City of Swan - Commercial and Economic Development**	**1.** The "POS" and "Education-institutional/civic" land uses on Midland Oval should be shown as indicative only (p. 78, Figure 30) **2.** The height in the Midland Oval Precinct should be reviewed to achieve up to 16-storeys in the core and 8-storeys around the periphery. **3.** There is a discrepancy between the map on p. 88 and the table on p. 106 with respect to the building height to The Crescent.	**1.** Noted. The report has been amended accordingly. **2.** The Master Plan proposes 10 storeys to Midland Oval, which enables developer flexibility and achievement of the intended development and activity intensity for Midland. However the Master Plan, under 5.3.1 on page 86, provides for discretional increase in height up to 16 stories (maximum allowed by Perth Airport). **3.** Noted. The report has been amended accordingly.

		4. 'Education' should be a discretionary use at ground level in the 'Midland West End and Pedestrian Core' (p. 105). **5.** The Development Standards table on p. 105 requires a legend to explain to those not familiar with statutory planning what the 'X', 'D' and 'P' notations mean. **6.** The text refers to a 3000m2 proposed POS on the old primary school site (p. 98), whilst on the plan it appears to be approximately 7000m2. In any case, the location of the POS should perhaps be shown indicatively, with an underlying residential land use. **7.** City of Swan Commercial & Economic Development unit is currently leading a process to decide on the future design of Cale Street cross-sections, which could be reflected in the Implementation section of the report (p. 122, street cross sections).	**4.** Noted. The report has been amended accordingly. **5.** Noted. The report has been amended accordingly. **6.** The Public Open Space has been removed from the plan and the text amended accordingly. **7.** Noted. Cale Street cross-sections to be finalised as part of the statutory structure plan.
9	**Main Roads WA** Don Aitken Centre Waterloo Crescent East Perth	**1.** Planning should take into account the Roe Hwy Road Network Review planning study (Clayton Street to Great Northern Hwy) which has determined that the only workable interchange option for Roe Hwy/Morrison Road is to remove Morrison Rd access to Roe Hwy. This will create a future grade separated flyover over Morrison Road with no connection to Roe Hwy. **2.** Planning will therefore need to take into account Great Eastern Hwy remaining the Primary Regional Route providing the main access into and through Midland. All regional traffic will need to remain on Great Eastern Hwy. The Great Eastern Hwy planning standard and road reservation width will therefore need to cater for future development, regional traffic and Main Roads Regional Operations Model (ROM) modelled traffic volumes. **3.** Main Roads could not support a posted speed reduction to 40Km/h along Great Eastern Hwy. If the City is of the opinion that a reduction of speed along Great Eastern Hwy is of key importance to the structure. **4.** A robust Strategic Transport Impact Assessment (TIA) for all	**1.** The City is aware of MRWA's proposal to remove the connection of Roe Highway to Morrison Road. As a recent proposal received, it is currently being assessed by the City. **2.** Noted. **3.** Noted. The report (Part 3) was amended to reflect 50 km/h as per for other town centres (e.g. Great Eastern Highway through Mundaring). **4.** A TIA has been undertaken by the City's engineers, Cardno

		modes of transport should be undertaken.	(appendix to the MACMP), which informs the Midland Activity Centre Master Plan.
		5. Any Main Roads infrastructure improvements and modifications identified, including traffic signals, will require Main Roads asset manager approval and shall be to Main Roads standards and guidelines.	**5.** Noted.
		6. Subject to the requirements of a Contribution Plan, Developer's will be required to bond with council funds for the establishment and modification all traffic signal installations required.	**6.** A Contribution Plan is not part of the MACMP, particularly as Midland centre is already developed, albeit at a lower intensity. However, alternative options will be considered to fund specific development or public realm improvements. These may be through contributions as conditions of specific development approval, or specified area rates. Details of this will be addressed in the Midland Activity Centre Structure Plan.
		7. 'Section 5.2.5 - Design Guidelines Precincts' suggests City of Swan area building heights will be adopted under separate Design Guidelines to be adopted under proposed Local Planning Policy 17. Plan development shows both minimum building heights (Fig. 36) and maximum building heights (Fig. 35). Both maximum and minimum height scenarios within City of Swan and MRA controlled areas will need to be modelled in a robust Transport Impact Assessment.	**7.** Refer to 4. above.
		8. Building height and the ultimate scale of development must be determined by the LSP for input into Design Guidelines. Development in various areas may need to be constrained to what can be supported by the Road Network in an iterative process.	**8.** This has been done through the TIA referred to at 4 above.
		9. It is recommended that a formal Vehicle Access Strategy (VAS) be formulated to guide future access to developments along Great Eastern Hwy.	**9.** Supported. This is a recommendation of the MACMP.
		10. Any changes to Great Eastern Hwy will require additional planning mechanisms to reach a satisfactory level of assessment. These mechanisms shall include new planning design concepts and land protection plans.	**10.** Noted. This would be part of Development Application stage.

		11. Due to the lateral separation distance between the existing Great Eastern Hwy couplet, any future Cale St/Great Eastern Hwy intersection on the proposed activity corridor cannot be signalised. Alternative solutions are required.	**11.** Noted. However the City believes it is imperative that, at the very least, the existing signals be synchronised. The movement corridor along Cale Street from the future Hospital through to Midland Gate and then beyond to Midland Oval area will be a major north-south movement spine.
		12. To provide a better transport outcome on the Regional Road Network the MACMP should re consider planning for a bridge over the Lloyd Street underpass linking Railway Parade to Elgee Road.	**12.** Noted. This is taken into consideration in the planning and design of the Lloyd Street underpass.
		13. Recent 2031 ROM modelling undertaken for the Roe Hwy Road Network Review study tends to indicate that Clayton Street (east of Lloyd Street) will need to be planned to a 4-Lane dual carriageway standard. The MACMP should take this into consideration when planning the future road reservation.	**13.** Taken into account in TIA.
		14. An extension of Clayton Street to the west of Lloyd Street may need to be considered to provide a less circuitous route linking to Yelverton Drive.	**14.** This is not possible, as it would mean going through the MRA's redevelopment area (including built structures) which has been the subject of extensive renewal and refurbishment.
		15. In conjunction with a western extension of Clayton Street, a rationalised grade separated crossing of the railway line should be planned west of Lloyd Street. This issue will require more structure plan work in conjunction DoT/PTA/Main Roads for eventual input into the DoT/PTA/Main Roads 20yr Rail Crossing Strategy. Main Roads Planning Branch understands there are currently question marks as to the ultimate future of the Archer Street Rail Crossing. In any event if this crossing is ultimately removed, DoT/PTA/Main Roads support retaining a future "at grade" Principal Shared Path (PSP) crossing at Archer Street. This crossing will service a DoT/PTA/Main Roads supported future PSP running along the south side of the railway line within Plan.	**15.** With the exception of Lloyd Street, traffic and adjacent intersection operations will continue to operate at an acceptable level following the proposed realignment of regional freight rail. In the event that freight rail relocation is significantly delayed, grade separation of all rail crossings will become more critical to the function of the Activity Centre.
		16. Main Roads cannot support a new at grade rail crossing on	**16.** Any new rail crossings are required to be grade separated to

		Cale Street. The policy of the Railway Crossing Protection Sub-Committee is such that no new urban "at grade" rail crossings will be supported.	conform to MRWA/PTA policy.
		17. The MACMP will need to define which rail crossings will be closed and which require grade separation.	**17.** See 15 above.
		18. East- West PSP's shown in the Plan are not suitable or required along Victoria Street or Great Eastern Highway. Shared paths and bike lanes would be appropriate along these roads. Protected bi-directional bike lanes (Copenhagen lanes) might be considered appropriate around the town centre area if they can be successfully integrated into the streets.	**18.** Agreed - cycle infrastructure not required on these roads as access or transit can be achieved using lower traffic volume roads.
		19. The current DoT/PTA/Main Roads intention is to divert the Midland PSP to cross the railway line from north to south at the Archer Street Rail crossing. The PSP will then continue east, parallel along the southern side of the rail reservation to eventually join up with the Great Eastern Hwy/Roe Highway interchange paths at Robinson Road.	**19.** Agreed - this is our understanding of the proposed Principal Shared Path alignment.
		20. Connections to the new Midland Station and other attractors should feed off of the main PSP. Connections to the PSP should either be on shared paths and/or on-road facilities, depending on adjacent land use on either side of the road and the expected types of rider.	**20.** Agreed - final level of service will be dependent on potential user and road environment.
		21. A Transport Noise Assessment study will need to be undertaken in accordance with the guidelines of the WAPC SPP 5.4 "Road and Rail Transport Noise and Freight Considerations in Land Use Planning". It is essential that this assessment focuses on the land adjacent to Great Eastern Hwy and the Midland Rail line. The noise report shall pay special consideration in addressing noise mitigation measures for multiple storey dwellings.	**21.** Noted. This would be part of Development Application stage.
		22. All required new infrastructure, installations and improvements identified along Great Eastern Hwy within the MACMP shall be fully funded by the Structure Plan and internal mechanisms, such as a Development Contribution	**22.** A Contribution Plan is not proposed as part of the MACMP. However, subsequent Development Applications, particularly those requiring new infrastructure works, may well require contribution arrangements.

		Plan. The Contribution Plan shall adhere to SPP 3.6 "Development Contributions for Infrastructure".	
10	**Dominic Mitchell**	**Morrison Rd West Precinct:** **1.** Exclude land west of William Street. The lots are already zoned and serviced for development - to put additional structure planning constraints on the land is likely to further delay much needed development in this area. **2.** I support the introduction of basic Design Guidelines to ensure that development is required to address the street frontages to provide high levels of passive surveillance. **3.** Access between Great Eastern Highway (GEH) lots and Byers Road should be prohibited. **4.** The proposed extension of Burgess St to form a crossroads at William St/Byers Rd does not fulfil any function that is not already met. **5.** Although some properties on Byers Rd and William Street have streetscape appeal, I do not believe that 'retention value' should be noted in the Plan as many of the sites are development lots (R100). Redevelopment can be required to address the street and to conform to local design guidelines to ensure ongoing street appeal as part of providing much needed inner area residential development. **6.** The draft guidelines do not take into account the cost of constructing basement parking, particularly as this Precinct is predominantly a clay area – not only would the requirement for constructing basement parking be prohibitively expensive for a long period (tens of years), this would be exacerbated by the cost of draining basements constructed in clay soil. **7.** MACMP does not indicate any on-street works to increase available parking.	**1.** Structure planning in this area is necessary to facilitate consolidation of lots, access arrangements, development intensity, landmark sites and linkage to the Swan River. **2.** Noted. These are included in the Design Guidelines (Design Element 3.1.6.). **3.** The City does not support access through lots between these streets. However, the City has no jurisdiction to deny landowners access to either of these streets. **4.** Supported. This has been deleted from the MACMP. **5.** Noted. None of the properties are listed on the State Register of Heritage Places (see submission 12 below). However, some are listed as significant in the City's Heritage List (Design Guidelines, Figure 40) and recommended for retention in the MACMP. To reflect the development form of these houses, the MACMP development guidelines limit the height at street interface to 2 storeys. **6.** The Design Guidelines do not require basement parking. However parking is required to be located behind buildings and on occupied frontages. Decked parking is permitted within this framework. **7.** It is not the place of the Master Plan to detail public realm works. The activity centre is already well served by parking and so this is not a critical issue moving

		8. MACMP does not provide for on-site parking dispensations based upon inner-urban location and connection to bus and train transport. **9.** MACMP does not indicate a likely development timeline and as such there is a strong risk of further stagnation in the precinct unless development is permitted on existing lots. **10.** I do not agree with the 4m front setback requirement in Morrison Road West– inner urban development is likely to benefit from shorter street setbacks which are also likely to encourage parking to be located away from the lot frontages. **11.** MACMP should include improvements to pedestrian amenity – e.g. shade-tree planting along GEH, Morrison Road and Poynton Avenue, to improve the walkable links from the precinct to the City Centre and to the River **12.** There is no need for the proposed road between Byers Rd and GEH that is indicated on the Plan - all lots have frontage either to Byers Rd or GEH. **13.** The proposal to widen Morrison Road is not supported - this is contrary to the stated intent of linking Midland to the Swan River. Morrison Road is already a significant obstacle to pedestrians walking between the river and Midland City Centre. Dedicated bicycle lanes along Morrison Road would be a far more positive outcome. **14.** The requirement for amalgamation (three lots into one) is impractical in many cases and does not have any substantiation – the presumed logic could be applied to, say, two or 10 lots.	forward. The recommended parking strategy will identify appropriate locations for on street parking as part of future works by the City. **8.** The recommended parking ratios are consistent with State Planning Policy 4.2, which account for reduced parking requirements. **9.** MACMP is supportive of development. However, the City has no jurisdiction to enforce a development timeline on developers. **10.** A 4 metre setback will allow space for courtyards and landscaping at ground level. A closer setback would not enable this in ground planting, which is intended to enable a highly amenable residential precinct into the future. **11.** Noted. Planting design and implementation is to be addressed in detail in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report), and the proposed future Street Tree Strategy which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report). **12.** Supported. No road is intended (the line shown refers to a precinct boundary). The plans in the report have been amended to make this clear. **13.** Noted. Any future widening of Morrison Road will be carried out with due regard to MACMP's objective of creating and strengthening links to the Swan River. MACMP recommends a Shared Path along Morrison Road to accommodate cyclists. **14.** Three lots were nominated in order to achieve a minimum 40m frontage to give appropriate redevelopment potential.

		15. Reference is made to balconies being within building envelopes but no building envelopes are indicated.	**15.** Noted. The report was amended accordingly.
		16. The Midland Inn site (corner Morrison Road/Great Eastern Highway) is shown within two Precincts. This should be avoided as it will lead to confusion.	**16.** Noted. The report was amended accordingly.
		17. Site specific guidelines and land use controls should be introduced for this highly significant Midland Inn site. No access to the site should be permitted from Byers Road or Morrison.	**17.** Access to the former Midland Inn site will be controlled by a Shared Access Policy, recommended to be prepared for Great Eastern Highway by Main Roads WA. Site specific guidelines are not considered necessary given the detail within the Design Guidelines.
		General:	
		18. The GEH Victoria Street pair should be reconstructed as two two-way roads with 50/40km/h speed limits (these limits are now commonplace- even Mundaring has a 50km/h limit).	**18.** Noted. MRWA does not support the reintroduction of two-way traffic for the Great Eastern Highway/Victoria Street couplet. However if, in the future, it is possible to gain the support of MRWA, the MACMP could comfortably accommodate this. The report (Part 3) has been amended to recommend 50 km/h for Great Eastern Highway as for other town centres (e.g. through Mundaring).
		19. Bicycle lanes should be introduced on GEH, Morrison Road and Victoria Street and shown on the Plan.	**19.** MACMP recommends Principal Shared Paths along Morrison Road and the railway line with north south Shared Path links between. This is believed to be the safest, most effective option (GEH and Victoria Street have numerous access/access points which would be dangerous and disruptive to cyclists).
		20. The new Midland railway station should be located as far west as. - a great deal of work and investment has gone into linking the West end of Midland (Council offices etc.,) with the Midland Gate area, so simply shifting the focus of the town to the hospital and Midland Gate should be avoided.	**20.** Noted. Although there has yet to be formal approval/funding provided for the station relocation, the comment will be given consideration in future negotiation with authorities.
		21. Connections to the Swan River are stated as an objective but little appears on the plan to support this objective (see Morrison Road widening comment above).	**21.** The City is committed to improving linkage to the Swan River. Because of existing development, linkage can only be achieved via existing streets. Through the MACMP, these will be made more pedestrian and cycle friendly (Refer Movement Chapter of the MACMP). Furthermore, MACMP contains recommendations to improve legible

			and visual connection to the rivers (Refer Urban Form chapter of the MACMP). Design and implementation will be addressed in more detail in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).
		22. Rail freight line through Midland needs to be relocated out of the City centre - a new alignment need not be defined, but the Plan should incorporate, as an absolute minimum, a statement of intent supporting relocation of the Freight line out of the City Centre.	**22.** The report has been amended to reflect this and the City will continue to strive towards the relocation of the freight line away from Midland's centre.
		23. Links between the workshops site and the City Centre need to be strengthened - vehicular crossings at Centennial Ave need to be shown on the Plan and precinct plans.	**23.** Noted. The report has been amended accordingly.
		24. Swan Park leisure centre is poorly located & highly car dependent – there is potential to use Midland Oval site & integrate a leisure centre function into the mixed use/mixed business area.	**24.** Noted. To be given consideration in the City's proposed future Midland Oval Master Plan.
		25. MRA involvement has reduced significantly since amalgamation of the former Midland Redevelopment Authority into the Metropolitan Redevelopment Authority which has higher priorities outside Midland. The link with MRA needs to be renewed and strengthened. Midland is now a marginal state seat and within a marginal commonwealth electorate – surely this can be used to advantage.	**25.** Noted. The City recognises the need for MRA's continued involvement in Midland centre and will continue to work closely with it and encourage its contribution.
		Various issues regarding plans/figures in the Report:	
		26. Office area east of Midland Primary School is erroneously shown as residential.	**26.** Noted. The report has been amended accordingly.
		27. Green area south of Midland Primary school site is part of the Midland Primary school site and cannot simply be claimed as POS.	**27.** Noted. The report has been amended accordingly.
		28. Figure 03 is illegible in download.	**28.** Noted. The report has been amended accordingly.
		29. Figure 6 shows no link from Midland Oval POS to the south.	**29.** Noted. The report has been amended accordingly.
11	**Michael Haynes -**	**Movement:**	

	Chairman of Watch this Space 6 Wellman Street Gulidford	**1.** There needs to be less reliance on the private vehicle and a more even mode share. **2.** The benefits the City of Swan would gain from investing in cycling would be profound. A plan is provided (Figure 1) indicating a proposed bicycle path network based on a PSP spine with feeders from residential areas to activity centres. **3.** Midland Shuttle. I would rather see big empty buses for 5 years that can meet demand when needed, rather than small busses. It should have a large circle route to connect major attractors. A plan indicating this is provided (Figure 2). It should move clockwise and anti-clockwise. **4.** Morrison West, the new train station, the workshop redevelopment, the rivers and the surrounding suburbs have no connectivity within the plan. **5.** Two-way traffic along Victoria Street and Great Eastern Highway is a good idea. A plan (Figure 3) indicating this is provided **6.** Spring Park Road should be better connected to The Avenue, bypassing Old Great Northern Highway, away from the Historical Town Centre. A plan indicating this is provided (Figure 3). **7.** Private vehicles should be removed from Old Great Northern Highway through the Historical Town Centre and infrastructure upgrades such as removal of curbs, pedestrian crossings etc. could be undertaken to improve the public amenity. Buses and taxis are more sympathetic and responsive to pedestrians so could have full access to this street, with bus stops and passing bays provided. **Amenity:**	**1.** Supported. The City is committed to encouraging and promoting transport mode share and will continue to strive towards this, through the MACMP and development in general. **2.** The city is committed to promoting cycling as a mode of transport and will take the recommendation into account in the detailed planning of the cycle network. **3.** The City notes the recommendations and will continue to support and encourage Midland Gate, the operator of the shuttle, to improve and promote the shuttle service. **4.** MACMP covers a developed area; therefore it is difficult to create new 'greenfield' pedestrian links. However, the MACMP recommends and promotes pedestrian/cycle friendly streets as links between precincts with linkage to and through open space and the rivers where possible. **5.** Noted. MRWA and Council is currently opposed to two way traffic. However, reference will be provided in the Report to retain the opportunity for future conversion to a two way traffic system. The MACMP works irrespective of whether the two-way traffic is re-instated or not. **6.** Noted. The MACMP includes a pedestrian/vehicular link through the parking area at the end of The Avenue. This is more feasible than demolishing existing buildings. Plans in the report have been amended to better indicate this. **7.** Noted. To be given detailed consideration in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report).

		8. The demolition of Centrepoint needs to be seriously considered, because - **a.** it has critically low public amenity **b.** it provides no services that cannot be serviced more effectively in other parts of Midland **c.** the car park required to service the shopping centre is an overwhelming misuse of space **d.** it has no relationship with its surrounding land uses, especially the historic and landmark Midland Town hall and historic precinct. **e.** it offers no street interaction, especially on Victoria and Helena Streets. (Blank walls have neither public use nor amenity. It is turned away from surrounding businesses (centre point pizza, the Eastern Hotel) and inhibits their potential. **f.** the loading area has a terrible odour, public blight, and is inhospitable to pedestrians. **g.** It Inhibits ease of access into and around Midland, detrimental to promoting the pedestrianisation of Midland. **h.** The function of the 'big-box' shopping centre is of an out-dated style and mode. It provides no benefit to the surrounding area. **i.** A major piazza could be developed on the western side of Helena Street, on the existing Centrepoint site.	**8.** Noted. The City acknowledges these comments. However, as Centrepoint is privately owned, the City is not in a position to facilitate this.
		9. A new civic space is recommended in the existing Carnegie Park expanding into the parking lot on the corner of Spring Rd and Great Northern Highway. **Facilitating Night Time Economy:** **10.** There is potential for a supporting, vibrant, and safe night time economy (including small bars, restaurants, space market, pop-up shops and cafe's) in Midland. This should be based primarily within the Historic Town Centre, with the possibility of two major public civic areas on the Centrepoint	**9.** Noted. To be given detailed consideration in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report). **10.** Noted. The City acknowledges these comments and will continue to support the promotion of a safe and vibrant night time economy.

		site and the expanded Carnegie Gardens, complimentary and supportive land uses could be included, such as: **11.** A Business Improvement District (BID) is recommended – using local money for local improvement. Shared resources within a defined commercial area to entice local business to support each other, potentially increasing resilience and robustness of the local commerce. **Connections:** **12.** A major pedestrian, public transport, cycling and car route needs to be developed along Helena Street, adjacent to Centrepoint and the existing Midland train and bus station. **13.** Movement around Morrison West has been under-considered. There are no provisions for public transport access or pedestrian linkages if high-density housing was to be implemented. **14.** When the train station is relocated, it will move access from proposed high density to outside the 400 metre ped shed. It is therefore recommended that strong pedestrian/cycle movement ties are created with Woodbridge train station. **15.** The responsibility for the high cost infrastructure, such as PSP paths and high quality pedestrian environments, should be approached in partnership with developer contributions as a condition of development. **16.** Proposed servicing PSP's should be fully integrated into the existing proposed PSP along the train line, as well as with as the PSP along the river. **Surrounding Area:**	**11.** Noted. To be considered as part of the City's future proposed Economic Development Strategy, which will be part of the implementation of the MACMP (Section 7.3.3. of the Master Plan report). **12.** Supported. Helena St should be developed as a major north/south pedestrian and cycle link. **13.** Noted. The City will liaise closely with the PTA re public transport to this area. MACMP covers a developed area; therefore it is difficult to create new 'greenfield' pedestrian links. However, the MACMP recommends and promotes pedestrian/cycle friendly streets as links between precincts with linkage to and through open space where possible. **14.** Supported. The Midland/Perth PSP will provide direct linkage for pedestrians between Woodbridge and the Midland CBD including proposed Cale St Station. **15.** A Contribution Plan is not part of the MACMP, particularly as Midland centre is already developed, albeit at a lower intensity. However, alternative options will be considered to fund specific development or public realm improvements. These may be through contributions as conditions of specific development approval, or specified area rates. Details of this will be addressed in the Midland Activity Centre Structure Plan. **16.** Agreed - the railway corridor PSP will need to be linked to Midland network using north/south connections at Morrison Rd, Helena St, Cale St and Lloyd St. Exact level of service is yet to be determined. Connection between corridor PSP and any proposed RSP (recreational shared path) along the Helena River is desirable but yet to be

			determined. Connection from PSP to Swan River RSP (at Swan Regional Riverside Park) is suggested via First Ave.
		17. The MACMP does not address connection with the surrounding community and areas such as West Midland, Viveash, Midvale, Middle Swan and Upper Swan. While this is outside the scope of this plan, facilitating movement in and around this area would enable strong growth in the area. PSP feeders are recommended. **Vision:**	**17.** Acknowledged. To be given consideration in the City's planning for cycleways.
		18. "Midland is unique in Perth as one of the only centres in Perth not driven by a beach culture. It has long and proud working class roots, as a place of innovation and hard work, perfectly perched adjacent to the Swan Valley on the banks of majestic Swan River. It needs to be branded as the inland city, the grime-chic district of Perth. It is important to recognise and incorporate its unique sense of place, and love and embrace its long and sometimes torrid history. If this history is built over, covered or swept under the rug, why Midland is the way it is will be lost, and I love the way Midland is the way it is".	**18.** Noted. The MACMP hopes to maintain this historic legacy of Midland by striving to achieve the requirements of SPP 4.2 whilst acknowledging the special place characteristics of its centre. A vision statement is included in the introduction to the MACMP.
12	**State Heritage Office** PO Box 7479 Cloisters Square Perth	The draft documents should identify the following State Registered Places and their heritage significance: o Midland Railway Workshops (Place No. 3273) o Midland Courthouse (fmr) (Place No. 2511) o Midland Post Office (Place No. 2513) o Council Club Hotel - Site (Place No. 2510) o Old Midland Junction School (Place No. 2505) o Western Australia Bank (fmr) (Place No. 2529). As future development affecting these sites will need to demonstrate that the heritage significance of these places is retained.	Supported. The report has been amended accordingly.
13	**URBIS** on behalf of CFSGAM (owner/operator of	**1.** Activity Centre Plan Map (Figure 1) - Rename 'Retail-local Shopping' as 'Retail-Regional Shopping' on the Midland Activity Centre Plan Map.	**1.** Supported. The report has been amended accordingly.

	Midland Gate Shopping Centre) 55 St Georges Terrace Perth	**2.** Predominant Land Use Areas (Figure 6) - Rename the area 'Highway Commercial' area along Clayton Street to 'Bulky Goods Retail'. **3.** Identification of Retail Clusters (Section 3.2.1) - Rework the second sentence of the second paragraph of Section 3.2.1 as follows: "The core retail is clustered within the Midland Gate and Midland Central Precincts, which occupy the majority of retail floor space within the activity centre. Additional Bulky Goods Retail is provided within the Clayton Precinct on the edge of the Activity Centre where their car base usage is supported without impacting on the highly walkable core". The second sentence of the second paragraph of Section 3.2.1 states: "The retail clusters include Midland Gate, Midland Central and Clayton Precinct which occupy the majority of retail floor space within the activity centre". **4.** Key Sites (Figure 21). Relocate the Key Site on Lloyd Street from the current position southwards to the Great Eastern Highway corner. It is assumed that this is a drafting error and the 'Key Site' is intended to be on the corner of Great Eastern Highway and Lloyd Street. **5.** Parking Supply Management (Section 4.7.2) - Remove assumptions of reciprocal parking from assessment of peak demand set out in Section 4.7.2, and abandon the notion of cumulative parking calculations for the activity centre. **6.** Maximum Parking Rates (Section 4.7.3) - Review the car parking rates to provide more appropriate parking levels based on the context and setting of the Midland Activity Centre. CFSGAM would suggest parking rates, at bays per 100m2, of: office -1 minimum, 3 maximum, Retail - 3 minimum, 5.5 maximum. **7.** Mandatory Cash-in-Lieu (Sections 4.7.5 and 7.5.3) - Remove the requirement for mandatory cash-in-lieu. **8.** Active Edges (Figure 38) - Adopt the previously established	**2.** The term 'Highway Commercial' was kept, as the area provides for more than bulky goods retail. **3.** Supported. The Report has been amended accordingly. **4.** Supported. The Report has been amended accordingly. **5.** Midland Gate can be exempt from providing reciprocal parking, as long as it is prepared to continue to allow public parking on its site. **6.** The MACMP has been amended to make clear that the City will accept transitional parking arrangements towards the long term goal of achieving the stated maximum parking ratios. **7.** Midland Gate can be exempt from providing cash-in-lieu of parking, as long as is prepared to continue to allow public parking on its site. **8.** The active edges diagram has been amended to incorporate

		Three-tiered street types and amend Figure 38 to replicate the designations of the Context Plan. CFSGAM's Context Plan adopted three 'tiers' for the treatment to the edge of the site: • Active: There are street frontages that involve high levels of movement between the street and the internal area, and are accessible to the public when open. This includes retail, entertainment, food and beverage (including alfresco), and can include other uses (e.g. gym, bank, real estate agent, etc.) where they create an appropriate connection between the street and the internal areas. • Passive: These are street frontages that have a built form presence to the street with casual surveillance opportunities, however, do not have 'active' frontages due to the lower levels of visitors and limited number of entrances. These frontages are generally associated with non-retail commercial uses. • Attractive: These are street frontages do not have habitable spaces behind them. Where appropriate and practical, these will be built at or near the street boundary, and will provide a well composed façade that provides visual interest. The designation of the street interface 'tiers' was carefully considered in the production of the Midland Context Plan. Significant variations to these agreed interfaces set out in the Context Plan have been made in the MACMP. Specifically: o the proposed semi-active edge to Great Eastern Highway, which is not appropriate due to the high levels of traffic and the constraints of the existing built form; o the semi-active edges to The Crescent, which is not in line with the long held desire to limit the extent of activity along The Crescent so that it does not drag activity away from the traditional centre of town; o Lloyd Street identified as Commercial and Residential Front Door, which would be better defined as passive.	the findings of Urbis' Context Report relating to Midland Gate Shopping Centre.

		9. Street Types (Figure 44) - Delete Figure 44 and identify Figures 40 – 43 as being conceptual only. It is considered that Figure 44 contradicts the requirements of Figure 38, and creates confusion in the definition of street types and the resultant built form. Additionally, the examples provided in Figures 40 – 43 are considered to be particularly blunt and do not relate to the likely or appropriate outcome when tested on Midland Gate. To suggest that there are only four street types in the Midland Activity Centre is inappropriate, as every street will be different and have its own unique characteristics. The broad concept of these different types of streets is supported; however, they should remain conceptual and not applied to specific areas in the Midland Activity Centre. **10.** Midland Gate Precinct (Section 5.4.7) a. Provide clarification that 93,000 m2 is the as of right level of development on the Midland Gate site, and is not a cap. Provide clarification that expansions beyond 93,000 require a Retail Needs Assessment and Retail Sustainability Assessment to support and justify the expansion at that point in time. b. This section includes a discussion on the levels of activation, implying all edges except Lloyd Street will be activated. It is important to reference Figure 38 (as amended to replicate the Context Plan) as this provides a more sophisticated explanation of the treatments required on the perimeter of the site. **11.** Development Standards – Setbacks (Page 107) - Amend the table on page 107 to state that the specified setbacks are minimums.	**9.** Noted. The cross section figures are conceptual and have been noted as such. More precise explanations as to the intent of each diagram have been included within the MACMP text. **10.** Noted. The MACMP has been amended accordingly. **11.** Noted. The MACMP has been amended accordingly where appropriate.
14	**Department of Transport** GPO Box C102 Perth WA 6839	**1.** A Traffic Assessment (TA) as per WAPC guidelines is required for the proposed land use study to determine the impact to all modes of transport for future developments within the subject site. **2.** A formal application is to be submitted to the WAPC to	**1.** A TIA has been undertaken by the City's engineers, Cardno (appendix to the MACMP), which informs the Midland Activity Centre Master Plan. **2.** No MRS rezoning is required. The subject area is the long

		rezone land uses in the MRS within the subject site together the above TA. **3.** Future residential developments along the freight corridor are to comply with State Planning Policy 5.4- 'Road and Rail Transport Noise and Freight', along the freight rail line, Roe Highway and Great Eastern Highway (GEH). **4.** A vehicle access strategy is to be developed for GEH to rationalise vehicle access points directly onto GEH. **5.** All proposed crossings over the rail line are to be grade separated. **6.** Cross sections are to be provided in the Plan to include all modes of transport infrastructure along major corridors. **7.** Cycling and Pedestrian Network a. The Principal Shared Path (PSP) alignment through the area is to be on the south side of the rail line from the east of Morrison Road through to Roe Highway. This was agreed to in recent discussions between DoT, PTA, Main Roads and the City of Swan. Figure 27 needs to be updated to reflect this. b. A high standard connection for cyclists from Morrison Street to the Midland Station on the north side of the rail line are required and needs to continue to Helena Street for direct access into Midland Town Centre from the Perth to Midland PSP (catchments to the west). c. Further consultation with DoT is required to agree on the location and design elements of the proposed cycle paths. d. The DoT is currently reviewing the Local Bicycle Network to update a more ambitious cycle network to encourage greater percentage of cycling. Further consultation with DoT is required to include the revised cycle network into the Plan.	standing existing Midland town centre and therefore already zoned appropriately under the MRS. **3.** Noted. This would be part of Development Application stage. **4.** Supported. This is a recommendation of the MACMP. **5.** Noted. The TIA indicates that traffic volumes do not warrant this at present. However this is something to strive for in the future, and for all new crossings in line with MRWA/PTA requirements. **6.** Noted. **7.** **a.** Agreed - this is the agreed alignment and Figure 27 has been updated. **b.** Agreed however this connection will terminate at existing train station as no safe transit is available through to Helena Street. This will be achieved on the Principal Shared Path alignment south of the rail line. **c.** Noted. **d.** Agreed. Level of service is yet to be determined for cycle network - propose to consult with DoT. **e.** The cycle network proposed in the MACMP supersedes the plan contained in the Cycle Connect Strategy.

		e. Figure 21 of the Plan needs to reflect Figure 5 from the City of Swan's Cycle Connect Strategy. **8.** The DoT recommends that a working group be established to include the Transport Portfolio Agencies to address the issues raised in this letter.	**8.** Noted. The City intends to work closely with the transport agencies in achieving the objectives of the MACMP.
15	**Swan River Trust** PO Box 6829 East Perth WA 6892	One of the main issues for consideration is the interface with the Parks and Recreation Reserve to the south of the Plan area adjoining the Helena River. Future proposals should be consistent with Trust policies and proponents are encouraged to seek early advice from the Trust regarding future development near the DCA	Supported. Though this is outside the boundary of the MACMP, the City will continue to work together with the MRA towards this end.
16	**Metropolitan Redevelopment Authority** Locked Bag 8 Perth Business Centre WA 6849	**MIDLAND ACTIVITY CENTRE MASTER PLAN** **Context:** **1.** The strategic vision for Midland needs to be clearly identified in the MACMP and reference made to its unique identity. The MACMP provides an opportunity to position Midland as a candidate future Primary Centre, rather than a Strategic Metropolitan Centre within the State's Directions 2031 and Activity Centre framework. The role of Midland in serving the wider eastern regional areas and hinterland would benefit from further emphasis as Midland is a truly regional centre and not limited to a metropolitan role. Inclusion of a population target or aspiration is recommended, and the MRA encourages the City to take an aspirational stance. **2.** The role of the new Midland Health Campus needs to be emphasised in the MACMP. The hospital will provide extended services for the regional area and highlights the importance of health as a key land use and employment generator for Midland. **Activity:** **3.** Clarification is required on how density targets have been established as it is unclear which target calculations will apply to the MACMP. A target of 5000 dwellings has been stated on page 9 however a contradictory target of 2700 dwellings (once the Plan has been implemented) is stated on	**1.** Noted. The MACMP has been modified to more strongly elucidate the vision for Midland centre (page 7). **2.** Noted. The Report has been modified accordingly. **3.** Noted. The Report has been modified accordingly.

		page 43 of the document. It is unclear if the SPP 4.2 policy desirable target of 45 dwellings per hectare will be achieved in Midland. **4.** The calculations used to determine the projected number of residents (page 9) need to be reconsidered, particularly the assumptions made regarding number of persons per household. An assumption of 2.6 persons per household is high; given the likely housing typology will be apartments in order to meet the density targets set out in the MACMP. Research papers for the MACMP indicate that most growth will be for 1 and 2 person households. **5.** There is scope to strengthen the material relating to open space and greening within the City Centre. Further detail on how linkages to the rivers will be achieved and how the range of open spaces can be understood in terms of their role, identity and functioning would be useful. **Movement:** **6.** The MRA supports relocation of the Midland train station to Cale Street. An 'at grade' pedestrian and vehicle crossing is essential to provide access from the station to the health campus and should be identified as a high priority in the implementation section of the MACMP.	**4.** Noted. Calculations have been reviewed and updated. **5.** The City is committed to working with the MRA to improve linkages to and between the Swan and Helena Rivers. Because of existing development, linkage can only be achieved via existing streets. Through the MACMP, these will be made more pedestrian and cycle friendly (Refer Chapter 4 Movement of the MACMP). Furthermore, MACMP contains recommendations to improve legible and visual connection to the rivers (Refer Chapter 5 Urban Form of the MACMP). Design and implementation will be addressed in more detail in the City's future proposed Public Realm Strategy, which will be part of the implementation of the MACMP (Section 7.3.4. of the Master Plan report). **6.** Supported. This will need to be negotiated with the PTA which currently is not supporting at-grade rail crossings.

		7. The terms "nominal benchmark" and "nominal maximum parking ratios" (page 73) need to be clarified as it is unclear how the parking rates have been determined and what a 'nominal maximum' means in practise. The parking rates identified in the Activity Centre Plan are considerably lower than MRA parking requirements. The nominal maximum ratios are regarded as more appropriate to an inner metropolitan area. As an 'end of the line' centre with a large low density catchment with limited public transport, Midland will still need to recognise a higher degree of reliance on private vehicle travel. In addition the low rates may com promise the ability to achieve secure shared parking facilities via cash in lieu payments and further discussion on implementation is sought.	**7.** Supported. These terms refer to the difference between consultant and WAPC recommendations and Local Government Policy. The report has been modified to clarify the terms referred to and also to emphasise the long term transitional phase towards achieving ultimate parking reduction and the proposal for an interim parking management plan. Note that the 25% cash-in-lieu is a minimum and may be increased with agreement between Swan and developers. Details will be addressed in the Cash-in-Lieu Policy which will be prepared as part of the implementation of MACMP (Section 7.5.3 of the MACMP Master Plan report).
		8. Realignment of the freight rail out of the City Centre remains a priority for both the MRA and City of Swan. This issue needs to be given priority within the MACMP as the freight line has significant impacts on the centre and this will worsen as freight traffic continues to increase.	**8.** Supported. The report has been modified to further emphasise this and the City will continue to strive towards the relocation of the freight line away from Midland's centre.
		9. The MRA remains committed to the eventual reinstatement of two way traffic along Great Eastern Highway and Victoria Street to improve traffic circulation, legibility and pedestrian movement and safety within the City Centre. The MRA requests that a specific reference be provided in the document to retain the opportunity for future conversion to a two way traffic system. Any street upgrades should retain	**9.** Noted. The report has bene amended to emphasise this. However, it is worth noting that the MACMP is flexible enough to work with or without the current one-way traffic arrangement.

		the opportunity for future conversion with minimal abortive works.	
		10. There is an opportunity for the number of crossovers to main streets and highways to be minimised through introduction of rear loaded laneways. The existing laneway network (mix of public and private) needs to be evaluated and opportunities for extension and/ or new laneways identified and reflected in the Plan and Design Guidelines.	**10.** Noted. The requirement to introduce laneways or new reserves over fragmented and private land would be problematic and costly for land owners and the City of Swan. A requirement for a shared access policy to be prepared along regional roads is recommended as part of the MACMP.
		Urban Form:	
		11. Figure 34 (page 87) does not clearly convey the key urban structure elements and warrants revision in consultation with the MRA. The north-south connections and pedestrian hub are not prominent; areas of intensity are misleading as several high intensity nodes are not included (e.g. Midland Health Campus, Landgate, City of Swan offices, Midland Gate, Workshops); and the open space nodes need amendment.	**11.** Noted. The diagram is conceptual, with the intent being to convey the need for points of activity within a coordinated structure throughout Midland, and for intense development to be provided near to the future Midland Train Station at Cale Street.
		12. Figure 35 (page 88) maximum heights plan needs to be amended. The maximum height for a portion of the Workshops needs to be reduced from 10 storeys to 6 storeys.	**12.** Noted. The plan and report have been amended to refer directly to MRA guidelines.
		13. Figure 36 (page 89) minimum heights plan needs to be reconsidered. The MRA does not support a minimum building height of 5 storeys on Cale Street and is concerned that this requirement may deter development. The MRA has a minimum building height of 2 storeys for most sites in the centre. Similarly the impact of a minimum building height of 3 storeys for much of the centre warrants further consideration to ensure that it does not have the unintended consequence of discouraging investment in Midland.	**13.** Supported. The plan and report have been amended to refer directly to MRA guidelines.
		14. The land use permissibility table (pages 105- 107) needs to be amended to remove reference to any precincts contained fully within the MRA redevelopment area boundary or to include them for completeness and note that they are covered by MRA planning controls.	**14.** .Noted. The table and report have been amended accordingly.

		15. Other precincts that include part of the MRA redevelopment area need to be clearly identified in the land use permissibility table as being subject to MRA planning framework requirements (e.g. Railway Core, Midland West End, Entry Streets and Morrison Road West precincts).	**15.** As for 14 above.
		16. The Precinct map needs to clearly show the MRA redevelopment area boundary. It is recommended that the precinct boundaries be amended to cover all land within the centre, rather than leave some areas of streets and the rail reserve sitting outside a precinct. Small areas of lots have unintentionally been excluded in the current plan.	**16.** Supported. The existing MRA Scheme boundary shown on the plan has been emphasised for clarity.
		17. It is recommended that the names of two precincts be revised. 'Railway Core' tends to be associated with the Railway Workshops and may cause confusion so a name such as 'Central Core' would be preferred. 'Police and Health' contain other private uses and it is recommended that it be renamed 'Clayton' to align with the MRA precinct name and street name. Precinct names in the land use table precincts and the plans do not match.	**17.** Supported. The MACMP has been amended accordingly.
		18. The proposed plot ratios are considered to be too low to achieve the intensity of development outlined in the MACMP. Calculations used to determine the plot ratio provisions need to be reconsidered to ensure plot ratio requirements will facilitate the built form outcomes proposed in the MACMP. As an example, the MRA has seen plot ratios in the order of 2.5 (including commercial) for 4 storeys mixed use development on The Crescent.	**18.** Noted. The plot ratios have been reviewed and are considered appropriate given the proposed plot ratio definition in the MACMP report (page 109), which excludes greater extents of floor area. This would account for the discrepancy in plot ratio figures.
		19. The purpose of separating "mixed use" into "retail/ commercial" and "residential/commercial" is unclear and would compromise achievement of SPP 4.2 desirable density target of 45 dwellings per hectare. For simplicity it is recommended that it be consolidated into one definition i.e. residential/commercial, where commercial encompasses retail uses. Design Guidelines may then be used to ensure activation and appropriate land uses at the ground floor	**19.** The intent for the Master Plan was to emphasise where land use emphasis was intended throughout the centre, with existing retail precincts noted as retail / commercial and intended office and commercial mixed use areas noted as commercial / residential mixed use. The land use tables included in Chapter 5 of the MACMP clearly indicate the preferred and contemplated uses throughout the activity centre, most of which allow residential development.

		level. **20.** The MRA seeks inclusion of residential as an acceptable use throughout the City Centre. Whilst it may not be envisaged at present in some areas e.g. Midland Gate and Entry Street precincts, the MACMP should retain the opportunity for future residential inclusion throughout. **Resources:** **21.** Establishing a target of 4 star Green Building Council Australia (GBCA) for commercial buildings is to be commended; the City should consider a similar target for residential development. **22.** The MACMP is silent on establishing quantifiable targets for stormwater and greywater reuse and the use of waterwise planting or other environmental initiatives. Further work needs to be undertaken to establish a green ESD vision for Midland City Centre. **Implementation:** **23.** It is recommended that priorities and timeframes be provided against the implementation actions. **24.** The text related to street types should be relocated to the Urban Form section. Street type terminology needs to be reviewed as there are references to different classifications, typologies and nomenclature systems for streets throughout the document that cause confusion. **25.** Detail related to new streets and laneways should be relocated to the Movement section. **26.** It is recommended that the use of incentives be investigated as they will underpin successful implementation of the	**20.** Supported. Refer point 19 above. **21.** The City will only seek to ENCOURAGE the achievement of a 4 star standard (Greenstar) and will investigate the incentive mechanisms and training requirements required to support this approach. The Greenstar scheme does not currently cover individual residential buildings so an alternative scheme would need to be sought for this purpose. **22.** The principles of WSUD and ESD in general would be covered within the built environment of Midland by encouraging participation in the Greenstar scheme by developers. The same principles need to be pursued in the public realm and this should be investigated and further developed through the upcoming 'Public Realm Study 'and the 'Water Management Study' for the Midland CBD. **23.** Noted. Implementation to be provided through the City's Business Planning which will directly stem from development plans coming out of the MACMP, e.g. Midland Oval Master Plan, Public Realm Strategy. **24.** Noted. The intended street types are included in both the Urban Form and Implementation chapters for clarity. **25.** Noted. The laneway diagram is within the Implementation chapter purposefully so a clear list of requirements is provided for the City of Swan. **26.** Noted. The MACMP does recommend development bonuses as an incentive for lot amalgamation, to enable the desired

		MACMP.	scale and density of development.
		DESIGN GUIDELINES	
		Approach:	
		27. Design Guidelines contain a mix of targets and mandatory elements with a lack of clarity in some elements.	**27.** Noted. The Design Guidelines have been reviewed and clarified accordingly.
		28. Consider thresholds that trigger some of the requirements as they may be onerous for minor developments or extensions to existing buildings.	**28.** Noted. This will be considered further in the Midland Activity Centre Structure Plan.
		Architectural Expression:	
		29. Strengthen desire for a contextual response that responds to heritage setting whilst being contemporary.	**29.** Noted.
		30. Do not limit use of pre-cast concrete as a material as this is needed for higher density development - address concerns by requiring appropriate finish, articulation and depth of reveals.	**30.** Noted. The Design Guidelines have been amended accordingly.
		Acoustics:	
		31. Include reference to rail and freight noise and aircraft noise. (MRA has a sound attenuation policy for Midland that sets out acceptable noise intrusion levels for residential development and identifies noise attenuation measures that can help mitigate the impact of noise. Key is to not only set standards but to ensure compliance through the construction phase.)	**31.** Reference is made in the Design Guidelines to noise from 'significant events' which would include rail and freight noise. MRA's attenuation policy is noted for future reference.
		Solar access:	
		32. The solar access requirement needs amendment as it will not be possible to achieve the standard for many lots in the centre due to lot orientation and density of development.	**32.** Noted. The Design Guidelines have been amended accordingly.
		33. Include some protection for photovoltaic panels.	**33.** Noted. The Design Guidelines have been amended accordingly.
		End of Trip Facilities:	
		34. Requirements should relate to floor area rather than staff numbers as this could be problematic for compliance.	**34.** Noted. The Design Guidelines have been modified accordingly.
		35. Establish threshold to trigger the requirement.	**35.** Supported. The Design Guidelines have been modified accordingly.
		36. Requirement for 4 showers for 10 bike bays or 1 shower for 1 bike bay seems excessive.	**36.** This is standard for most city centre areas and considered reasonable in the light of the revised Design Guidelines,

		Interface with existing heritage buildings: **37.** Recommend varying requirements to ensure new development appropriately interfaces with heritage buildings and precincts and provide greater flexibility in controls.	which only trigger the requirement where commercial buildings have a floor area more than 2, 000 sq.m. **37.** Noted. The Design Guidelines do include recommendations towards this, e.g. limit of 2 storey development to the front of heritage sites. The design of development on or adjacent to heritage places is required to provide complementary design through use of materials, application of bulk and height.

city of swan

HASSELL

Midland Activity Centre Master Plan

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Notes:
New road linkages are indicative and subject to more detailed planning.
The open space and education-institutional/civic land in the Midland Oval precinct is indicative and subject to more detailed planning.

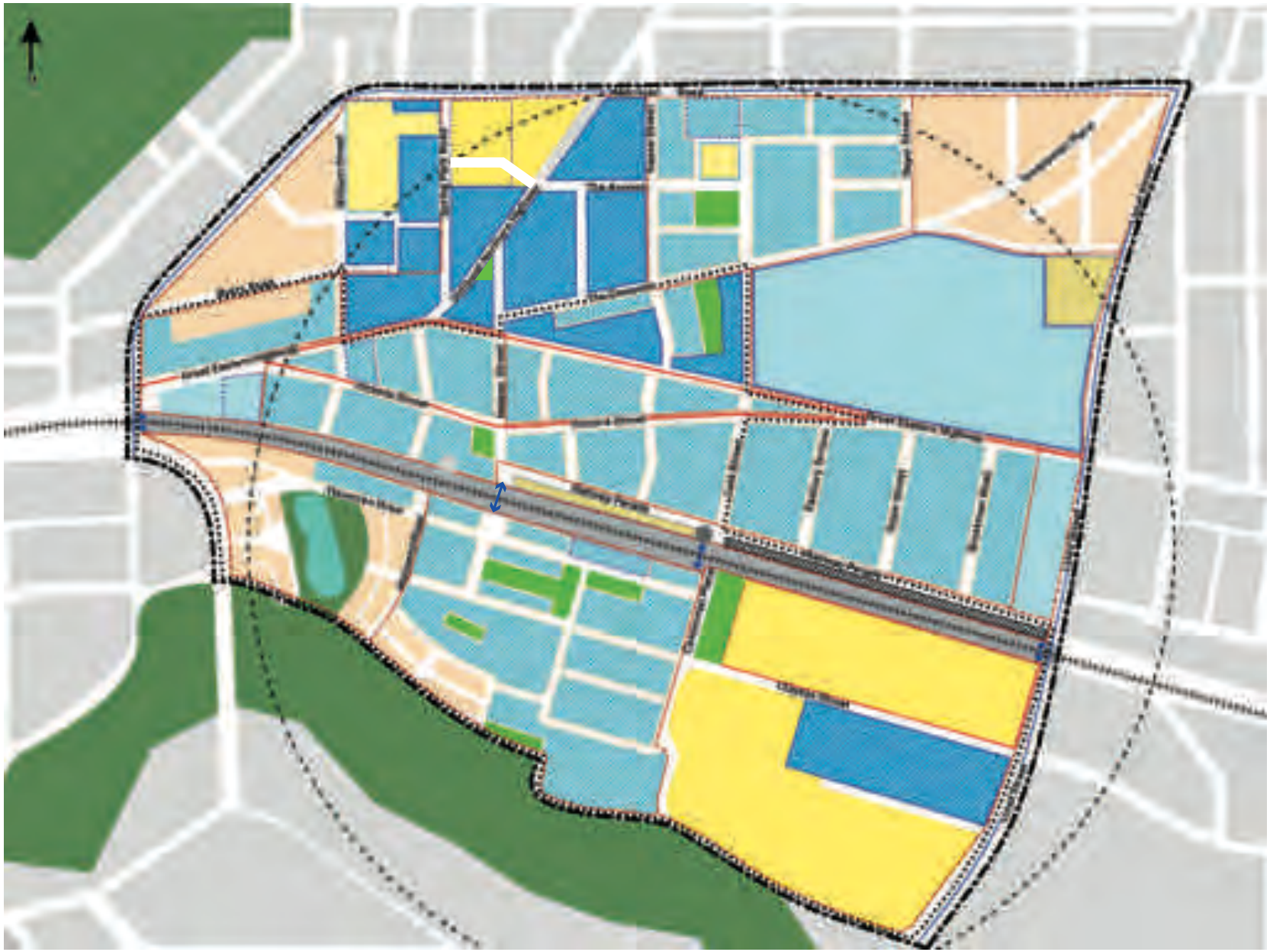

Figure 01_ Midland Activity Centre

1.0 INTRODUCTION

1.1 The Drivers of Change

Midland as a Strategic Metropolitan Centre is a CBD undergoing significant revitalisation and change. In 2007, an Enquiry by Design was jointly held by the City of Swan and the Midland Redevelopment Authority (now the Metropolitan Redevelopment Authority), in consultation with relevant government agencies and the community that resulted in a strong vision for Midland's revitalisation and key outcomes required in order to realise this vision.

The purpose of this Master Plan is to utilise previous work undertaken in developing the vision for Midland, and provide a mechanism for its implementation through the statutory planning environment, in order to provide clear objectives for landowners and investors regarding Council's future intentions for the Centre. The Master Plan establishes a long term strategic vision for the Centre's complete redevelopment, however in working towards this scenario, there will need to be a number of interim planning arrangements in place to facilitate change over time.

Since the establishment of the Midland Redevelopment Authority (now the Metropolitan Redevelopment Authority), urban regeneration has occurred as evidenced by key projects such as Juniper Gardens and the Workshops redevelopment. Now, with the establishment of the Midland Health Campus, a new fillip for growth and development is about to occur. The new hospital will provide extended services for the regional area and highlights the importance of health as a key land use and employment generator for Midland.

Complementing this significant investment in Midland by the State Government is the State's policy objectives as established by Directions 2031 and Beyond and State Planning Policy 4.2 Activity Centres for Perth and Peel. In particular, strategic metropolitan centres are required to provide an enhanced level of employment activity, along with intensified residential densities, thereby supporting public transport investment, improving access to jobs and services and allowing for intensified activity within centres.

The new health campus will drive a significant change in the movement and activity patterns throughout Midland. It is a critical item of infrastructure that will drive Midland's regeneration in the future. Traditionally an east – west aligned centre, with major separation caused by the passenger and freight rail lines, the new health campus will create a north – south movement pattern along Cale Street, connecting activity to the Midland Gate Shopping Centre and Juniper Gardens civic node. Additionally, a new train station location at Cale Street (replacing the current station) will strengthen this north – south alignment. The new station will enable greater access to Midland and its services, being central to the Activity Centre and within walking distance of important employment, cultural and retail nodes.

To help achieve State objectives, and those of the community evidenced in Midland 2017 Enquiry by Design, a lift in development potential to support Midland's new structural elements is able to be achieved near to the new Cale Street train station and between Victoria Street and Railway Parade. This area of land is best able to provide for the intended mixed use residential and employment floor space to drive Midland's future prosperity.

The vision statement for Midland's Activity Centre is:

Midland has the opportunity and the ability to become a thriving city in its own right, serving Perth's eastern region, Perth Hills, the Avon Arc and beyond. Midland can deliver an attractive, affordable, productive and sutainable city living environment beside the rivers in the eastern corridor.

1.0___INTRODUCTION

Figure 02_ The structural model for Midland

1.0___INTRODUCTION

1.2 The Structure

The Midland Activity Centre Master Plan is intended to provide advocacy and guidance for the Midland Centre. To facilitate growth and acknowledge the investment decisions of the public and private sectors, the Activity Centre Master Plan for Midland is based on a new structural model. The model identifies existing and new nodes of intensity (be they civic, employment or retail), seeks to link them through logical movement lines and provides for new development opportunities in areas that can accommodate change.

For the new Midland, Cale Street will become the most important movement corridor, linking the Midland Health Campus, the new Cale Street train station, Midland Gate and other peripheral uses. The operation of this north – south corridor as a comfortable and safe pedestrian route as well as a vehicle and public transport route is imperative; therefore, an at grade crossing of the rail line for pedestrians and vehicles is vital.

The structural model conceptually identifies other points of amenity and focus throughout Midland – redevelopment opportunities at Midland Oval, the traditional centre at Old Great Northern Highway, and the emerging cultural centre in the Workshops precinct. The Avenue and Clayton Street extension through the workshops provide important east – west connections, whilst Helena Street provides an alternative north – south connection, with its at grade crossing of the rail lines. The points of amenity at these nodes will be enhanced by appropriately scaled development opportunities as well as an emphasis on quality public realm.

1.3 Implementation: Explaining why density targets are a long term outcome

Midland is required to achieve minimum residential densities across the activity centre area of 30 dwellings per hectare; 45 dwellings per hectare is desired. This equates to approximately 7,000 dwellings across the centre area, meaning a residential population of around 8,800 to 11,900 people. However, as Midland is an established centre and it competes against other parts of the metro area for residents, employment and status, the likelihood of achieving the density targets in the short to medium term is small.

Estimates of land use mix and new residential dwellings across the activity centre have been undertaken for this project. There is potential to accommodate the 7,000 dwellings in the Master Plan area, however this is not a target, but an estimated projection only at full build out and assuming that proportion of residential development.

To achieve the density targets, there needs to be significant public investment, not only in the public realm, but also in generating substantially more employment in Midland, and subsidising the development of desirable housing products. The strategy to achieve the minimum densities over time should be to work with the location benefits, the strategic employment locations and the natural movement patterns between identified nodes. For this reason, the areas to concentrate on relate primarily to those areas between Midland Oval, the Midland Gate Shopping Centre, the future transit station on Cale Street and the Midland Hospital. Cale Street becomes a key movement line in this regard and this further emphasises the need for an at grade crossing at Cale Street, allowing easy movement between these locations.

The areas to increase densities will need to be within the Railway Core and in areas that it is easy to develop, such as the vacated transit site in the western part of the activity centre. Enabling mechanisms will need to be put in place for the redevelopment areas. For the Railway Core, this means overcoming the fractured land ownership and setting minimum development standards. The fractured land ownership will need to be overcome by amalgamating sites and/or setting minimum frontage standards. The desirable land area would require a minimum of two or three lots being amalgamated to achieve the appropriate development types. Development individually on the small lots will not achieve the required outcomes.

1.0 INTRODUCTION

1.4 Promoting the Desired Development Outcomes

To enable the amalgamations, development bonuses can be put in place, however this would only work in a bullish market. Indeed, any development of the type sought would only occur in a bullish market, unless there is specific government intervention to purchase lots and demonstrate particular outcomes within the Railway Core, or even to partner with developers to minimise the risk and leverage opportunities.

Within the vacated transit site, development is perhaps more easy because of the larger area and its government ownership. Government ownership should be retained until such time as there is certainty as to the development outcome. This could be achieved by retaining the redevelopment authority provisions across the site and also requiring minimum development standards in any contract of sale to developers. Time limits should also be put on any development requirements.

1.0 INTRODUCTION

1.5 Report Structure

This report has been prepared as a master plan to inform a future statutory structure plan for Midland's centre. In this regard, the master plan structure is consistent with State Planning Policy (SPP) 4.2 Activity Centres for Perth and Peel. It's content is guided by the Centre Plan Framework within the SPP.

The report is set out in the following manner:

1. Introduction
2. Context
3. Activity
4. Movement
5. Urban Form
6. Resources
7. Implementation

Separate but related design guidelines have been prepared for the Activity Centre area to provide more detailed development standards. The design guidelines will be adopted as a local planning policy under the provisions of parts 2 and 5 of Local Planning Scheme No. 17.

2.0 Context

2.0___CONTEXT

Midland is strategically located and ideally positioned to fulfil its role as the major activity centre serving the eastern region of Perth

2.1 Centre Classification

Midland is a Strategic Metropolitan Centre within the Activity Centres hierarchy established by *State Planning Policy 4.2 (SPP 4.2)*, and the strategic plan for Perth and Peel, *Directions 2031 and Beyond.* The centre provides a supporting role to the Perth CBD and is intended to provide a diverse range of services, employment and civic functions within the north-east sub-region.

Tables 1 - 3 compare the current performance of Midland against the target characteristics of a Strategic Metropolitan Centre under SPP 4.2.

The nearest Strategic Metropolitan Centres to Midland are Morley (10km) and Cannington (15km). The nearest Secondary Centres are Belmont (10km) and Ellenbrook (12km). Bassendean is the nearest District Centre (5km). Due to Midland's strategic location it has a catchment area which extends to the Swan Valley, Perth Hills and rural communities in the east.

Figure 3 illustrates the location of these other centres and the regional context of Midland within the north-east metropolitan sub-region, and describes the approximate extent of its primary and secondary catchments.

Midland is an established centre strategically located on major transport routes

2.0___CONTEXT

Table 1: Activity Centre Functions, Typical Characteristics and Performance Targets

Typical Characteristics	Strategic Metropolitan Centres	Midland Activity Centre	Comment
Main role/function	Strategic metropolitan centres (SMC) are the main regional activity centres. They are multipurpose centres that provide a diversity of uses. These centres provide the full range of economic and community services necessary for the communities in their catchments.	Midland provides for the major activities within the north-eastern corridor, with a reasonable diversity of land use. Midland Activity Centre provides employment, commercial, residential and service industrial uses.	Provision of the full range of economic and community services is an important goal of planning for Midland.
Transport connectivity and accessibility	Important focus for passenger rail and high frequency bus networks.	Midland currently has a bus interchange and train station, which is presently the last station on the Midland train line.	Being at the end of the line, there is a significant catchment to the east and north that does not presently have easy access to passenger rail or high frequency bus services.
Typical retail types	• Department store/s • Discount department stores • Supermarkets • Full range of specialty shops	• Midland does not currently have a department store - Myer or David Jones • Midland already has all of the three major DDS operators - BigW, Target, Kmart - and a few smaller DDS such as Best and Less • Midland has all of the three major supermarkets Coles, Woolworths and IGA including two Woolworths in the same centre precinct • Midland does not have a full range of specialty shop tenants, but these would normally be attracted by the introduction of a department store	• Given that most of the Secondary and District Centres have at least one DS, the DS is a key retail determinant differentiating Midland from other smaller centres • The limited catchment and the proximity to Morley and Cannington will limit opportunities to attract a Department Store to Midland
Typical Office development	• Major offices • State government agencies	• As with any other SMC at present, Midland does not boast a major corporate enterprise • Midland is one of only three SMC which has a significant State Government agency office • The Landgate complex comprises 23,000sqm of office space. Police Operational Facilities, and City of Swan administration are the other major public offices in Midland.	• The attraction of major corporate offices remains the single biggest challenge for Strategic Metropolitan Centres • Federal, State and local government create the highest single employment opportunity in Midland

2.0___CONTEXT

Table 2: Activity Centre Functions, Typical Characteristics and Performance Targets

Future indicative service population (trade) area	150,000-300,000 persons		• The sub-region's population total of 203,000 (ABS, 2009), including 110,100 in the City of Swan is expected to increase substantially by 2031.
			• The extended catchment depicted in the Midland Retail Sustainability Assessment (Urbis 2011) shows a population of 210,000 growing to 270,000 by 2021, highlighting the limited population base caused by the elements listed below
			• A smaller catchment deducing Ellenbrook and Ashfield produces a catchment of over 100,000 people increasing to 120,000 in 2021
			• A 150,000 person catchment is typically contained with a 7.5km radius and a 300,000 person catchment is typically contained within a 10km radius.
			• Midland has a dedicated catchment of 5km to the west toward Morley and Belmont
			• It is the proximity to major tenants which will determine retail trading patterns.
			• Cannington and Morley are Midland's nearest competitors and will effectively define the catchment area. The inclusion of second and third discount department stores at Ellenbrook (and/or Albion) to the north will ultimately provide a similar 5km dedicated catchment to the north.
			• Smaller Hills settlements will continue to restrict opportunities for DDS operators to the east
			• The intensity of population in the catchment is further restricted by the:
			  • urban fringe location
			  • semi-rural nature of the Swan Valley
			  • vast undeveloped land area at Perth Airport

Walkable Catchment for residential density target	800m		The 800 metre arch of the relocated train station will cover the activity centre.
Residential density target per gross hectare	Minimum 30	Desirable 45	Due to Midland's historical setting as a major commercial centre, there is limited residential development within the activity centre. Residential zones north-west and north-east are zoned R100 and R80. Residential zones south of the rail are R60 and R80. Densities in excess of these are being considered, however fragmented land ownership including strata titles in some precincts will present a challenge to comprehensive redevelopment at higher densities.

2.0___CONTEXT

Table 3: Diversity performance target - mix of land uses

Centre size: Shop/Retail floor space component	SPP 4.2 target mix	Midland performance*	Comment
>100,000 sqm >50,000 sqm >20,000 sqm >10,000 sqm <10,000 sqm	50% 40% 30% 20% N/A	In determining diversity performance target, retail commercial (PLUC 5) is assessed against non-retail commercial (PLUC 6, PLUC 7, PLUC 9). The breakdown is as follows: • PLUC 5 Shop/Retail - 68,385 sqm • PLUC 6 Other/Retail - 14,245 sqm • PLUC 7 Office/Businesses - 56,552 sqm • PLUC 9 Entertainment/Recreation- 15,389 sqm This gives an overall floorspace of 68,385 sqm of retail and 86,186 sqm of non-retail commercial. The Midland Activity Centre provides a mix of land use floorspace - well in excess of the 40% target under the policy. The proposed redevelopment of Midland Gate would take the total centre floor space beyond 100,000sqm.	By 2031, the mix of retail / commercial land use floorspace is expected not to meet the current minimum ratio due to the growth in non-retail commercial associated with the Midland Health Campus and potential tertiary education facilities, outstripping growth in retail commercial floorspace.

Table source: Urbis, 2011, *The Midland Activity Centre Context Plan*

2.0___CONTEXT

2.1.1 Regional Context

The Midland Activity Centre is located in the north-east sub-region of the Perth Metropolitan Region, approximately 16 kilometres from the Perth Central Business District. Midland has a historical town centre that grew around the junction of three railway lines that were established from the late 19th Century, and ran to Kalamunda and Karragullen, Walkaway, Northam and the eastern states. The railway from Midland also connected to the port of Fremantle. Transporting both passengers and goods to and from settlements along their routes, the railways played an essential role in the development of the State's agricultural districts and the Eastern Goldfields. The establishment of the State Government Railway Workshops in 1904 was a huge catalyst for development of Midland.

Midland today remains an important centre for service, retail and freight movement. Industrial functions such as the Midland Railway Workshops have declined, however, providing opportunities for reclamation of the former industrial land for development that will ensure Midland's future as an important centre in Perth's east.

Midland is connected to Perth city and the wider Metropolitan area by Great Eastern Highway and Roe Highway. Great Northern Highway links Midland to northern Western Australia.

Midland Station is the present terminus of the Midland passenger rail line which provides access to significant north-eastern suburbs. Access from Midland is provided to destinations such as Mount Lawley, Maylands, Bayswater, Bassendean and Guildford as well as the wider metropolitan area through the rail network and feeder bus services.

Major attractors within close proximity to Midland include the Swan and Helena Rivers, Whiteman Park (7km north-west), Walyunga National Park (19km north), John Forrest National Park (6km east), Swan Valley viticulture and tourism (3km north-west) and the scenic

Figure 03_ Midland Regional Context

2.0___CONTEXT

Perth Hills to the east. The SpeedDome at nearby Midvale is a velodrome that hosts international, national and local cycling competitions.

Perth Airport is 6km away to the south.

Strengths

Midland is a well established activity centre which is highly connected to the regional transport network and services surrounding industrial, commercial and residential land uses. It already contains a diversity of functions appropriate to a Strategic Metropolitan Centre. Major land uses include:

- Midland Bus Interchange/Train Station
- City of Swan Administration Centre
- Landgate
- Midland Court House and Police Station
- Midland Gate shopping centre
- Future Midland Health Campus (construction commencing 2012 for 2015 opening)
- Polytechnic West (formerly Swan TAFE)
- Police Operational Support Facilities
- Midland GP Super Clinic
- Juniper Gardens
- Midland Oval

It has a traditional catchment that extends east to areas beyond the Metropolitan Region (refer to Figure 3).

Midland has a fairly strong established character as a result of remaining heritage buildings such as the Midland Town Hall, former Post Office and the Midland Railway Workshops, amongst others. These contribute to a sense of place.

The West End centre has a tight, walkable structure.

Midland is in close proximity to a range of regional attractors, high quality natural landscapes, and a wide range of specialist food and beverage producers.

A number of places in Midland are identified on the State Register of Heritage Places, offering contributions to Midland's story, and where they are retained, to the character of Midland:

- Midland Railway Workshops (Place No. 3273)
- Midland Courthouse (fmr) (Place No. 2511)
- Midland Post Office (Place No. 2513)
- Council Club Hotel - Site (Place No. 2510)
- Old Midland Junction School (Place No. 2505)
- Western Australia Bank (fmr) (Place No. 2529).

As future development affecting these sites occures, it will need to demonstrate that the heritage significance of these places is retained, as per clause 7.1A of LPS17.

01_ Midland Courthouse
02_ Bus and Rail interchange
03_ Police Operations Centre

01_

02_

03_

2.0___CONTEXT

Weaknesses

Visual Amenity
Poor visual amenity in parts of the centre, particularly on traffic dominated streets such as Morrison Road, Great Eastern Highway and Lloyd Street, detracting from Midland's attractiveness as a destination and as a location for new business.

Physical Barriers
Midland is blighted by some significant barriers to both pedestrian and local traffic movement.

In particular, the railway line and Great Eastern Highway/Victoria Street make movement between the north and south parts of the centre problematic.

The use of the rail line by freight trains causes noise and vibration and limits opportunities for safe and convenient pedestrian and vehicle crossings. This in turn limits new development south of the railway on the old workshops land to properly integrate with the rest of the city centre. Unless the freight rail route is relocated as has been proposed, this situation will be exacerbated as it is anticipated that the frequency and length of freight trains will increase.

The Great Eastern Highway/ Victoria Street one-way pair funnels traffic through the city centre and has created excessive pedestrian waiting times at signalised intersections, reduced vehicle circulation throughout the city centre, poor vehicular access and limited on-street parking opportunities for local businesses relying on pedestrian activity. Currently pedestrian movement is not prioritised.

Large format retail
Centrepoint and more particularly Midland Gate Shopping Centres have drawn customers away from traditional street based retail shops, reducing pedestrian activity in the public realm, and the West End. These retail nodes also attract high volumes of private motor vehicles and are surrounded by large expanses of car parking that further separate pedestrian activity from the public realm.

Land Ownership
Fragmented ownership presents a challenge for coordinated and optimal redevelopment. Land owner readiness to develop will be dependent on various external and internal factors such as property market cycles and the owner's financial capacity to redevelop and desire to do so.

Legibility and Intensity
The Midland Activity Centre is very large and exhibits an overall lack of intensity. There are several nodes within the centre - such as the West End centre, Midland Gate and Centrepoint, that effectively compete with one another rather than differentiate themselves in a manner that would complement the centre as a whole.

A lack of legibility resulting from a somewhat convoluted one-way street network, variable pedestrian amenity and public realm quality, and a general neglect of view lines to urban land marks and significant destinations, discourages pedestrian movement between key activity nodes.

01_ The railway is a major physical barrier
02_ An overall lack of intensity

01_

02_

2.0___CONTEXT

Opportunities

Midland is rich with opportunities to reinforce existing strengths and develop new activities and environments that will position it strongly to perform as a successful metropolitan centre.

- The multiple existing nodes within Midland could form the basis for a series of unique and complementary precincts that together would make Midland a compellingly attractive destination for shopping, living, working and investment.
- The decision to build a major new public and private hospital in Midland on a site immediately south of the railway will serve as an important catalyst for redevelopment and the introduction of a variety of supporting businesses and services. The opportunity to guide this new investment to complement objectives for the activity centre will be significant.
- The significant amount of built heritage fabric provides an excellent basis upon which to create a centre with a distinctive and attractive sense of place. Coupled with this, the area's diverse and long standing multi-cultural heritage provides opportunities for place making and community building that set it apart from other strategic metropolitan centres.
- Midland Gate and Centrepoint Shopping Centres already generate significant customer traffic. The on-going success of these centres will be in the best interests of Midland as a whole, and expansion should be encouraged and managed to generate future movement relationships within the activity centre. Expansion of the shopping centres can anchor major department stores to attract new businesses, generate employment and increase the customer catchment area.
- There are a number of large sites with potential for redevelopment for high density commercial, mixed use and residential purposes. These include the Midland Oval and numerous expansive surface parking lots. Redevelopment will benefit the centre's vitality and economic performance.
- Redevelopment of the Midland Oval, a substantial proportion of which is owned by the City of Swan, has potential to create an activity node and generate movement between the Midland Train and Bus Interchange to the northern edge of the activity centre.
- The proposed relocation of the Midland Train Station and Bus Interchange to Cale Street will not only free up a substantial site for redevelopment, but provides the opportunity for a better designed and more centrally located transit interchange to serve the centre.
- The potential to link Midland to nearby secondary centres such as Ellenbrook by public transport and regional roads will enable greater accessibility to the centre.
- The close proximity of the Helena River to the activity centre provides an opportunity to enhance the Midland's recreational assets, increase awareness of surrounding natural resources, and the capacity for cultural and community activities through the establishment of visual and physical links, directional signage and interpretive material.

Midland Gate could become a catalyst for development elsewhere in Midland

2.0___CONTEXT

2.1.2 Constraints

Neighbouring strategic centres, fragmented landholdings in multiple ownerships, and physical barriers are the key constraints that threaten to inhibit redevelopment and pedestrian movement.

Midland's ability to attract the major retailers typically associated with other Strategic Metropolitan Centres will be challenged by the proximity of Morley and Cannington, and the low population density of much of its eastern trade catchment.

The continued development of Morley and Cannington, with the potential to attract customers from Midland's catchment area, remains the greatest risk to Midland.

Fragmented land ownership within the Midland Oval and areas south of Great Eastern Highway may prevent the land from achieving its intended development potential. In addition, significant existing strata titled development that is considerably below the permissible density in some precincts means that achieving development potential in these areas is unlikely for many years.

Noise and vibration from the movement of freight trains will mean that development on land directly adjacent to the rail reserve will require special measures to mitigate the associated negative impacts unless the line is re-routed. In addition, parts of the Midland Activity Centre will be within the 20-25 ANEF band of aircraft noise from the proposed future runway at Perth Airport. This too will require noise attentuation for buildings accommodating sensitive land uses, and may create a disincentive for development.

01_ Private land within Midland Oval precinct

02_ Freight train travelling through Midland

03_ Fragmented and strata titled ownership

01_

02_

03_

2.0___CONTEXT

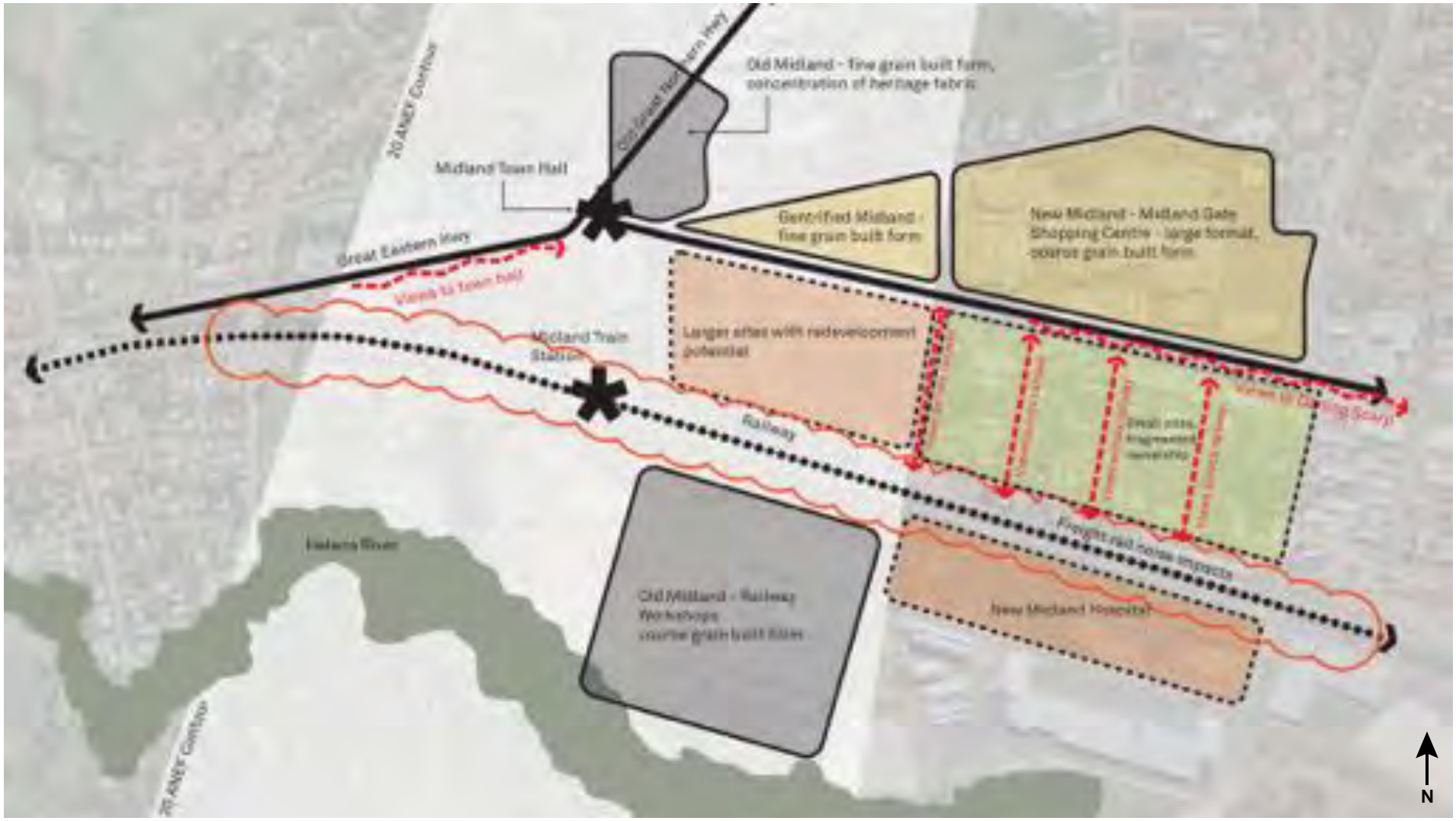

Figure 04_ Local Context and Characteristics

2.0___CONTEXT

2.2 Local Context

2.2.1 Centre Boundary

The Midland Activity Centre is bound by:

- Lloyd Street to the East
- Helena River to the South
- Amherst Road and Morrison Road to the West
- Morrison Road to the North

The study area has an area of approximately 1.8 square kilometres (180 hectares) and incorporates the major functions, attractions and activities of Midland. As illustrated in Figure 5, an 800 metre radius from what is presently the most intensive part of Midland (adjacent to Midland Gate shopping centre) covers most of the centre. No modification to the boundary is proposed.

Figure 05_ Midland Activity Centre boundary

2.0 CONTEXT

2.2.2 Centre Characteristics

Midland Activity Centre Demographic Summary

Urbis (2011) prepared a demographic overview of the Midland Activity Centre based on collectors districts from the 2006 Census of Population and Housing that most closely matched the Midland Activity Centre boundary. The area examined was bound by Morrison Road in the north, Amherst Road in the west, Helena River in the south and Lloyd Street in the east.

In 2009, iD Consulting undertook a demographic study of a wider area extending to Koongamia in the east and Viveash in the north. As that area is considerably larger than the activity centre, the Urbis data is cited here, however where relevant, trends identified by iD Consulting are also noted.

At the 2006 Census the area had a population of 1,081 which was a decrease of 1,191 from 1991.

Using building approvals as a guide, the 2011 residential population was estimated at 1,127 people.

The average age of the population was 43.4, which is older than the Perth average of 36.7 years. 30% of persons in the central area were over 60, compared with the average age of metropolitan Perth at 36.7 years and only 16.5% of persons over 60 within central Perth. This can be explained in part by the presence of a number of aged persons' complexes within Midland.

A predicted significant increase in people aged over 60 years will create a substantially greater demand for service and facilities required by this age group.

45% of Midland residents were employed in 'blue collar' professions compared with the Perth average of only 32%. At $45,278 per annum household incomes are also 37% less than the Perth average of $72,280. This lower spending power has the potential to affect the types of businesses that will be attracted to locate in Midland.
Within the activity centre 75% of households have no or one car. Within the wider area examined by iD Consulting, the dominant modes of travel to work were private vehicles (69.8%) whereas public transport and walking and cycling were significantly lower (8.6% and 5.2% respectively). This would be partly because areas east of the current train station are not well served by public transport, however clearly there is opportunity to influence this modal split in favour of walking, cycling and public transport.

Average household size, at 1.88 persons, is significantly lower than the Perth average of 2.55 persons. This indicates a higher proportion of single person and couple-without-children households. Single person households represent almost 50% of households within the area, double that of the metropolitan area.

The wider area examined by iD consulting is characterised by single dwellings (74.6%) and medium and high density housing is significantly lower (14.9% and 1% respectively) than the Perth average. The activity centre has more than 54% of households renting and more than double the average proportion of public housing tenants, with over 8% of households in this category. There is clearly a need for more medium and high density housing, affordable housing options, and housing suitable to smaller households.

2.0___CONTEXT

2.2.3 Defining Characteristics

The key character areas within the activity centre are:

- West End characterised by the historic commercial and retail development along Great Eastern Highway and Old Great Northern Highway, Town Hall, Landgate and City of Swan administration centre
- Residential areas south of Morrison Road at the west and east ends of the centre, occupied primarily by medium and low density, strata titled housing
- Centrepoint Shopping Centre
- Midland Gate Shopping Centre
- Midland Oval
- Former Midland Railway Workshops
- Woodbridge Lakes residential estate
- Future Midland Health Campus on former rail yards
- Bulky goods showrooms on Great Eastern Highway and south of the railway within the redevelopment area
- Police Services Operation Support Facility

2.3 Land Use

The Midland Activity Centre has a reasonably large catchment population and adequate capacity to support the functions of a strategic metropolitan centre.

The broad concentrations of land use are illustrated in Figure 6.

As indicated in Tables 1 - 3, Midland has over 150,00sqm of commercial floor space which is consistent with the average of other Strategic Metropolitan Centres. The office sector represents 36% of all commercial floor space, however most of this is occupied by government institutions and not by the private sector.

Figure 06_ Predominant existing land use areas

2.0___CONTEXT

2.3.1 Walkable Catchment

SPP 4.2 defines targets for Strategic Metropolitan Centres such as Midland within an 800 metre radius of rail stations or major bus transfer stations or high frequency bus stops. An analysis of this catchment assists with the definition of centre boundaries.

Based on the existing location of the train station and bus interchange, a ped-shed analysis (Figure 7) indicates that over a half of the Midland Activity Centre is accessible within the 800 metre or 10 minute walk catchment.

Areas beyond the Midland Oval and Cale Street are beyond a 10 minute walk from the current train station.

The proposed relocation of the train station will result in almost all of the activity centre being within the 800 metre catchment or 10 minute walk catchment (Figure 8). The exceptions would be part of the north-east and north-west residential areas. The main areas of activity along Great Eastern Highway would be within the 400 metre or 5 minutes walk catchment. The administrative and civic land uses will still be within a 10 minute walk.

The proposed Midland Health Campus will be well within 400 metres or 5 minutes walk of the train station, which will be very important for encouraging workers at the hospital to use public transport.

The proposed train station location will therefore serve a greater portion of the Midland Activity Centre within a walkable catchment.

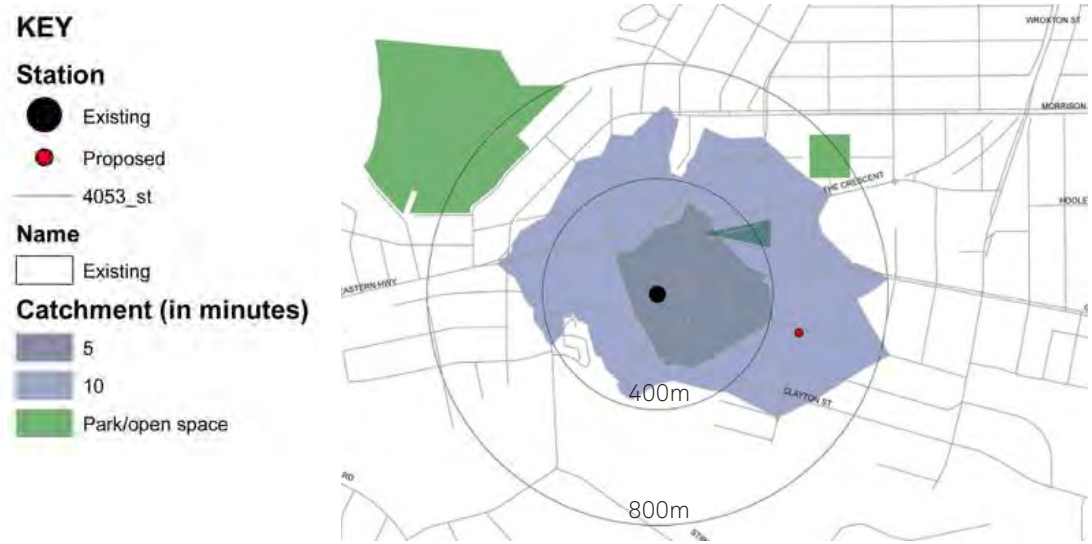

Figure 07_ Ped-Shed analysis for the existing train station location

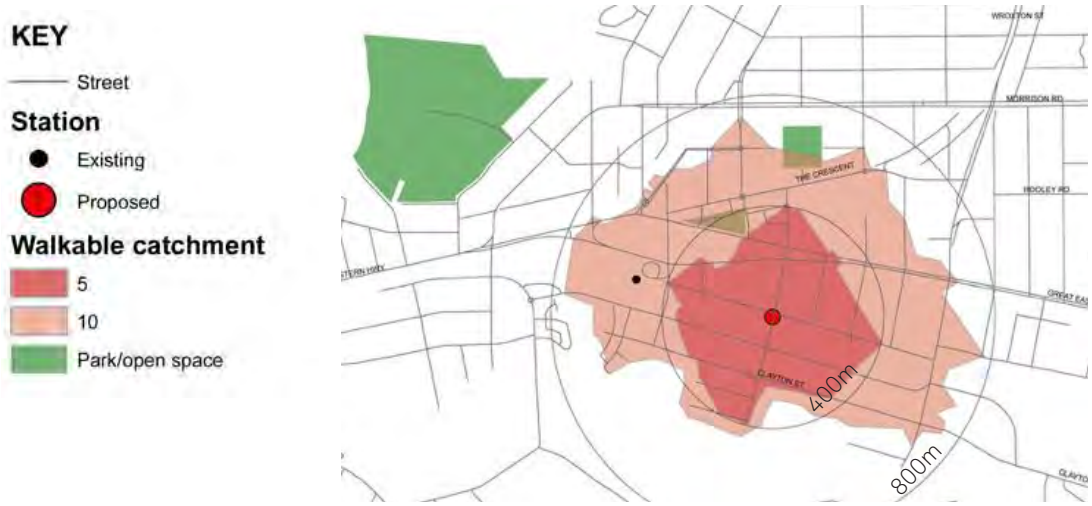

Figure 08_ Ped-Shed analysis for the proposed train station location

2.0___CONTEXT

2.4 Accessibility

Regional Roads

Great Eastern Highway, Great Northern Highway and Lloyd Street are major roads that link Midland with the greater metropolitan area, regional Western Australia, and the eastern States.

Figure 09_ Road hierarchy (Source: Main Roads WA Metropolitan Functional Road Hierarchy 2009)

2.0___CONTEXT

Public Transport_ Trains

The main locus of public transport is the Midland Train Station and Bus Interchange. At present this is situated just west of Helena Street.

The Midland Train Station provides passenger rail services within the metropolitan area and long distance passenger services through to the north-east such as the Prospector, MerredinLink and AvonLink Regional passenger train services (WAPC, 2010). The Midland freight rail line provides goods from the Fremantle port to the wheatbelt, and brings produce including iron ore from other parts of the State and Australia.

Figure 10_ Public Transport: Trains

2.0___CONTEXT

Public Transport_ Buses

Buses travel along Great Eastern Highway and Victoria Street, Morrison Road, Keane Street, The Crescent and Lloyd Street, providing connections to the region. These significant routes accommodate 10 public bus stops. An addition is the free Midland Gate Bus Shuttle, which circulates from Helena Street, Great Eastern Highway, Lloyd Street, The Crescent, The Avenue and Keane Street to the bus interchange.

Figure 11_ Bus routes and bus stops

2.0___CONTEXT

Path and Cycle Network

The Activity Centre is well serviced by footpaths, although the pedestrian amenity of some of these paths could be improved. However it lacks adequate and well connected cycling paths. The main cycling paths are located along Railway Parade, Helena Street, Yelverton Drive and Clayton Street (Figure 12).
There are bicycle lockers provided at the bus interchange and train station.

The existing and proposed movement network serving Midland is discussed more fully in Section 3 - Movement.

Figure 12_Cycle network

2.0___CONTEXT

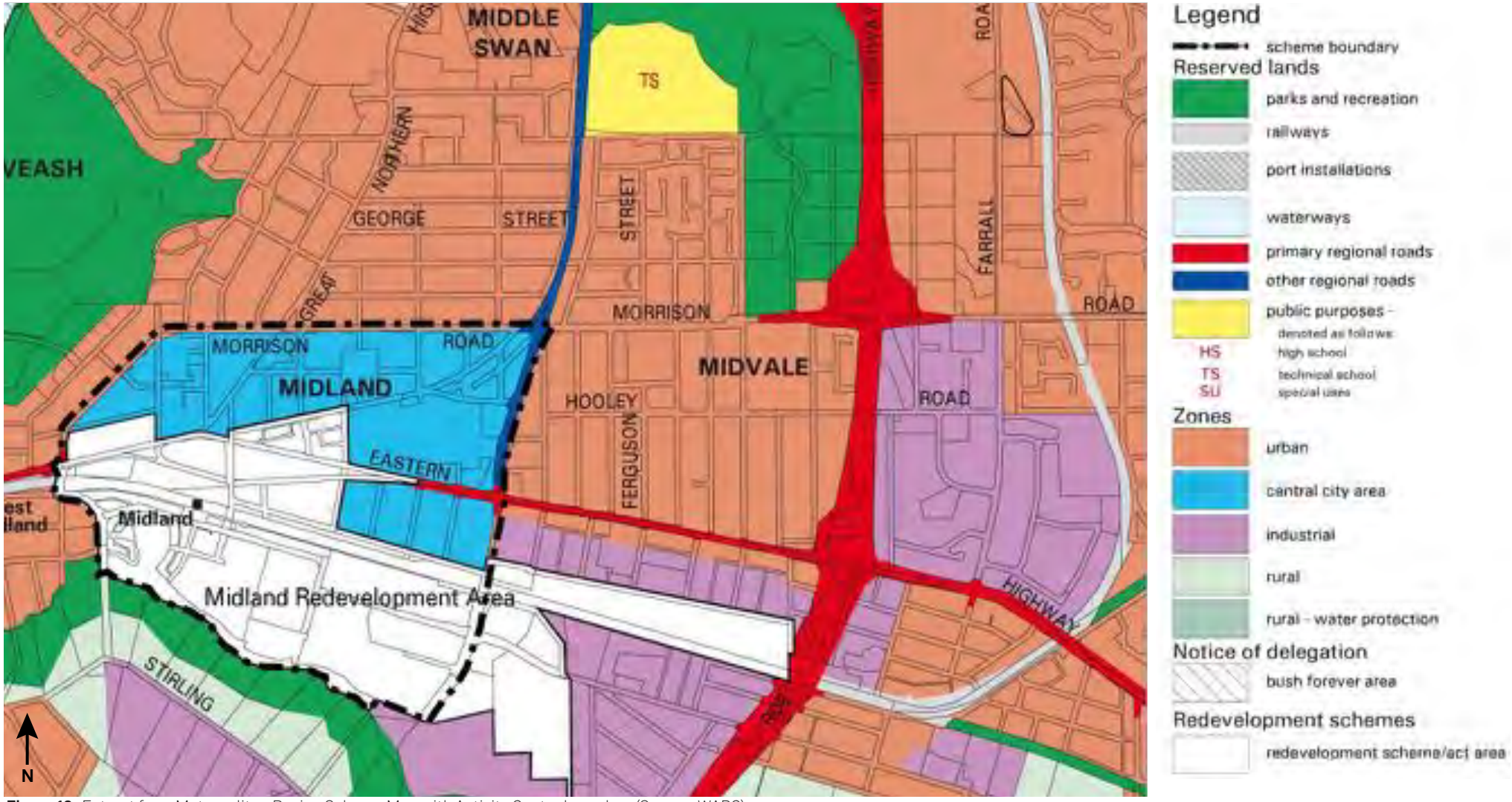

Figure 13_ Extract from Metropolitan Region Scheme Map with Activity Centre boundary (Source: WAPC)

2.5 Relevant Regional Policy

2.5.1 Metropolitan Region Scheme (MRS)

The *Metropolitan Region Scheme* (MRS) is a statutory State Government planning instrument which broadly guides the distribution of land use throughout Perth metropolitan by designating 'zones' and 'reserves'. These are further defined in Local Planning Schemes and other planning tools such as development control policies .

The Midland Activity Centre north of the railway is zoned 'Central City Area' (refer to Figure 13), a zone intended to facilitate strategic regional centre development for major retail, commercial and office facilities as well as employment, civic, business and residential uses. The railway itself is reserved for Railway Purposes, and part of the project area is subject to the *Midland Redevelopment Act* (refer to 2.6.2).

2.5.2 Directions 2031 and Beyond

Directions 2031 and Beyond is the State Government's strategic planning instrument that establishes a hierarchy of activity centres throughout the Perth metropolitan region. The centres are places which provide housing, services, employment, entertainment and recreation. Under Directions 2031, Midland has been designated as a Strategic Metropolitan Centre (WAPC, 2010).

2.5.3 State Planning Policy 4.2 – Activity Centres for Perth and Peel

Consistent with *Directions 2031 and Beyond*, Midland is designated as a Strategic Metropolitan Centre in *State Planning Policy 4.2 Activity Centres for Perth and Peel* (SPP 4.2).

The purpose of SPP 4.2 is to guide development of new activity centres and redevelopment and renewal of existing centres in the Perth and Peel regions. The policy addresses the distribution, function, broad land use, urban design criteria of activity centres, integration of activity centres with public transport and coordinate land use with infrastructure.

The preparation of this Master Plan is a requirement of SPP 4.2 and the Midland Activity Centre is expected to be consistent with typical characteristics of a Strategic Metropolitan Centre and satisfy performance targets.

2.5.4 Outer Metropolitan Perth and Peel Sub-regional Strategy (Draft)

The draft *Outer Metropolitan Perth and Peel Sub-Regional Strategy* was released in November 2010 pursuant to Directions 2031. The strategy has identified areas for urban infill and expansion across the metropolitan area and forecasts that the Midland Activity Centre will accommodate between 2,300 to 2,700 residents (WAPC, 2010).

2.0___CONTEXT

2.5.5 Liveable Neighbourhoods

Liveable Neighbourhoods is an operational development control policy of the Western Australian Planning Commission. It guides the design and assessment of Master Plans and subdivision applications. The policy sets out a range of design principles for developing the urban structure to achieve well defined, compact, and sustainable communities. The policy is mainly applicable to new areas, however it contains many principles that can be applied to planning for existing centres.

Urban design principles outlined in Liveable Neighbourhoods that are relevant to Midland Activity Centre include:

- Main street-fronting retail layouts should predominate, instead of enclosed or parking lot-dominated retail formats
- The key focus of the centre planning is the quality of the public realm with the street being the main organising element for centre design
- Centres capitalise on, relate to and address arterial roads rather than just using them for access
- Centres are designed to facilitate and encourage walking, cycling and public transport access, and not just car access
- Off-street parking is sleeved by buildings to screen the vehicle from the public realm and shared between different centres
- Most commercial and business uses are integrated into a mixed-use centre, rather than segregated in single-use business parks
- To achieve good streetscapes, appropriate building types or forms are needed, with a particular focus on the ground floor to support adaptability, economic change, and amenity over time

2.0___CONTEXT

2.5.6 Transit Oriented Development (TOD)

Transit Oriented Development - Development Control policy 1.6 was prepared to complement a range of planning policies to achieve greater urban sustainability in accordance with the *State Planning Strategy and Statement of Planning Policy 3 Urban Growth and Settlements* (SPP 3).The objectives of TOD are:

- Maximise walkability to a number of relevant destinations, not just to transit locations
- Maximise safety to encourage people to visit and stay in the area outside of peak times
- Minimise the number and duration of private vehicle trips
- Provide public and private car parking in a strategic manner
- Enhance activity levels across the day and night
- Provide logical and convenient connections by walking and transit

The Midland train station and bus interchange is a major transport node in a central location and close proximity to the administrative, residential, commercial, retail and medical land uses. The Activity Centre already displays fundamental elements of TOD and achieving the full potential of TOD is realistic.

01_

02_

03_

01_ Walkability and pedestrian interface
02_ Bicycle parking
03_ Active public realm

2.0___CONTEXT

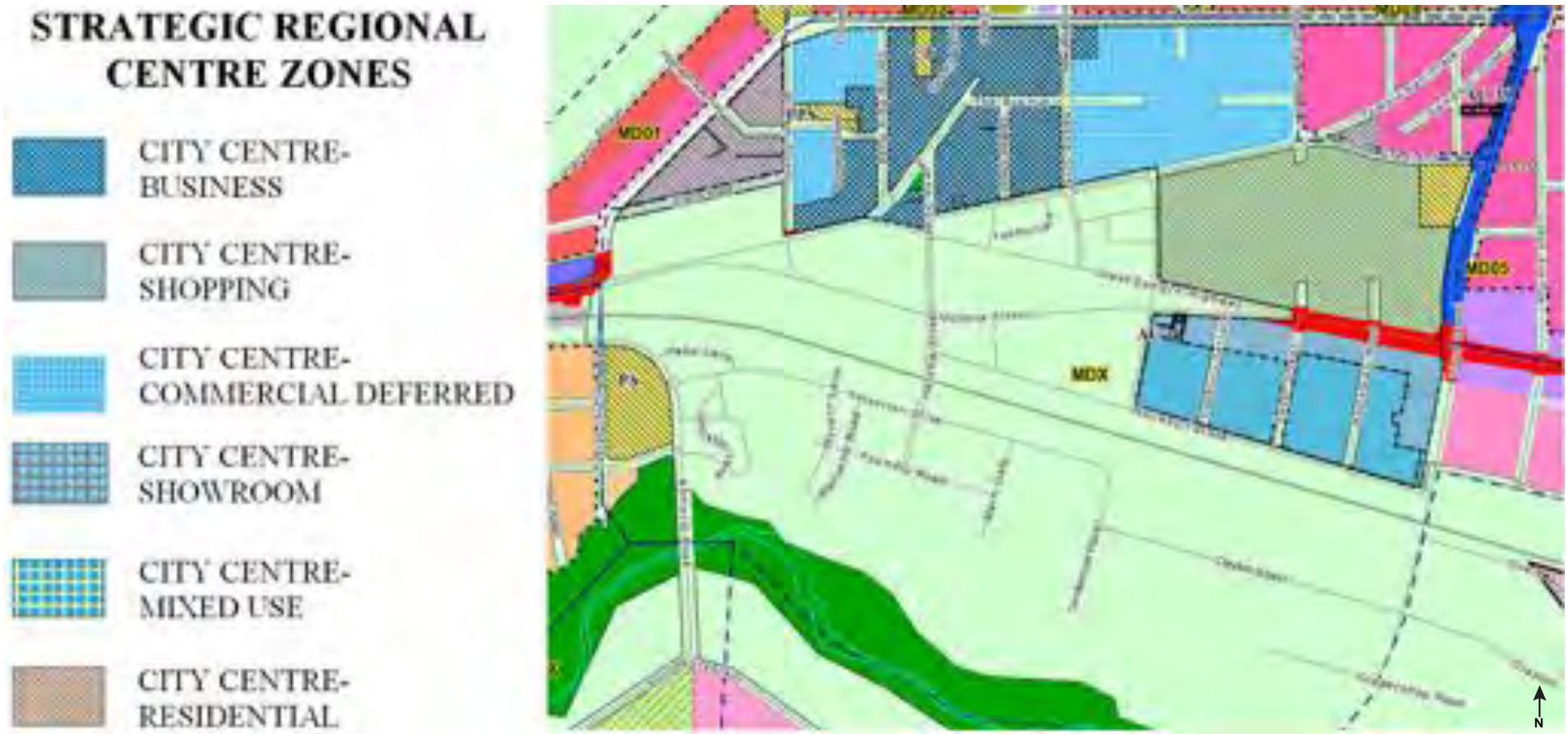

Figure 14_ Extract from Local Planning Scheme No. 17 Scheme Map

2.6 Relevant Local Policy

2.6.1 Local Planning Scheme and Current Zoning

City of Swan Local Planning Scheme No. 17 (LPS 17) controls the development of land within Midland City Centre, excluding land which is administered by the Metropolitan Redevelopment Authority (MRA) under the *Midland Redevelopment Scheme 2005*.

Under LPS 17, Midland City Centre is defined as a 'Strategic Regional Centre'. LPS 17 contains six 'City Centre' zones for Midland City Centre, with specific objectives for each outlined in Part 4 of the Scheme Text. Each of the 'City Centre' zones is required to comply with the general objectives of the 'Strategic Regional Centre'. Figure 14 is an extract from the LPS 17 map.

The Strategic Regional Centre objectives are:

- To create employment opportunities and self-sufficiency in the region
- To promote the development of a range of commercial activities including major offices,retail, entertainment and recreation and community facilities
- To encourage housing development to occur to improve vibrancy and safety
- To provide high levels of accessibility for all modes of transport
- To ensure commercial development is not fragmented and to apply main street principles
- To ensure car parking is well designed to not disrupt main street development or pedestrian movement
- To recognise and protect heritage values

01_ Urban renewal of the former Midland Primary School

02_ Public art celebrating rail heritage as part of the redevelopment

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2.0___CONTEXT

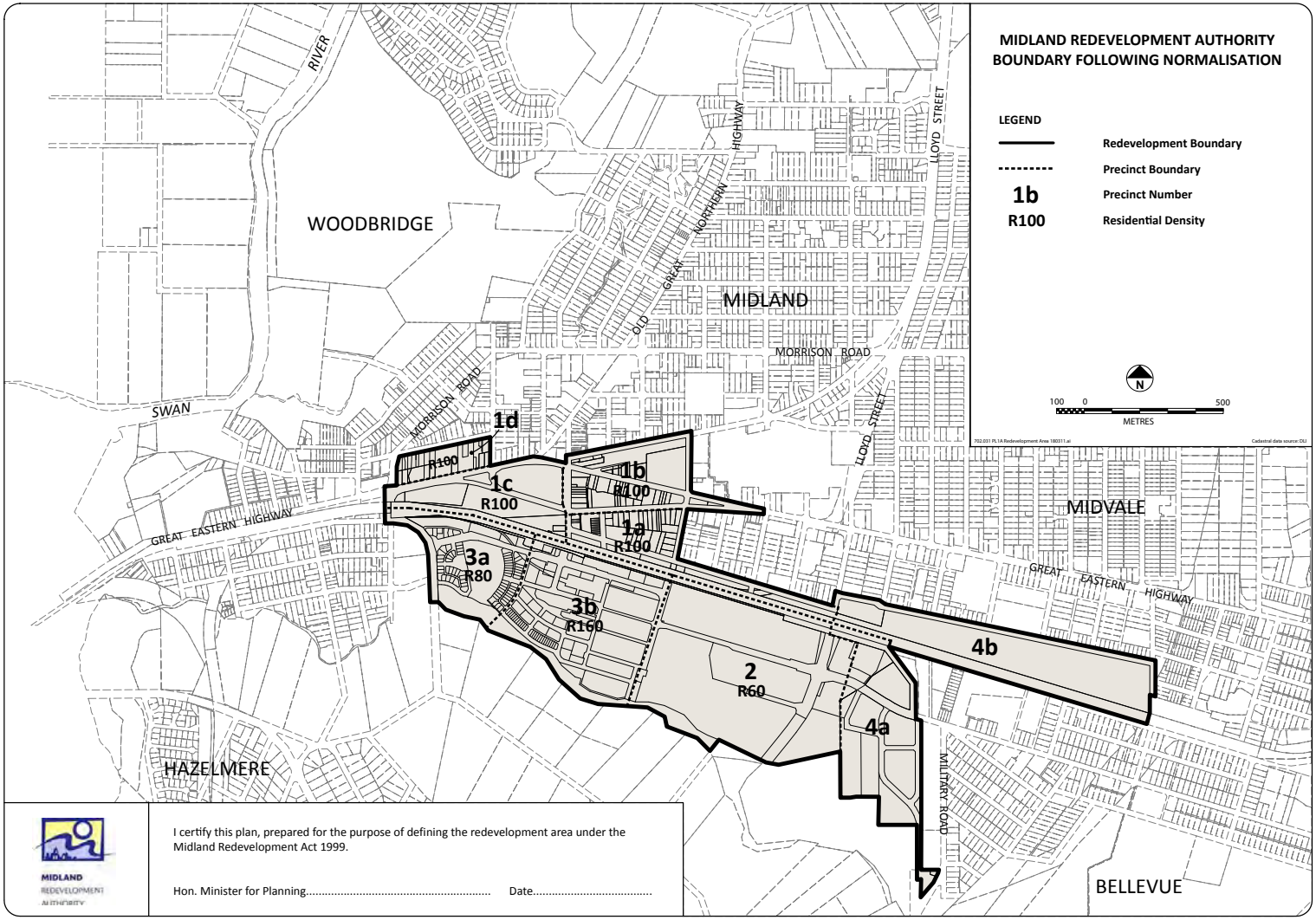


Figure 15_ Extract from Midland Redevelopment Scheme - Appendix 1: Scheme Map

2.0 CONTEXT

2.6.2 Metropolitan Redevelopment Authority

The Metropolitan Redevelopment Authority (MRA) is the agency established to administer the *Metropolitan Redevelopment Act 2011* and has complete authority to plan and redevelop four precincts, three of which are within the Midland Activity Centre boundary.

Midland Redevelopment Scheme 2005 is the statutory scheme created under the Act, guiding development within the Redevelopment Area. It has the effect of suspending City of Swan LPS 17 and the MRS, which do not apply over this area. Figure 15 shows the Scheme Map and the applicable precincts and sub-precincts. The MRA planning framework provides development control and guidance by way of planning policies and design guidelines - each has statutory effect by way of the Redevelopment Scheme. The planning framework does not currently recognise activity centre Master Plans as statutory documents, however there is potential for the MRA to recognise the strategic value of the activity centre Master Plan and use that as a basis to amend its policy documents.

The precincts within the activity centre are the City Centre Precinct, Clayton Precinct, and Helena Precinct. The Eastern Enterprise Precinct is not within the Midland Activity Centre, however its proximity and function can not be ignored as they will have an influence on the activity centre.

Specific design guidelines have been or will be prepared for each precinct to achieve specific character and revitalisation through high quality streetscape and visual amenity. A significant amount of new development has already taken place under the auspices of the Metropolitan Redevelopment Authority (prior to 1 January 2012, the Midland Redevelopment Authority).

2.6.3 Relevant Local Planning Documents

A considerable amount of work has already been undertaken in planning for the future of the Midland Activity Centre. Many documents have been prepared and key documents have been reviewed to inform this Master Plan.

The primary documents that have been reviewed are:

- Midland City 2041 (2010 Draft)
- Midland 2017 – Enquiry by Design (2008)
- Midland 2017 Midland City Centre – Zoning Study Report (2010)
- Midland Place Plan 2010-2012 (2010)
- Midland Concept Plan 2010 (2005)
- Midland 2009 – Public Space Public Life Study (2010)
- Midland Redevelopment Authority – Annual Report (2010)
- MRA Midland Public Space and Public Life Study (2006)
- City of Swan Local Planning Scheme No. 17
- Draft Midland Access Strategy 2012


7
8
9

3.0 Activity

3.0___ACTIVITY

Land use mix and diversity is important to support high frequency public transport, and to promote a competitive retail and commercial market that provides employment opportunities for eastern suburbs residents.

This chapter reviews and assesses the existing mix of activity within Midland and provides recommendations for the future land use arrangement with reference to the intended role of Midland as a Strategic Metropolitan Centre.

3.1 Existing Activity

As an historic centre of long standing, Midland has a well established and diverse land use mix that already exhibits many of the desired attributes of a Strategic Metropolitan Centre outlined in SPP 4.2. The policy states the activity centre must provide sufficient development intensity, a range of employment to achieve employment self-sufficiency targets and land use mix to support high frequency public transport. The challenge facing Midland is not so much diversity, as intensity. The activity centre is very large and land uses are currently spread across it, so that there are few locations that could be described as 'vibrant and lively during the day and night'.

Ideally, those areas that do have a degree of intensity will be supported to become even more successful, intense and vibrant. Over time, other activities will be naturally attracted to locate close to these 'hot spots', so that eventually the whole activity centre will be functioning well around a series of nodes.

Figure 16_ Midland Activity Centre trade catchment area

3.0 ACTIVITY

3.1.1 Projected Growth for 2031

Directions 2031 and Beyond (2010) provides the following projected growth outcomes for the north-east sub region.

Growth	2008	2031	Change
Dwellings	73, 000	113, 000	40, 000
Resident labour force	89, 000	131, 000	42, 000
Jobs in the area	56, 000	98, 000	42, 000
Employment self sufficiency	63%	75%	12%

The *Outer Metropolitan Perth and Peel Sub-Regional Strategy* (2010) indicates that Midland City Centre (including the Midland Oval and Redevelopment Authority area) is expected to yield 2, 300 dwellings for 'business as usual' type development and 2,700 dwellings for a 'connected city' development approach. Notwithstanding these figures, SPP 4.2 requires between 5,181 dwellings, and 7,000 dwellings.

The study area currently accommodates 691 dwellings. With changes to density codes and development standards, the activity centre will have capacity to accommodate the required number of dwellings of 5,181 ; this dwelling yield would be achieved over a considerable number of years.

Employment self-sufficiency in the north-east sub-region is currently 63%. In order to achieve the target of 75% established by the *Outer Metropolitan Perth and Peel Sub-Regional Strategy*, an estimated 53, 000 to 64, 000 additional jobs will need to be provided. The Midland Activity Structure optimises available land for appropirate diversity and mixture of employment throughout the centre. If a linear relationship between labour force and resident population continue and remain constant, it is expected an additional 18, 000 jobs will be generated and will achieve the projected employment target.

3.1.2 Employment

According to Colliers International (2012) the City of Swan's estimated total employment population as a ratio of the resident population is approximately 50% (approximately 34% of the workforce in Swan is derived from the Swan residential base). If a linear relationship between labour force and population growth was assumed (this is in effect a statistical convenience) and the ratio of labour force to resident population remained constant and on current population projections, this implies a growth in the Swan labour force of 80% to approximately 87, 850 by 2026.

Labour force growth will be influenced by the availability of employment in an area which is in turn affected by a range of factors not the least of which is the level of private sector and government investment in employment generating projects and ventures, and the changing profile of industry sectors over time.

An analysis of 2006 employment data for the City of Swan suggests around 38% of the workforce is employed in white collar areas, whilst just over 14% is employed in retail trade and nearly 15% in manufacturing. Without specifying exact percentages, it is reasonable to assume that a significant volume of employment growth will occur in the town centre, particularly as the health precinct develops and demand for retail and commercial space increases over time.

3.0___ACTIVITY

3.2 Existing Land Uses

Within the Midland Activity Centre the predominant existing land uses are:

- Retail
- Office
- Health related activities
- Highway businesses and showrooms
- Residential
- Civic

It is estimated that Midland Activity Centre Master Plan area currently accommodates:

- 691 dwellings
- 68,385sqm retail/shop
- 50,000sqm office

Generally Midland is well catered for in terms of diversity of land uses, but each activity has varying extents. There are no evident clusters of larger private firms operating in a business environment as the existing office cluster contains local businesses and government departments servicing the region, with the exception of Landgate. It is also apparent that the centre's retail activity contains few "high end" stores. The lack of department stores compounds this inadequacy in activity type.

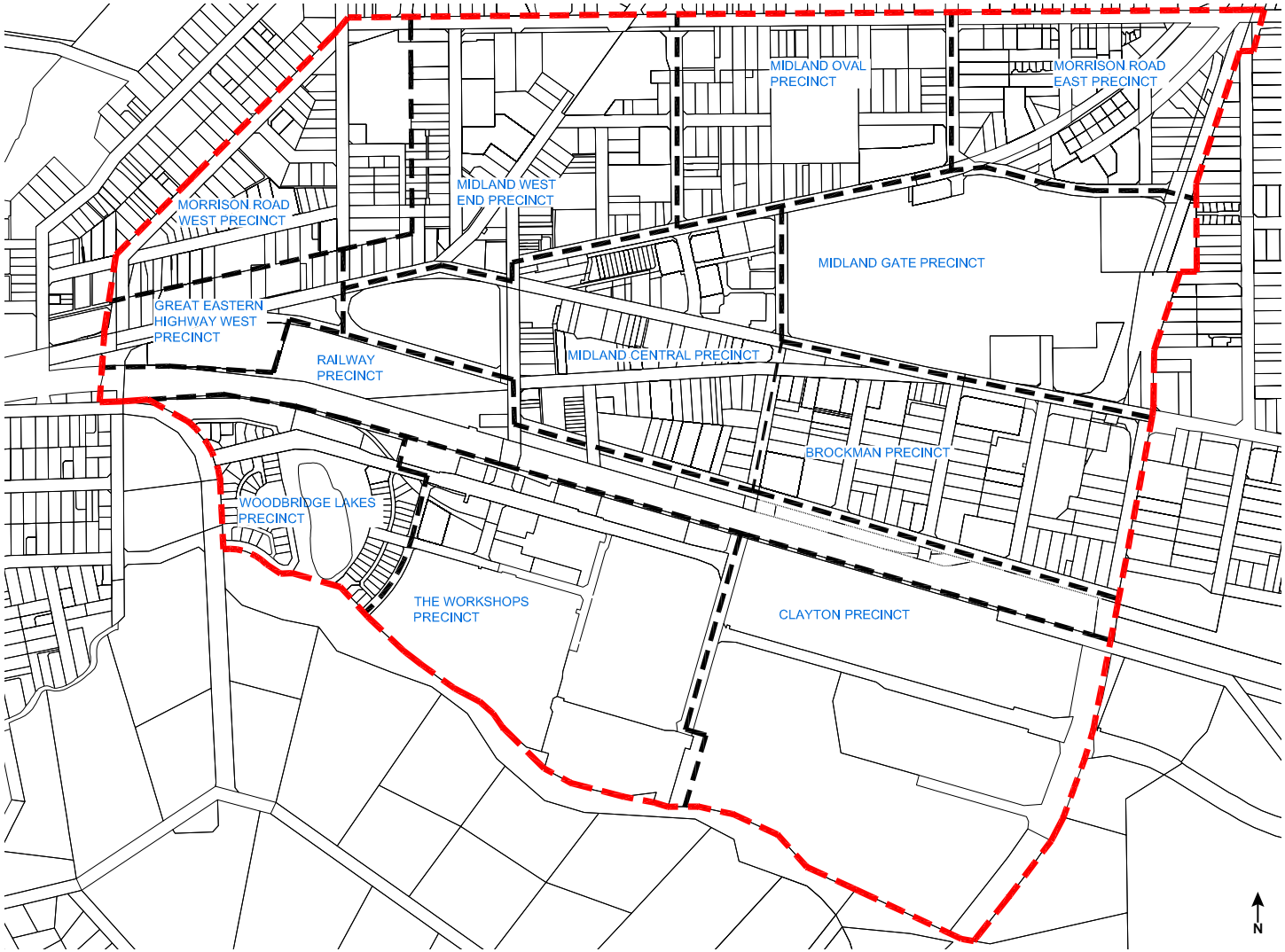


Figure 17_Midland Activity Centre land use clusters

3.0 ACTIVITY

3.2.1 Existing use clusters and precincts

There are a number of identifiable land use clusters within Midland, which can be loosely described as forming the precincts shown in figure 17. It is neither practical nor desirable for a centre as large as Midland to be uniform in character. The existing land use clusters of Midland Activity Centre are:

- Midland Gate Precinct - big box shopping
- Morrison Road East Precinct - residential accommodation in mostly grouped and some single housing
- Midland Oval Precinct - existing sporting field with peripheral commercial functions
- Brockman Precinct - a mix of highway orientated and other commercial uses with a sprinkling of residential buildings
- Midland Central Precinct - retail and commercial functions
- Midland West End Precinct - Midland's traditional centre
- Morrison Road West Precinct - residential accommodation
- Great Eastern Highway West Precinct - highway commercial uses
- Railway Precinct - the Midland Train Station and associated car parking
- Woodbridge Lakes Precinct - mostly single residential houses focused around the Coal Dam Lake
- Workshops Precinct - an area containing the heritage listed former railway workshops and associated buildings; it is planned to become a more intense cultural and mixed use area
- Clayton Precinct - containing the new Midland Health Campus, Police complex and showrooms

The activity centre exhibits areas of similar land uses that have aggregated together to form clusters within the subject site. The retail clusters include Midland Gate, Midland Central and Clayton Precinct which occupy the majority of the retail floorspace within the activity centre. These nodes accommodate two shopping centres and future Midland Health Campus, accompanied by a new transport hub, which creates the centre's most economically activated and vital core.

The main residential clusters are located in the north-eastern, north-western and south-western edges of the activity centre. The northern residential land uses are characterised by low density single houses and strata development, whereas the southern residential area accommodates new higher density residential development which is complemented by open spaces and rejuvenated areas.

The Workshops Precinct land uses are heritage buildings which will accommodate the Super GP clinic and Railway Square which will contribute to the centres civic component.

Mixed use development exists within the Brockman area where residential land uses, religious faciliities and medical consultants are accommodated. The Brockman area is an area of transition and exhibits old housing stock which could be redeveloped for future development to support the major activity nodes such as the Health Campus and new Cale Street train station.

3.0 ACTIVITY

3.3 Dwellings

Due to the historical setting of Midland as a major commercial centre, there is limited residential development within the Activity Centre. Overtime as commercial activity declined, additional residential development occurred, however at a low density due to the outer metropolitan location. This has resulted in low dwelling density within the Midland Activity Centre. Some recent development has been undertaken as high density.

The base R-Coding within the activity centre is mainly R-60, with a significant component of R-80 within the Morrison Road East Precinct and a significant component of R-100 within the Morrison Road West Precinct and R-160 within the Brockman Precinct. Additionally, the residential zoned land on the periphery of the Midland Activity Centre is generally included within the R60 classification.

Under the provisions of Part 7 of the R-Codes, there is no density limit associated with residential development for multiple dwellings, with plot ratio being the sole determinant of development intensity.

Within the MRA area, the R-Code provisions only apply where design guidelines are silent. Dwelling density is governed by design guidelines and site specific guidelines and based on plot ratio and building envelope standards.

3.3.1 Residential Density Targets

SPP 4.2 requires that within an 800 metre walkable catchment, a minimum of 30 dwellings per gross hectare is achieved. The desirable level is 45 dwellings per gross hectare.

For the purposes of measuring gross density, the activity centre area measures 172.7 gross hectares and given the building scale and floor areas proposed, the minimum density of 30 dwellings per hectare can be achieved (5,181 dwellings) in the form of distinct residential neighbourhoods and mixed use precincts. In considering the potential residential development standards for Midland, multiple dwellings with an average area of 80 square metres has been assumed. Only a small proportion of single and grouped dwellings have been considered for Midland.

It is important to note that Midland is coming from a low base in terms of dwelling density - currently there are only an estimated 691 dwellings throughout the project area. It is going to take a significant amount of time to increase the dwelling yield to the minimum required by SPP 4.2, and will require significant investment on the part of State and local government, particularly around amenity, community infrastructure and job promotion. Property amalgamations will also be required to ensure development acheives the form and density required for Midland. Site amalgamation requirements are dealt with in the Implementation chapter.

3.0 ACTIVITY

3.4 Community, Civic and Cultural Facilites

The existing significant community, civic and cultural facilities in the Midland Activity Centre are:

- Midland Public Library
- Midland Oval
- Governor Stirling Senior High School
- Midland Town Hall
- Landgate
- City of Swan Administration Centre
- Midland Police Station
- Midland Court House
- Midland Police Operational Facilities
- Midland Junction Arts Centre
- Coal Dam Park
- Juniper Gardens

The Midland Activity Centre is continually growing and providing new development such as the Midland Health Campus. The MRA also proposed cultural facilities around Railway Square, including a performaing arts centre.

3.4.1 Coal Dam Park

Located in the Woodbridge Precinct, Coal Dam Park is an expansive park adjacent to the historic Coal Dam with access to the nearby Helena River parkland. It features landscaping for passive exercise, picnics and family enjoyment.

3.4.2 Juniper Gardens

This park is located within the City Centre precinct and gives Midland a distinctive recreational area within the centre of the activity centre and features artwork that complements the heritage of the location. Juniper Gardens provides a contemporary junction for a variety of entertainment uses and residential and commercial activity.

3.4.3 Railway Square

Railway square is directly east of Helena Street and acknowledges the important heritage value of the space through mostly hard landscaping. Mature trees will soften the square and draw attention to the architecture of the surrounding heritage buildings. The Square will be surrounded by Mixed Use 3-4 storey development creating an urban square full of entertainment and vibrancy.

3.4.4 The Heritage Green

The space is adjacent to the Foundry and other heritage buildings. It is an active open space area, a unique environment in a unique setting and a connection point for all activities of the the Workshops Precinct. Heritage Green creates a forum for workers, students, commercial and residential areas where they can interface with heritage buildings and contemporary industries.

3.4.5 Future Recreational Activity

A proposed recreation node and exercise network will follow the Swan River between Morrison Road and Lloyd Street. The node will provide foot paths, seating, playground facilities and barbeque stations for recreational use. The exercise network will integrate with the existing cycle network and provide high quality footpaths for jogging, cycling and exercise equipment to promote a healthy community.

The movement network will be linked to the Swan River Regional Park. The Regional Park provides entertainment for families, connection to the Swan Valley tourism precinct and a wetland. The link will facilitate greater accessibility between the activity centre and the natural resources, improving the amenity of the centre.

3.0 ACTIVITY

3.5 Retail

The two significant retail land uses within Midland Activity Centre are Centrepoint and Midland Gate Shopping Centre (approved to expand to 75, 000 sqm). Centrepoint Shopping Centre contains a supermarket and retail businesses, whereas Midland Gate contains discount department stores, supermarkets, restaurants, business services and large format retail businesses with expansive car parking areas.

Traditional or 'Main Street' style retail activity occurs along the The Crescent, Helena Street, Old Great Northern Highway and Great Eastern Highway, predominantly within the West End (Midland's historic town centre).

3.5.1 Retail Needs Assessment

The main source of retail activity is provided by Midland Gate, "main street" and "highway commercial" retailing precincts. The Midland Activity Centre's trade catchment area covers most of the North East Sub-Region, but extends further east to include the rural towns of Toodyay and Northam. Currently there are over 210, 000 residents in the North East Sub-Region and it is expected to increase by approximately 55, 000 residents between 2011 and 2021.

In order to support the growing population, the Midland Gate Shopping Centre plans to expand from 56, 000 sqm to approximately 75, 000 sqm (additional 16, 000 sqm retail space and 3, 000 sqm of commercial space). The expansion is proposed to include:

- Expansion of the Coles to provide a hypermarket style offer (+2, 900 sqm)
- Mini major floor space (+2,620 sqm)
- Specialty floorspace (+11,500 sqm)
- Commercial floorspace (+3,000 sqm)

The expansion to commercial and retail floorspace is required to support the ongoing population growth and real growth in retail spending per capita. Within the total trade area, the retail spending market is forecast to increase by over $550 million between 2011 and 2016 and over $500 million between 2016 and 2021. Retail spending by residents in the North East Sub-Region area is forecast to increase by almost over $725 million in the next 20 years (URBIS, 2011).

According to URBIS (2011) Midland Gate attracts a 20.7% share of all expenditure by trade area residents on retail goods and services. This indicates that approximately 79% of trade area retail expenditure is being directed to other centres of retailers within, and outside the trade area. The provision of floorspace in the North East Sub-Region is 1.38 sqm per capita which is below the Perth average of 2.0 sqm per capita. If spending habits were to increase to the metropolitan average, then an additional 130, 000sqm of retail floor area could be supported across the north-east sub region. Based on current spending attraction in Midland, an additional 26, 000sqm of retail floorspace could be achieved.

The combination of below average provision and the low quality floorspace around Midland Gate is resulting in expenditure leaking out of the Activity Centre, and the leakage will increase over time in the absence of any significant expansion of retail floorspace in the Midland Activity Centre. Without the increase in floorspace supply, growing demand will force residents to travel outside the activity centre and the share of retail floorspace outside the Activity Centre will increase from 38% in 2016 to 44% in 2021.

3.0 ACTIVITY

3.5.2 Retail and commercial supply and demand analysis

Within the main trade area catchment, an estimation of the residential population base approximates a growth trajectory of 266,362 residents by 2026. Based on an assumed average square meterage per employee of 32 sqm for retail and approximately 20 sqm for commercial/office, the demand for floorspace suggests that net new employment in Midland by 2026 could grow by 2, 000 sqm to 2, 500 sqm in the retail sector and by approximately 1, 800 sqm in commercial/office space by 2026.

Essential Economics reports the current level of retail supply in the Midland Strategic Metropolitan Centre is 134, 500 sqm across four precincts: Midland Gate, Midland Activities Area, Great Eastern Highway and the Midland Railyards.

Midland Gate accounts for approximately 52, 500 sqm and Centrepoint Shopping Centre 8, 830sqm. The primary bulky goods areas at the south eastern end of the Midland railyards precinct is approximately 35, 500 sqm of retail floorspace.

Estimates of retail floorspace are most directly influenced by the extent of household expenditure on retail categories within the trade area, and the extent to which some of that expenditure escapes from the catchment, also the expenditure that comes into Midland Activity Centre. Based on estimated population growth and percentage of expenditure capture for the area, the main trade area aggregate pool of residential expenditure is projected to grow from $608 million in 2011 to $960 million in 2026.

The main trade area total supportable floorspace is currently 151, 561 sqm and is expected to increase to 201,094 sqm. The net new supportable floorspace is 17,061 sqm and expected to grow to 66,594 sqm.It is suggested an increase of 3% and 5% respectively in retained household expenditure in the primary trade catchment of the Midland Town Centre main trade area can project net new supportable floorspace to 75,013 sqm and 80, 627 sqm respectively. It is suggested that the activity centre has a shortfall of between 13, 000 sqm and approximately 23, 000 sqm of retail floorspace. This is predicted to rise between 66, 600 and 80, 600 sqm by 2026.

3.0 ACTIVITY

3.5.3 Commercial/Office Floorspace Demand

The Department of Planning's data for land use (2008) identifies the (then) supply of floorspace by type. The Midland Floorspace Provision table presents an extract from this database along with an estimate of the ratio of per square metre floorspace by category per City of Swan population at the same period.

The Midland Supportable Commercial Floorspace Demand (indicative) table outlines an indicative demand profile for commercial/office floorspace applying the same ratio to projected population growth for the City of Stirling. In theory, Midland town centre has a shortfall of around 7, 100 sqm of commercial/office floorspace which is expected to rise to a requirement for approximately 35,500 sqm of net new commercial/office floorspace by 2026.

Floorspace Type	sqm	sqm / population
Manufacturing/process/fabrication	1, 552	0.01
Storage/distribution	1, 516	0.01
Services	4, 088	0.04
Shop/Retail	68, 385	0.65
Other Retail	14, 245	0.13
Offices/Business	56, 552	0.53
Health/Wellfare/Community	10, 749	0.10
Entertainment	15, 389	0.15
Utilities/Communication	1, 624	0.02
Total	**174, 100**	**1.65**

Table 4: Midland Floorspace Provision (2008)

	2012	2016	2021	2026
Supportable Floorspace	63, 703	72, 144	81, 827	92, 130
Net New Required (sqm)	7, 151	15, 592	25, 275	35, 578

Table 5: Midland Supportable Commercial Floorspace (Indicative)

3.0 ACTIVITY

3.6 Committed Development

Two major development proposals are committed for the Midland Activity Centre.

Midland Gate Shopping Centre Expansion

The Midland Gate Shopping Centre has been approved to expand from its current floor area of 56,000 square metres to 75,000 square metres. The expansion will provide for a reorganisation of the existing supermarkets and discount department stores, addition of a mini-major retailer and additional specialty shops. At present, there are no plans to provide a full service department store within Midland. The centre currently employs approximately 1,120 people, increasing to approximately 1,500 people upon expansion.

Midland Health Campus

Stage 1 of the Midland Health Campus is to be opened by 2015 and will contain a 307 public bed hospital, a 60 bed private hospital, emergency department and other support departments to cater for regional acute health needs. The hospital will employ approximately 900 staff upon its opening. A staged approach to expansion will see the hospital grow over time to provide additional public beds and services as population health needs increase.

Related, though not associated with the health campus, the Midland GP Super Clinic is located within part of Block 1 of the Midland Railway Workshops. In full operation, this provides general and allied health services, consulting rooms, chronic disease management, day surgery, radiology, pathology and pharmaceutical services.

3.7 Land use diversity and gaps

The Midland Activity Centre is an historic economic centre and the land uses have matured over time catering to the increasing population and providing a variety of retail, cafe/restaurant and showroom services. In recognition of the increasing population and need for medical services the Midland Health Campus was proposed for the south-eastern sector of the activity centre to service the strategic centre and north-eastern metropolitan region.

Although the commercial and retail services have evolved over time, the residential land uses are characterised by very low density single dwelling residential development which will require a large increase in density at appropriate locations to support the increasing population. In response a significant increase in amenities and other strategies to boost a market for apartment development will be required to cater for the a larger resident population.

In order to achieve the diversity performance target the activity centre will require an increase in office and residential floorspace. The increase in office land uses will contribute to the centre's ability to retain white collar workers within the area and attract more people from surrounding areas which will be supported by the Cale Street transit station. Medical services will be forthcoming due to the establishment of the Health Campus and Super GP clinic which will create opportunities for surrounding land to introduce supporting medical land uses such as physiotherapists, chiropractors and general practitioners.

This Master Plan establishes the supply of floor space for Midland's future residential and non residential floor space. Achieving the desired intensity of development requires an increase in demand and investment sentiment.

3.0 ACTIVITY

3.8 Midland Activity – Capacity Assessment

A capacity assessment has been undertaken for the Midland Activity Centre to consider its maximum floor space potential, taking into account the intended character and built form across the project area. The capacity assessment provides a complete build-out scenario based on a number of assumptions regarding land use mix.

This Master Plan does not seek to provide timing for the development of the floor area – such development is dependent on market demands, broader economic conditions, government investment and any marketing strategies employed by private land owners and government to attract investment to Midland.

The capacity assessment is not to be used as a tool to prescribe the floor space break down across the Activity Centre, indeed the eventual land use mix is likely to be different to that shown in this document. However, the capacity assessment shows the intent for a mix of residential and non residential land uses within the various precincts across the Activity Centre and is useful to consider the potential demand on infrastructure, roads and community services.

Overall Development Potential

Based on the intended character and form of new development throughout the Master Plan area, the Midland Activity Centre can potentially accommodate:

- 44,831 square metres of bulky goods retail
- 421,841 square metres of office space
- 240,853 square metres of education, civic and cultural floor space
- 200,000 square metres of retail (note: the Retail Needs Assessment prepared by Essential Economics acknowledges retail floor space of 200,000 square metres in Midland)
- 39,653 square metres of dining and cafe floor space
- 6,955 dwellings

Based on these figures, there is potential for 11,823 permanent residents and 21,907 employees across the activity centre Master Plan area.

3.8.1 Diversity Performance Targets

Midland could contain somewhere up to 200,000 square metres of retail floor space, as justified by the Retail Needs Assessment prepared by Essential Economics.

SPP 4.2 requires a 50% mix of other employment generating land uses when retail floor space exceeds 100,000 square metres. As shown in the following pie charts (figures 18 and 19), there is sufficient land use mix planned to achieve the diversity targets established by SPP 4.2.

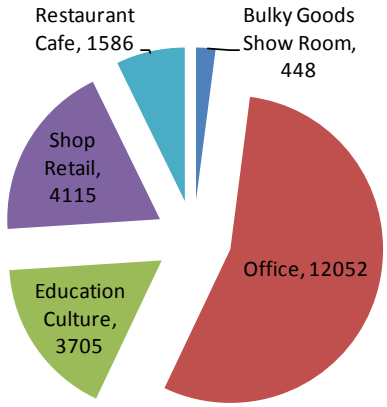


Figure 18_Potential employee numbers by sector

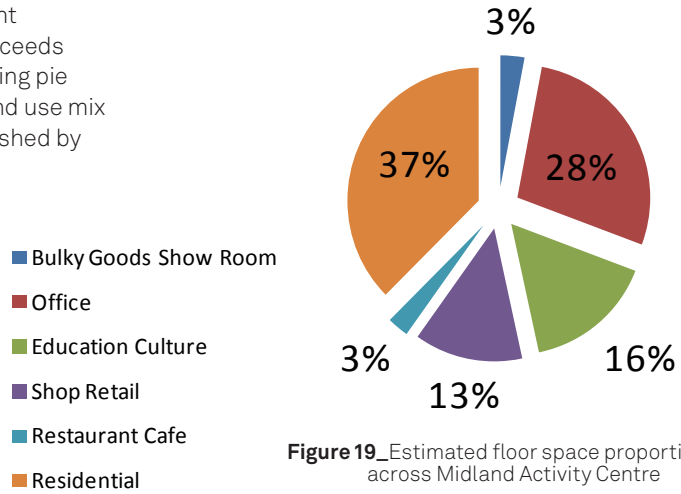


Figure 19_Estimated floor space proportion across Midland Activity Centre

3.0 ACTIVITY

3.9 Spatial Planning Implications

A key challenge for Midland will be to generate sufficient levels of activity, intensity and diversity over time. A key development that will support this progression is the Midland Health Campus. The Campus will feature a workforce of approximately 3, 000 to 4, 000 when fully operational and service potentially 200, 000 to 300, 000 patient events. In addition to this, the individual patient events are also likley to attract supporting visits from friends and relatives, suggesting that the total throughput of people in the precinct may well exceed 500,000 annually.

The establishment of a transit oriented development (TOD) notionally around the Cale Street/Railway Parade junction can fundamentally change the nature of the Midland town centre and how users (residents, workers and visitors) perceive and interact with it. This development will be complementary to Midland Gate, Centrepoint Shopping Centre and the Health Campus.

High intensity economic development and spatial investment is to be concentrated between the Midland Gate and Cale Street TOD in particular along Cale Street, Padbury Terrace, Sayer Street and Brockman Road. This area of transition has opportunity for high pedestrian movement and activation through the investment of cafes/restaurants, retail, medical services, short stay and long term accommodation. The shopping centre and Health Campus are intense activity nodes which anchor and encourage movement within the activity centre. This movement will promote the development of pedestrian services and supplementary medical services. Midland Oval will play an important role to further intensify development at the northern end of this activity corridor.

3.9.1 Floorspace Allocation and Place Purpose

A conventional approach to the planning of the Midland town centre would concentrate on the allocation of retail and commercial/office floorspace in and around the Midland Gate complex and effectively consolidate the precinct. The development of the Workshops Precinct, the establishment of the health precinct and potential relocation of the Midland train station to Cale Street will mean a substantial reconfiguration of the Midland town centre.

Not all of the Midland town centre can be activated and revitalised at the same time. Vitality is about the concentration and frequency of economic and social transactions that occur within a given area and consideration must be given to the areas that most require and will be most suited to activation over the period to 2026. Moreover, the allocation of net new floorspace, or indeed the relocation of existing floorspace, for a town centre is neither formulaic nor prescriptive. The concentration and frequency of economic and social transactions are greatest in areas that demonstrate high public exposure, quality and activation and this guides where to maximise commercial development. These areas include

- Cale Street/Railway Parade junction
- Cale Street and Padbury Terrace corridors between TOD and Midland Gate
- Existing train station site and area adjacent to Midland Centrepoint
- The Crescent and Keane Street borders of Midland Oval
- Midland Gate

Vibrancy and economic vitality is an interactive and self-reinforcing process that will bolster the performance of a place and make it a desirable place for residents and for commercial and retail tenancies. The planning of the Midland Activity Centre should consider a number of place creation and activation principles which include:

- Purpose of place - that is; understanding the reason why the place exists and how often different users will engage with the place
- Place focal point - is the core focus of the place and how this is expressed in a design sense and functional sense
- Accessibility, connectivity and legibility - ease of access to place and mode of access
- Attraction and amenity provision - what are the elements additional to the functional purpose of the place that will attract users and augementation of major destinations
- Governance, priority sites usage and control - what are the priority sites within the place and to what extent can a place activation and management strategy control both the nature of development on the sites and the type of tenancies that might be attracted to the location


10
SPEED LIMIT
12 KMH

4.0 Movement

4.0___MOVEMENT

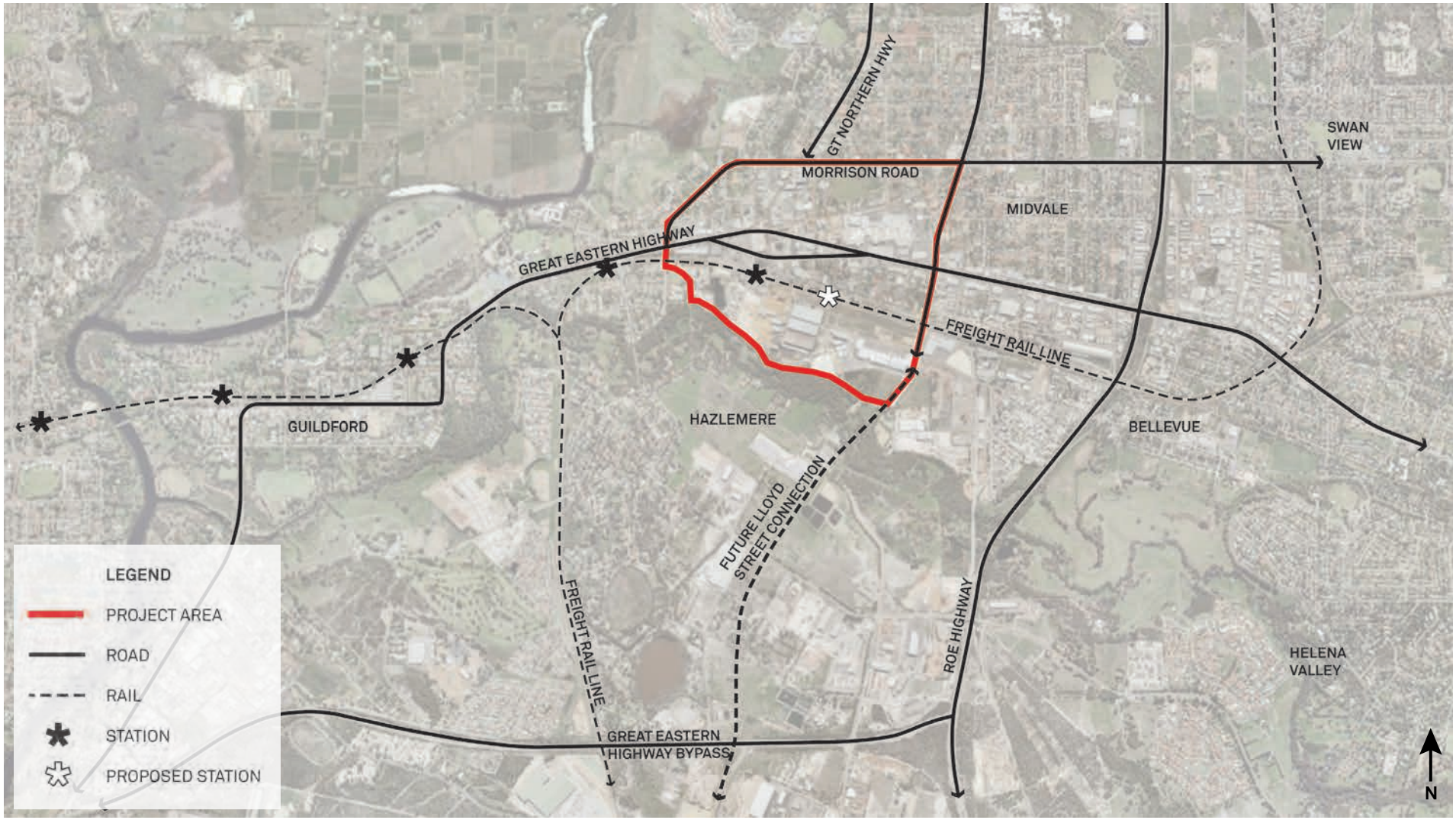


Figure 20_ Regional Movement Network around Midland

4.0 MOVEMENT

Improved internal circulation for pedestrians and cyclists as well as vehicles, and easy access to high frequency public transport are two key objectives for Midland.

4.1 Regional Perspective

The Midland Activity Centre is easily accessed by both road and rail, being located at the end of the Midland rail line and bisected by Great Eastern Highway. Future regional road network upgrades including the Perth-Darwin Highway and Lloyd Street extensions will further improve access to Midland for freight and by car.

However the regional transport routes that give Midland its excellent accessibility also divide it, making efforts to create an urban setting consistent with the community's vision for Midland problematic.

It is therefore highly desirable to achieve a better balance between regional movement and local access by separating regional from destination traffic into and through the Centre.

Cardno was engaged by the City of Swan to examine elements of the movement network relating to Midland in some detail, and to make recommendations that will support State, local and community aspirations for Midland as a Strategic Metropolitan Activity Centre. This section provides an overview of the findings. The full technical report forms Appendix A of this report.

4.1.1 Strategic Road Hierarchy

Great Eastern Highway is a Primary Distributor Road under the Main Roads Western Australia (MRWA) Main Roads Functional Road Hierarchy (MRFH). This means it provides for major regional and inter-regional traffic movement and carry large volumes of fast moving traffic. It is managed by MRWA.

Great Eastern Highway, along with its one-way partner Victoria Street in the town centre, bisects the Activity Centre.

Lloyd Street is classified as a District Distributor Road. As such it carries traffic between industrial, commercial and residential areas and generally connects to Primary Distributors. Lloyd Street is a truck route and provides only limited access to adjoining property. It is managed by the City of Swan.

4.1.2 Arrival Points

The point of arrival experienced by visitors to the Centre is influenced by their chosen transport mode. As such, the key entrance locations should be designed to accommodate the desired transport modes.

Private Vehicles

The main approach routes to the Midland Activity Centre include Great Eastern Highway from the west and east, and Lloyd Street from the north. Great Eastern Highway bisects the Activity Centre and is a preferred route for local traffic accessing the centre. Public car parking is proposed to be located near the point of arrival to minimise the impact of private vehicle traffic on the Centre.

Morrison Road forms the northern boundary of the Centre and is supported as a primary local access route with access to large-scale public commuter and visitor car parking. This redirection of local traffic away from Great Eastern Highway should assist in minimising the impact of regional traffic growth on pedestrian crossing, caused by the existing road form and traffic volumes.

Public Transport

The Midland Station operates as a major interchange hub to regional rail services. It also forms a gateway to Midland for commuters and visitors. A relocation of this station is proposed from its existing location near west of Helena towards a more centralised location near Cale St with better access to Midland Gate, and to the proposed centre of activity, including the Midland Health Campus and development south of the rail line.

4.0___MOVEMENT

Cycling

With the proposed extension of the WABN Principal Shared Path (PSP) network through to Midland Station, this corridor becomes the primary entrance point for commuters to the west of the Centre. The Activity Centre Master Plan proposes a fine-grained network of on- and off-street provisions that support cycling as a viable mode choice both for commuters and visitors. Existing on-street cycling routes from the east of the Centre will be supplemented and improved to increase the available route options, including Great Eastern Highway, Clayton Street, the rail corridor and Morrison Road. Each of these routes will tend to cater for a different segment of the population and the interface between route alignment and end-of-trip facilities will be managed to reflect the target demographic.

4.1.3 Key Sites

To facilitate access to key sites within the Activity Centre, the Midland Station is proposed to be relocated toward the centre of the City. This will improve accessibility and support the transition towards sustainable transport. Key sites at the Activity Centre core include the Midland Health Campus and the likely ancillary health nexus to the north of Railway Road, Midland Gate Shopping Centre and Midland Oval Precinct. These sites are all generally located along the Cale Street corridor which extends north from the relocated Midland Station to Morrison Road.

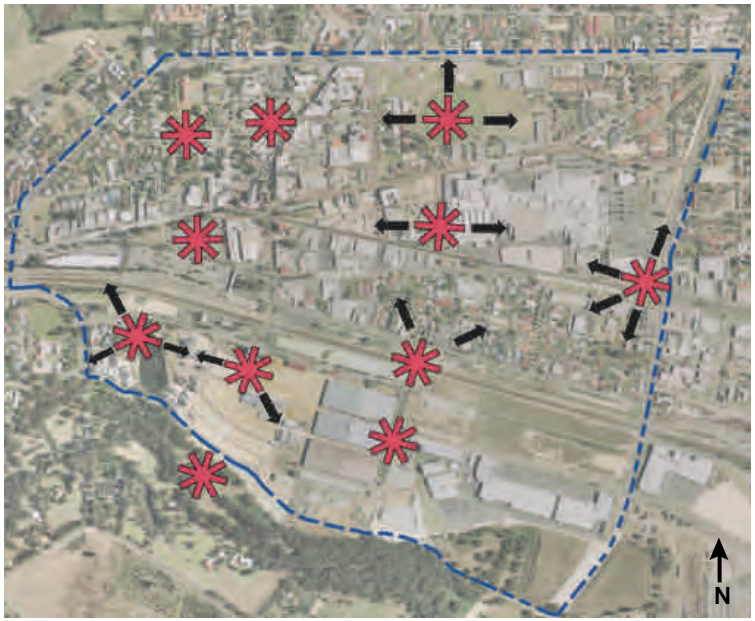


Figure 21_Key Sites

4.0 MOVEMENT

4.1.4 Gaps and Deficiencies

From a regional perspective, specific issues affecting the provision, efficiency and choice of access to Midland are:

- Passenger rail services terminate in Midland, however connecting bus services from the eastern hills catchment are infrequent
- Passenger rail services presently terminate well short of the Midland Health Campus site, which will generate high levels of visitation by staff, patients, visitors and service vehicles
- Railway crossings for pedestrians and vehicles are very limited
- Wait times at railway crossings are forecast to increase as the volume and frequency of freight trains increases
- Great Eastern Highway/Lloyd Street intersection operates at a low level of service
- Presently no connection of Lloyd Street with the Great Eastern Highway Bypass or Roe Highway
- High volumes of fast moving through traffic traverse Midland along Great Eastern Highway/Victoria Street
- There is no effective bypass for traffic to/from the east and north
- Connecting bus services to Hazelmere and the eastern hills are infrequent

Ways in which these issues can be addressed are discussed in the following pages.

4.2 User Hierarchy

A hierarchy of use has been determined for the centre incorporating fundamental SmartRoads principles. In general, private vehicle use is promoted along the periphery of the site and supported through strategic location of peripheral car parking. Regional traffic will be retained along Great Eastern Highway, with local access encouraged along alternative routes. This segregation is intended to disperse traffic in the area and preserve capacity within the internal road network for other transport modes. Local traffic will be slowed through reduced speed limits and Local Area Traffic Management to create a better integration with pedestrian and cycling modes. Car parking is generally located on or near the higher-order road network to minimise the volume of traffic in pedestrian-oriented areas.

The activated central core, including a significant length of Great Eastern Highway will be oriented towards pedestrian accessibility, with wide, attractive pedestrian footways and legible road crossings. Areas nearer to the edge of the Centre, where densities are lower, will not have as significant a pedestrian-focused design. A consistent provision of safe crossing points and high quality pedestrian facilities will be employed across the Activity Centre, particularly focused on identified desire lines from between major transport and land use nodes.

Public transport is a high priority for the centre as it provides regional connection to the Activity Centre and interchange opportunities at Midland Station. These regional coverage services would be contained within higher-order road corridors to minimise delays and promote their existing core function. The Midland Shuttle and other potential local services would run along minor streets to create an internal public transport network that operates at high frequencies. The alignment of these services will be chosen to maximise access to the proposed activity nodes.

Regional freight traffic is not supported along Great Eastern Highway due to the adverse impact on pedestrian and cycling amenity. Instead, Roe Highway and the Great Eastern Highway Bypass will continue to act as bypass routes. Local delivery traffic will be encouraged to utilise Morrison Road, Lloyd Street and Clayton Street, though there will be provision both on-street and within developments for service and delivery as required to ensure effective operation.

4.0 MOVEMENT

4.3 Public Transport

Reducing dependence on private vehicles for transport to and from Midland will be heavily reliant on there being attractive, and efficient and convenient public transport supported by good quality public transport infrastructure.

4.3.1 Network Provision

The Midland Activity Centre is serviced primarily by the Midland Train Line which runs from Midland to Perth and then on to Fremantle. Services are generally run to a clockface timetable, shown in Table 6, which is easy for passengers to anticipate. However, the half-hourly service frequency on weekday evenings and on weekend morning and evenings is a disincentive for travel during these periods.

Table 6: Midland Station Train Frequencies

Time		Frequency
Weekdays	• Peak Periods*	10 mins
	• Off Peak	15 mins
	• Evening (7:30pm onwards)	30 mins
Weekends	• Day	15 mins
	• Morning/Evening	30 mins

**Peak periods are 7:00am to 8:30am and 4:00pm to 6:00pm*

Feeder bus services and coverage services are provided by the Public Transport Authority (PTA) for the surrounding suburbs and terminating at Midland Station. Within the Centre, the majority of the bus services run east-west along either Great Eastern Highway or The Crescent. The existing bus route network and stop locations are shown in Figure 22.

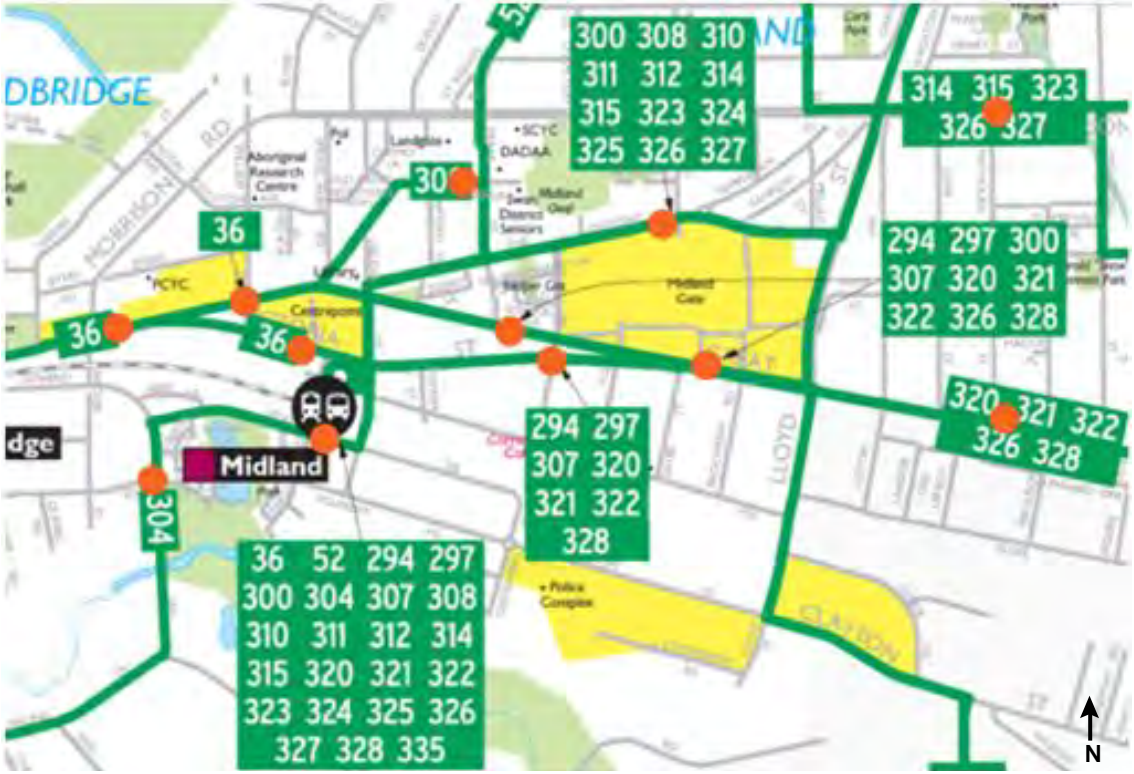


Figure 22_Public transport stops for Transperth bus service

4.0 MOVEMENT

The Midland Train Station is located approximately 1km from the centre of the Study Area (Cale Street) and is considered to be beyond comfortable walking distance for the majority of existing and future land uses. The typical frequency of bus services accessing Midland is summarised in Table 7.

Table 7: Regular Bus Service Frequency

Route	Peak Frequency	Off-Peak Frequency
Great Eastern Highway		
36 (Midland – Perth)	20 min	60 min
294 (Midland – Westfield Carousel)	60 min	60 min
297 (Midland – Kalamunda)	30 min	60 min
320 (Midland – Mundaring)	20 min	60 min
321 (Midland – Glen Forrest)	20 min	60 min
322 (Midland – Glen Forrest)	20 min	60 min
The Crescent		
308 (Midland – Swan Districts Hospital)	30 min	60 min
310 (Midland – Upper Swan)	30 min	60 min
311 (Midland – Bullsbrook – Muchea)	30 min	60 min
312 (Midland – Baskerville)	30 min	60 min
314 / 324 (Jane Brook – Midland)	10 min	15 min
315 / 325 (Stratton – Midland)	10 min	15 min
323 / 327 (Swan View – Midland)	10 min	15 min
326 (Midland – Midvale)	10 min	15 min
Midland Shuttle		
300 (Midland Gate Shopping Centre)	20 min	20 min

Midland is also serviced by a number of very low frequency buses that provide public transport coverage for relatively distant residential catchments, as shown in Table 8.

Table 8: Infrequent Bus Service Frequency

Route	Peak Frequency	Off-Peak Frequency
Great Eastern Highway		
307 (Midland – Helena Valley)	2 services	1 service
328 (Midland – Wundowie)	2 services	1-2 services
The Crescent		
52 (Morley – Midland)	2 services	1 service
335 (Ellenbrook – Midland)	2 services	1 service
Via other roads		
304 (Midland – South Guildford)	30 min	120 min

4.3.2 Modifications to the Core Network

To facilitate mode shift towards public transport, service improvements are proposed for both train and bus modes.

Midland Station Relocation

The location of the existing Midland Station, at the western boundary of the Activity Centre, is relatively distant from the local residential and business catchments. This reduces its effectiveness as a transport node and tends to promote a high reliance on park 'n' ride adjacent to the station, even for residents living very nearby. To alleviate this issue, the Midland Station is proposed to be relocated approximately 1km east, near Cale Street and closer to the centre of

4.0___MOVEMENT

Figure 23_ Existing route for Midland Bus Shuttle

Figure 24_ Proposed expansion for Midland Bus Shuttle

the activity centre. This will increase the catchment of residents and businesses within 800m and help promote alternative transport modes, as illustrated in Figures 7 and 8 in Section 1.0 (Context).

The PTA also proposes to locate a significant quantum of parking, tied to public transport use, immediately adjacent to the new station. This parking will attract a significant quantity of private vehicle trips into the City Centre, with no associated benefit to the centre. The proposed park 'n' ride is therefore supported only as a short-term solution prior to the extension of the rail line further east. However, the location of the proposed park 'n' ride, adjacent to the Midland Health Campus and at the heart of the City provides an opportunity for transition to retail and hospital visitor parking in the longer-term.

Bellevue Station

Construction of a train station at Bellevue, east of Midland, would provide a number of significant benefits to the public transport network. This station would facilitate regional commuter transport from residential areas to the east, without park 'n' ride trips adversely impacting the operation of the roads and intersections within the Activity Centre.

Midland Shuttle Extension

The Midland Shuttle is a local bus service which provides local-area connections between the Midland Station and Midland Gate Shopping Centre. The existing and potential extension alignment for this service is shown in Figures 23 and 24.

Local Bus Routes

Analysis of the PTA park 'n' ride license plate survey (2011 data) shows a significant proportion of cars parked at Midland Station have their origin within a 5km radius, primarily to the east and north. While this distance is considered perfect for cycling to the Station, another opportunity is the modification of existing local bus services (such as exist the 314/315, 321/322, 323 and 324/325) to form high frequency two-way circular or paired routes between Midland Station and the surrounding commercial and residential catchments.

One of these local routes could provide high frequency connection between the City Centre and peripheral commuter car parking located outside of the Activity Centre, possibly at the location of the potential Bellevue Station.

Examples of petal routes are shown in Figure 25.

4.0___MOVEMENT

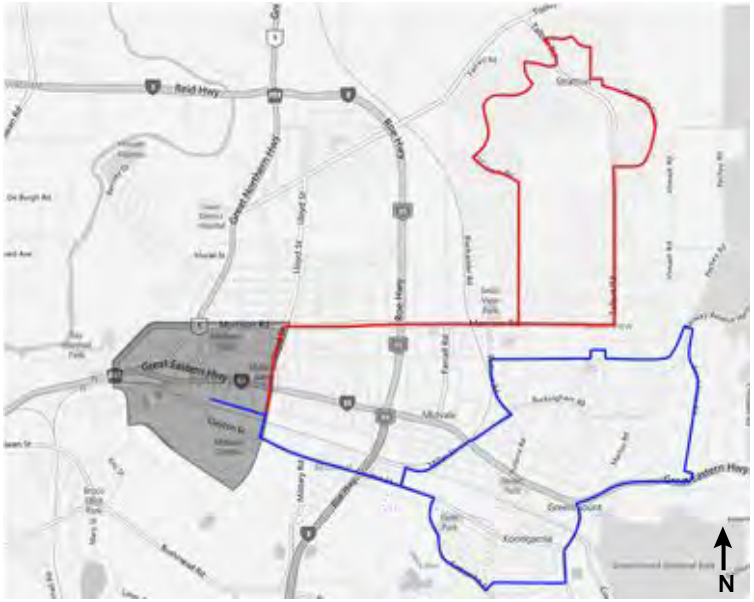


Figure 25_ Example of 'Petal' route bus services

4.3.3 Impacts of Public Transport

The relocation of Midland Station and additional inner-city public transport services will improve accessibility for commuters into Midland, and residents within and surrounding the Activity Centre. By reducing the reliance on private vehicle transport, parking rates in the Activity Centre can be reduced, freeing up land for more productive uses. The expansions of local public transport services also improves equity in the region, by supporting households to transition away from private vehicle ownership and thereby reduce their vulnerability to external economic impacts.

In the short term, the proposed location of the Midland Station park 'n' ride would seem at odds with the intended operation of the Activity Centre road network, in particular Great Eastern Highway, by inducing regional trips into the City core. Construction of a park 'n' ride at the Bellevue Station location in the longer term will assist in redistributing this regional demand to areas outside of the Activity Centre and limit the impact of private vehicle to rail interchange.

4.3.4 Integration and Interchange

The proposed expansion services will all be designed to interchange at the central Midland Station and will operate from high quality stops adjacent to significant demand nodes. Local routes and shuttle services would operate on a high-frequency basis to minimise both travel and wait times, ideally with a maximum 10 minute headway at all times, decreasing to 5 minutes during peak travel periods

4.0___MOVEMENT

4.4 Pedestrian Movement and Amenity

Pedestrian activity is a critical factor in the effectiveness and vitality of an Activity Centre. For this reason, the pedestrian environment must be carefully considered, particularly along primary pedestrian routes. This includes construction of high quality paths, shade trees and street furniture to provide amenity. By allocating resources to the pedestrian environment, the use of pedestrian modes will grow, reducing the demand for other modes as well as the requirement for parking.

Parking location is key to determining both traffic and pedestrian movement. The location of car parking towards the periphery limits the impact of parking on trip volumes and land consumption, but requires parkers to travel an additional distance to their destination. The demand for peripheral car parking will be significantly improved where attractive pedestrian facilities are provided.

A Level of Service approach has been considered, which considers the quality of the pedestrian experience across the length of the trip. Therefore, higher-traffic areas with a high concentration of pedestrians require good quality, covered and shaded paths, as do paths which connect areas of high demand across relatively long distances, approaching or exceeding the nominal 400m or 800m walkable catchment.

4.4.1 Desire Lines

A desire line analysis has been undertaken for the proposed Master Plan. This primarily consists of pedestrian routes from major transport nodes (i.e. Midland Station and large-scale public/private car parking) to commercial and retail activity. Figure 26 shows the results of this analysis.

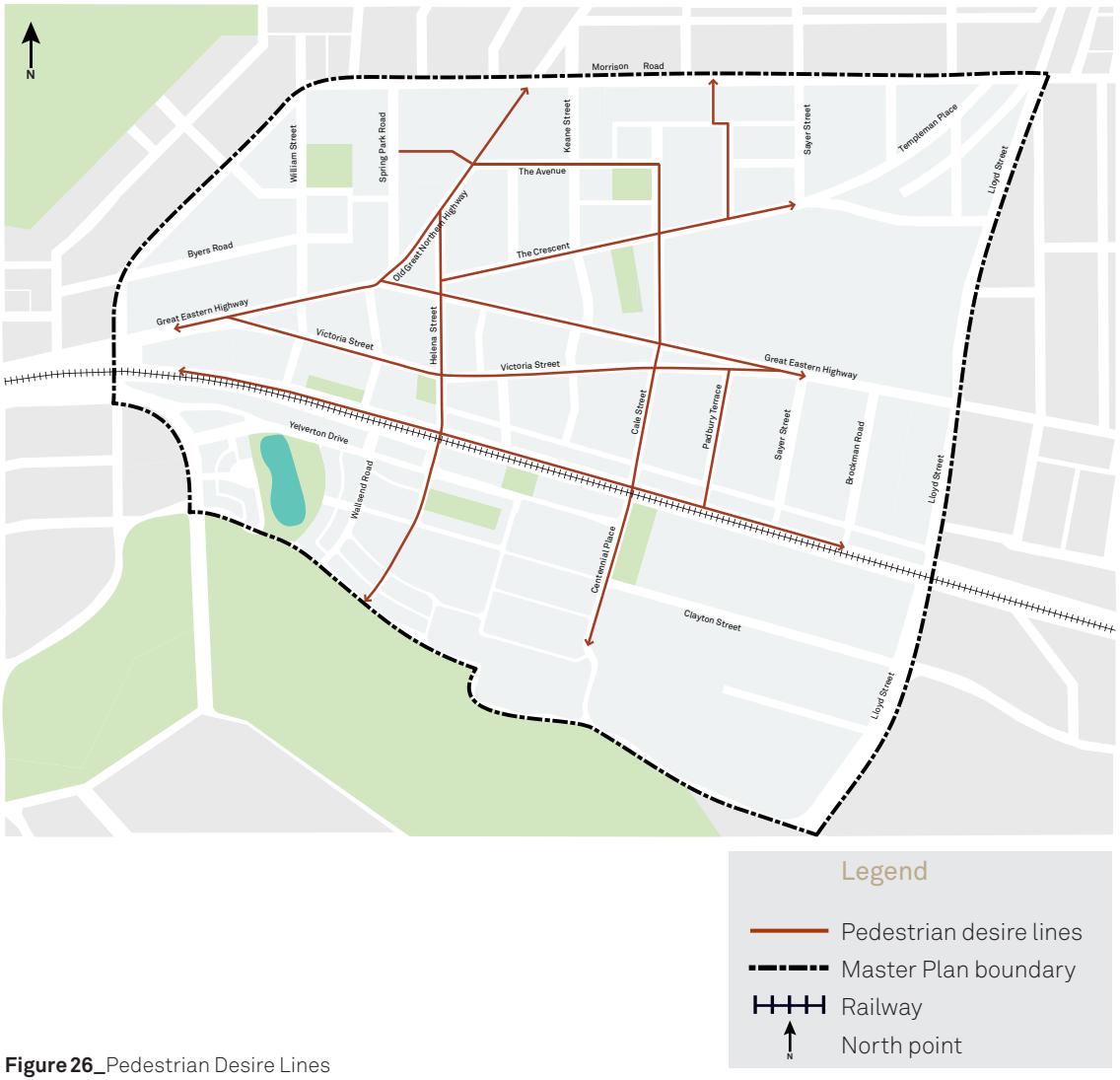


Figure 26_Pedestrian Desire Lines

4.0___MOVEMENT

4.4.2 Pedestrian Network Provision

All streets within the Activity Centre will provide some form of off-street pedestrian path, with the quality of this provision improving along critical and high demand links. A fine-grained network of pedestrian paths is proposed to permeate the Centre to more closely match the desire lines of commuters, residents and visitors moving through the network.

Midland Gate, due to its large land area creates both opportunities and barriers to pedestrian connection. During operating hours the wide, air-conditioned malls create an attractive pedestrian space full of activity; after hours it becomes impermeable to pedestrian traffic and obstructs north-south flow between the Brockman Precinct and residential areas.

Pedestrian areas are at their most important along activated frontages which rely on pedestrian traffic to retain their commercial viability and 'place-making' appeal. These areas, predominantly in the West End Precinct should attract the best quality infrastructure.

4.4.3 Legibility

The existing Midland City Centre is relatively legible, with well-defined boundaries and a defined structure. The expansion of the MRA lands to the south of the railway line will tend to promote additional north-south traffic which should be supported through improved pedestrian crossing facilities and wayfinding signage.

Within active pedestrian areas, vehicle movements will be restricted through infrastructure improvements to reduce speed and volume, promoting pedestrian needs and allowing free-flow pedestrian movement across streets.

Two modifications to the local road structure are proposed to benefit pedestrians: Upgrade of the Great Eastern highway cross-section to increase pedestrian space and minimise crossing distances, and improved connection across the rail line at Cale Street and Lloyd Street, as well as the existing Helena Road intersection.

Local traffic accessing Midland will be encouraged to use Morrison Road, while regional traffic remains along Great Eastern Highway. This will relocate a proportion of traffic to the edge of the Activity Centre and allow for some streetscape improvements in the core, particularly the removal of on-street parking to allow for verge widening and on-road cycle lanes. This shift will require some minor improvements along Morrison Road to accommodate the additional trips.

The Midland Oval Precinct, which currently creates a moderate barrier between Morrison Road and The Crescent will be opened up through an internal road network, and a north-south pedestrian extension of Cale Street to Morrison Road will create a legible pathway across the entire Activity Centre area.

01_ Public art increases legibility
02_ Wide pedestrian paths increase pedestrian amenity

01_

02_

Legend

- Principal shared path
- Shared path
- Cycle lane
- Shared bus/cycle lane
- Shared car/cycle lane
- Master Plan boundary
- Railway
- North point

Shared Path: A pathway that is primarily used by both pedestrians and riders of bicycles.

Principal Shared Path: Is a high standard Shared Path primarily provided for regional commuter bicycle trips, though it serves many local destinations along the way. It offers a high level of safety due to its high standards and separation from motor traffic.

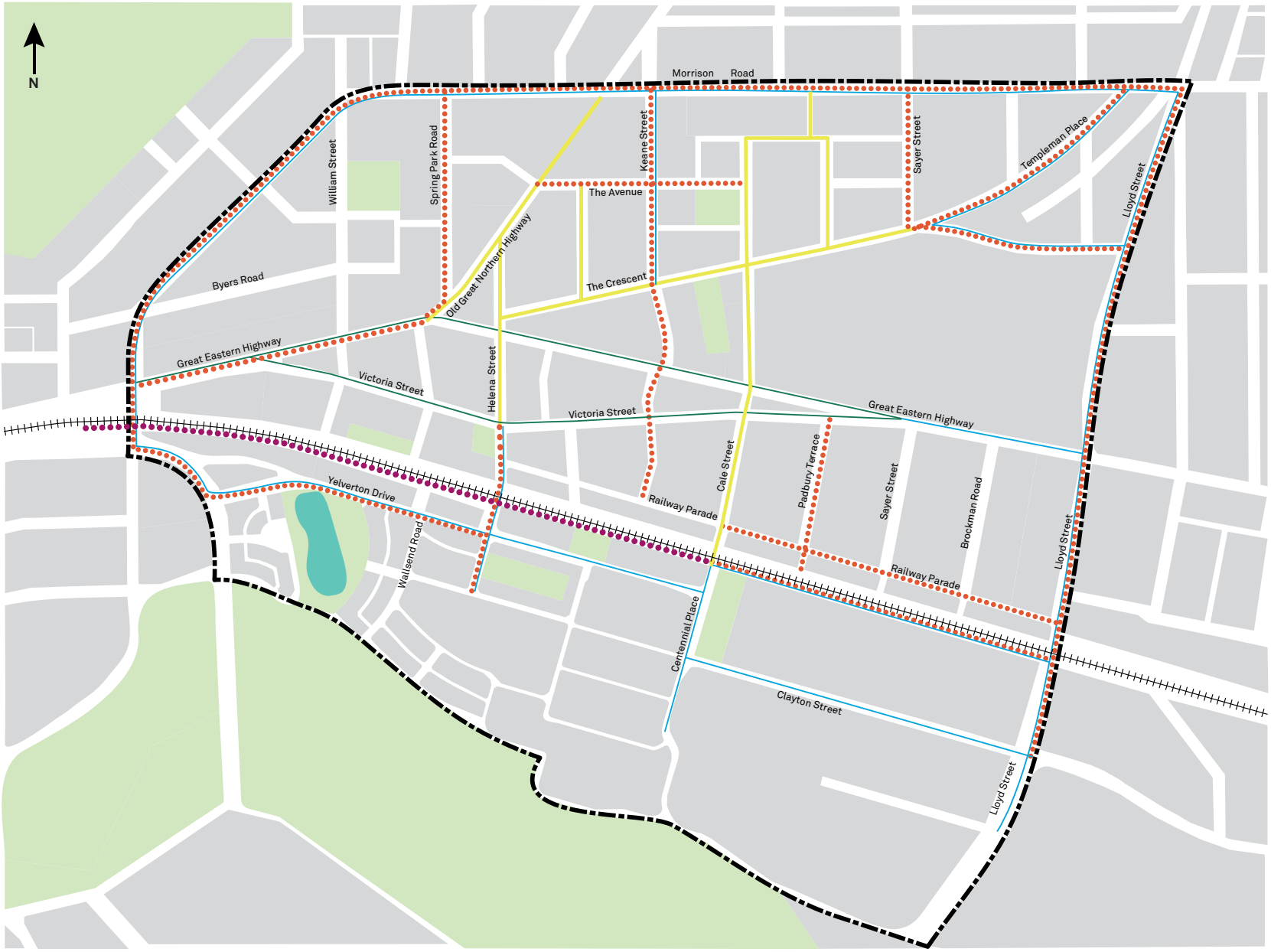


Figure 27_Indicative Cycling Network

4.0___MOVEMENT

4.5 Cycling

4.5.1 Cycle Network Provision

The Midland Activity Centre's location along strategically important regional transport routes creates opportunities for cycling along these road corridors. This is particularly relevant for commuter cycling trips from locations along the Midland Principal Shared Path, or from the north and south which can be accessed via the sealed shoulders along Clayton Street and Lloyd Street. Midland has a good internal on-road cycling network that is being expanded through the MRA precincts.

On-street paths are preferred along regional corridors to facilitate commuter travel, and through activated spaces to minimise conflicts with pedestrians. For these reasons, the cycling provision in Midland is focused primarily on-street, through dedicated cycle lanes on strategic roads or in car/cycle lanes in the Activated Core.

A network of off-street paths is also represented between Midland Station, retail nodes, education and residential areas and designed to promote casual cycling as well as for school children. As these facilities are constructed for less confident riders, safe crossing facilities are of primary concern.

A core cycling network of on-street facilities, supplemented by off-street dual use paths is shown in figure 27

4.5.2 End of Trip Facilities

End of trip facilities consist of bicycle parking, showers, lockers and other ancillary infrastructure designed to support cycling as a comfortable , practical mode choice. The level of end of trip facility provided depends on the target demographic and the available infrastructure funding sources.

For large-scale multi-level buildings with some proportion of undercroft or basement parking, commuter bicycle parking should be provided in secure areas adjacent to vehicular parking, along with shower and locker facilities sufficient to cater for the projected demand.

Precincts which constitute smaller office and retail, such as high-street environments, generally do not have the private infrastructure to enable businesses to provide secure commuter parking, let alone showers. In this instance, public facilities will be of greatest benefit. It is recommended that a large-scale cycle parking facility be investigated in the Activity Centre, ideally located near the core. A similar facility could be provided in the Workshops Precinct to provide public cycle parking for commuters.

Visitor parking can be of a lower scale, consisting of small clusters of bike racks near retail, office and civic buildings. Consideration should be given to utilising on-street parking areas for bike parking, where pedestrian activity, and therefore the risk of conflict, is high.

4.5.3 Requirements

The requirements for cycling infrastructure should be mandated through Design Guidelines and Town Planning Scheme for both public facilities and private development. Austroads recommendations and Green Star ratings provide reasonable industry benchmarks for cycling provision and could be used as target provision rates.

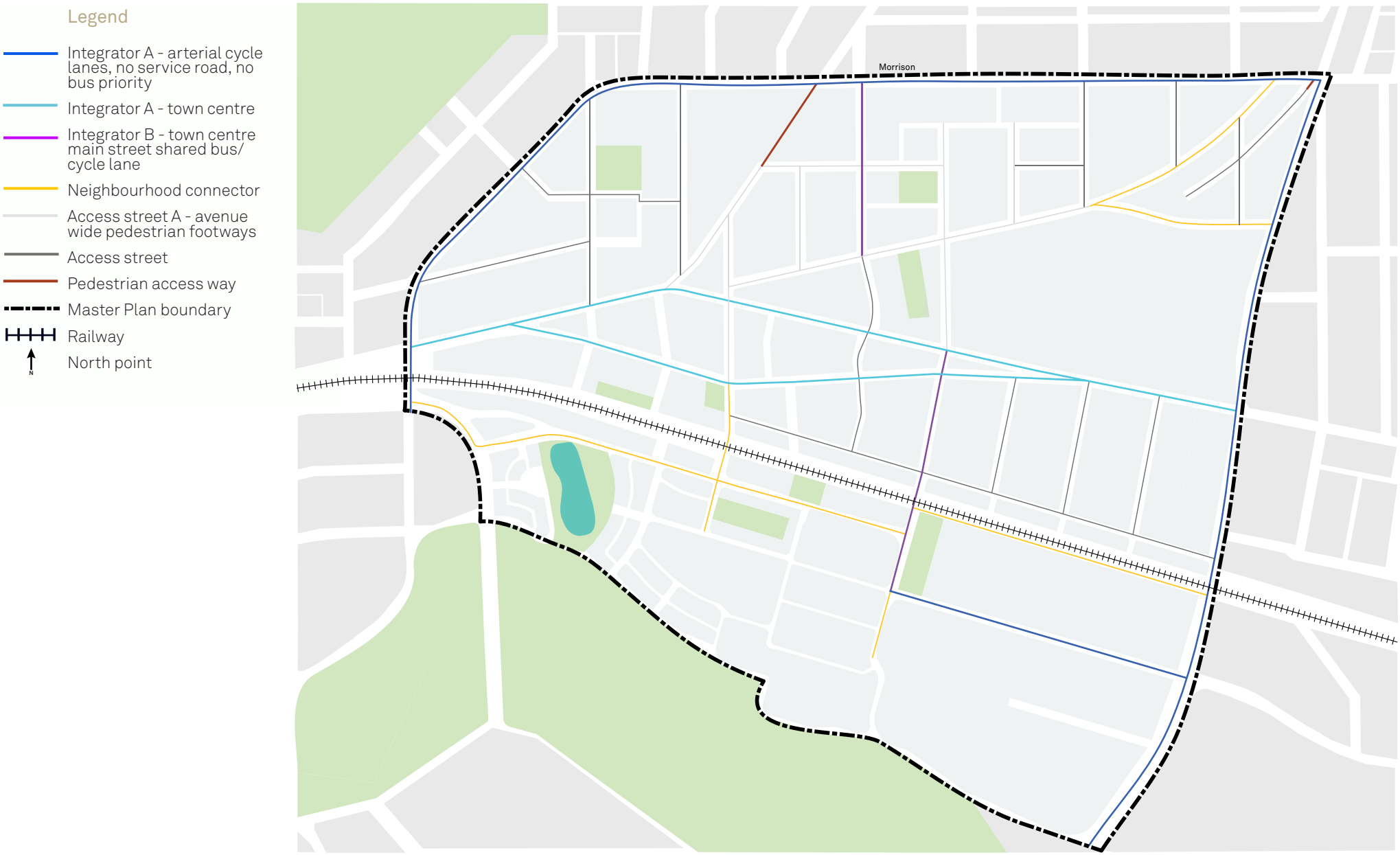


Figure 28_ SmartRoads Hierarchy for the Midland Activity Centre

4.0 MOVEMENT

4.6 Vehicle Movement and Access

4.6.1 Traffic Management

There is a significant existing supply of long-term parking within the Midland Activity Centre, either free or priced at a low daily rate. As development intensifies, an unrestrained future parking scenario will not only result in an unsustainable parking demand but also a range of negative traffic and environmental issues within the Activity Centre, such as congestion, noise, pollution and safety. According to Census 2006 data from the Australian Bureau of Statistics, 95% of people travelling to work in Midland do so by private vehicle modes, either as a driver or passenger. If this scenario continues into the future, private vehicles within the Activity Centre will contribute to the congestion as well as being a safety risk for pedestrians and also detract from the desired Activity Centre environment. As such, a balance between providing vehicular access and minimising traffic impact is needed.

A SmartRoads exercise has been undertaken for the Activity Centre, assigning desirable transport modes to individual streets to create a network hierarchy for all modes. The results of this analysis can be seen in Figure 28. For streets with activated street frontages, there will be an emphasis of discouraging private vehicles and cyclists and instead encouraging pedestrian and public transport movement on these streets.

Mode choice is driven by traveller preference and is affected by a number of factors, particularly travel times and costs. As such, any measures intended to decrease the demand for private vehicles within the Activity Centre through supply or demand management measures must be offset by an increase in alternative transport options. This would include such initiatives as increased public transport frequencies and new routes, improved cycling facilities and more attractive pedestrian environments.

For the purpose of determining transport provision, a parking-based approach has been developed which determines the level of unsatisfied demand for a maximum parking supply scenario. This unsatisfied demand is then distributed across the remaining modes according to the likely uptake in mode share. For the purpose of assessment, residential demand has not been included.

Road capacity analysis has also been employed to investigate a theoretical maximum trip generation that can be supported by the existing road environment, with the proposed function changes. The results of this assessment suggest that trip generation can increase by approximately 50% over existing peak hour rates before intersection Level of Service reaches F.
A target mode share proportion has been established for non-resident trips to the Activity Centre, consisting of the following:

- Private Vehicles: 65%
- Bus: 18%
- Train: 10%
- Cycling: 5%
- Pedestrian: 2%

For the purpose of this assessment, all internal trips (trips between land uses within the Activity Centre), are assumed to be taken by non-car modes. A general split for internal trips has been assumed for the purpose of infrastructure provision:

- Pedestrian: 70%
- Cycling: 10%
- Shuttle Bus: 20%

The anticipated generation for the Activity Centre is in the order of 140,000 non-residential trips per day including 48,000 internal trips. The above mode share would create approximately the following two-way demands:

- Private Vehicles: 60,000 trips
- Train: 9,200 trips
- Bus: 16,000 trips (plus 9,600 internal)
- Cycling: 4,600 trips (plus 4,800 internal)
- Pedestrian: 1,800 trips (plus 34,000 internal)

These are approximately the demand that must be catered for by each mode.

4.0 MOVEMENT

4.6.2 Road Environment

Significant changes to the internal road environment are proposed to manage traffic flows through the Centre precincts. Vehicular traffic is accommodated within a few key streets and controlled through cross-section and priority measures, as well as the location of large-scale car parking. Modification of road sections will be undertaken with consideration for all modes of transport, and particularly cycling.

Speed Zones

To promote the desired safe and legible pedestrian environment, the speed limit within the Midland Activity Centre is proposed to be decreased to 40km/hr on all internal streets, and 50km/hr along Great Eastern Highway as in other Town Centres such as Mundaring. Morrison Road would remain at 60km/hr to facilitate efficient local connections. Streets within the Activity Centre will be kept to a narrow road width to promote low speed, while an additional signalised intersection at the intersection of Great Eastern Highway and Cale Street will reinforce safe pedestrian crossings along this primary north-south desire line.

To minimise the impact of this additional signal on regional bypass traffic, coordination of this signal with those to the east and west is recommended.

Great Eastern Highway

The primary road corridor through Midland consists of Great Eastern Highway, which is generally constructed as an undivided 4-lane road, transitioning to a one-way pair west of Padbury Terrace. This form is consistent with the existing function of Great Eastern Highway as a strategic corridor serving a regional purpose.

The future structure of the Midland Activity Centre includes significant development of the Great Eastern Highway corridor, extending south across the rail line. This will result in a significant proportion of internal trips, primarily pedestrian trips, across Great Eastern Highway. To facilitate this movement, local traffic is proposed to be relocated to Morrison Road and the cross-section of Great Eastern Highway modified to support pedestrian legibility and safety. This would involve construction of wider footpaths, on-road cycle lanes and improved crossing provisions, facilitated through a reduced on-street parking provision.

The road widening initiative currently being undertaken by Main Roads to the east of Padbury Terrace will assist in improving the pedestrian environment by permitted the provision of a wide central median to create a pedestrian refuge. Streetscape improvements along the northern verge resulting from the Midland Gate redevelopment would be complemented by trees and shaded areas on the southern verge.

Further to the west in the one-way sections, the road form would remain similar to existing geometry, with streetscape upgrades to improve the pedestrian environment and provide continuous on-road cycling lanes. These improvements are likely to require removal of some existing on-street parking.

Notwithstanding the current intent to retain the one-way road environment in Midland, the opportunity for future conversion to a two way traffic system should be retained in any street upgrades.

Development of a Great Eastern Highway Access Strategy is recommended for the Midland City Centre area, focused on achieving the best environment for pedestrians and regional traffic movements.

Morrison Road

Traffic along Morrison Road is expected to remain at existing volumes west of Great Northern Highway, while experiencing some additional growth to the east. This is a result of the proposed changes to the regional road network which will redirect a substantial proportion of external traffic north along Great Northern Highway and Lloyd Street. Regional traffic will largely be replaced with the additional local traffic anticipated to use Morrison Road to access car parking and facilities within the Activity Centre. The existing form of Morrison Road is therefore considered sufficient to accommodate future demands, though function will be improved by extending the existing 4-lane form to Great Eastern Highway. Minor improvements, consisting of the installation of right- and left-turning pockets on some major road connections, are advised to ensure local traffic is encouraged to use Morrison Road in preference to Great Eastern Highway.

4.0___MOVEMENT

Cale Street / Keane Street

Cale Street is proposed to continue from the Workshop Precinct south of the rail line through the Midland Oval Precinct. It will be a major north-south link for pedestrians and cyclists, but measures will be put in to limit the effectiveness of this route for private vehicles. In particular, connection through the Midland Oval Precinct to Morrison Road is not supported. As an alternative, Keane Street will form the highest priority north-south link from the City Centre, with existing and proposed private car parking accessed via Keane Street. Keane Street provides direct connection to both Morrison Road and Great Northern Highway, and so minimises the impact of vehicular traffic on local streets.

To mitigate the high demand for trips along Keane Street, an additional significant intersection is proposed to allow access from Morrison Road directly into the Midland Oval development car park. This access should reduce traffic along Keane Street

Cale Street will be redeveloped in concert with the current expansion of Midland Gate to a more activated street consisting of entertainment and retail uses, greater use of public space and a led intrusive parking arrangement.

Spring Park Road Link

A new link road is proposed between Spring Park Road and The Crescent, to the south of a large-scale multi-deck car park. This road is intended to improve pedestrian and vehicular connection through the Morrison West Precinct and to support the desireline between this car park and the main activity nodes in the West End Precinct and further to the south and east.

Old Great Northern Highway

The existing configuration of Old Great Northern Highway includes a pedestrian-only section between The Crescent and Morrison Road. This creates an attractive pedestrian space adjacent to the existing City of Swan and Landgate buildings.

Previous planning in Midland has discussed opening this section back up to traffic to create more passing trade for local business. However, the effect of this modification would be to create an attractive alternative route between Great Eastern Highway and Great Northern Highway for regional traffic. This traffic is unlikely to provide any passing-trade advantages for local business and would instead reduce the amenity for pedestrian traffic.

Rail Crossings

Connectivity between the existing Midland City Centre and the Railway Precinct is compromised by the location of passenger and freight rail lines that bisect the Activity Centre. Improvements to north-south connections are recommended which include an additional rail crossing at Cale Street. This proposed crossing and all existing crossings (Archer Street, Helena Street, Cale Street and Lloyd Street) would greatly benefit from grade separation. However, with the exception of Lloyd Street, traffic and adjacent intersection operations will continue to operate at an acceptable level following the proposed realignment of regional freight rail. In the event that freight rail relocation is significantly delayed, grade separation will become more critical to the function of the Activity Centre.

4.6.3 Freight and Delivery

Midland's location along the Great Eastern Highway, as well as its proximity to the Hazelmere industrial area and freight rail terminal, results in a high frequency of bypass freight trips. This is intended to be addressed through relocation of regional freight services away from the Activity Centre, and through long-term investigation of a freight rail bypass to the south of Midland.

Freight and deliveries destined for Midland have the advantage of the high capacity regional road network within the area, including current and future roads such as Great Northern Highway, Great Eastern Highway, Lloyd Street and Roe Highway. Access to the Midland Activity Centre will be supported along these major road links, and restricted through the activated core of the Centre.

Deliveries will be enabled through an increase in on-road loading zone areas, particularly in 'main street' precincts and where smaller office/retail development is located. Larger office/commercial buildings will be serviced via on-site docks connected to basement or undercroft parking structures. Access to dock areas through a laneway network is supported to minimise the impact of service/delivery vehicles on pedestrian, cycling and bus modes.

Freight Rail

Realignment of the freight rail out of the City Centre remains a priority for both the MRA and City of Swan. The location of the freight line has significant impacts on the centre and this will worsen as freight traffic continues to increase. The City and MRA will continue to lobby government to realign the freight rail around the Midland Activity Centre

4.0 MOVEMENT

4.7 Parking

4.7.1 Parking Management Principles

Midland operates as a significant strategic centre for both the local community and a wider catchment that extends into the Wheatbelt and to relatively remote residential catchments such as Ellenbrook and Mundaring. For this reason there will always be an important place for private vehicles, as these represent the only viable transport mode for a large proportion of this population. High quality parking will be required to accommodate this demand, as well as that of other visitors, residents and commuters.

However, a higher provision of car parking will result in an increase in demand for private vehicle modes, potentially beyond the capacity of the road network to support it. Car parking management methodologies will need to be introduced to maintain a level of supply and demand which can be sustained by the local road network.

4.7.2 Parking Supply Management

The parking assessment completed for this study determined that Midland has a parking supply in the order of 10,500 parking bays, and a peak theoretical demand of 7,700 parking bays. This suggests that even with a 95% inbound private vehicle mode share, the current parking provision is poorly utilised.

Existing parking demands have been used to calibrate the future unrestrained demand scenario. Based on the proposed land uses, a design day unrestrained (free) peak demand of 13,700 bays has been calculated, which is approximately equivalent to the existing supply (including the approved expansion of Midland Gate Shopping Centre). This relatively low number represents the significant impact of shared and reciprocal parking across the precinct which reduces the anticipated peak parking demand by about 50%. Midland Gate's ongoing provision of public parking on site will negate a requirement for the provision of reciprocal parking arrangements.

Road capacity analysis would suggest that the number of occupied parking bays is 50% higher than the existing, or approximately 11,500. If we assume that this represents a maximum supply scenario, including park 'n' ride parking at the proposed Midland Station, then the future Midland Activity Centre would contain roughly the same number of parking bays as it currently does.

Wayfinding and signage strategies as part of a comprehensive parking management strategy can improve efficiency over the existing scenario, but the proposed parking supply is dispersed across a relatively wide area and is partly private (though the peak parking generation for the major land uses tends to be concurrent anyway), reducing the effectiveness of shared parking scenarios. This would suggest that a maximum efficiency of about 85% is achievable under normal conditions. This reduces the effective supply to 9,775, some of which is consumed by park 'n' ride parking.

This effective supply rate is below the theoretical road capacity limit, which implies that the proposed parking is sustainable on a precinct-wide basis.

4.0 MOVEMENT

4.7.3 Maximum Parking Rates

The constraints associated with road capacity and commercial sustainability for public parking support the modification of the existing standard parking minimum rates, as set out in Local Government Policy, to a simplified set of parking maximums. It is envisioned that land uses would be categorised according to simple criteria: Retail, Office, Showroom, Residential. Any other non-standard uses would be assessed with respect to the goals of the City and Department of Planning

Nominal (example) maximum parking rates are proposed in the DoT Activity Centres Parking Discussion Paper and provide a benchmark for development as follows:

- Retail: 3-4 bays per 100sqm
- Office: 1-2 bays per 100sqm
- Showroom: 2 bays per 100sqm
- Residential: 1 bay per unit

Calculations show that at the lower end of these rates, the ultimate development would result in approximately the desired parking quantum. However, a transitional plan which allows additional interim parking on a mandated schedule may be necessary to reflect the commercial realities of development.

Public car parking allows a more efficient and equitable allocation of parking resources across multiple land uses. Therefore, a proportion of public car parking is beneficial to the operation of the Activity Centre and should be supported by legislation. A public parking quantum of between 2,000 and 3,000 bays across the Centre (including on-street provisions) would likely be sufficient to provide the necessary flexibility.

4.7.4 Parking Pricing

Parking infrastructure is expensive to construct and maintain. Where unrestrained parking demand rates significantly exceed the supply rate, the market price for hourly or daily parking can support the construction of public car parking on commercial grounds. However, market pricing of parking will have a significant impact on demand, with effects felt at relatively low rates. While there may be localised hotspots where parking is in sufficient demand to justify cost recovery pricing, it is likely that the majority of public parking will be unable to pay for itself through fees. This suggests that alternative funding methodologies will be necessary.

It should also be noted that parking compliance is essential to the successful implementation of the parking management regime.

4.0 MOVEMENT

4.7.5 Cash-in-lieu

Cash-in-lieu of parking is a mechanism by which developers contribute towards public parking and/or sustainable transport initiatives. This mechanism would allow public infrastructure to be funded by development, without the requirements for a Development Contributions Scheme.

A model cash-in-lieu scheme is recommended for consideration which combines parking maximums with mandatory cash-in-lieu to ensure that sufficient public parking can be supplied, while maintaining a limit on parking to prevent adverse impacts to the road network.

Mandatory cash-in-lieu would require developers to fund a proportion of their maximum parking requirement in off-site parking to be constructed by the City, and to fund additional sustainable transport initiatives such as cycling infrastructure and public transport improvements. Additional parking could be funded cash-in-lieu to reduce the development's on-site requirements. Demonstrated synergies within a development which would reduce their parking demand could also be supported to reduce on-site supplies.

By this mechanism, public parking rates need only fund maintenance of infrastructure, rather than recover the costs of capital works.

4.7.6 Parking Priorities

The public parking supply can be segregated to provide parking for a range of needs. The two broadest categories for non-residential parking consist of commuter and retail parking. These have overlapping but separate demand profiles and should be managed in different ways.

Retail and entertainment parking should be provided centrally, close to destination areas and easily accessible from the development. Parking is ideally supplied on street or in decked car parking with a demand responsive parking fee that promotes turnover.

Commuter parking tends to be of lesser value to the Centre and should be supplied on the periphery of the Activity Centre in large-scale parking structures priced to support all-day parking. Commuters tend to arrive during the roadway peak and have significant impact on traffic operations. Removing this demographic from the main Activity Centre improves pedestrian and cycling safety, public transport efficiency and intersection operation. Commuters are also more willing to walk long distances, particularly if the pedestrian environment is attractive.

Other specialised parking categories are also important and should be included in the on- and off-site parking supply. This includes:

- Disabled parking, demand for which will increase markedly over the next 20 years and should represent 2-3% of the overall non-residential supply;
- Loading bays adjacent to retail and entertainment or mixed-use developments which do not include on-site provision for service/delivery;
- Bus stops along service routes;
- Taxi stands in areas with high demand;
- Other types of very short-stay parking (ATM, post boxes, emergency service zones, etc.)

4.0___MOVEMENT

4.7.7 Parking Location

Preliminary assessment of potential parking structure locations has been undertaken by the City of Swan and reassessed for the proposed development scenario. Figure 29 shows potential locations for large public and private parking, to be supplemented by smaller-scale parking at the individual development scale. Public car parks are proposed to be accessed primarily from the peripheral roads, avoiding direct links to Great Eastern Highway wherever possible.

Large-scale multi-deck parking is also proposed along Morrison Road, accessed via Spring Park Road and a new Midland Oval car park entrance. This parking has the advantage that it is easily accessed from the primary road network without creating congestion through the Activity Centre. The location of these bays also creates a desire line through the Activity Centre, generating passing trade for business along The Crescent and in the West End Precinct. A new road link between Spring Park Road and The Crescent would assist to direct pedestrian traffic and improve legibility within the Morrison West Precinct.

Figure 29_Potential car park locations

5.0 Urban Form

Legend

- Hospital
- Public purpose
- Utilities/infrastructure
- Education-institutional/civic
- Residential
- Mixed use-retail/commercial
- Mixed use-residential/ commercial
- Retail-local shopping
- General commercial
- Open space
- Park & recreation
- Carparking
- Indicative carparking sites
- District distributor (A)
- Primary distributor road
- MRA area
- Walkable catchment - 800m
- Existing train station
- Future train station
- Precinct boundary
- Master Plan boundary
- Crossing
- Railway
- North point

Notes:
New road linkages are indicative and subject to more detailed planning.
The open space and education-institutional/civic land in the Midland Oval precinct is indicative and subject to more detailed planning.

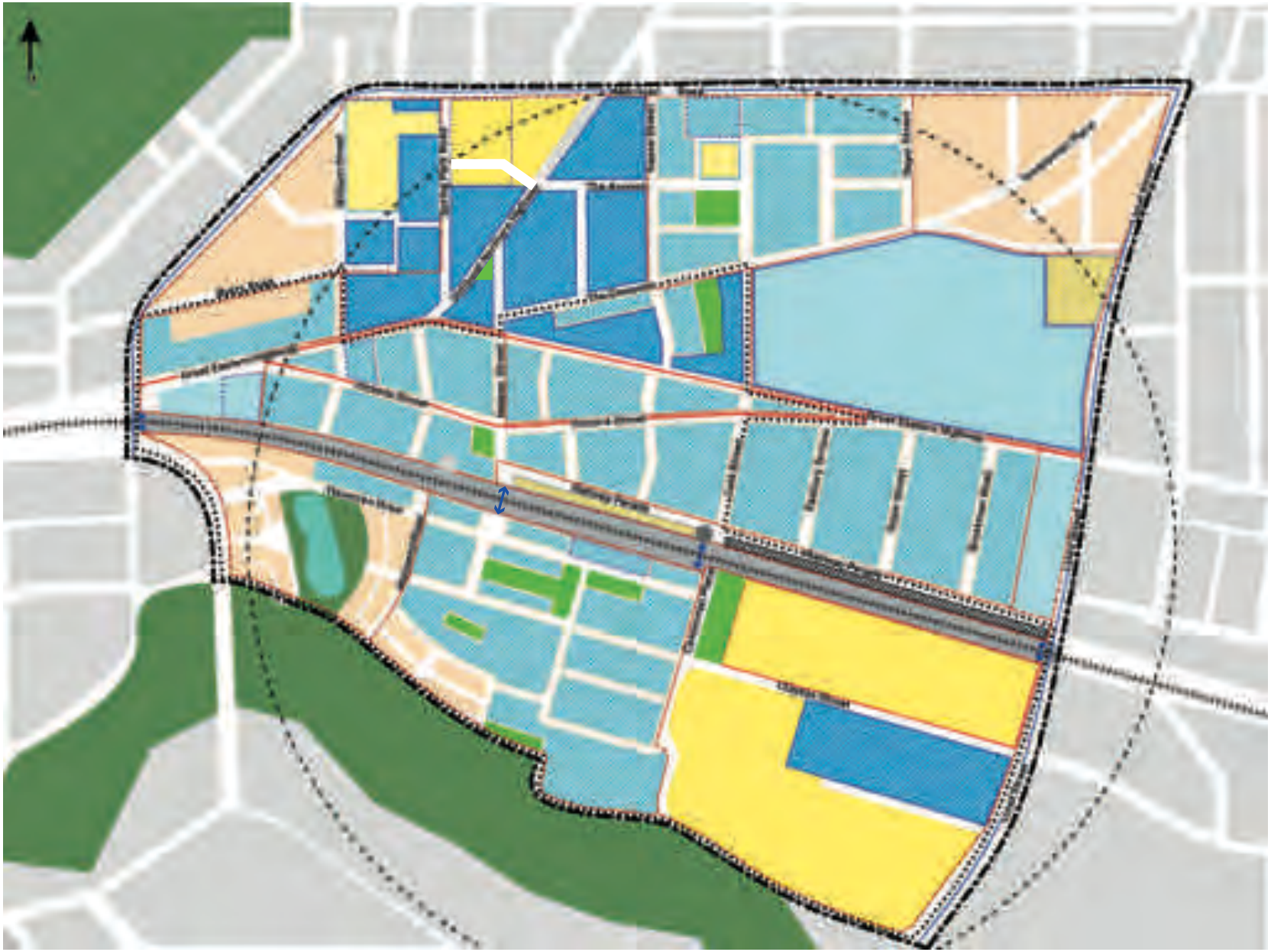


Figure 30_ Midland Activity Centre Master Plan

5.0___URBAN FORM

A Master Plan has been prepared for Midland Activity Centre which establishes the organisational framework for land uses, movement patterns, building form and neighbourhood character. The high order principles around these categories have informed design guidelines, which are adopted as local planning policy, and establish the finer grain details informing future development proposals.

The key elements of the Master Plan are:

1. Recognising the need for more intense development, which will be focused around public transport and points of amenity
2. Creating a new network of green spaces characterised by small to medium urban greens and public squares. These green spaces are a point of focus for each neighbourhood and allow for a focus of community activity and development
3. Relocating the Midland Train Station and Transit Interchange to a more centralised location at Cale Street. This location better serves the future Midland Health Campus , major shopping and restaurant precincts and pedestrian core
4. Creating a spine of taller development along the railway line, south of Great Eastern Highway and Victoria Street, up to 12 storeys in height and within a landscaped setting including extensive street tree planting
5. Formalising a network of pedestrian oriented, activated streets with complementary building form, principally around Midland's West End and linking to the Midland Gate Shopping Centre
6. Improving north south links by extending Cale Street across the rail line as an at-grade crossing and reinforcing Helena Street as a complementary north-south crossing. Cale Street will become an important pedestrian and vehicle link between Midland Gate, the new train station and Midland Health Campus
7. Creating attractive and well-treed entry boulevards along Great Eastern Highway, Lloyd Street and Morrison Road, thus improving the impression and character of Midland
8. Identifying locations for development of public parking facilities, reducing the requirement for on site car parking and allowing more efficient use of car bays
9. West End Centre revitalisation and heritage building protection

Figure 31_ Midland Activity Centre Illustrative Concept Plan

5.0 URBAN FORM

5.1 Urban Form Drivers

The Midland Activity Centre will deliver a clearly defined urban structure, based both on historic development patterns and the agreed development framework derived from community intent and State policy.

The historic road network will be enhanced through development of safe and comfortable cycle and pedestrian routes, intersecting at the heart of Midland around Cale, Helena, Great Eastern Highway and The Crescent. The movement network integrates a range of uses and activities providing employment, living and service functions to the region. The street network will foster walkability with strong connections to public transport, centre activities and open spaces. Convenient and direct connections will be made to the surrounding areas and pedestrian and cycle links integrated with the district and regional network.

A mixed-use urban centre will be delivered at the heart of Midland, focused around activated and attractive streets, the historic core and a network of urban spaces. The heart or pedestrian oriented core will sit between and integrate the health, education, office and residential uses. The mix and range of uses and activities will foster a strong sense of place and a level of urban quality that will help attract and retain residents, workers and businesses.

Excellent public transport provision will underpin the urban structure, with the new Midland Station and transit interchange at Cale Street integrated with pedestrian and cycle routes and co-located between Midland's heart, the health campus, future education functions in and around the former Railway Workshops and a more intense office-residential precinct along the railway spine.

Major urban boulevards will establish the vehicle movement framework around Midland. A strong east-west entry axis will be created along Great Eastern Highway, transitioning to a pedestrian focused street in the core. Morrison Road and Lloyd Street will provide alternative routes around the centre, and will be designed as leafy boulevards, giving a positive impression of the centre. Cale and Helena Streets are high quality urban streets providing connection across the rail line and linking the important civic, employment and service functions of Midland.

The remaining road network, categorised as lower order roads will provide a permeable network of routes through the activity centre. This modified grid network will spread traffic loads evenly to optimise the capacity of the network and slow traffic to achieve a balance between pedestrian amenity and road efficiency.

An improved cycle network will connect each of the key activity areas in Midland and allow safe movement to the pedestrian core. As a general rule, local streets will be designed for slow vehicle speeds allowing on street cycle movement; regional streets will include off street cycle lanes where possible.

Improved connections will be made to the forgotten presence of the Swan and Helena Rivers. Leafy streets and pedestrian links will intersect recreation activity nodes at both river edges. Particularly, a new formalised movement network will be created to connect to future recreational development at the Swan River Regional Park. North of Morrison Road, a new road reserve will be created by purchasing private land at the extension of Poynton Avenue and allowing vehicle and pedestrian access to the Swan River foreshore. The Midland Redevelopment Master Plan allows for improved connections through to the Helena River, however a new riverside road is proposed as part of this Master Plan from Lloyd Street and connecting to Cale Street.

The configuration of the Activity Centre will be geared towards promoting the development of appropriately scaled built form to promote new business opportunities, linking key health, educational and service areas and maximising the benefit of the highly amenable and comfortable public realm.

5.0 URBAN FORM

5.2 Illustrative Concept Plan

A concept plan was developed to illustrate the potential outcomes for the Midland Activity Centre. It shows a high quality, street-based public realm which will be the focus for activity, movement and interaction. Importantly, it is the public realm improvements that have the most potential to change the character and impression of Midland to that of a walkable, comfortable and attractive centre.

5.2.1 Streets

Midland has a traditional grid pattern of development, which will be enhanced by the Activity Centre Master Plan through activation of streets within the core retail areas, ensuring development defines public space through consistent building lines and creation of a comfortable pedestrian scale by setting back taller development.

In areas where there are very long street blocks, and where undeveloped land permits, new north-south connections will be made. This will improve circulation and permeability throughout the centre, supporting the intention for a walkable city.

5.2.2 Public squares and open spaces

In recognition of the increased residential and employee population intended for Midland, a number of new urban greens and open spaces are proposed:

- Hospital Square: a new area of open space is proposed as part of the Midland Health Campus master plan to provide a civic square (note, this space will not be gazetted as public open space and will be retained as part of the health campus site)
- Midland Oval: open space will be retained to create an urban plaza and green space as part of Midland Oval's redevelopment
- Train Station: upon the train station being relocated, an area of existing vegetation will be retained for character and amenity purposes
- Poynton Avenue: the existing school oval will be shared with the community to provide a neighbourhood point of focus.

These will enable creation of amenity, act as urban elements that drive development and allow spaces for respite and calm within the intensified urban environment.

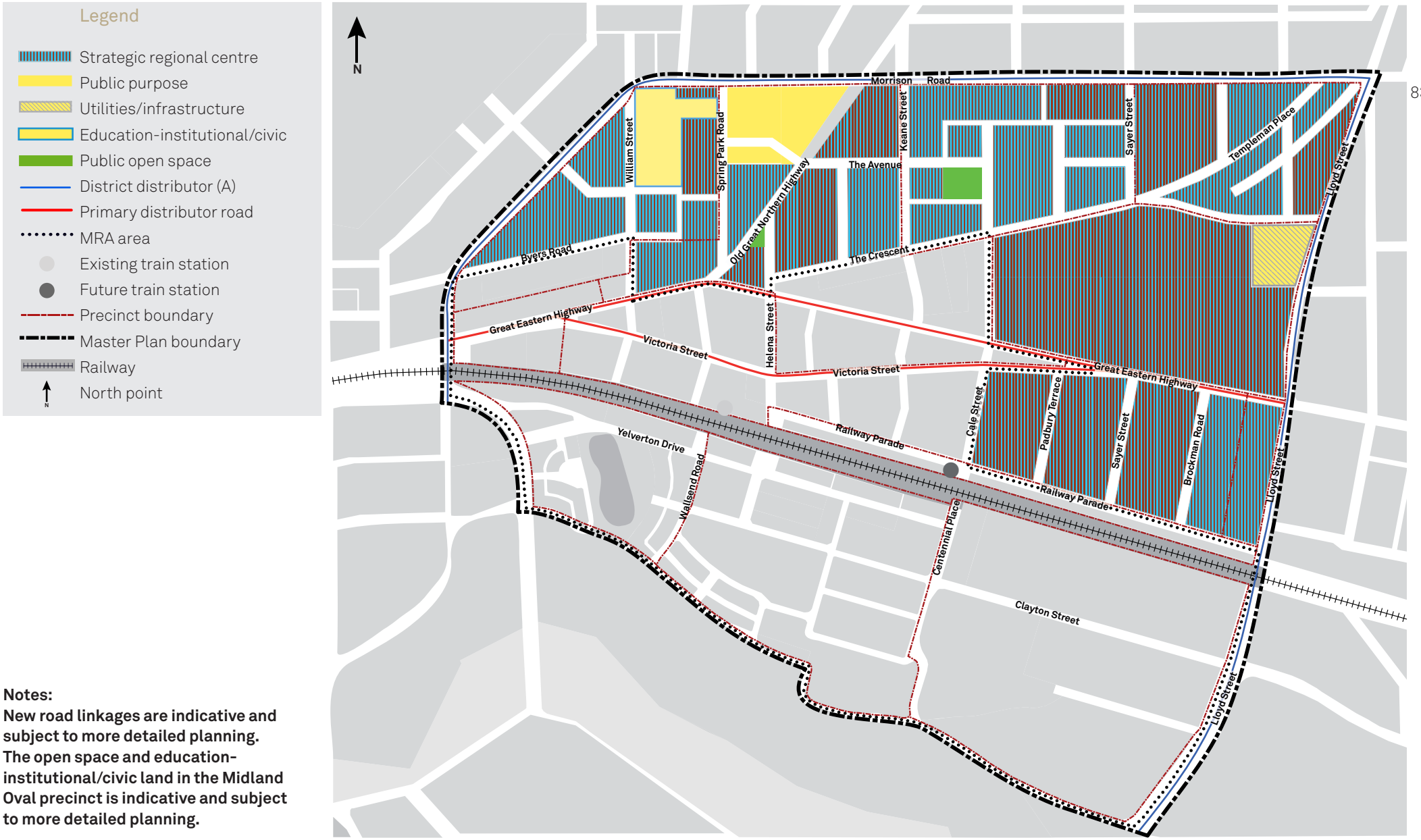
The open spaces are evenly distributed throughout the project area, ensuring equitable access and informal recreation opportunities are available across Midland.

5.2.3 Links to River

Through community vision exercises and previous planning strategies, improved links to both the Swan and Helena Rivers are sought. The Master Plan enables this by creating legible, safe and well-treed links to both of these important assets. In some cases, this requires resumption of private land, however this is justifiable based on the need to better integrate Midland's urban form with its natural environment.

5.2.4 Strategic Regional Centre and Relationship to Midland Redevelopment Scheme

A significant proportion of the Midland Activity Centre is within the Midland Redevelopment Scheme Area. This Master Plan is a strategic document, prepared in association with the City of Swan and Metropolitan Redevelopment Authority. For those areas outside the City of Swan planning control, the Metropolitan Redevelopment Authority will need to consider modifications to its planning controls consistent with this document. Figure 32 opposite shows the strategic regional centre where new planning controls will be required within the City of Swan's Local Planning Scheme. Design Guidelines will apply development control on a precict basis.



Notes:
New road linkages are indicative and subject to more detailed planning.
The open space and education-institutional/civic land in the Midland Oval precinct is indicative and subject to more detailed planning.

Figure 32_ The strategic regional centre and supporting reserves within the Midland Activity Centre under control of the City of Swan

5.0 URBAN FORM

5.2.5 Design Guideline Precincts

A separate document that provides design principles for the Activity Centre has been prepared to ensure progressive built form. The precincts which guidelines have been prepared for are:

- Entry Streets
- Morrison Road West
- Midland West End
- MIdland Oval Precinct
- Central Core

The comprehensive design guidelines will provide general provisions and specific information on the design intent, indicative street sections, heights, setbacks, landscaping and unique characteristics intended for the precinct.

For the City of Swan controlled areas shown in figure 32, the guidelines will be adopted as local planning policy under LPS 17. For the Midland Redevelopment Scheme Areas, modifications to existing policy will be required consistent with the guideline document or as agreed with the City of Swan.

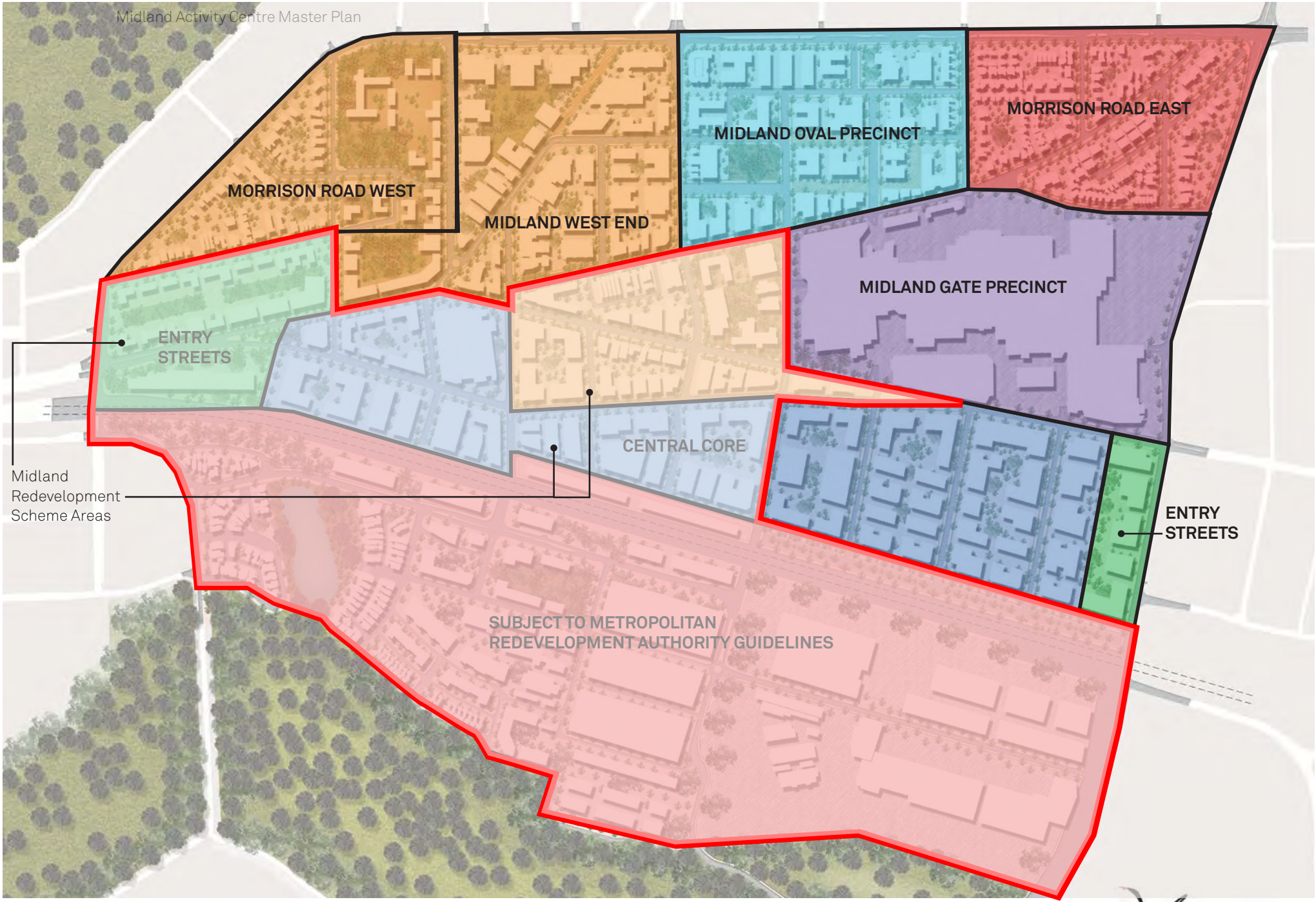


Figure 33_Midland Activity Centre Precincts and Design Guideline Areas

5.0 URBAN FORM

5.3 Built Form

Building forms will address and reinforce streets to define and activate public spaces as well as foster a sense of enclosure. Midland's existing modified-grid street network establishes strong connections to the town centre. Public transport nodes and buildings are orientated to support shady and comfortable streets and sustainable building performance. An integrated network of public plazas and urban greens will establish breaks in the urban landscape, providing respite and space for communal activities; these public spaces will promote walking and support informal interaction, activity and exchange.

Arrival points and corridors (such as boulevards) are important to reinforce the intended impression and character of Midland. Arrival points, corridors and edge treatments provide opportunities to reinforce the intent for various parts of the Activity Centre. A coordinated and planned approach to landscape and public realm treatments will allow the centre to integrate appropriately with surrounding land uses and strategic movement corridors. It is therefore imperative that high quality public realm treatments, including gateway arrival experiences and key infrastructure items, are treated appropriately.

The arrangement of built form intensity throughout Midland is based on four key drivers:

- Access to public transport
- Character and grain of historic quarters
- Propensity for change and development potential
- Policy objectives for minimum dwelling density

The Central Core will contain the tallest buildings in Midland, being adjacent to the railway line and having no heritage or character drivers. Pedestrian oriented and activated streets will have a lower scale of development to promote a comfortable, walkable environment. Throughout the activity centre, buildings will promote surveillance and overlooking of the public realm. Within the historic core (West End), built form relates to the established grain and rhythm of development – taller built form elements are set back from the street to emphasise and strengthen the existing place character.

The Midland Oval and area around the existing public transport interchange have the greatest propensity for development, being largely in single ownership and containing no built form impediments to development. These areas will also contain relatively intense built form, helping to achieve policy goals for employment and residential density.

South of the rail line, built form character is established by the Railway Workshops heritage precinct, the former industrial fabric and intent to promote complementary development opportunities. Buildings frame Railway Square, a key cultural plaza for Midland, and frame views towards the historic workshop buildings. The scale of the Midland Health Campus, adjacent to the Railway Workshops, also provides a complementary urban form, whilst also containing an appropriate degree of civic architecture to define it as an important element within the Activity Centre.

Within the residential neighbourhoods, building height and form transitions to a more domestic scale and grain; typically between two and five storeys. Heights should transition to the surrounding areas to ensure the Activity Centre is comfortably integrated with the broader urban form.

5.3.1 Building Heights

Building heights help establish the legibility of important places in the urban fabric, as well as supporting more intensive use and activity in a particular location.

Within the Midland Activity Centre heights should be greatest within the Central Core, adjacent to the new station interchange at Cale Street, to support transit oriented development and maximise potential for increased employee and resident populations. Heights should transition to the surrounding areas to ensure built form in the activity centre comfortably integrates with recognised areas of heritage significance and more sensitive residential neighbourhoods. Heights are described in figures 35 and 36 and can be increased at the discretion of Council.

Development in the Midland Activity Centre should support the following key outcomes:

- The tallest buildings are located around key public transport nodes within the Central Core
- Building heights in areas containing significant historic character elements should respect the existing scale and grain
- Buildings along pedestrian oriented and activated streets scale down in height to form a more human scaled interface while promoting overlooking and surveillance

5.0___URBAN FORM

Figure 34_A conceptual model showing the structure of Midland and the Central Core, where height is intended to be concentrated

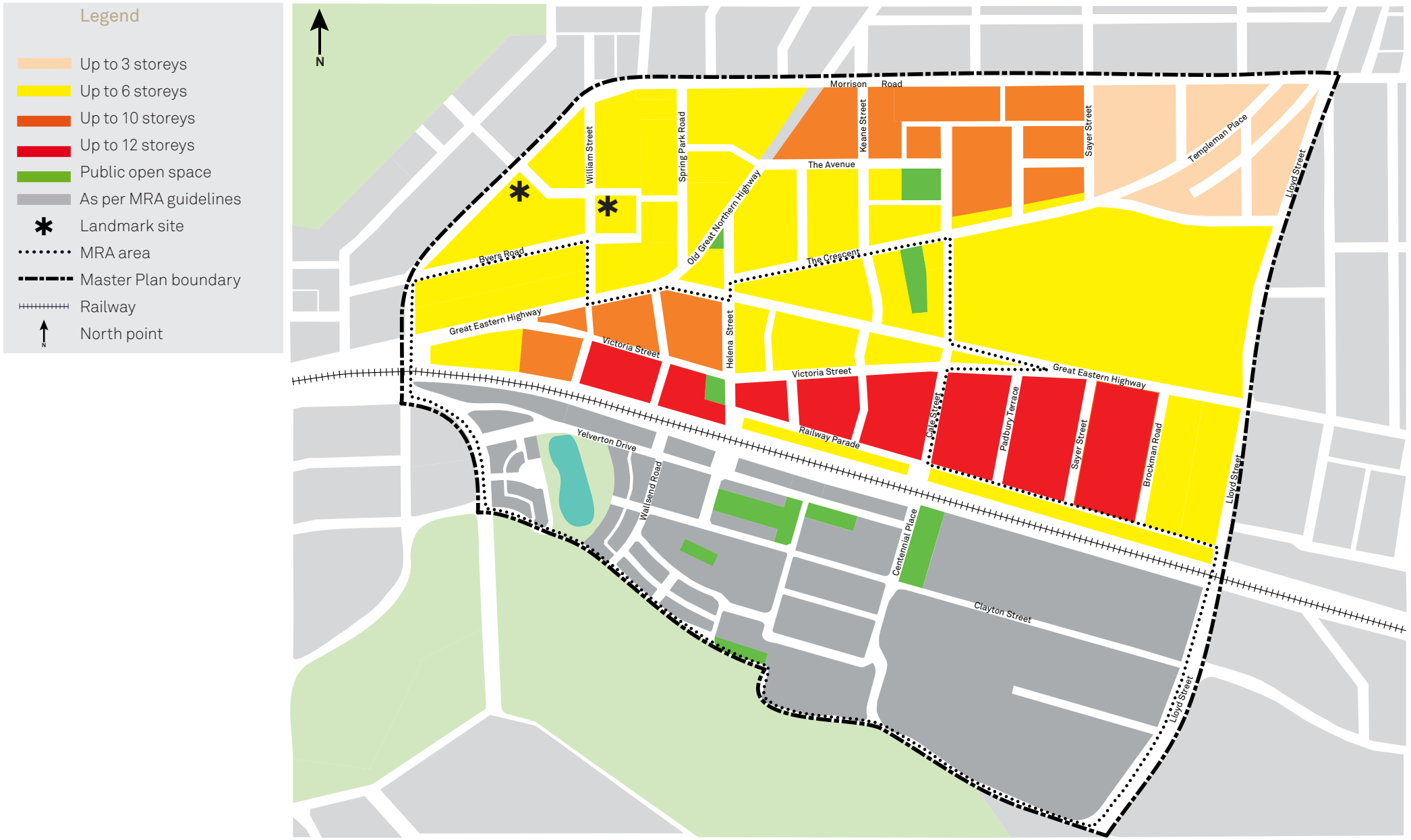


Figure 35_ Maximum Heights Plan

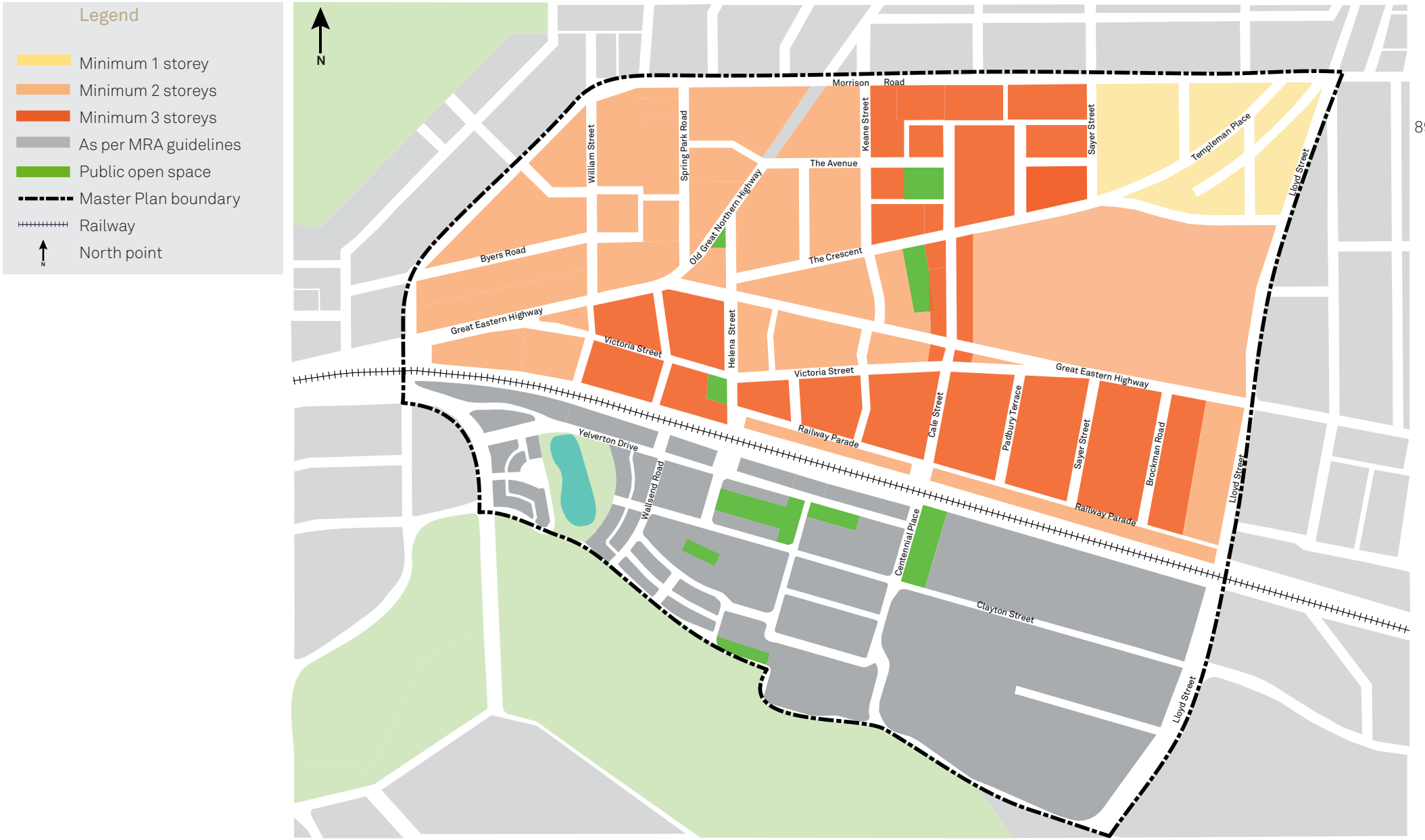


Figure 36_ Minimum Heights Plan

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5.0___URBAN FORM

5.3.2 Plot Ratios

Plot ratios are to be commensurate with the intended use, character, density and the overall movement strategy for Midland. Plot ratios are applied in conjunction with building height controls to guide density and the overall quantity of development. They are considered by block or development area with the highest plot ratio areas focused on the Central Core area adjacent to the transport node. Plot ratios should be readily achievable within the nominated building heights.

5.3.3 Active Edges

Edge treatments at key locations reinforce places of importance, activity and other dramatic place-making outcomes. Edge treatments will define the quality and character of streets and public spaces, and are the primary element that establishes the sense of place and urban quality of Midland. Edges will be defined to support areas of concentrated activity (retail and other experiential types uses), and reinforce key movement corridors and areas around major transit stops.

Development within the Activity Centre will establish a positive relationship to the street and public spaces, including the delivery of activated ground floor uses at specific locations. Active edges have the following characteristics:

- Frequent doors and windows, with few blank walls
- Narrow frontage buildings providing opportunities for more frequent and mixed-uses
- Building façade articulation
- Pedestrian awnings for weather protection
- Uses visible from the outside, or spilling onto the street

In places where active edges are not considered feasible, buildings will establish a strong address and access to the street. Where residential buildings are concerned, they will deliver direct entry from the street to ground floor units. At several locations within Midland, including frontages to regional transport corridors, high quality building edges and, in some cases, a strong landscape or green edge should be presented.

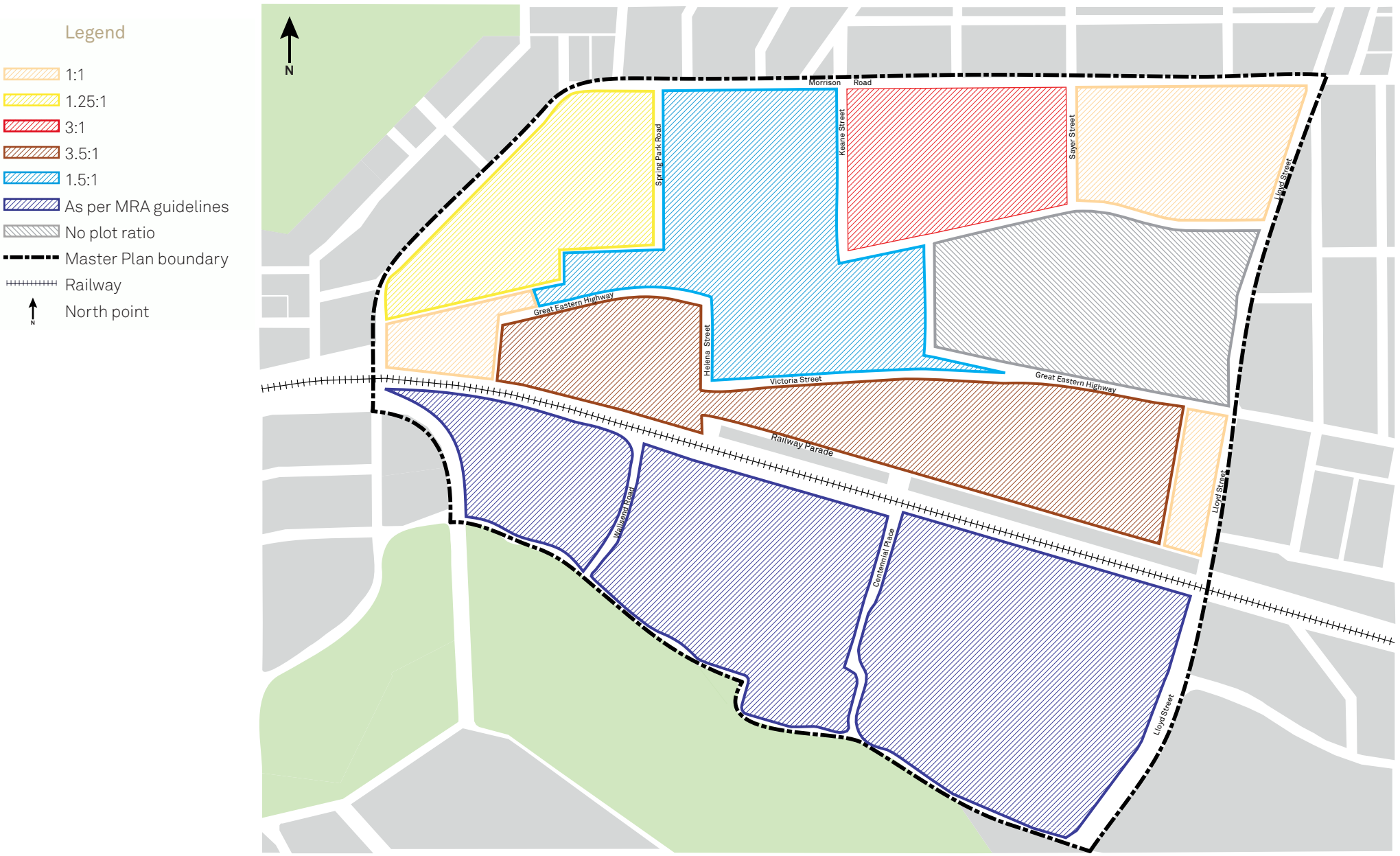


Figure 37_ Plot Ratio Plan

Legend

- Main street edge: active street frontage with a focus on retail shops, cafes, restaurants and hospitality funtions
- Commercial and residential front door: building orientation to street with entries and overlooking
- Semi active edge: can include non-retail
- Service edges: surveillance required from building windows
- Public open space
- Master Plan boundary
- Railway
- North point

Figure 38_ Building Frontage Requirements: The approach to activating the streets throughout Midland.

5.0 URBAN FORM

5.3.4 Urban Amenity

In recognition of the need to increase the intensity of development throughout Midland, it is important to provide amenity and areas of community focus. These points of amenity will:

- provide respite from continuous built form
- help to stimulate investment
- help to link larger environmental features such as the Swan and Helena Rivers
- act as community nodes, encouraging positive interaction and informal activity
- encourage a sense of place for the precincts within the Midland Activity Centre.

5.3.5 Site Amalgamation

In order to achieve the development standards intended by this Master Plan, site amalgamations are required, particularly in the Morrison Road West & Central Core precincts. Without site amalgamation, the overall development intensity of Midland will be substantially less. Where site amalgamation does not occur, development potential will be mandated at a lower level. Where amalgamation of three lots occurs, a development bonus (in terms of plot ratio) will apply. Minimum height standards also apply to ensure development meets the intended streetscape outcome.

5.4 Precinct Form and Character

The following provides a description of the intended character for each precinct within the Midland Activity Centre, based on land use, built form and activity. The principles established for each precinct will inform design guideline provisions adopted as local planning policy for the Midland Activity Centre.

Figure 39_ Public realm amenity

5.0 URBAN FORM

5.4.1 Midland West End

The Midland West End is the focus for retail (outside of Midland Gate), restaurant and entertainment functions within a pedestrian oriented main street environment. It will contain a diverse mix of uses, including residential and office functions and provide public spaces for community activities. The area will transition from an intense retail/restaurant main street environment to a more office and commercial oriented area north of The Crescent.

Buildings will be built to the boundary, address the streets and public spaces and support active ground floor uses. Building heights will be four storeys to the street interface, with potential for an additional level, setback from the street boundary. Within the West End area, along Helena Street and Old Great Northern Highway, development will complement the historic grain and character of the existing buildings, being generally two levels at the street boundary – higher development will be set back from the street to ensure a clear separation of building forms. This will promote a comfortable, pedestrian scaled street environment, promoting activity and the desired intensity of development.

New north – south local streets will be created to improve connectivity and circulation through the precinct, including the extension of Keane Street to Railway Parade. These streets are to be located to create permeability through the long street blocks and coincide with gaps in the built fabric. Land will need to be resumed from private landowners to create these north-south connectors.

New laneways will provide service access to lots fronting onto Great Eastern Highway and Victoria Avenue. Where possible, these laneways will extend upon existing rights of way, however a minimum width of 6 metres will be required in lieu of the typical 3 metre right of way width.

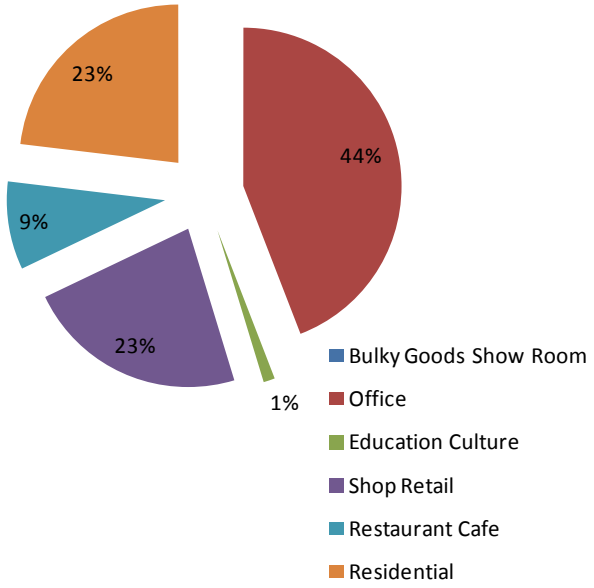
Precinct Outcomes

- The area is the traditional heart of Midland
- Cale and Helena Streets will be important north – south connectors
- Juniper Gardens will function as a central urban plaza, with surrounding streets creating a 'main street' focus for Midland
- The West End's fine grain and historic character will be retained and enhanced through new development providing complementary built form, high quality of materials and finishes
- All streets will be slow vehicle environments allowing for comfortable pedestrian movement and on street parking
- Streets will have wide pedestrian paths and street trees to enhance pedestrian amenity
- Intensity and mix of uses provides a variety of experiences that is attractive to workers and businesses including health, education, research, retail, commercial, food and beverage, residential, and community uses

Land Use Breakdown

The following mix and quantum of uses has been considered for the Midland West End. It will support an active and vibrant centre in an area of high public transport accessibility.

Bulky Goods Show Room	0 sqm
Office	94,960 sqm
Education Culture	2500 sqm
Shop Retail	48,698 sqm
Restaurant Cafe	19,334 sqm
Residential	49,706 sqm
Dwellings	621



5.0 URBAN FORM

5.4.2 Central Core

The Central Core is the most intense area of development within Midland, containing the tallest buildings (up to 12 storeys) with a mix of office and residential land uses, as well as some restaurant and retail floor space. The central core will be a pleasant living and working environment set in leafy surrounds. Buildings will generally be set back from the street (where active frontages are not required), and extensive landscaping and street tree planting will combine to create a soft contrast to the scale of built form throughout the area.

Along Cale and Helena Streets, buildings will extend to the street boundary to provide a greater level of activation and street presence, reflecting the important pedestrian function these streets provide. Victoria Street buildings will also be constructed to the street boundary, however the intensity of retail activity will be less; a continuous street edge and lower scale at the street provides for a complementary scale to the pedestrian core opposite, with commercial land uses at ground level.

Redevelopment of the Centrepoint Shopping Centre site offers opportunity for large scale development, stepping down from ten to six storeys at the interface with Great Eastern Highway and Helena Street. It is desirable that a public car park be developed in this location to support long term commuter parking for Midland, in recognition of the accessible and peripheral location. A six level car park could accommodate up to 550 car bays.

Redevelopment of the current transit interchange site offers an excellent opportunity to bolster the resident population and employment capacity of Midland. The site, upon relocation of the transit interchange to Cale Street, will accommodate a mix of land uses in buildings between three and twelve storeys in height. Development will promote activity along Victoria Street, but not to the intensity of the retail core, rather office and lower order retail and business services functions will predominate. New access roads will provide the required circulation and opportunity for development frontage - by extension of Keane Street to Railway Parade and Marion Street to Great Eastern Highway.

There is also opportunity to retain some of the large trees around the current transit station to create a small park as a space of respite and amenity that promotes the desired built form character. This park, measuring around 3,000 square metres in area, would complement the network of public spaces throughout Midland to improve the amenity afforded to new residents and employees.

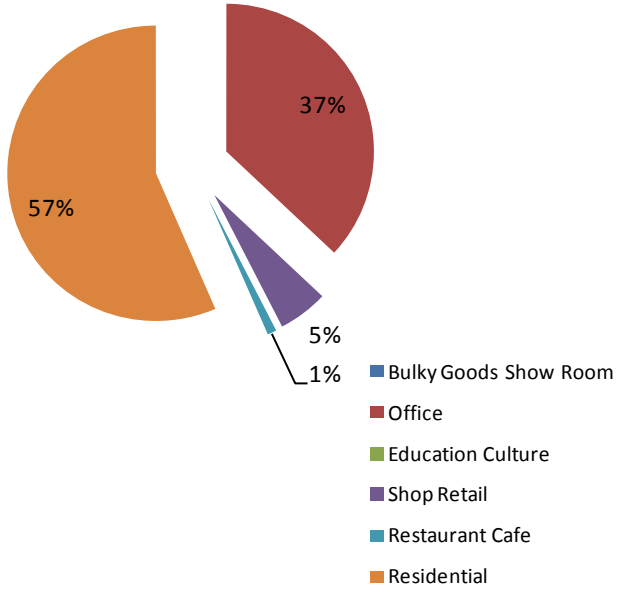
Precinct Outcomes

- The area provides for the most intense form of development, with opportunity for mixed use, residential and commercial buildings
- Streets and landscaped setback areas will create a highly amenable, leafy setting for living and working
- Cale and Helena Streets are important north-south connectors and will link the health and cultural precincts south of the railway with the town core to the north. Cale and Helena Streets are to be pedestrian oriented, activated streets
- Victoria Street will contain a commercial ground floor frontage in recognition of its higher vehicle movements, though ground floor tenancies do not need to be shop retail

Land Use Breakdown

The following uses are proposed within the precinct, noting the intended focus is for residential and commercial (office) development.

Bulky Goods Show Room	0 sqm
Office	166,160 sqm
Education Culture	
Shop Retail	24,435 sqm
Restaurant Cafe	4,491 sqm
Residential	254,211 sqm
Dwellings	3,177



5.0 URBAN FORM

5.4.3 Midland Oval Precinct

The Midland Oval precinct offers one of the greatest opportunities in the activity centre to establish a more intense residential presence whilst also bolstering the commercial office offer. Over two thirds of the precinct is owned by the City of Swan and zoned to allow for mixed use development. Whilst the Midland Oval has historically served recreational functions, it is now under utilised and other facilities throughout the region allow adequate access to district level playing fields. An urban green is proposed within the precinct to provide amenity for future residents and workers, albeit in a form more appropriate to an urban centre. The urban green will also help drive redevelopment opportunities by creating a point of focus within the precinct and allow space for respite and calm amongst the Activity Centre.

Along The Crescent, development will be pedestrian scaled and complement the activated retail function of that street. Taller development up to ten storeys will be accommodated across the remainder of the precinct, containing a mix of office, civic, entertainment, residential, retail and restaurant land uses. Development above four storeys in height will be set back to accommodate a pedestrian scale and comfort.

New link roads will connect to the existing street pattern of Midland and allow vehicular, cycle and pedestrian access into Midland. The broader precinct will be mixed use in nature, but will reflect the extension of surrounding retail, office and residential areas.

10 metre wide service lanes will be provided throughout the precinct, enabling crossovers to be minimised along the street front. This will improve accessibility options to development lots as well as enhancing pedestrian amenity.

To provide a shared approach to car parking, a site has been identified for a long term commuter car park on Morrison Road and 'skinned' with development. The peripheral location is suitable for long term car parking, given its location on a distributor road and being away from the pedestrian core. A 6 level car park could provide for up to 550 bays.

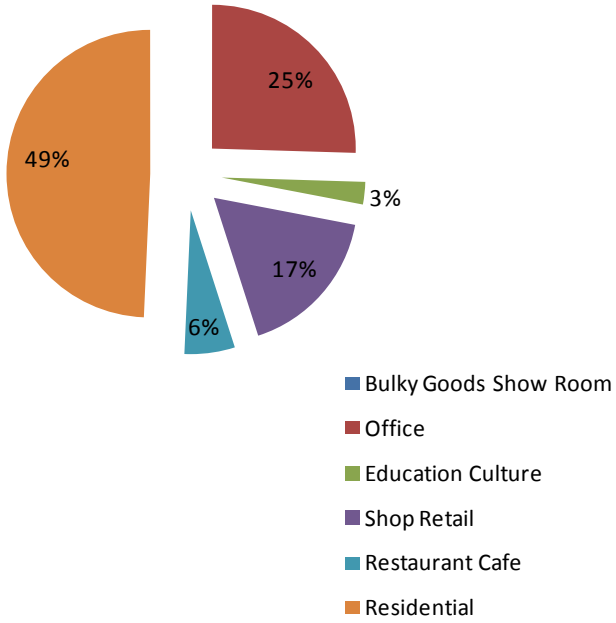
Precinct Outcomes

- A defined built frontage to The Crescent with pedestrian scaled built form to maximise activation opportunities
- Promoting a critical mass of development to the north of the pedestrian core
- High quality streets and public spaces to allow intense residential development and promote activation of the core parts of the activity centre
- Providing potential for expansion of the existing commercial office precinct containing Landgate and other such premises
- Providing potential retail expansion north along Cale Street
- New access roads connecting into the existing Midland grid

Land Use Breakdown

The table below provides an indicative mix of land uses for the Midland Oval precinct, based on the priorities noted above.

Bulky Goods Show Room	0 sqm
Office	60,400 sqm
Education Culture/Civic	6,000 sqm
Shop Retail	40,377 sqm
Restaurant Cafe	13,400 sqm
Residential	116,852 sqm
Dwellings	1,460



5.0 URBAN FORM

5.4.4 Entry Streets

These entry precincts into the Midland Activity Centre are critical to ensuring the impression of Midland for visitors and locals is positive. A positive impression will improve the desirability of Midland as a place to live and locate businesses.

The nature and character of these precincts is largely governed by the very high levels of traffic that Great Eastern Highway and Lloyd Street carry. These busy road environments are not conducive to high levels of pedestrian traffic; passing trade is by way of private vehicles and land uses in these precincts will be oriented towards highway retail (or showroom) and office functions.

To provide for the vehicle orientation of these precincts, buildings will be set back from the road edge, allowing on-site car parking and ample landscaping to assist in creating a boulevard character. The car parking arrangement will also accommodate shared access across lot boundaries, minimising the need for multiple crossovers. Buildings will be constructed up to five levels in height and include high quality facades with a range of materials and articulation to ensure a positive impression is created.

There is potential for a landmark entry building at corner of Morrison Road and Great Eastern Highway. The building will accommodate non residential uses along its Great Eastern Highway frontage. The building form will need to step down from five to two storeys at its interface to Byers Road to complement the scale of character buildings in that street.

Importantly, Great Eastern Highway and Lloyd Street will be designed as highly landscaped boulevards. Regular tree planting will soften the harshness of these wide traffic corridors and provide a shady environment for off road commuter cyclists and pedestrians.

Precinct Outcomes

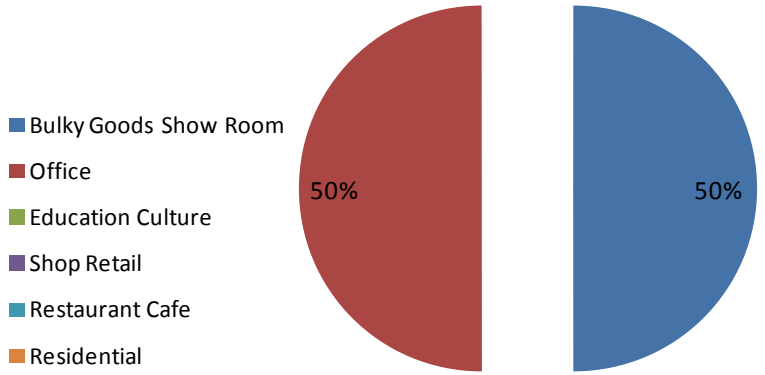
- Extensive landscaping treatments to Great Eastern Highway and Lloyd Streets are the highest impact elements that can improve the impression of Midland
- Shared vehicle access will be required from Great Eastern Highway and Lloyd Street, with a shared access plan to be prepared by Main Roads WA / City of Swan
- Land uses will be highway oriented
- Buildings must be designed to a high quality to create a strong corridor entry into Midland's heart
- Commuter cycle links will be off road and designed to allow safe and comfortable access
- Residential development is not permitted, taking account of the highway environment

Land Use Breakdown

The following uses are proposed within the precinct, noting the intended focus is for highway-commercial businesses.

Bulky Goods Show Room	14,755 sqm
Office	14,755 sqm
Education Culture	0 sqm
Shop Retail	0 sqm
Restaurant Cafe	0 sqm
Residential	0 sqm
Dwellings	0

No residential land uses will be contained within the Entry Streets precincts.



5.0 URBAN FORM

5.4.5 Morrison Road West

Morrison Road West will be an important high density housing precinct, providing a mix of housing opportunities near to Midland's core.

The precinct will be supported by the existing Midland Primary School site. Given the projected increase in population, it is important to retain sites that can contribute to Midland's community infrastructure. Future design of the primary school site must consider how its open spaces can contribute to the overall amenity of the Morrison Road West Precinct – particularly having regard to sharing oval space with the community. The existing green space on the primary school site provides amenity for the Morrison Road West precinct and it is desirable that this is retained and public accessibility provided to support increased densities.

Buildings throughout the precinct will be up to six levels in height. This will require site consolidation to provide for the required building form and potential for basement car parking.

Buildings will be set back from the street to provide a landscaped setting. Side boundary walls will be permitted to a height of five storeys (to both boundaries). Car parking will be to the rear of buildings and screened from public view. Car parking may also be accommodated in basements, semi basements and decked parking structures integrated into the building design.

There are two sites nominated for taller development, up to eight storeys in height. These taller buildings relate to an important connection between the city centre and Swan River Regional Park, designed as a well treed street, and to the shared open space. These two neighbourhood elements will act as points of amenity to promote a greater intensity of development.

In order to provide a direct connection to the Swan River Regional Park, land is required to be resumed. A single lot is noted for this purpose at the end of Poynton Avenue. This will provide pedestrian and vehicle access to the regional playground facility and the Swan River foreshore. A new link is also proposed between Spring Park Road and Old Great Northern Highway to improve connectivity.

There are a number of existing single dwellings that contribute character to the precinct and help to tell Midland's development story. These buildings are grouped along Byers Road, with some also on Spring Park Road. This Master Plan recommends retaining these dwellings, whilst allowing development potential to the rear. To reflect an appropriate development form cognisant of the domestic character of these buildings, a setback to taller development is proposed along Byers Road, whereby development of two storeys is appropriate to the street frontage and taller development is set back by at least 10 metres.

Morrison Road west of Keane Street will be widened up to 7 metres, allowing for a 30 metre road reserve. Some land has already been resumed as part of site redevelopment. A 30 metre road reserve will allow Morrison Road to function as an 'Integrator B – outside centres' road as nominated by Liveable Neighbourhoods. Importantly, Morrison Road is to be planted as a boulevard to improve the impression of Midland and enhance the character of this road.

Burgess Street is proposed to be extended to connect onto William Street. The existing 10 metre road reserve returned to William Street to provide development frontage and a more legible road pattern. This new road will be required as part of additional Master Planning as identified in the implementation chapter of this report.

Existing rights of way will be used as the basis to create a network of rear laneways functioning as shared vehicle access to development. These lanes will be constructed to 6 metres in width, requiring land resumption in some areas. These lanes will minimise the need for crossovers onto Morrison Road and Poynton Avenue.

Precinct Outcomes

- Formalised connection between Swan River Regional Park and the city centre
- Formalised open space providing amenity to the precinct
- Retention of character buildings and definition of built form envelopes to guide appropriate built form setbacks
- Identification of Morrison Road as an attractive, tree lined boulevard
- New road and laneway connections
- Requirement for additional Master Planning over nominated areas to encourage site consolidation and shared access

Land Use Breakdown

Bulky Goods Show Room	0 sqm
Office	14,755 sqm
Education Culture	6,500 sqm
Shop Retail	0 sqm
Restaurant Cafe	0 sqm
Residential	58,515 sqm
Dwellings	731

5.0 URBAN FORM

5.4.6 Morrison Road East

Morrison Road East is a residential precinct at the north eastern corner of the project area. The precinct is largely developed, containing a mix of single and grouped dwellings between one and two storeys in height. There is little development potential to be gained from this precinct given the relatively recent construction of buildings and the strata ownership pattern.

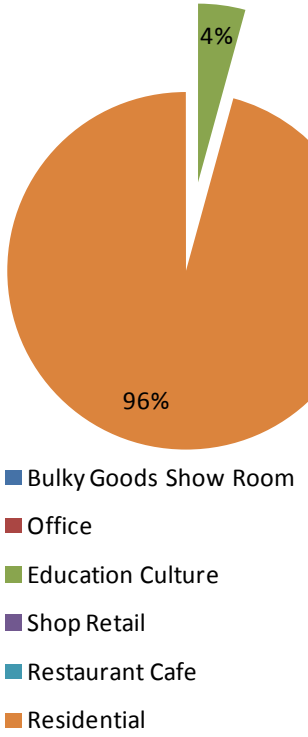
Improvements to the public realm should be made within the precinct to ensure an attractive and safe pedestrian environment. In particular, the existing street tree planting needs to be improved to ensure regular planting and consistent shade cover. Any new development should present an attractive and complementary built form to the street, consistent with Residential Design Code provisions.

Precinct Outcomes

- Recognise the developed nature of the Morrison Road East precinct
- Improve the public realm by way of consistent street tree planting
- Ensure any remaining development complements the intended role and function of the precinct as a residential neighbourhood
- Development shall be as per this Activity Centre Master Plan and the Residential Design Codes

Land Use Breakdown

Bulky Goods Show Room	0 sqm
Office	0 sqm
Education Culture	1,000 sqm
Shop Retail	0 sqm
Restaurant Cafe	0 sqm
Residential	15,220 sqm
Dwellings	281



5.0 URBAN FORM

5.4.7 Midland Gate Precinct

The Midland Gate Shopping Centre will continue to provide the bulk of interior focused retail space, including supermarkets, specialty stores and discount department stores. Approval for expansion to 75,000 square metres has been granted by the City of Swan and Western Australian Planning Commission. There is potential in the future to allow development of a full range department store, completing the spectrum of retail offer within Midland.

The Midland Gate Shopping Centre also contains restaurants and a limited amount of business services activity, such as banks, insurance and health services shop fronts.

Future development of the Midland Gate Shopping Centre must ensure that the street environment is protected as a pedestrian friendly and safe environment. Built form should address the surrounding streets (consistent with Figure 38) through active shop fronts, pedestrian scale and facade articulation, with the exception of Lloyd Street, which will be a busy traffic thoroughfare. Along the Lloyd Street interface, landscape planting should complement its intended character as a well treed boulevard.

A Western Power electricity switch yard is located at the intersection of The Crescent and Lloyd Street. This large piece of infrastructure is important for Midland and the surrounding region, however it presents a poor interface along these key traffic routes. Improved landscape screening should be sought around the switch yard to create a more visually attractive barrier.

Precinct Outcomes

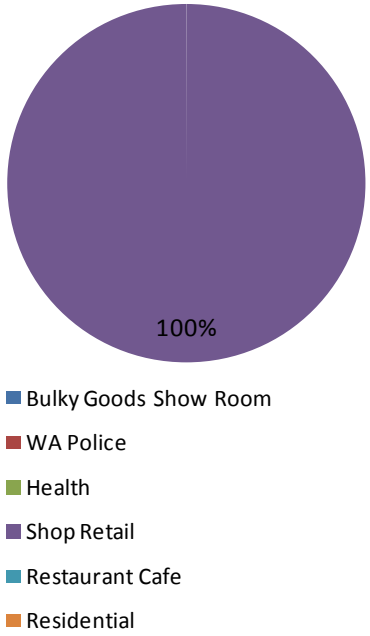
- Allow for appropriate expansion opportunities for Midland Gate, consistent with growth in resident and employee population
- Ensure built form presents an attractive, comfortable and active facade to Cale Street, Great Eastern Highway and The Crescent
- High quality landscape treatments to Lloyd Street
- Landscape screening to the Western Power switch yard
- Large expanses of car parking should be broken up with shade tree planting and landscaping
- A centre development plan is required to guide future development of the Midland Gate Shopping Centre

Land Use Breakdown

Bulky Goods Show Room	0 sqm
Office	0 sqm
Education Culture	0 sqm
Shop Retail	93,000 sqm
Restaurant Cafe	0 sqm
Residential	0 sqm
Dwellings	0

Note: The 93,000 square metres of retail floor space accounts for the current approval for 75,000 square metres of retail area, as well as development of a 12,000 square metre department store and complementary specialty stores / restaurants / cafes and small business services office space. This Master Plan does not cap future retail floor space expansion.

No dwellings are envisaged within the Midland Gate precinct; although the development thereof in the longer term will be supported.



5.0 URBAN FORM

5.4.8 The Workshops Precinct

The Workshops Precinct is defined by the large and historically important former railway workshops buildings. These are dominant features within Midland's cityscape and act as cues to development potential within the surrounding area.

The Workshops Precinct is part of the Midland Redevelopment Scheme area, overseen by the Metropolitan Redevelopment Authority. The vision for the precinct is a mixed use urban village with residential, commercial, creative industries, cultural, health, education and hospitality related uses. The focus for the precinct is a cultural, educational and civic hub and so the amount of residential floor area reflects this intent. The creative industries focus is exemplified by the Midland Atelier, led by FORM and providing space for artists, events and cultural dialogue.

There is potential for a new performing arts facility (or similar cultural function) in Block 1 of the former workshop buildings and the associated civic functions will be complemented by Railway Square, a large public open space that will accommodate community events. New buildings up to four storeys containing hospitality, commercial and cultural uses will create an active edge to the square and provide the intended containment of space.

A key aim for the Workshops Precinct is to promote an increased tertiary education presence within Midland. This may be in the form of a university campus or technical school that allows for development of smart city principles. Such land uses may be accommodated within existing historic buildings.

The historic buildings will be celebrated through an improved public space network comprising well treed streets, comfortable and safe pedestrian networks and urban green spaces. New buildings will complement the existing heritage fabric through sympathetic scale and use of materials.

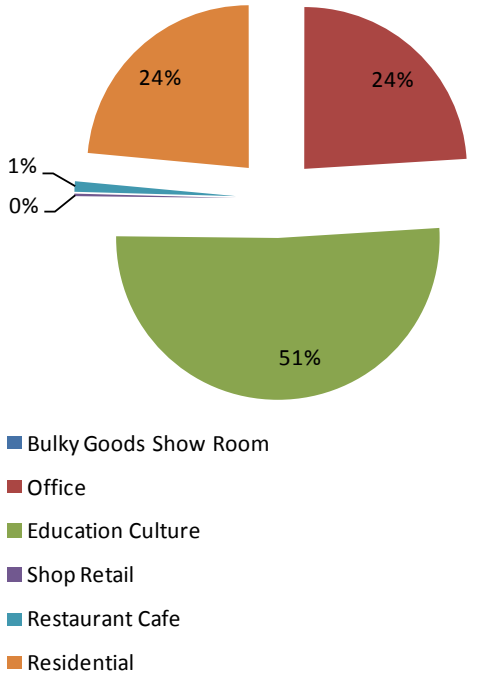
Pedestrian and road networks will allow improved connection between the Helena River and the core areas of the precinct, helping to complete the Midland community's vision of better integrating the two rivers with the city centre. A recreation hub is planned adjacent to the Helena River, providing a destination or point of focus around which informal gathering and sporting activity can occur.

Precinct Outcomes:

- Provide contemporary built form outcomes complementary to the historic fabric of the Railway Workshops
- Promote use of the Workshops for creative industries, tertiary education and cultural facilities, or any other appropriate land uses that contribute to Midland life
- Provide safe and comfortable pedestrian networks linking the city centre and Helena River
- Focus activity within the precinct around Railway Square, a new public events space
- Maximise potential for development of creative industries and complementary commercial activities

Land Use Breakdown:

Bulky Goods Show Room	0 sqm
Office	43,167 sqm
Education Culture	91,979 sqm
Shop Retail	450 sqm
Restaurant Cafe	1,876 sqm
Residential	42,291 sqm
Dwellings	528



5.0 URBAN FORM

5.4.9 Clayton Precinct

This precinct principally contains the Police Operations Unit, south of Clayton Street and the Midland Health Campus to the north. A large showroom development also fronts Clayton Street.

The Metropolitan Redevelopment Authority controls this precinct.

The Midland Health Campus will commence construction in 2012 with the first stage providing for a public and private hospital with 367 beds. Planned expansion in 2015/16 will see the public bed hospital grow to 450 beds. At this time, the private hospital will likely vacate the Midland Health Campus and relocate to new facilities within the Railway Workshops precinct. The Midland Health Campus site is envisaged to provide over the longer term for a 600 bed public hospital and associated health related activities. Buildings up to ten levels in height will address Clayton Street and Lloyd Street, providing a civic statement and landmark entry into the Midland Activity Centre. Parking will be provided on site behind these buildings in decked structures.

In order to accommodate the health campus, a number of road infrastructure upgrades are proposed. These upgrades are considered in more detail within the movement section of this report. The upgrades are:

- Cale Street will be extended across the rail line to provide an at grade crossing, linking the northern parts of the activity centre with the southern precincts
- An underpass to the rail line will allow uninterrupted traffic flow on Lloyd Street
- Cowie Close will be extended over Lloyd Street, providing direct vehicle entry into the health campus site

A grand civic square will be created as part of stage 1 of the hospital adjacent to Centennial Place. This will contribute to the urban green space network throughout Midland and provide respite to the large scale buildings in the surrounding area.

The precinct will be located directly adjacent to the new Cale Street train station, and the health campus' location bears direct relation to investment in that new station. Significant numbers of staff and visitors to the precinct will be encouraged to use the new public transport infrastructure, minimising requirement for travel by private vehicle.

The Police Operations Centre site caters for growth in Police requirements over time, with much of the land currently vacant. Development will be in a campus style and complement the significant heritage buildings on site, particularly the former flanging workshops. Buildings will range in height from single to six storeys and complement the intended street network.

A new link road will be constructed between the Police Operations site and the Helena River reserve, allowing new local network connections that will complement the district function of Clayton and Lloyd Streets. This road will also allow development on the Police Operations site to address the river and create a safe and attractive frontage.

The existing showroom development is considered a temporary site use. The land is in single ownership and will be encouraged to remain as such until development of greater scale and intensity is viable. Particularly, new development on the site will complement the street interface character created by the former flanging workshops and the future Midland Health Campus – nil setbacks to the street, four to six storeys in height and containing materials that provide a contemporary yet complementary façade composition to the heritage buildings.

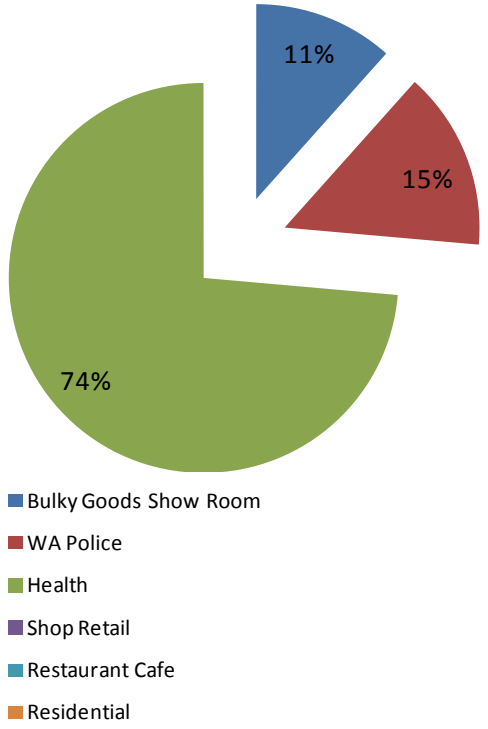
5.0___URBAN FORM

Precinct Outcomes:

- Development of a health campus providing regional health care for the north eastern sub region
- Creation of a grand civic square complementing the open space network throughout Midland
- Buildings will have a strong civic presence and complement the historic fabric of the former workshops
- Buildings will be located to create a consistent and strong street edge to Clayton Street
- A new local road connection along the Helena River will enhance the local network and complement the function of Clayton and Lloyd Streets

Land Use Breakdown:

Bulky Goods Show Room	23,073 sqm
Office	29,393 sqm
Education Culture / Health	146,371 sqm
Shop Retail	0 sqm
Restaurant Cafe	0 sqm
Residential	0 sqm
Dwellings	0



5.0 URBAN FORM

5.4.10 Woodbridge Lakes Precinct

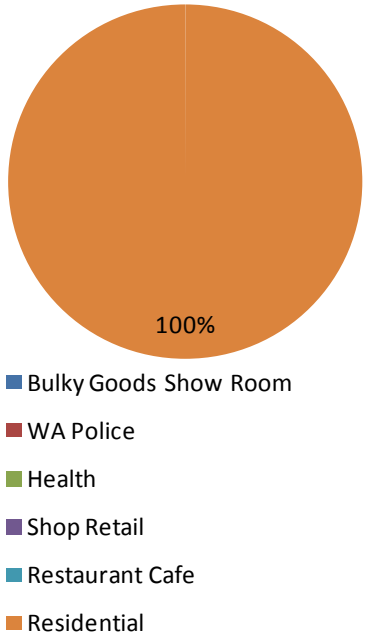
The Woodbridge Lakes precinct is a residential neighbourhood planned and developed by the Metropolitan Redevelopment Authority. The precinct contains mostly single residential buildings two storeys in height. The focus of the precinct is the Coal Dam Lake and surrounding parklands, which provide a grand landscape statement.

Precinct Outcomes

Woodbridge Lakes is largely developed and a peripheral precinct to the Midland Activity Centre. The precinct intends to produce residential development in harmony with natural resources and establish a robust relationship with the Helena River and surrounding parks.

Land Use Breakdown

Bulky Goods Show Room	0 sqm
Office	0 sqm
Education Culture / Health	0 sqm
Shop Retail	0 sqm
Restaurant Cafe	0 sqm
Residential	14,430 sqm
Dwellings	83



5.0 URBAN FORM

5.5 Development Standards

		Entry Streets	Morrison Road West	Morrison Road East	Midland Oval	West End and Pedestrian Core	Central Core	Midland Gate	Railway Workshops	Clayton	Woodbridge Lakes (refer DGs)
Land Use	Retail (including a shop)	X	X	X	The Crescent: P Elsewhere: D	P	Victoria, Cale, Helena Streets: P Elsewhere: D	P	Local Convenience Only	Local Convenience Only	X
	Business Services	D	X	X	P	P	P	P	X	X	X
	Restaurant	P	X	X	P	P	P	P	D	D	X
	Office	P	X	X	P	Ground Floor: D Upper Floors: P	P	D	D	P	X
	Entertainment	X	X	X	The Crescent: P Elsewhere: D	P	D	P	D	D	X
	Showroom	P	X	X	D	D	D	D	D	D	X
	Residential	X	P	P	The Crescent: P above ground level only Elsewhere: P	D Above ground level only	Victoria, Cale, Helena Streets: P above ground level only Elsewhere: P	D Above ground level only	D (Refer design guidelines)	X	P
	Hotel or Motel	X	X	X	P	P (must have active uses at ground level)	P	X	D (must have active uses at ground level)	D (must have active uses at ground level)	X
	Educational Establishment	X	D	D	D	D	D	X	P	D	X
	Health	D	D	D	D	D	D	D	P	P	X
	Civic Use	X	D	D	P	P	D	D	P	P	X

Note: these development standards are recommendations and will require implementation by amendments to the City of Swan Local Planning Scheme and the Midland Redevelopment Scheme where appropriate.
'P' Use: means that the use is permitted by the Scheme provided the use complies with the relevant development standards and the requirements of the Scheme;
'D' Use: means that the use is not permitted unless the local government has exercised its discretion by granting planning approval
'X' Use: means a use that is not permitted by the Scheme

5.0___URBAN FORM

	Entry Streets	Morrison Road West	Morrison Road East	Midland Oval	West End and Pedestrian Core	Central Core	Midland Gate	Railway Workshops	Clayton	Woodbridge Lakes (refer DGs)
R-Code	The R-Code across the Activity Centre Area will be R-ACO. Development standards according to this Master Plan apply.									
Maximum Plot Ratio	1:1	1.25:1(a) (f)	1:1	3:1	1.5:1	3.5:1 (f)	N/A*	N/A*	N/A*	N/A*
Minimum Plot Ratio	N/A	0.6:1	N/A	1:1	0.6:1	1:1	N/A	N/A	N/A	N/A
Minimum Wall Height (at street interface)	Two storeys or 7 metres	Two storeys and 6 metres	One storey and 2.8 metres	Three storeys and 10 metres.	Two storeys and 6.5 metres (b)	Three storeys and 10 metres.	Two storeys and 6.5 metres (c)	N/A*	N/A*	N/A*
Maximum Building Height	Six storeys	Six storeys, except where landmark sites are noted, and except along Byers Road (d)	Three storeys	Six storeys to The Crescent and ten storeys elsewhere	Six storeys	Twelve storeys (e)	Six storeys	N/A*	N/A*	N/A*
Maximum Boundary Wall Height	Five storeys	Three storeys and 9.5 metres	As per R -Codes	The Crescent only: Four storeys and 13.1m	Two storeys and 6.5 metres	Victoria, Cale, Helena Streets: Four storeys and 13.1m	Five storeys and 17.5m	N/A*	N/A*	N/A*
Maximum Boundary Wall Length	No limit	Two thirds the length of the boundary	As per R -Codes	The Crescent only: No limit	No limit	Victoria, Cale, Helena Streets: No limit	No limit	N/A*	N/A*	N/A*

Note: these development standards are recommendations and will require implementation by amandments to the City of Swan Local Planning Scheme and the Midland Redevelopment Scheme where appropriate.

*refer Midland Redevelopment Scheme and relevant guidelines

5.0 URBAN FORM

	Entry Streets	Morrison Road West	Morrison Road East	Midland Oval	West End and Pedestrian Core	Central Core	Midland Gate	Railway Workshops	Clayton	Woodbridge Lakes (refer DGs)
Street Setback	15m	4m	4m	Nil setback up to four storeys, then a 4m setback to upper floors	Nil setback	Nil setback to Victoria, Cale and Helena Streets, 4m elsewhere	Nil setback	N/A*	N/A*	N/A*
Side Setback (min)	Nil	Nil	As per R -Codes	Nil setback up to four storeys, then a 3m setback to upper floors	Nil for first two storeys and 3 metres for upper floors	Victoria, Cale and Helena Streets: Nil; 4m elsewhere	Nil	N/A*	N/A*	N/A*
Rear Setback (min)	3m	4m	As per R -Codes	Nil setback up to four storeys, then a 3m setback to upper floors	Nil for first two storeys and 3 metres for upper floors	4m	Nil	N/A*	N/A*	N/A*

*refer Midland Redevelopment Scheme and relevant guidelines

(a) Development in Morrison Road West can achieve a plot ratio of 1.25:1 only where multiple dwellings are proposed to at least the prescribed minimum height.

(b) Within the historic core on Old Great Northern Highway and Helena Street, the minimum wall height fronting the street is established by the parapet height of the existing buildings and subject to design guideline or local planning policy controls.

(c) Minimum wall height controls apply to Cale Street, Great Eastern Highway and Morrison Road and not to Lloyd Street.

(d) Morrison Road West maximum height is six storeys except for the identified landmark sites where eight storeys is permitted, and except for Byers Road where only two storeys is permitted for the first 10m.

(e) A ten storey height limit applies to that land shown on the maximum height plan in this structure document.

(f) For all developent to achieve the maximum plot ratio, a minimum of two lots must be amalgamated where lot frontage is less than 40 metres, otherwise only limited development will be permitted. If three lots are amalgamated to create a frontage over 50 metres a plot ratio of 0.5:1 above the maximum is allowable as a development bonus.

Note: these development standards are recommendations and will require implementation by amandments to the City of Swan Local Planning Scheme and the Midland Redevelopment Scheme where appropriate.

5.0___URBAN FORM

	Maximum Car Parking Rates
Business Services	3 bays per 100 sqm
Convenience Store	3 bays per 100 sqm
Civic Use	To be determined by Council and based on a parking management plan
Educational Establishment	To be determined by Council and based on a parking management plan
Entertainment	To be determined by Council and based on a parking management plan
Health	To be determined by Council and based on a parking management plan
Office	1 bay per 100 sqm
Residential	1 bay per unit
Restaurant	3 bays per 100 sqm
Retail	3 bays per 100 sqm
Showroom	2 bays per 100 sqm

A transitional plan which allows additional interim parking on a mandated schedule may be required.

5.0 URBAN FORM

Business Services: means a premises used for the provision of services which are predominantly administrative in nature and which; (a) are dependent on direct access to the public; and (b) generally have a retail shop front and includes a bank or building society, post office, real estate agency and travel agency.

Restaurant: means premises where the predominant use is the sale and consumption of food and drinks on the premises and where seating is provided for patrons, and includes a restaurant licensed under the Liquor Control Act 1988.

Office: means premises used for administration, clerical, technical, professional or other like business activities.

Entertainment: means a place of business serving the amusement and recreational needs of the community and which is not of a sexual nature. Such facilities may include, but are not limited to: tavern, nightclub, Restaurant, amusement parlour.

Convenience Store: means land and buildings used for the retail sale of convenience goods being those goods commonly sold in supermarkets, delicatessens and newsagents but including the sale of petrol and operated during hours which may include, but which may extend beyond normal trading hours and provide associated parking. The buildings associated with a convenience store shall not exceed 300m2 gross leasable area.

Showroom: means premises used to display, sell by wholesale or retail, or hire, automotive parts and accessories, camping equipment, electrical light fittings, equestrian supplies, floor coverings, furnishings, furniture, household appliances, party supplies, swimming pools or goods of a bulky nature.

Residential: has the same meaning as in the Residential Design Codes of Western Australia.

Short Term Residential: a building containing rooms and / or dwellings that are managed and let for short term periods of not more than three months.

Educational Establishment: means premises used for the purposes of education and includes a school, tertiary institution, business college, academy or other educational centre.

Health: means a place of business providing medical care, investigation or treatment of human injuries or ailments, or general outpatient care (including preventative care, diagnosis, medical and surgical treatment, and counselling. Such facilities may include, but are not limited to, consulting rooms, medical centre, hospital.

Civic: means premises used by a government department, an instrumentality of the Crown, or the local government, for administrative, recreational or other purposes.

Plot Ratio means:

- Residential Development: as per the definition within the Residential Design Codes of Western Australia.
- Non-Residential Development: The ratio of the gross total area of all fully enclosed covered areas of a building(s) on a site to the area of land in the site boundaries, excluding
  - toilets and bathrooms;
  - lift shafts, stairs and stair landings;
  - machinery, air conditioning, storage, equipment and plant rooms;
  - lobbies and circulation spaces common to two or more tenancies;
  - staff tea preparation, lunch areas or amenities;
  - staff changeroom/locker facilities;
  - areas used for the unpaid parking of vehicles at or below ground level;
  - balconies, verandahs, roof terraces and courtyards, and
  - space that is wholly below natural ground level.

Mixed Use: means an accommodation of two or more land uses contained in the same building or site, where one of those uses is within the Residential land use category.

6.0 Resources

6.0 RESOURCES

The natural environment is one of Midland's greatest assets and intelligent urban design will ensure the centre's energy and water resources will be conserved and waste management will be optimised to create an innovative green environment.

6.1 Objectives

The Midland Activity Master Plan will deliver environmentally sustainable urban development through a consistent environmental management system which improves urban density and design principles which will reduce energy consumption, minimise private car use and maximise public transport opportunities.

Review Process

Environmental policies will undergo consistent review and assess sustainability strategies such as maximising access to public transport through transit oriented development (TOD) design principles, developing high quality pedestrian environments, activated shop fronts and passive surveillance from the built environment.

Requirement for Management Plans

The primary focus of sustainablility for the Master Plan revolve around energy and water efficiency and waste renewal. The corporate and commercial environment will be a key player in leading the preservation of the environment and future developments will incorporate physical mechanisms to reduce consumption and improve efficiency, while energy and staff transport management plans will be introduced to promote resource efficiency and alternative transportation.

Green Star Rating for Commercial Buildings

The Building Code of Australia has acknowledged the progression of sustainable buildings and recognised energy, water, materials and indoor environments as key drivers to improve the environmental sustainability of the future. Commecial buildings in Midland Activity Centre will aim to achieve a 4 star green star rating for commercial buildings through innovative design that addresses passive solar design, thermal mass, water management, efficient heating and cooling, renewable energy and recycling.

These principles will help to facilitate a sustainable urban environment that optimises energy efficiency and land use opportunities to achieve reduction in energy and water consumption and improved waste renewal.

Transit Oriented Development

The Activity Centre's urban density, micro-climate and TOD will become fundamental elements in reducing the reliance of private transport and in effect reduce the consumption of energy and emissions whilst promoting alternative modes of transport such as walking and cycling.

TOD results in high density urban landscapes which create comfortable pedestrian environments for cycling and walking whilst reducing vehicle emissions. The improved accessibility and frequency of public transport supported by the 'greening' or increased presence of vegetation and natural shading will create cooler pedestrian environments and a positive urban outcome.

01_ Harmony of multiple transport modes

02_ High quality landscaped pedestrian environments

01_

02_

6.0 RESOURCES

6.2 Energy

Passive Solar Design

To reduce the corporate carbon footprint and energy consumption, appropriate building features are required to optimise cooling and heating throughout the building. Passive solar design is a fundamental design principle due to its ability in reducing the consumption of energy.

The operational energy demands of buildings can be reduced through building orientation, thermal mass and walls, windows and doors. Solar oriented developments will be required to allow appropriate sunlight and effective absorption of solar energy to prevent buildings from overheating and reduce the backup heat required during the night whilst providing passive surveillance.

Solar shading will provide protection to windows from the sun by projecting shade devices to north facing and horizontal and vertical to east and west facing areas. These design principles will significantly reduce excess heat and improve the overall energy relationship throughout the building. The integration of solar photovoltaic cells into buildings is highly encouraged which will significantly reduce the consumption of energy for lighting and heating. Some existing heritage buildings may also benefit from the installation of solar photovoltaic cells in discrete locations which are non-visible from the public realm.

Buildings must be designed to be comfortable with no assistance from mechanical cooling during winter months whereas during summer months, buildings should be designed to contain cooled air. To assist the heating and cooling relationship, buildings must provide extensive shade, promote air movement and reduce direct sunlight.

The use of lightweight materials, adequate ventilation within ceiling spaces and resistive insulation are fundamental qualities for buildings within the activity centre which will reduce energy consumption and improve efficiency. The implementation of appropriate materials and building orientation will significantly increase the efficiency of heating and cooling for buildings and reduce the consumption of energy and contribute in achieving a successful environmental outcome.

Crime Prevention Through Environmental Design

The creation of a comfortable and safe public realm is important to achieve a high quality pedestrian environment which will mean building elements must address the street and encourage major openings and pedestrian cover fronting the primary street whereas excessive large blank walls must be avoided.

01_ Solar passive design
02_ Shade devices used to reduce thermal heating
03_ Different materials to reduce solar penetration

01_

02_

03_

6.0 RESOURCES

6.3 Water

District Drainage

The Midland Activity Centre is connected to a district drainage system and located above clay soils which reduce the efficiency of soil penetration and increases surface run-off. The Master Plan promotes an ecologically sustainable city through Water Sensitive Urban Design (WSUD) which aims to integrate stormwater run-off for aquifer recharge and waterway health.

The stormwater water runoff from private land connects with the City of Swan drainage network and will be supported by sub catchments which will ensure controlled flow rates discharged into the drainage network. WSUD for the activity centre will protect natural waterways, integrate stormwater treatment into the landscape, protect water quality, reduce runoff and peak flows whilst increasing value and minimising development costs.

New urban development can facilitate the improvement of the existing stormwater drainage system by introducing gross pollutant traps which capture large objects and ensure the drain maintains peak flow and minimise contamination. Water efficiency for commercial and residential development will be integrated into resource conservation by introducing water efficient tap and shower heads, toilets and the recycling of grey water for utility purposes.

Water Sensitive Urban Design

Opportunities for swales with vegetation to be integrated into streets instead of traditional kerb can facilitate a more natural approach to filtration and contribute to a green urban environment. The landscaping will involve endemic and native or robust drought resistant plants that will survive with little irrigation after establishment.

The WSUD strategy will enhance water efficiency and promote the rehabilitation of the Activity Centre's existing water resources and enhance the quality of the natural waterways.

01_ WSUD strategy will promote social and environmental balance

02_ WSUD principles will rehabilitate and enhance existing waterways

01_

02_

6.0 RESOURCES

6.4 Materials and Waste

The principles of materials and waste management are to re-use materials, annually reduce total waste generated per capita and increase recycling to total waste ratio. These elements indirectly control pollution of air, land, water and sediment which can be managed through corporate practice and social responsibility.

Construction Management Plans

The conservation of resources and quality of recycling can be achieved through the assessment of construction management plans by the local planning authority.

Serviceability

Innovative design of basement carparks should facilitate the movement of waste removal vehicles within the carpark.

Recycling Strategies

Encouraging recycling of construction and demolition materials, minimising on-site pollution can reduce the amount of waste dispatched and promote the re-use of existing buildings and materials, thus reducing the demand for resources.

Reducing materials and waste in urban developments requires the implementation of recycling strategies which encourages reusing materials and the installation of water efficient taps, showerheads, toilets and drainage systems.

Implementation

The City of Swan and the State Government are working cooperatively to achieve positive environmental, economic and social outcomes. Adherence to an agreed framework for planning and working together through effective communication, consultation and cooperation; and coordination of resources, in the planning and delivery of agreed priority initiatives is vital to the success of environmental sustainability.

The agreed initiatives are:

- high public transport use
- high patronage on train and bus services
- a major destination and point of origin
- a new train station, and
- Transit Oriented Development
- substantial reduction in carbon emissions through
- energy efficiency and use of renewable energy
- improved water efficiencies
- use of local materials, and
- recycling expanded

The collaboration between agencies and different authorities will facilitate effective sustainability outcomes which will require consistent review from the City's Environmental Management System. For environmental policies such as increased vegetation share cross relationships between reducing private motor vehicle and improving air quality, it is important to acknowledge all resource policies are intrinsically linked and future environmental sustainability requires a collaborative approach through governance and physical mechanisms.

01_ Material and waste efficiency will improve the natural environment

02_ Recycling will promote green urban environments

03_ TOD will reduce reliance on private vehicle usage and promote alternative travel methods

01_

02_

03_

7.0 Implementation

7.0 IMPLEMENTATION

Achieving the resident and employment targets expected of a Strategic Metropolitan Activity Centre will not happen by accident; it will require clarity of vision and commitment and coordination between a range of government agencies and stakeholders.

7.1 Implementation

This section outlines the types of strategic actions and statutory planning tools that will be put in place to support the timely delivery of the proposals contained in the Master Plan.

Because Midland is already a well established centre with a significant amount of existing development and infrastructure, the challenge of realising the vision embodied in the Master Plan is especially complex. Change will be incremental, and staging of development less obvious than would be the case in a new centre.

It is necessary to accommodate the evolution and maturation of the centre from what it is today.

Figure 40_ Perspective image showing conceptual building envelopes across Midland

7.0 IMPLEMENTATION

7.2 Collaboration

The transformation of Midland from its present state to an activity centre having all the spatial and functional characteristics required of a Strategic Metropolitan Centre under SPP 4.2 - Activity Centres for Perth and Peel - will require collaboration and co-operation between key delivery agencies.

The status of Midland as a Strategic Metropolitan Centre justifies it being given priority in infrastructure planning and funding, to ensure that important catalyst infrastructure is implemented in a timely manner.

7.2.1 City of Swan and Metropolitan Redevelopment Authority

This plan has been prepared under the guidance of a project working group comprising the City of Swan and the Metropolitan Redevelopment Authority. Its content and recommendations are agreed between the two organisations, which have worked closely together over several years since the Midland Redevelopment Area was declared. Both are committed to achieving a high quality urban outcome for Midland, to ensure it is a location of choice for business, education, services, and residents.

The improvements and new developments that have taken place in Midland in recent years are testimony to a history of successful collaboration between the City and the MRA. They have complementary strengths and work in partnership to achieve desired outcomes for Midland.

Eventually, the MRA will no longer be involved in Midland, however until its work there is complete, the relationship between the two organisations is viewed as very important.

The City of Swan and the MRA meet regularly to discuss matters of mutual interest, and this practice is expected to extend to implementation of this Master Plan.

7.2.2 Transport Agencies

The Department of Transport, the Public Transport Authority and Main Roads WA are all key agencies with responsibility for important elements of the Master Plan.

Because the integration of land use and transport is fundamental to the success of all activity centres, but especially the high order centres like Midland, it is important that the aspirations of *Directions 2031 and Beyond* are given priority by all Government infrastructure agencies. As a minimum, it will be necessary to ensure that transport decisions do not prejudice the functionality of Midland as a Strategic Metropolitan Centre. Ideally, decisions relating to transport infrastructure will in fact aid the realisation of objectives for Midland.

There are a number of transport infrastructure elements to the plan that require agreement. The most critical of these are:

- Relocation of Midland Station
- Rail crossing for pedestrians and vehicles at Cale Street
- Completion of Lloyd Street extension
- Freight Rail realignment
- Location of park-and-ride facilities
- Reallocation of north-bound regional traffic to Morrison Road

7.2.3 Service Agencies

An assessment is required of the capacity of existing services to accommodate the future development potential of Midland arising from this plan, followed by liaison with the relevant servicing agencies, such as Water Corporation, Western Power and Alinta Energy.

Liaison with the utility providers will identify whether and to what extent existing infrastructure will require upgrading.

It will be important that utility providers factor in the anticipated additional development into utility services planning for Midland. In established areas like Midland, development can be seriously impeded if services are available but there is insufficient capacity available at the time development is proposed to commence. A ‘first in, first served’ approach is not acceptable.

Until an assessment of the capacity requirements compared with existing capacity is undertaken, meaningful liaison with the utility providers is not possible.

Depending on the nature and extent of improvements required, it may be necessary to investigate some form of funding mechanism to ensure that implementation takes place in a timely manner.

7.0 IMPLEMENTATION

7.3 Staging and Monitoring

7.3.1 "Must Haves"

Cale Street Crossing

Of particular importance is the rail crossing for pedestrians and vehicles at Cale Street. With the construction of the Midland Health Campus, Cale Street will be a key movement corridor connecting the campus with the Midland Gate Shopping Centre. It is imperative that ease of movement is provided for pedestrians and vehicles along Cale Street so that economic activation can be maximised.

New Midland Station

Midland Station is presently on the edge of the activity centre. To create true potential for transit oriented development and sustainable transport options, the station must move to a new location identified near to Cale Street. This new location is at the heart of the activity centre and would allow ease of access to the Midland Health Campus, Midland Gate Shopping Centre and the core activity areas of the centre. A preliminary design for a new train station has been completed for the Cale Street location, and an informal agreement reached between State and local government agencies, however, funding is required to secure the new location.

Development Potential of Cale Street Spine

As Cale Street will be a key activity spine within Midland, it is appropriate to ensure development potential along this spine reflects its purpose and accessibility. Development potential will be maximised to allow mixed use and commercial oriented land uses that support linkages between Midland Gate and the Midland Health Campus. Padbury Terrace and Sayer Street are secondary connectors between these activity nodes and will also support intensified development opportunities.

7.3.2 Movement

Keane Street Extension

Keane Street is to be extended south of Great Eastern Highway and Victoria Street, providing an alternative connection to Railway Parade. This will improve connectivity within the activity centre.

Marion Street Extension

Marion Street is to be extended north of Victoria Street to Great Eastern Highway, providing improved connectivity within Midland.

Morrison Road

Local traffic accessing Midland will be encouraged to use Morrison Road, while regional traffic remains along Great Eastern Highway. This will relocate a proportion of traffic to the edge of the Activity Centre and allow for some streetscape improvements in the core, particularly the removal of on-street parking to allow for verge widening and cycle lanes. This shift will require some minor improvements along Morrison Road to accommodate the additional trips.

Old Great Northern Highway and Spring Street

A new road extension from Old Great Northern Highway west through the existing public parking area (which is privately owned) and the existing Police car park (in public ownership) to connect with Spring Park Road. This road will also assist with circulation on Old Great Northern Highway and help to bring back some of the traffic lost with the creation of the mall at the northern end.

7.3.3 Activity

Economic Development Strategy

In order to promote development of the sort envisioned by this Activity Centre Master Plan, economic activation of Midland is required far beyond that which occurs presently. Midland must become a desirable location for business, thus encouraging new development for commercial and office space and, in turn, for new living opportunities. An economic development strategy must be prepared in addition to a public realm strategy, which focuses on improvements to amenity. Whilst public realm improvements will generate secondary economic benefits, in and of themselves they do not directly influence business location decisions.

The economic development strategy will need to address key goals and actions to encourage business investment and acknowledge the particular locational and economic advantages Midland has compared to other centres.

This Master Plan will be used to assist marketing efforts for Midland. By setting down the vision and objectives for Midland, the plan will enable the City to give prospective investors in Midland a clearer idea of the opportunities.

Community Infrastructre Plan

The planning and development of a high quality community infrastructure plan remains a vitally important consideration for the City of Swan given the resultant health and wellbeing, community participation, neighbourhood vibrancy and relationship building outcomes. It is particularly relevant to Midland given the change envisioned by this activity centre Master Plan. Additional community facilities must be provided in the appropriate location, as nominated in this plan, in order to provide maximum benefites for the community.

Development of a community infrastructure plan will:

- guide the development, timing, design and location of community infrastructure over a nominated period
- clearly identify services and facilities required by the changing population base
- identify the capital costs associated with proposed community infrastructure

7.0 IMPLEMENTATION

7.3.4 Urban Form

Public Realm Strategy

Midland's historic development has provided an individual sense of place and character different to that of other comparable centres across the metropolitan region. For Midland to enhance its competitive position, it must continue to put its identity and place at the centre of its strategic activities. The public realm plays a key role in this. In order to improve the public realm such that it contributes to enhanced amenity and greater investment potential, the following elements must be considered in the development of a strategy:

- provide a clear framework for the delivery and maintenance of high quality, coordinated, connected and coherent public realm
- acknowledge the importance of landscaped entry and edge roads that contribute to the centre's impression
- provide attractive, safe and convenient pedestrian links from the centre to nearby regional open space
- develop priorities for investment in public realm
- develop an approach to public realm funding and delivery that will allow the strategy to be realised
- achieve excellence by following and sharing good practice

Street Tree Strategy

Streets that are tree lined are of great value to people living, working, shopping, walking and motoring in and through urban places.

Trees are an essential part of the streetscape, providing aesthetic appeal and desirable functional and biological characteristics. They enhance buildings and other structures, screen and/or frame views, and can help to define functional areas such as intersections and traffic control measures. Trees provide shade, cool the air, insulate against cold or hot winds and reduce glare. In addition, trees may provide habitats for indigenous wildlife, filter atmospheric impurities, sequester carbon emissions, reduce stormwater run-off, reduce erosion and contribute significantly to the general quality of the urban environment.

Given street trees require a substantial investment, it is essential that an integrated system of street tree management is developed, including the critical aspects of planning, selection, planting, removal, and care. As part of this process, consideration will need to be given as to where overhead power lines can be put underground.

In the first instance, it is recommended the power lines within the activity centre core are placed underground in order to allow trees to grow to a substantial size. Over time, all power lines throughout Midland should be placed underground.

In addition to considering the location of power lines, there is a need to develop an Access Strategy to set the location of crossovers. This would ensure that street trees would not be required to be removed once planted.

Street Type and Character

Complementing the street tree and public realm strategy is an identification of a range of street types, each of which has a distinct purpose and character.

Town Centre - People Streets: The most important streets within Midland, where buildings are built to the street edge, natural surveillance is maximised, pedestrian cover is generally provided by way of awnings. street trees provide pedestrian comfort, on street parking is generally provided and pedestrian comfort is a key priority.

Secondary Town Centre Streets: As per Town Centre - People Streets, however the priority of investment (and timing) is not as great.

Boulevard Entry and Edge Streets: Central median planting creates an attractive boulevard effect and helps to improve the entry impression into Midland.

Park Access Streets: Identify planting along streets to highlight access through to the Swan and Helena Rivers.

Live - Work Streets: Attractive, landscaped streets where buildings are set back with landscaped forecourts, street trees provide shade and buildings allow natural surveillance of the public realm.

7.0___IMPLEMENTATION

Figure 41_ Town Centre - People (and Secondary Town Centre) Streets

Figure 42_ Boulevard Edge and Entry Streets_ note: this diagram does not specify building setbacks

Figure 43_ Live - Work Streets

Figure 44_ Park Access Streets showing signature tree planting

Note: The diagrams on this page are conceptual.

7.0___IMPLEMENTATION

Figure 45_ Street types in Midland: This will inform Midland's Public Realm Strategy with regard to the design of streets, placement of street furniture and arrangement of pathways, street trees, lighting and landscape design.

7.0 IMPLEMENTATION

7.3.5 Priorities

Scheme Amendment

In order to implement the intended outcomes described by this activity centre Master Plan, the local planning scheme will need to be amended. This Master Plan has not been prepared as a statutory document and an alternative to a 'development zone' is therefore required to bring into effect the recommended development standards.

An effective way to implement the City Centre Master Plan is to progress an amendment to City of Swan Local Planning Scheme No. 17 (Scheme Amendment) to establish a Special Use area over the study area (with associated mapping and text changes). The precincts, desired built form and Local Structure Plan objectives need to be inserted in Schedule 4 of City of Swan Local Planning Scheme No. 17 (LPS17) to provide an appropriate statutory framework for decision making. Existing / proposed streets to be excluded where structure plans are not required.

Other amendments to LPS17 may include cash in lieu provisions, amalgamation requirements, identified new road reserves and rights of way provisions to ensure the vision of the Midland Activity Centre Master Plan is achieved.

LPS 17 Schedule 4 Content

Schedule 4 content shall include the following:

- Land use table (refer urban form chapter)
- Objectives for each precinct and precinct plan (as identified in the urban form chapter)
- Minimum heights (refer urban form chapter)
- Amalgamation requirements (refer action table below)
- Areas requiring additional structure plans (refer action table below and figure 45)

Review Local Planning Policies

Local planning policy can support the intent and vision of the Midland Activity Centre Master Plan. A review of the existing local planning policies will identify inconsistencies with the Activity Centre Master Plan, with appropriate changes progressed via the provisions of the LPS17. There may be a need to prepare additional local planning policies to support the desired outcomes of the Master Plan.

Local Road Reserves

A number of new road reserves are proposed by the Master Plan. The Master Plan shows these roads as local reserves. Any scheme amendment proposed by the City of Swan should identify the most appropriate alignment via a land survey prior to initiation. Where possible, existing buildings should be avoided, whilst the road reserve width must take into account the need for slow vehicle traffic movement and pedestrian comfort.

R-Codes

The Residential Design Codes of Western Australia allow the application of the R-AC 0 code within activity centres. The R-AC 0 code requires reference to an adopted Master Plan. In this case, as significant detail is proposed within the Activity Centre Master Plan with regard to development standards, supported by an associated local planning policy containing design guidelines, there is no need for additional reference to R-Code provisions.

Plot Ratio

The current scheme provisions specify a plot ratio definition for residential development only. Therefore, as plot ratio is one of the development controls used in this Master Plan, a non residential plot ratio definition is required. The following definition is used in the Midland Redevelopment Scheme and would be appropriate for the broader centre:

- Non-Residential Development: The ratio of the gross total area of all fully enclosed covered areas of a building(s) on a site to the area of land in the site boundaries, excluding
  - toilets and bathrooms
  - lift shafts, stairs and stair landings
  - machinery, air conditioning, storage, equipment and plant rooms
  - lobbies and circulation spaces common to two or more tenancies
  - staff tea preparation, lunch areas or amenities
  - staff change room/locker facilities
  - areas used for the unpaid parking of vehicles at or below ground level
  - balconies, verandahs, roof terraces and courtyards, and
  - space that is wholly below natural ground level

Shared / Public Cycle Parking Facility

It is recommended the City of Swan investigates the provision of a public bicycle parking facility that also incorporates high quality end of trip facilities (male and female shower / locker rooms, change room facilities, bicycle maintenance facilities). Such a facility could be incorporated within a public car park and should have excellent access to the broader bicycle network within Midland.

7.0 IMPLEMENTATION

7.4 Use of Planning Conditions

The City of Swan will make use of planning conditions when determining development applications within the Activity Centre boundary. The planning conditions will deal with those items that reasonably relate to activity centre development and promote improved development outcomes consistent with the intent for the Activity Centre.

7.5 Planning Obligations and Incentives

7.5.1 Developer Contributions

The City of Swan does not consider it appropriate to initiate a developer contribution scheme for Midland. They are typically highly complex and difficult to implement. Moreover, due to the fact that Midland is already fully developed, albeit at a lower intensity in some parts as is proposed by the Master Plan, a significant amount of infrastructure already exists.

Unlike 'greenfields' areas, where existing services are typically minimal, the majority of land stands to benefit from the development potential proposed by the Master Plan, and staging of development is relatively predictable. Specified area rates could be considered to accommodate certain public realm improvements upon completion of detailed studies in this regard.

7.5.2 Site Amalgamations

A major challenge in achieving the desired outcomes of the Midland Activity Centre will be encouraging the amalgamation of sites so that appropriate development form and intensity can take place. Land assembly incentives can occur through a combination of the following measures:

- plot ratio development bonuses for the amalgamation of two or three sites
- requiring minimum development standards, including minimum development frontages (or lot widths). Where lots are not amalgamated, further development is not permitted until such time as it becomes feasible to amalgamate
- faster development approvals for amalgamated, good quality developments

Amalgamations can also be required for precincts where development intensity and appropriate built form outcomes are required - particularly the Railway Core and Morrison Road West precincts. In these situations, a clause is required to allow development in the Railway Core and Morrison Road West precincts to proceed according to the intent of the Master Plan, which may be part of a schedule attached to the scheme relating to a Special Use zone.

7.5.3 Cash in Lieu for Car Parking

Cash in lieu for car parking has been recommended for Midland to allow for the provision of shared public parking facilities in key locations throughout the centre.

A nominal contribution rate of 25% of maximum requirements would be sufficient to achieve the public parking targets recommended for the Midland Activity Centre. In other words, 75% of the maximum parking provision should be provided as on site parking, with the remaining 25% provided by way of cash in lieu. A transitional plan which allows additional interim parking on a mandated schedule may be required.

The cash contribution for car parking shall be calculated on the basis of the value of the land and the construction costs of the bays, multiplied by an assumed efficiency of 85% for the public parking facility (15% reduction).

The cash in lieu for car parking requirements will need to be translated into a local planning policy or local planning scheme provisions in order to provide statutory effect.

Where Midland Gate continues to provide public parking on site, a mandatory payment of cash in lieu will not be required.

For full details in relation to cash in lieu for car parking, refer to Appendix A Midland Activity Centre Movement Network.

Change of Use

Where a change of use is proposed in an existing building and there is no substantial extension proposed, it is recommended that no additional car parking be required. This will enable ease of investment and encourage the development of small businesses within the activity centre.

7.0 IMPLEMENTATION

7.5.4 Areas Requiring Additional Planning

Key sites have been identified at the intersection of Cale Street and Railway Parade and Padbury Terrace and Railway Parade. These sites are particularly important for encouraging pedestrian movement between the Midland Health Campus and other nodes along Cale Street. Local Structure Plans are required to be prepared for these areas to ensure development is consistent with the intent of the Activity Centre Master Plan, particularly with regard to active frontages, building setbacks, minimum building heights, land use mix and car parking arrangements.

Separately, other local structure plan areas have been identified, shown here in purple. These areas require consolidation of lots and access arrangements in order to attain sufficient development intensity considered appropriate by this Master Plan as well as to account for retention of character buildings and also the identified landmark sites that direct pedestrian movement between the city centre and the Swan River.

The requirement for local structure plans (or structure plans) over these areas shown in figure 45 should be nominated within the Special Use requirements of any scheme amendment.

Figure 46_ Key sites

7.0 IMPLEMENTATION

7.5.5 Rights of Way

There are a number of existing rights of way (ROW) throughout Midland, providing rear service and vehicular access to lots. In some circumstances, typically where the ROW was created at the time of initial subdivision, the width is not suitable for contemporary access requirements.

New Rights of Way

A number of new ROWs is proposed as part of this Master Plan, typically throughout the Midland Oval precinct. These ROWs will:

- provide vehicular access for parking
- provide service access
- have natural surveillance from adjoining development
- include street lighting
- be between 6 metres and 10 metres wide.

Example imagery of these ROWs is provided for reference purposes.

Widening and Extensions

Some existing ROWs are proposed to be extended and widened, allowing ease of access to a number of properties where busy roads require shared access arrangements. This is principally within the Morrison Road West Precinct as depicted in figure 46. These ROWs will typically be 6 metres in width, requiring a widening of 3 metres in some circumstances, and extensions in others.

7.5.6 Rights of Way Strategy

A Rights of Way Strategy should be prepared by the City of Swan for new and existing ROWs throughout the activity centre, and may be extended to include other ROW within the local government area.

The ROW Strategy should address:

- design objectives
- traffic management
- considerations for land use and infill development
- security, character and amenity
- financial management

7.5.7 Regional Roads Access Strategy

It is recommended that a formal Vehicle Access Strategy (VAS) be formulated to guide future access to developments along Great Eastern Hwy and any other relevant regional roads in consultation with Main Roads WA, affected land owners, affected businesses / tenants and any other relevant stakeholders.

Figure 47_ Rights of Way and new roads in Midland

7.0 IMPLEMENTATION

ACTION	RESPONSIBILITY
Cale Street Crossing An at grade crossing for vehicular, pedestrian and cycle traffic is required to allow Cale Street to function as a key area of activity, linking Midland Gate Shopping Centre, the future train station, Midland Health Campus and the Midland Oval precinct.	MRA, Department of Transport, Public Transport Authority, City of Swan
New Midland Train Station and Transit Interchange A preliminary design has been prepared for a new transit interchange at Cale Street. The design demonstrates the functional ability to provide for the transit station in this location. The new location will allow better access for public transport users to Midland's core, including key activity hot spots at the Midland Health Campus, Midland Gate Shopping Centre and the broader redevelopment area.	Public Transport Authority, MRA, City of Swan
Cale Street Activity Spine Increased development opportunity will be provided along the railway corridor, and particularly through the Cale Street activity spine. This will enable better accessibility from and use of the train station for future businesses and residents.	City of Swan
Keane Street Extension Keane Street is an important entry into the Midland Activity Centre from the north. Its extension is proposed south of Great Eastern Highway to Railway Parade, providing greater connectivity within the centre.	MRA
Marion Street Extension To improve connectivity within the city centre and break up the large street blocks, there is opportunity to extend Marion Street north of Victoria Street to Great Eastern Highway.	MRA
Morrison Road Boulevard The design for Morrison Road is intended to be as a boulevard with central median tree planting, creating a positive impression of Midland for passers by.	City of Swan
Great Eastern Highway - Core Great Eastern Highway is intended to be refurbished to allow improved pedestrian amenity, by provision of street trees, attractive paving, street furniture and reduced on street parking. The street design will encourage slower vehicle movement and allow safer pedestrian crossing opportunities.	MRWA, City of Swan

7.0 IMPLEMENTATION

ACTION	RESPONSIBILITY
Great Eastern Highway - Entry To improve the entry impression into Midland, the approach on Great Eastern Highway is proposed to be refurbished into a boulevard design. Central median planting and verge planting will allow a positive entry impression into Midland.	MRWA, City of Swan
Shared Highway Access Plan For those parts of Great Eastern Highway and Lloyd Street within the Entry Streets Precinct, a shared highway access plan is required to be prepared enabling a sharing of vehicle access crossovers and enabled by associated public access easements over the affected private propert.	MRWA, City of Swan
New Helena River Foreshore Road To improve public access to the foreshore whilst also providing improved street network opportunities, a new foreshore road is proposed along the Helena River reserve, to the south of the WA Police Operations Centre.	MRA, WA Police
New Public Open Space_ Existing Transit Station To provide local amenity and encourage private investment, a new open space area is proposed in the area of the existing transit station. The open space area is intended to allow retention of the existing mature trees, providing for retained character. The open space area is not defined, and would need to be considered through more detailed design of the site when redevelopment takes place.	City of Swan, Public Transport Authority
New Public Open Space_ Midland Oval To acknowledge Midland Oval's past function, whilst allowing for improved urban amenity, an urban green is proposed within the Midland Oval precinct. The open space area is not defined, and would need to be considered through more detailed design.	City of Swan
Additional Structure Planning Areas have been identified requiring structure planning by land owners, requiring site amalgamations, access provisions, minimum height and plot ratio provisions, recognition of landmark sites and ensure development helps to activate the public realm.	Land owners

7.0 IMPLEMENTATION

ACTION	RESPONSIBILITY
Public Car Parks A number of publicly accessible car park sites have been identified throughout the city centre. These sites may be owned privately or by government agencies. They are purposefully located to allow ease of access by commuters, whilst minimising the need to access the central core of Midland by car. Development of the publicly accessible car parks is to be funded in part by a mandatory cash in lieu contribution scheme.	City of Swan
Economic Development Strategy A substantial increase in residential dwellings and employment floor space is required by SPP 4.2 within Midland. Whilst this Master Plan provides opportunity for the supply of that floor space, the market will be responsible for its delivery. To encourage demand for the required development intensity, an economic development strategy is required to be prepared and implemented.	City of Swan, MRA
Community Infrastructure Plan With an increased inner city population, and changing demographic, it will be important to plan for the future needs of the community. A community infrastructure plan needs to be prepared identifying the level and type of services that need to be provided throughout the city centre.	City of Swan, MRA
Public Realm Strategy A strategy to improve the public realm throughout Midland is required, which can help to enhance its investment profile and development potential. The strategy should consider the hierarchy of streets and public spaces throughout the city centre, with a view to prioritising investment in public infrastructure in key areas. This has been commenced by the City of Swan's Commercial and Economic Development Unit.	City of Swan, MRA
Street Tree Strategy Street trees help to provide amenity, improve the urban character, create distinctive neighbourhoods and allow the impression of a place to be improved. The street tree strategy will identify priority areas for immediate works, and then secondary and tertiary works.	City of Swan, MRA
Vehicle Access Strategy It is recommended that a formal Vehicle Access Strategy (VAS) be formulated to guide future access to developments along Great Eastern Hwy and any other relevant regional road.	City of Swan, MRWA

7.0 IMPLEMENTATION

ACTION	RESPONSIBILITY
Local Planning Scheme Amendment A mapping amendment to enable a special use zone over the activity centre area is required. Text amendments are required for the Activity Centre Special Use area making reference to Schedule 4 of the Local Planning Scheme. Schedule 4 content shall include the following: • Land use table • Objectives for each precinct and precinct plan • Minimum heights • Amalgamation requirements • Areas requiring additional structure plans A commercial plot ratio definition is required.	City of Swan, Western Australian Planning Commission
Amalgamations A clause is required relating to the Special Use zone applied to the Midland Activity Centre requiring amalgamation of lots in the Railway Core and Morrison Road West Precinct, thus affecting an appropriate development outcome. For the Railway Core, lots with a frontage to a primary road of less than 40 metres and for corner lots, where the shorter frontage is less than 40 metres, development shall not occur in any substantive way unless land is amalgamated with the adjacent lot so that a minimum frontage of 40 metres is achieved. For the Morrison Road West Precinct, where a structure plan is not required, development shall not proceed in any substantive manner unless a frontage to the primary street of more than 30 metres is achieved.	City of Swan, Western Australian Planning Commission
Cash in Lieu of Car Parking A local planning policy needs to be prepared to provide for the recommended mandatory cash in lieu for car parking payments by developers. The scheme will also need to be amended to provide head of power provisions for cash in lieu for parking within the centre.	City of Swan, Western Australian Planning Commission
Freight Rail Separate to the Master Plan, but related to the operation of Midland is the alignment of the freight rail. Separate studies need to be pursued to allow freight rail to be realigned around Midland, which will improve the centre's development / investment profile. The City of Swan and MRA will need to lobby the State Government to progress this matter further.	State Government to progress current studies further.

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Midland Activity Centre Structure Plan Appendices

city of swan

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Midland Activity Centre Structure Plan

Transport Assessment

Prepared for City of Swan
July 2013

Cardno
Shaping the Future

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Tables

1 Introduction

1.1 Background

The City of Swan has been working in partnership with the Midland Redevelopment Authority (now the Metropolitan Redevelopment Authority) towards the continued revitalisation of the Midland City Centre for many years now. In 2007, an Enquiry by Design Process was held incorporating both organisations, State Government agencies, community members and other professionals to establish ideas and principles and prepare indicative design concepts to guide future planning and development for Midland. From this process, the result was 'Midland 2017 – The Challenge'- a detailed report of outcomes which has been utilised by the City and the MRA to drive the vision for Midland since this time.

The key objective of the Enquiry by Design process, and subsequently 'Midland 2017 – The Challenge' Detailed Outcomes Report, was to develop a set of consolidated 'actions' that the City and MRA could collaboratively work towards to assist in revitalising Midland. These include both design responses and initiatives to update previous plans and bring them into alignment with new ideas and technology as well as the development of entirely new proposals which could be integrated into the planning for the Centre to overcome existing challenges, and create a world class TOD / Activity Centre. The actions for Midland are broken into 'City Wide Proposals'- relating to streetscape, movement and urban amenity driven actions, including improvement of the public realm, transport infrastructure, integrated parking provision and legibility, and also precinct specific plans dealing with the thirteen identified precincts spanning both City of Swan and Midland Redevelopment Authority management areas.

With the introduction of State Planning Policy (SPP) 4.2 – Activity Centres for Perth and Peel, gazetted on the 31st August 2010 replacing SPP 4.2 - Metropolitan Centres Policy, there is now a requirement that Activity Centre Structure Plans be prepared and endorsed for strategic metropolitan centres within three (3) years of the gazettal of the Policy and also that structure plans be in place prior to the approval of major developments within centres. In achieving revitalisation, and being proactive in the encouragement of appropriate new development and investment in the Midland City Centre, the City of Swan considers the preparation of a consolidated, cohesive and integrated structure plan drawing together land use, sustainability, transport, and urban form to be a priority.

As part of this process, a Transport Assessment for the Midland Centre is required pursuant to SPP 4.2 – Activity Centres for Perth and Peel, in order to complete the 'Movement' component of the Structure Plan.

1.2 Context Plan

The Midland Activity Centre is defined to be the area bounded by Helena River to the south, Lloyd Street to the east, Morrison Road/Amherst Road to the west, and Morrison Road to the north. The extent of the Midland Activity Centre is shown in **Figure 1**.

Figure 1 Midland Activity Centre Context Plan

1.3 Points of Arrival

The point of arrival experienced by visitors to the Centre is influenced by their chosen transport mode. As such, the key entrance locations should be designed to accommodate the desired transport modes.

Private Vehicles

The main approach routes to the Midland Activity Centre include Great Eastern Highway from the west and east, and Lloyd Street from the north. Great Eastern Highway bisects the Activity Centre and is the designated route for regional traffic passing through the Centre. Local traffic accessing the Activity Centre will be encouraged to use alternative routes to minimise the traffic along Great Eastern Highway. To accomplish this, public car parking is proposed to be located near the point of arrival, or accessed via Morrison Road.

Morrison Road forms the northern boundary of the Centre and is supported as a primary local access route with access to large-scale public commuter and visitor car parking. This redirection of local traffic away from Great Eastern Highway should assist in minimising the impact of regional traffic growth on pedestrian crossing, caused by the existing road form and traffic volumes.

Public Transport

The Midland Station operates as a major interchange hub to regional rail services. It also forms a gateway to the Activity Centre for commuters and visitors. A relocation of this station is proposed from its existing location near the western boundary of the Centre towards a more centralised location with better access to the proposed activity, including the Midland Health Campus and development south of the rail line.

Cycling

With the proposed extension of the WABN Principal Shared Path (PSP) network through to Midland Station, this corridor becomes the primary entrance point for commuters to the west of the Centre. The Activity Centre Structure plan proposes a fine-grained network of on- and off-street provisions that support cycling as a viable mode choice both for commuters and visitors. Existing on-street cycling routes from the east of the Centre will be supplemented and improved to increase the available route options, including Great Eastern Highway, Clayton Street, the rail corridor and Morrison Road. Each of these routes will tend to cater for a different segment of the population and the interface between route alignment and end-of-trip facilities will be managed to reflect the target demographic.

1.4 Key Sites

To facilitate access to key sites within the Activity Centre, the Midland Station is proposed to be relocated toward the centre of the City. This will improve accessibility and support the transition towards sustainable transport. Key sites at the Activity Centre core include the Midland Health Campus and the likely ancillary health nexus to the north of Railway Road, Midland Gate Shopping Centre and Midland Oval Precinct. These sites are all generally located along the Cale Street corridor which extends north from the relocated Midland Station to Morrison Road.

2 Existing Situation

2.1 Road Network

The MRWA Metropolitan Functional Road Hierarchy (MFRH) classifies the roads within Midland Activity Centre as shown in **Table 1**.

Table 1 Metropolitan Functional Road Hierarchy (MFRH) Classifications

Great Eastern Highway	Primary Distributor
Victoria Street	Primary Distributor
Morrison Road	District Distributor (A)
Lloyd Street	District Distributor (A)
The Crescent	Local Distributor
Railway Parade	Local Distributor
Helena Street	Local Distributor
Keane Street	Local Distributor
Sayer Street (between The Crescent and Morrison Road)	Local Distributor
Amherst Road	Local Distributor
Clayton Street	Access Road
Cale Street	Access Road
Padbury Terrace	Access Road
Sayer Street (between Great Eastern Highway and Railway Parade)	Access Road
Brockman Road	Access Road

These classifications are defined in the MFRH as follows:

> *Primary Distributors*: These provide for major regional and inter-regional traffic movement and carry large volumes of generally fast moving traffic. Some are strategic freight routes and all are National or State roads. They are managed by Main Roads.
> *District Distributor A*: These carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.
> *Local Distributors*: Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carry traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local government.
> *Access Roads*: Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local government.

Figure 2 shows the MRFH map for the Midland Activity Centre.

Figure 2 Main Roads Functional Road Hierarchy

2.2 Traffic Volumes

Existing traffic volumes are shown in **Figure 3**, as obtained from Main Roads Link Counts and SCATS data.

Figure 3 Existing Traffic Volumes

2.3 Public Transport

Public transport serving Midland Gate is provided by Transperth bus and train services. The majority of the bus services run east-west along either Great Eastern Highway or The Crescent, between Midland Train Station and surrounding suburbs. The existing bus route network is shown in **Figure 4**.

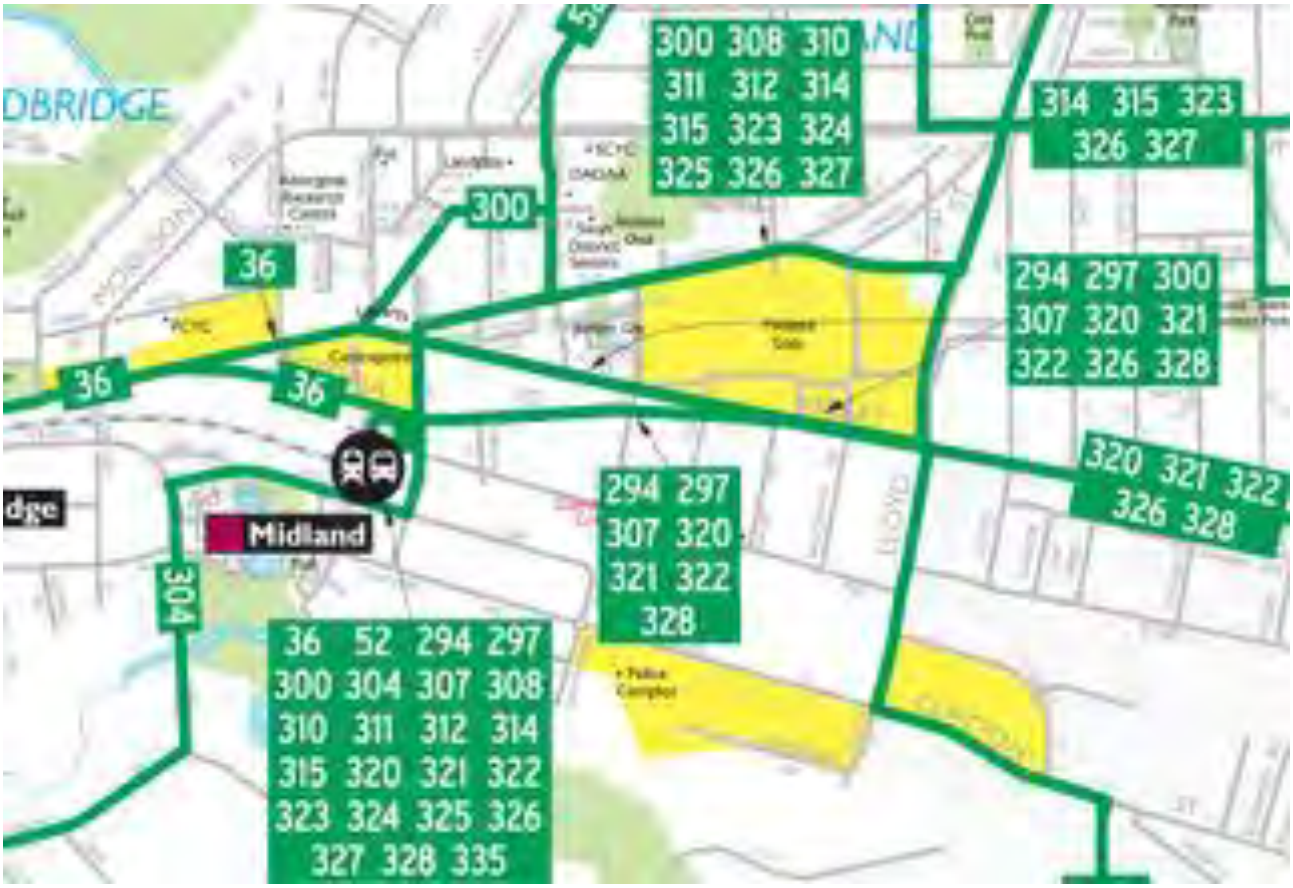


Figure 4 Existing Transperth Bus Routes

The Midland Train Station is located approximately 1km from Midland Gate and is considered to be beyond walking distance for the majority of customers. Therefore, connections to and from Midland Gate are mostly made by bus services from the Midland Station or from the eastern suburbs.

The typical frequency of bus services is summarised in **Table 2**, while additional coverage service provision is shown in **Table 3**.

Table 2 Bus Service Frequency

Route	Peak Frequency	Off-Peak Frequency
Great Eastern Highway		
36 (Midland – Perth)	20 min	60 min
294 (Midland – Westfield Carousel)	60 min	60 min
297 (Midland – Kalamunda)	30 min	60 min
320 (Midland – Mundaring)	20 min	60 min
321 (Midland – Glen Forrest)	20 min	60 min
322 (Midland – Glen Forrest)	20 min	60 min
The Crescent		
308 (Midland – Swan Districts Hospital)	30 min	60 min
310 (Midland – Upper Swan)	30 min	60 min
311 (Midland – Bullsbrook – Muchea)	30 min	60 min
312 (Midland – Baskerville)	30 min	60 min
314 / 324 (Jane Brook – Midland)	10 min	15 min
315 / 325 (Stratton – Midland)	10 min	15 min
323 / 327 (Swan View – Midland)	10 min	15 min
326 (Midland – Midvale)	10 min	15 min
Midland Shuttle		
300 (Midland Gate Shopping Centre)	20 min	20 min

As **Table 2** shows, the frequency of bus services is generally fairly high during the peak hour, particularly for high demand routes. Off-peak frequency is relatively poor, with 60 minute headways for the majority of routes. Some high frequency routes do service the Midland area, from Swan View, Jane Brook and Stratton, making these areas convenient to access via public transport throughout the day.

Table 3 Infrequent Bus Services

Route	Services per Day
307 (Midland – Helena Valley)	3 per day
328 (Midland – Wundowie)	3-4 per day
52 (Morley – Midland)	3 per day
335 (Ellenbrook – Midland)	3 per day
304 (Midland – South Guildford)	10 per day

The infrequent bus services shown in **Table 3** are run as coverage routes only and are not effective in providing reliable connection to Midland.

A summary of the typical service frequency by time period for Midland train services is provided in **Table 4**. Services are generally run to a timetable which is easy for passengers to accommodate. The half-hourly service frequency on weekday evenings and on weekend morning and evenings is, however, a disincentive for travel during such periods.

Table 4 Midland Train Services

Time	Frequency	Time
Weekdays	– Peak Periods*	10 mins
	– Off Peak	15 mins
	– Evening (7:30pm onwards)	30 mins
Weekends	– Day	15 mins
	– Morning/Evening	30 mins

*Peak periods are 7:00am to 8:30am and 4:00pm to 6:00pm

2.4 Existing Pedestrian/Cycle Networks

The existing pedestrian / cycle network in the immediate area surrounding Midland Gate is shown in **Figure 5**. The existing network provides a number of good quality pedestrian / cycle routes adjacent to Midland Gate, facilitated through a network of shared paths as well as on-street provisions along Yelverton Drive/ Clayton Street and sections of Great Eastern Highway and The Crescent.

Figure 5 Existing Pedestrian / Cycle Network

There are designated pedestrian crossings within the intersections of The Crescent/Lloyd Street, Lloyd Street/Great Eastern Highway and Great Eastern Highway/Padbury Terrace. Overall there are good connections between Midland Gate, the surrounding suburbs and the Midland Station.

3 Proposed Development

3.1 Precinct Locations

The Midland Activity Centre has been separated into precincts which each reflect a different character, land use mix and transport environment. These precincts are shown in **Figure 6**.

3.2 Land Use

The proposed Midland Activity Centre Structure Plan consists of a significant increase in land use mix and density, as shown in **Table 5**.

Table 5 Land Uses by Precinct

Precinct	Retail (sq.m)	Office (sq.m)	Food (sq.m)	Residential (units)	Education Culture (sq.m)	Health (sq.m)	Police (sq.m)	Bulky Goods (sq.m)
Old Town/Pedestrian Centre	48,698	94,960	19,334	621	2,500			
Midland Oval	20,368	57,930	9,976	648				
Midland Gate	75,000							
Morrison Road East				281	1,000			
Brockman/Railway Core	17,452	148,379	3,208	1,898				
Police & Health Precinct						146,371	29,393	23,073
Railway Workshops Precinct	450	43,167	1,876	528	91,979			
Woodbridge Lakes								
Entry Streets		14,755						14,755
Morrison Road West				731	6,500			

3.3 Parking Locations

To support these land uses, public parking will be provided for long-stay commuters at the periphery of the Activity Centre, reducing private vehicle trips through the Activity Centre and particularly along Great Eastern Highway, while short-stay retail/visitor parking will be located adjacent to major activity nodes. Private parking will be minimised to assist in improving efficiency.

A large park ‘n’ ride car park is proposed to be constructed at the site of the new Midland Station. It is suggested that this car park be transitioned over the long-term to a public facility catering for short-stay visitors with direct connection to the City Centre along attractive pedestrian desirelines.

Large-scale multi-deck parking is also proposed along Morrison Road, accessed via Spring Park Road and a new Midland Oval car park entrance. This parking has the advantage that it is easily accessed from the primary road network without creating congestion through the Activity Centre. The location of these bays also creates a desireline through the Activity Centre, generating passing trade for business along The Crescent and in the Old Town Precinct. A new road link between Spring Park Road and The Crescent would assist to direct pedestrian traffic and improve legibility within the Morrison West Precinct.

Figure 6 Midland Activity Centre Precinct Plan

3.4 Transport Concept

The Midland Activity Centre has been designed under a *SmartRoads* framework consistent with the Department of Transport's *Moving People Strategy*. Each road corridor has been assessed for function and capacity, with transport modes assigned to the network according to a needs assessment. In general, regional traffic is retained along Great Eastern Highway, while local access traffic is encouraged to use alternative routes; Morrison Road, Clayton Street and Lloyd Street. Activated streets will be designed for pedestrian legibility, with a low-speed roadway and high quality footpaths. The low-speed environment will encourage cyclists to share the road in activated precincts, rather than the footways.

3.5 Integration with MRA

The Midland Activity Centre Structure Plan area extends into precincts under development by the Metropolitan Redevelopment Authority. In general, this assessment seeks to integrate with the scale and intent of the MRA, given the extensive planning work already completed for this area. To this end, the outputs generated by the MRA concerning traffic movement, urban form and streetscape improvements have been incorporated into our analysis, except where the addition of the remainder of the structure plans results in a higher demand necessitating change. In particular, the findings from the *Midland Health Campus and Railway Workshops Precinct Traffic and Transport Assessment* have been used as inputs into the traffic assessment.

4 Road Hierarchy and Use

4.1 Access Priority

Access priorities have been established through consideration of *SmartRoads* principles. Transport modes have been assigned to road corridors so as to provide a comprehensive movement network while minimising conflicts between modes. A map of access priorities is shown in **Figure 7**.

Figure 7 Access Priority Map

Mode choice is driven by traveller preference and is affected by a number of factors, particularly travel times and costs. As such, any measures intended to decrease the demand for private vehicles within the Activity Centre through supply or demand management measures must be offset by an increase in alternative transport options. This would include such initiatives as increased public transport frequencies and new routes, improved cycling facilities and more attractive pedestrian environments.

For the purpose of determining transport provision, a parking-based approach has been developed which determines the level of unsatisfied demand for a maximum parking supply scenario. This unsatisfied demand is then distributed across the remaining modes according to the likely uptake in mode share.

Road capacity analysis has also been employed to investigate a theoretical maximum trip generation that can be supported by the existing road environment, with the proposed function changes. The results of this assessment suggest that trip generation can increase by as much as 50% over existing peak hour rates before intersection Level of Service reaches F.

A target mode share proportion has been established for non-resident trips to the Activity Centre, consisting of the following:

> Private Vehicles: 65%
> Bus: 18%
> Train: 10%

> Cycling: 5%
> Pedestrian: 2%

This is a significant shift from the 95% private vehicle mode share currently seen for non-resident trips.

For the purpose of this assessment, all internal trips (trips between land uses within the Activity Centre), are assumed to be taken by non-car modes. A general split for internal trips has been assumed for the purpose of infrastructure provision:

> Pedestrian: 70%
> Cycling: 10%
> Shuttle Bus: 20%

The anticipated generation for the Activity Centre is in the order of 140,000 non-residential trips per day including 48,000 internal trips. The above target mode share would create approximately the following two-way demands:

> Private Vehicles: 60,000 trips
> Train: 9,200 trips
> Bus: 16,000 trips (plus 9,600 internal)
> Cycling: 4,600 trips (plus 4,800 internal)
> Pedestrian: 1,800 trips (plus 34,000 internal)

4.2 User Hierarchy

Private Vehicles

There is a significant existing supply of long-term parking within the Midland Activity Centre, either free or priced at a low daily rate. As development intensifies, an unrestrained future parking scenario will not only result in an unsustainable parking demand but also a range of negative traffic and environmental issues within the Activity Centre, such as congestion, noise, pollution and safety. According to Census 2006 data from the Australian Bureau of Statistics, 95% of people travelling to work in Midland do so by private vehicle modes, either as a driver or passenger. If this a scenario continues into the future, private vehicles within the Activity Centre will contribute to the congestion as well as being a safety risk for pedestrians and also detract from the desired activity centre environment. As such, a balance between providing vehicular access and minimising traffic impact is needed.

A hierarchy of use has been determined for the centre incorporating fundamental *SmartRoads* principles. In general, private vehicle use is supported along the periphery of the site through strategic location of peripheral car parking. Regional traffic will be retained along Great Eastern Highway, with local access encouraged along alternative routes. This segregation is intended to disperse traffic in the area and preserve capacity within the internal road network for other transport modes. Local traffic will be slowed through reduced speed limits and Local Area Traffic Management to create a better integration with pedestrian and cycling modes. Car parking is generally located on or near the higher-order road network to minimise the volume of traffic in pedestrian-oriented areas.

Pedestrians

The activated central core, including a significant length of Great Eastern Highway will be oriented towards pedestrian accessibility, with wide, attractive pedestrian footways and legible road crossings. Areas nearer to the edge of the Centre, where densities are lower, will not have as significant a pedestrian-focused design. A consistent provision of safe crossing points and high quality pedestrian facilities will be employed across the Activity Centre particularly focused on identified desire lines from between major transport and land use nodes.

Public Transport

Public transport is a high priority for the Centre as it provides regional connection to the Activity Centre and interchange opportunities at Midland station. These regional coverage services would be contained within higher-order road corridors to minimise delays and promote their existing core function. The Midland Shuttle and other potential local services would run along minor streets to create an internal public transport network

that operates at high frequencies. The alignment of these services will be chosen to maximise access to the proposed activity nodes.

Service/Loading

Regional freight traffic is not supported along Great Eastern Highway due to the adverse impact on pedestrian and cycling amenity. Instead, Roe Highway and the Great Eastern Highway Bypass will continue to act as bypass routes. Local delivery traffic will be encouraged to utilise Morrison Road, Lloyd Street and Clayton Street, though there will be provision both on-street and within development for service and delivery as required to ensure effective operation.

Cycling

Cycling modes are well supported by existing provisions along major corridors. Additional facilities are proposed to create a comprehensive network across the Activity Centre. This will provide separated cycling corridors along regional roads, including Great Eastern Highway, and through the majority of the MRA development. Where streets are activated and significant pedestrian volumes are proposed, traffic volumes and speeds will tend to be low and cycling is generally supported in mixed traffic.

4.3 Form and Cross-Section

Each road in the proposed Activity Centre network has been assessed according to function to determine a desirable road cross-section. Liveable Neighbourhoods has been used as the primary source for road designation, with modifications to the standard form as described in **Figure 8**.

Figure 8 Representative Road Cross-Sections

Significant changes to the internal road environment are proposed to manage traffic flows through the Centre precincts. Vehicular traffic is accommodated within a few key streets and controlled through cross-section and priority measures, as well as the location of large-scale car parking. Modification of road sections will be undertaken with consideration for all modes of transport, and particularly cycling.

Speed Zones

To promote the desired safe and legible pedestrian environment, the speed limit within the Midland Activity Centre is proposed to be decreased to 40km/hr on all internal streets, and 50km/hr along Great Eastern Highway as in other Town Centres such as Mundaring. Morrison Road would remain at 60km/hr to facilitate efficient local connections. Streets within the Activity Centre will be kept to a narrow road width to promote low speed, while an additional signalised intersection at the intersection of Great Eastern Highway and Cale Street will reinforce safe pedestrian crossings along this primary north-south desire line.

To minimise the impact of this additional signal on regional bypass traffic, coordination of this signal with those to the east and west is recommended.

Great Eastern Highway

The primary road corridor through Midland consists of Great Eastern Highway, which is generally constructed as an undivided 4-lane road, transitioning to a one-way pair west of Padbury Terrace. This form is consistent with the existing function of Great Eastern Highway as a strategic corridor serving a regional purpose.

The future structure of the Midland Activity Centre includes significant development of the Great Eastern Highway corridor, extending south across the rail line. This will result in a significant proportion of internal trips, primarily pedestrian trips, across Great Eastern Highway. To facilitate this movement, local traffic is proposed to be relocated to Morrison Road and the cross-section of Great Eastern Highway modified to support pedestrian legibility and safety. This would involve construction of wider footpaths, on-road cycle lanes and improved crossing provisions, facilitated through a reduced on-street parking provision.

The road widening initiative currently being undertaken by Main Roads to the east of Padbury Terrace will assist in improving the pedestrian environment by permitted the provision of a wide central median to create a pedestrian refuge. Streetscape improvements along the northern verge resulting from the Midland Gate redevelopment would be complemented by trees and shaded areas on the southern verge.

Further to the west in the one-way sections, the road form would remain similar to existing geometry, with streetscape upgrades to improve the pedestrian environment and provide continuous on-road cycling lanes. These improvements are likely to require removal of some existing on-street parking.

Development of a Great Eastern Highway Access Strategy is recommended for the Midland City Centre area, focused on achieving the best environment for pedestrians and regional traffic movements.

Morrison Road

Traffic along Morrison Road is expected to remain at existing volumes west of Great Northern Highway, while experiencing some additional growth to the east. This is a result of the proposed changes to the regional road network which will redirect a substantial proportion of external traffic north along Great Northern Highway and Lloyd Street. Regional traffic will largely be replaced with the additional local traffic anticipated to use Morrison Road to access car parking and facilities within the Activity Centre. The existing form of Morrison Road is therefore considered sufficient to accommodate future demands, though function will be improved by extending the existing 4-lane form to Great Eastern Highway. Minor improvements, consisting of the installation of right- and left-turning pockets on some major road connections, are advised to ensure local traffic is encouraged to use Morrison Road in preference to Great Eastern Highway.

Cale Street / Keane Street

Cale Street is proposed to continue from the Workshop Precinct south of the rail line through the Midland Oval Precinct. It will be a major north-south link for pedestrians and cyclists, but measures will be put in to limit the effectiveness of this route for private vehicles. In particular, connection through the Midland Oval Precinct to Morrison Road is not supported. As an alternative, Keane Street will form the highest priority north-south link from the City Centre, with existing and proposed private car parking accessed via Keane Street. Keane Street provides direct connection to both Morrison Road and Great Northern Highway, and so minimises the impact of vehicular traffic on local streets.

To mitigate the high demand for trips along Keane Street, an additional significant intersection is proposed to allow access from Morrison Road directly into the Midland Oval development car park. This access should reduce traffic along Keane Street

Cale Street will be redeveloped in concert with the current expansion of Midland Gate to a more activated street consisting of entertainment and retail uses, greater use of public space and a less intrusive parking arrangement.

Spring Park Road Link

A new link road is proposed between Spring Park Road and The Crescent, to the south of a large-scale multi-deck car park. This road is intended to improve pedestrian and vehicular connection through the Morrison West Precinct and to support the desireline between this car park and the main activity nodes in the Old Town Precinct and further to the south and east.

Old Great Northern Highway

The existing configuration of Old Great Northern Highway includes a pedestrian-only section between The Crescent and Morrison Road. This creates an attractive pedestrian space adjacent to the existing City of Swan and Landgate buildings.

Previous planning in Midland has discussed opening this section back up to traffic to create more passing trade for local business. However, the effect of this modification would be to create an attractive alternative route between Great Eastern Highway and Great Northern Highway for regional traffic. This traffic is unlikely to provide any passing-trade advantages for local business and would instead reduce the amenity for pedestrian traffic.

Rail Crossings

Connectivity between the existing Midland City Centre and the Railway Precinct is compromised by the location of passenger and freight rail lines that bisect the Activity Centre. Improvements to north-south connections are recommended which include an additional rail crossing at Cale Street. This proposed crossing and all existing crossings (Archer Street, Helena Street, Cale Street and Lloyd Street) would greatly benefit from grade separation. However, with the exception of Lloyd Street, traffic and adjacent intersection operations will continue to operate at an acceptable level following the proposed realignment of regional freight rail. In the event that freight rail relocation is significantly delayed, grade separation will become more critical to the function of the Activity Centre.

5 Parking Calculation

5.1 Methodology

A parking demand model has been developed which incorporates the theoretical parking generation of the individual land uses within the existing and proposed developments and calibrates this model to the observed parking demand for a design day scenario. As part of this analysis the impacts of shared and reciprocal parking have been included.

5.2 Nomenclature

Parking Supply

Parking supply is the total quantum of parking spaces that are built or available within the study area, regardless of whether or not they are utilised. Parking supply only includes marked spaces and does not include areas designated for standing vehicles.

Parking Demand

Parking demand is the accumulation of vehicles parked within the study area at a point in time. Parking demand includes all parking associated with the associated land uses, whether in an off-street facility, parked illegally, parked on-street or in remote parking lots. Parking demand does not include standing vehicles awaiting the pick-up or drop-off of passengers.

Shared Parking

Shared parking is parking that is used by 2 or more land uses instead of restricting parking to the exclusive use of a single land use - the more exclusive the parking is, the less effective it becomes for the development as a whole.

Reciprocal Parking

Reciprocal parking occurs when a visitor has more than one purpose within an area and hence only one trip is required to serve two or more purposes. As the Midland Activity Centre is a substantial mixed-use development with retail, office, residential and entertainment venues, there is likely to be a high degree of reciprocity at all times.

The degree of reciprocal parking occurring depends on the type of land use in the vicinity and the time of day. For the purpose of this assessment, reciprocal parking rates have been taken from the *National Cooperative Highway Research Program (NCHRP) Report 684* (March 2011).

The most important component to determine the rates of reciprocal parking is the proximity of the land use pairs. As all developments within the Midland Activity Centre are generally located within acceptable walking distances, and all parking within the precinct will be managed through paid parking or supply management, the reciprocal parking rates given in the NCHRP Report can therefore be considered to be reasonable estimates. By accommodating reciprocal parking a lower total parking supply will therefore be required to satisfy demand for the Activity Centre.

Efficiency

The efficiency of parking is a measure of the practical maximum utilization rate of parking within a study area. An efficiency factor of less than 100% reflects a perception by drivers that all available parking within the study area is occupied, when in fact there may be parking spaces available. This may be in the form of parking spaces that are available only for some purposes, allocated to individual businesses, difficult to find or in the wrong location.

Increasing the efficiency of parking can be accomplished by better signage to inform drivers of the locations of parking spaces, or by introducing a method (through technology or dynamic signage) of alerting drivers when parking becomes available.

5.3 Theoretical Calculation of Existing Demand

The existing theoretical parking demand for the Midland Activity Centre was calculated by using the floor areas, residential dwelling numbers, employment opportunities and student enrolments provided by the Department of Planning (DoP) from their *Strategic Transport Evaluation Model (STEM)* and from the *Main Roads WA Regional Operations Model (ROM)*, for the 2011 and 2031 horizon years, as shown in **Table 6**.

Table 6 STEM residential, employment and education enrolment assumptions for 2011

Zone Number	227 (Midland City Centre) 2011 horizon	227 (Midland City Centre) 2031 horizon
Population in Private Dwellings	1135	1491
Occupied Private Dwellings	383	590
Employment Opportunities:		
> Agriculture	*12*	*18*
> Manufacturing	*131*	*116*
> Construction	*177*	*170*
> Retail	*1772*	*1898*
> Wholesale	*77*	*84*
> Transport and Storage	*42*	*49*
> Communications	*55*	*79*
> Finance and Business	*1062*	*1970*
>Public	*2532*	*3484*
> Health	*535*	*754*
> Welfare and Community	*765*	*1025*
> Entertainment and Recreation	*593*	*604*
Primary and Secondary School Enrolments	200	200
Tertiary Institution Enrolments	45	57
TAFE Enrolments (Part Time/Night Classes)	537	645

This information was then used to calculate the theoretical parking demand based on parking demand rates published in *Parking Generation, 3rd Edition* by the Institute of Transportation Engineers, along with time-of-day utilisation rates for the different land uses. Based on this methodology, the gross peak parking demand for the existing (2011) land uses was determined to be 12,530 bays. This assumed exclusive parking associated with each land use (no reciprocal parking) and not calibrated to any observed data.

5.4 Calibration to Observed Parking Demand

Data calibration was performed to establish a theoretical peak parking demand, using observation data from the *Midland Parking Strategy* (October 2002) over the time period of Thursday evening 16:00-19:00. The theoretical gross peak parking demand for 2002 was determined to be 11,087 bays for a 12:00-13:00 peak period, disregarding the effects of reciprocal and shared parking.

As the Midland City Centre in 2002 already included a wide range of land uses, the impact of reciprocal and shared parking reductions were included in the calibration. Shared parking was determined by application of the profile set described in **Figure 9**, reducing the theoretical peak hour parking demand to 10,375.

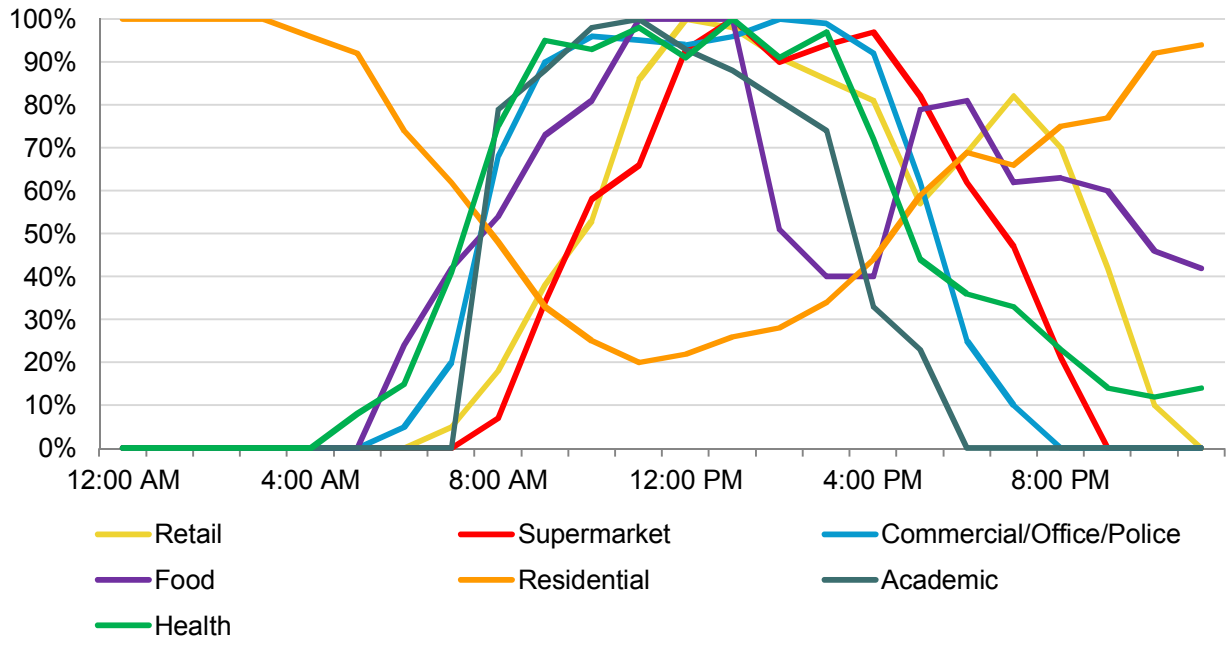


Figure 9 Theoretical Parking Demand Profile for a Typical Weekday

The level of reciprocal parking was determined through the use of best-practice reciprocity rates published by the National Cooperative Highway Research Program (NCHRP) *Report 684 (March 2011).* Residential parking was not included in the theoretical parking demand but was included in the reciprocal parking estimation, as residents are likely not to use their car within the Midland Activity Centre.

Table 7 shows the calculated amount of reciprocal parking likely to have been present during the parking survey, based on the NCHRP reciprocal parking rates.

Table 7 Calculated Reciprocal Parking for Existing Land Uses (2002)

Time	Retail & Office	Residential & Office	Retail & Residential	Food & Retail	Food & Office	Food & Residential	Total Reciprocal
16:00 – 17:00	345	76	180	391	18	129	1139
17:00 – 18:00	235	57	241	372	35	132	1072
18:00 – 19:00	136	31	282	285	36	125	896

Through application of these demand reduction effects, a utilisation factor was determined which relates the observed data to the levels predicted by theoretical analysis. **Table 8** shows the how this utilisation factor was determined and the effect on peak hour parking demand for the observed (2002) scenario.

Table 8 Existing Theoretical and Observed Parking Demand

Time	Theoretical Parking Demand (no reciprocal parking)	Theoretical Parking Demand (including reciprocal parking)	Observed Parking Demand	Utilisation Factor (Observed / Theoretical)
16:00 – 17:00	8,326	6,764	4996	74%
17:00 – 18:00	6,365	5,103	4210	83%
18:00 – 19:00	4,023	4,598	3311	72%
Calculated Peak Parking (12:00 - 13:00)	10,375	9,171	-	-
	Projected Existing Peak Parking Demand			6,982

For the purpose of comparison, the additional development constructed since 2002 was included with further demand analysis to provide an indication of current day (2011) demand. This assessment determined a peak hour parking demand for a typical weekday of approximately 7,900 bays. When compared to the existing parking supply of approximately 10,500 bays, it can be seen that even with the minimal parking fees in the Midland City Centre, demand for parking remains significantly below supply.

5.5 Anticipated future parking demand

The 2031 parking demand was determined using the methodology described above, with land use and dwelling yields as defined in the *Midland Activity Centre Structure Plan* prepared by Hassell. Based on this information, an uncalibrated gross peak parking demand of 21,414 non-residential bays was determined for the 2031 future scenario. By including the effects of reciprocal and shared parking, the anticipated parking demand was reduced to 14,926. This number was then scaled to represent the increase in sustainable transport mode, in line with the 65% private vehicle mode target. This assessment results in a final anticipated demand for non-residential parking within the Activity Centre of 10,212 bays. Adding the 800-1,000 bays to be constructed for park 'n' ride at the relocated Midland Station brings the peak occupied parking demand to about 11,000 bays. Comparing this to the road capacity analysis indicates that the road network would be sufficient in its current form to accommodate the demand associated with the Midland Activity Centre, for the 2031 background growth scenario.

However, the above figure assumes that all parking is full and does not take into account the widely dispersed nature of current and future parking supply. An efficiency rate of 85% was assumed to account for the spread of the parking bays throughout the Midland Activity Centre, which suggests that a total of 13,000 bays would be required to sufficiently accommodate the 2031 parking demand.

6 Parking Management

6.1 Parking Management Principles

Midland operates as a significant strategic centre for both the local community and a wider catchment that extends into the Wheatbelt and to relatively remote residential catchments such as Ellenbrook and Mundaring. For this reason there will always be an important place for private vehicles, as these represent the only viable transport mode for a large proportion of this population. High quality parking will be required to accommodate this demand, as well as that of other visitors, residents and commuters.

However, a higher provision of car parking will result in an increase in demand for private vehicle modes, potentially beyond the capacity of the road network to support it. Car parking management methodologies will need to be introduced to maintain a level of supply and demand which can be sustained by the local road network.

6.2 Parking Priorities

The public parking supply can be segregated to provide parking for a range of needs. The two broadest categories for non-residential parking consist of commuter and retail parking. These have overlapping but separate demand profiles and should be managed in different ways.

Retail and entertainment parking should be provided centrally, close to destination areas and easily accessible from the development. Parking is ideally supplied on street or in decked car parking with a demand responsive parking fee that promotes turnover.

Commuter parking tends to be of lesser value to the Centre and should be supplied on the periphery of the City in large-scale parking structures priced to support all-day parking.

Other specialised parking categories are also important and should be included in the on- and off-site parking supply. This includes:

> Disabled parking, demand for which will increase markedly over the next 20 years and should represent 2-3% of the overall non-residential supply;
> Loading bays adjacent to retail and entertainment or mixed-use developments which do not include on-site provision for service/delivery;
> Bus stops along service routes;
> Taxi stands in areas with high demand;
> Other types of very short-stay parking (ATM, post boxes, emergency service zones, etc.)

6.3 Distribution of Parking

Preliminary assessment of potential parking structure locations has been undertaken by the City of Swan and reassessed for the proposed development scenario. **Figure 10** shows potential locations for large public and private parking, to be supplemented by smaller-scale parking at the individual development level. Public car parks are proposed to be accessed primarily from the peripheral roads, avoiding direct links to Great Eastern Highway wherever possible.

Figure 10 Location of Public Parking

6.4 Commuter Parking

Location

Commuter parking is proposed to be provided on the periphery of the City in large-scale parking structures priced to support all-day parking. Commuters tend to arrive during the roadway peak and have a significant impact on traffic operations. Removing this demographic from the main activity improves pedestrian and cycling safety, public transport efficiency and intersection operation. Commuters are also willing to walk longer distances, particularly if the pedestrian environment is attractive.

The large park 'n' ride area immediately adjacent to the relocated Midland Station is likely to remain priced for commuter trips in the medium-term. However, construction of off-site parking in the Bellevue area would alleviate the pressure on the local road network and allow the proposed multi-deck car park adjacent to the station to be used for short-term retail/commercial parking set at hourly rates.

Quantum

Parking analysis shows that the unrestrained demand for commuter parking is approximately 8,800 parking bays. Mode shift towards alternative transport to achieve a 65% mode share would imply that approximately 6,000 commercial parking bays will be required to satisfy the demand. It can be reasonably assumed that commuters represent expert users and the corresponding efficiency of commercial parking will be relatively high. If we assume a 90% peak occupancy rate, this corresponds to a commuter parking provision of approximately 6,700 bays across the Activity Centre. Excluding the hospital development from this total leaves 5,800 parking bays designated as commuter parking (excluding park 'n' ride). Of these, approximately 30-40% could be expected to comprise large-scale off-street commuter parking facilities, potentially shared with retail users.

Access

Access to commuter parking will be primarily via major approach roads (Morrison Road, Great Eastern Highway), to minimise the impact of commuter traffic on the operation of the internal road network.

Price

While it has been shown that the unrestrained demand for commuter parking exceeds the proposed supply, the willingness of commuters in the Midland area to pay for parking has not been satisfactorily demonstrated. Anecdotal evidence suggests that it is unlikely that the workforce will support commuter parking prices at economically sustainable levels, capable of funding the construction of commercial car parks. However, assuming the proposed mandatory cash-in-lieu policies are put in place, it is likely that daily parking rates could meet or exceed levels sufficient to pay for upkeep and maintenance of public facilities. (i.e. in excess of $8 per day).

6.5 Residential Parking

Maximum Parking Rates

Residential traffic is generally not considered to impact significantly on the Activity Centre road network due to its prevailing contra-flow direction. However, Midland's location in the regional context means that a high volume of regional traffic travels past Midland from the hills area, towards employment centres to the west of Midland. Therefore, residential traffic generated in the Activity Centre may have a significant effect on local intersections.

To address this impact, it is proposed that a maximum residential parking rate be imposed for multiple and group dwellings within the Activity Centre. This would restrict parking provision to a maximum of 1 bay per unit and would assist in supporting a sustainable transport environment by reducing private vehicle mode shares by residents.

Unbundled Parking

The cost of parking for residential and commercial units is usually passed on to the occupants indirectly through the rent or purchase price (bundled) rather than through a separate transaction. This means that tenants or owners are not able to purchase additional parking if required or given the opportunity to save money by reducing their parking demand. Giving the tenants or owners the opportunity to rent or sell the parking spaces separately may also reduce the total amount of parking required for a development. The unbundling of parking can be introduced in several different ways:

> Facility managers can unbundle parking when renting building space;
> Developers can make some or all parking optional when selling buildings;
> Renters can be offered a discount on their rent for not using some or all of their allocated parking spaces; and
> Parking costs can be listed as a separate line item in the lease agreement to show tenants the cost and enable them to negotiate reductions.

Providing tenants or owners with the opportunity of unbundled parking is also likely to create a market for available parking spaces. It should be noted that if an unbundled parking policy is introduced, it is important to consider the cost of alternative parking in the nearby area. If there is a supply of free or low-cost parking nearby, there may be an incentive for tenants or owners to find other places to park their cars to avoid the parking charge, potentially resulting in spillover effects.

6.6 Visitor Parking

Currently, visitor parking within the Midland Activity Centre is predominantly free and provided by on-street and off-street retail parking facilities. As proposed in the *Car Parking Action Plan Update* (Cardno, 2011), it is recommended for all inner-city off-street parking to gradually transition to uncapped paid parking (PTA Park 'n' Ride excepted) with the long-term goal of providing multi-deck car parking facilities for visitors.

Location

Retail parking is proposed to be located adjacent to, but outside of, areas with high levels of activation. Parking would be primarily provided in public or private multi-deck parking adjacent to these areas. Midland Gate will likely remain the primary site for retail parking, with the remainder distributed throughout the Activity Centre.

The on-street parking supply should be reserved for visitor parking, through the use of parking pricing and timing restrictions. On-street parking within the Activity Centre is encouraged in the majority of locations, with the exception of Great Eastern Highway, Morrison Road and Keane Street north of The Crescent. Embayed on-street parking is preferred, to minimise pedestrian crossing distances and allow street trees to be planted closer to the traffic lanes.

Quantum

It is anticipated that there is an unrestrained demand for approximately 12,000 visitor parking bays, of which 6,000 bays represent reciprocal demands from other land uses (hospital, office, education, residential, etc) or mode shift away from private vehicles.

Given that 4,000 bays will continue to be located at Midland Gate Shopping Centre, and there are approximately 600 bays on-street, this leaves between 1,500 and 2,500 visitor parking bays to be allocated to the remainder of the Activity Centre. On-site retail parking would therefore need to be minimised so as to maintain a satisfactory level of operation. As a result of the general lack of private retail parking in the Activity Centre, Midland Gate is likely to become a de-facto public parking station, necessitating introduction of paid parking at a level consistent with the rest of the Activity Centre.

6.7 Park ‘n’ Ride

Location

The location of the existing Midland Station, at the western boundary of the Activity Centre, is relatively distant from the local residential and business catchments. This reduces its effectiveness as a transport node and tends to promote a high reliance on park ‘n’ ride adjacent to the station, even for residents living nearby. To alleviate this issue, the Midland Station is proposed to be relocated approximately 1km to the east, towards the City Centre core. This will increase the catchment of residents and businesses within 800m and help promote alternative transport modes.

Quantum

The PTA has also proposed to locate a significant quantum of parking, tied to public transport use, immediately adjacent to the new station. This parking will attract a significant quantity of private vehicle trips into the Activity Centre, with no associated benefit to the community. The proposed park ‘n’ ride is therefore supported only as a solution prior to the extension of the rail line. However, the location of the proposed park ‘n’ ride, adjacent to the Midland Health Campus and at the heart of the City provides an opportunity for a potential transition to retail and hospital visitor parking in the longer-term, similar to the function of parking stations adjacent to the Perth Train Station.

Price

The proposed parking management structure for park ‘n’ ride would restrict parking availability to legitimate Transperth transport users through use of the SmartRider system. This will assist to limit the dilution effect of a large number of low-price parking bays in the centre of the Activity Centre.

6.8 Parking Quantum Summary

Collating the parking demand assessment data suggests the following approximate split for parking supply across the Midland Activity Centre:

- Long-Stay Private - 4,000 bays, including:
  - Midland Oval - 600 bays
  - Hospital - 900 bays
- Long-Stay Public - 2,000 bays
- Park ‘n’ Ride - 1,000 bays (transitioning to short-stay public in the long-term)
- Short-Stay Private - 5,000 bays, including
  - Midland Gate - 4,000 bays (de-facto public)
- Short-Stay Public - 1,000 bays, including:
  - On-Street - 500 bays.

Note that public car parking may be provided as a mixture of short-stay and long-stay parking, determined by establishing reasonable parking costs for hourly and daily parking at a single location.

6.9 Maximum Parking Rates

The constraints associated with road capacity and commercial sustainability for public parking support the modification of the existing standard parking minimum rates, as set out in Local Government Policy, to a simplified set of parking maximums. It is envisioned that land uses would be categorised according to simple criteria: Retail, Office, Showroom, Residential. Any other non-standard uses would be assessed with respect to the goals of the City and Department of Planning.

Nominal (example) maximum parking rates are proposed in the DoT *Activity Centres Parking Discussion Paper* and provide a benchmark for development as follows:

> Retail: 3-4 bays per 100sq.m
> Office: 1-2 bays per 100sq.m
> Showroom: 2 bays per 100sq.m
> Residential: 1 bay per unit

Calculations show that at the lower end of these rates, the ultimate development would result in approximately the desired parking quantum. However, a transitional plan which allows additional interim parking on a mandated schedule may be necessary to reflect the commercial realities of development.

Public car parking allows a more efficient and equitable allocation of parking resources across multiple land uses. Therefore, a proportion of public car parking is beneficial to the operation of the Activity Centre and should be supported by legislation. A public parking quantum of between 2,000 and 3,000 bays across the Centre (including on-street provisions) would likely be sufficient to provide the necessary flexibility.

6.10 Parking Pricing

Parking infrastructure is expensive to construct and maintain. Where unrestrained parking demand rates significantly exceed the supply rate, the market price for hourly or daily parking can support the construction of public car parking on commercial grounds. However, market pricing of parking will have a significant impact on demand, with effects felt at relatively low rates. While there may be localised hotspots where parking is in sufficient demand to justify cost recovery pricing, it is likely that the majority of public parking will be unable to pay for itself through fees. This suggests that alternative funding methodologies will be necessary.

It should also be noted that parking compliance is essential to the successful implementation of the parking management regime.

6.11 Cash-in-Lieu of Parking

Cash-in-lieu of parking is a mechanism by which developers contribute towards public parking and/or sustainable transport initiatives. This mechanism would allow public infrastructure to be funded by development, without the requirements for a Development Contributions Scheme.

A model cash-in-lieu scheme is recommended for consideration which combines parking maximums with mandatory cash-in-lieu to ensure that sufficient public parking can be supplied, while maintaining a limit on parking to prevent adverse impacts to the road network.

Mandatory cash-in-lieu would require developers to fund a proportion of their maximum parking requirement in off-site parking to be constructed by the City, and to fund additional sustainable transport initiatives such as cycling infrastructure and public transport improvements. Additional parking could be funded cash-in-lieu to reduce the development's on-site requirements. Demonstrated synergies within a development which would reduce their parking demand could also be supported to reduce on-site supplies.

By this mechanism, public parking rates need only fund maintenance of infrastructure, rather than recover the costs of capital works.

Record-Keeping

To maximise developer buy-in and ensure a streamlined process, it is important to ensure that there is an effective record-keeping process to manage cash-in-lieu contributions. This system would track payments by developers, current land and construction costs, infrastructure works and planning. Maintaining a transparent process of cash-in-lieu through which developers can see direct value will assist in achieving both mandatory and voluntary contributions.

6.12 Use of On-Street Parking

Residential Parking

On-street parking for residential uses is not supported except for visitor parking. It is expected that residential development will provide sufficient parking on-site, within the maximum parking rates recommended. This will minimise conflicts over on-street supply and retain it for valuable short-stay parking.

Visitor / Retail Parking

The primary use of on-street parking will be for short-stay visitor parking, particularly in and around activated streets. This parking should be time-restricted to avoid illegitimate commuter parking or priced on a demand-sensitive basis to promote vacancies.

Loading Zones and Service/Delivery Docks

Deliveries will be enabled through an increase in on-road loading zone areas, particularly in 'main street' precincts and where smaller office/retail development is located. Larger office/commercial buildings will be serviced via on-site docks connected to basement or undercroft parking structures. Access to dock areas through a laneway network is supported to minimise the impact of service/delivery vehicles on pedestrian, cycling and bus modes.

ACROD Parking

In the Car Parking Action Plan Update (Cardno, 2011), it is recommended in the short term to continue to promote ACROD parking rates above the stipulated rate given in the Building Code Australia (BCA). This reflects the growing mobility of people with disabilities and is consistent with the increasing uptake in ACROD permits in the Perth metropolitan region. Notwithstanding any provision in the BCA or AS2890, it is recommended that parking spaces for people with disabilities are to comprise 2-3% of the total number of parking spaces in non-residential development, with a higher provision rate required for car parks serving health facilities or which provide specific services for aged persons and people with disabilities.

Bus Stops and Layover

The location of bus stops will be dictated primarily by the associated road environment. On major regional roads such as Lloyd Street and Morrison Road, bus stops should be embayed to minimise disruption to traffic during peak operation. Bus lanes along Great Eastern Highway are proposed which would allow buses to stop within the lane.

Along all other roads, buses should stop within the travelling lane. This will have an impact on traffic, but will not disadvantage buses travelling through the City Centre. The impact of buses on the operation of these streets will ideally encourage cars to utilise other corridors for City Centre access.

Bicycle Parking

In activated streets, or any streets with on-road cycling facilities, cycle parking would ideally be located in on-street corrals, as shown in **Figure 11**. This has the advantage of keeping cyclists away from pedestrian conflict and is a very effective way of creating cycle parking.

Figure 11 Bike Corral

Other Critical Short-Stay Parking

Consideration for other specialty uses should be undertaken, depending on the requirements of adjacent land uses. As on-street parking is expected to be in high demand, dedicated parking for emergency and postal vehicles may be necessary. Dedicated taxi stands will also be desirable in entertainment precincts and other high-demand areas. Specific land uses such as banks may require very short-stay parking (15 minutes) to facilitate customer needs.

6.13 Paid Parking

The Car Parking Action Plan Update (Cardno, 2011) contains an outline for the gradual transition to paid parking over through to 2015. This involves reduction of free parking duration outside the City Centre and gradual introduction of pay and display meters in the City Centre.

The introduction of paid parking allows for fine-grained control of parking demand on a precinct or road-specific basis. Ideally, parking rates would vary as required and set to a level which generates a vacancy on each block. A good example of this mechanism is provided by the SF Park system currently being trialled in San Fransisco.

6.14 Enforcement

Due to the increased attractiveness of parking within the activity centre, the enforcement of parking restrictions both within the Midland Activity Centre and in the periphery is essential to a successful outcome of the parking strategy.

7 Traffic Analysis

A desktop model of the Midland Activity Centre was developed in order to determine the impact of the planned developments on intersection performances and road capacities. SCATS data for the signalised intersections sourced from MRWA and supplementary traffic count data was used to determine the turning movements proportions at critical intersections in and around the Activity Centre.

7.1 Trip Generation

The 2031 trip generation was based on the land use and dwelling yields as defined in the Midland Activity Centre Structure Plan prepared by Hassell along with AM peak, PM peak and daily trip generation rates derived from the ITE *Trip Generation Manual (7th Edition)*, as well as detailed observation and calculations from previous assessments. See **Table 5** for a summary of the land use areas and dwelling yields as defined in the Midland Activity Centre Structure Plan.

The traffic generation for the AM and PM peak periods is shown in **Table 9** and **Table 10** respectively, while the daily traffic generation is shown in **Table 11**.

Table 9 Traffic Generation per Precinct for 2031 AM Peak Hour (two-way)

Precinct	Retail	Office	Food	Residential	Education Culture	Health	Police	Bulky Goods
Old Town/Pedestrian Centre	324	951	1689	342	49			
Midland Oval	135	580	872	356				
Midland Gate	499							
Morrison Road East				155	20			
Brockman/Railway Core	116	1485	280	1044				
Police & Health Precinct						1389	294	60
Railway Workshops Precinct	3	432	164	290	1818			
Woodbridge Lakes				43				
Entry Streets		148						38
Morrison Road West				402	128			

Table 10 Traffic Generation per Precinct for 2031 PM Peak Hour (two-way)

Precinct	Retail	Office	Food	Residential	Education Culture	Health	Police	Bulky Goods
Old Town/Pedestrian Centre	1179	914	2347	416	34			
Midland Oval	493	557	1211	434				
Midland Gate	1816							
Morrison Road East								
Brockman/Railway Core	423	1428	389	1272				
Police & Health Precinct						1522	283	79
Railway Workshops Precinct	11	415	228	354	1259			
Woodbridge Lakes				53				
Entry Streets		142						51
Morrison Road West				490	89			

Table 11 2031 Daily Traffic Generation per Precinct (two-way)

Precinct	Retail	Office	Food	Residential	Education Culture	Health	Police	Bulky Goods
Old Town/Pedestrian Centre	13504	6752	15875	4173	208			
Midland Oval	5648	4119	8191	4355				
Midland Gate	20797							
Morrison Road East				1888	83			
Brockman/Railway Core	4839	10550	2634	12755				
Police & Health Precinct						16608	2090	754
Railway Workshops Precinct	125	3069	1540	3548	7656			
Woodbridge Lakes								
Entry Streets		1049						482

In order to ensure consistency between the parking demand calculations and the trip generation calculations, a correction was made in order to account for the reciprocal parking. The trip generation reduction factors for the AM peak, PM peak and daily is shown in **Table 12**.

Table 12 Traffic Generation Reciprocal Factors

	Retail	Office	Residential	Restaurant Cafe
AM peak reduction factor	14.5%	38.1%	1.5%	57.7%
PM peak reduction factor	24.8%	20.2%	10.3%	53.5%
Daily reduction factor	29.1%	36.8%	6.3%	50.5%

Additional data was sourced from the MRWA Regional Operations Model (ROM) and the Strategic Transport Evaluation Model (STEM) from the Department of Planning in order to determine the “background” traffic (i.e. regional traffic that would flow through the activity centre if the development had not been there). The AM peak, PM peak and daily traffic volumes were then added to this background traffic to assess the likely future traffic demand.

7.2 Trip Distribution and Assignment

The nature of the traffic entering and exiting the network was disaggregated to assess whether the traffic was purely regional, purely local or a mix of the two, in which case a proportion of local traffic was determined. Trips were then distributed to the boundary road network proportional to the results of the Main Roads 2031 volumes. The results of this simple model are shown in **Figure 12** and **Figure 13**, for the ultimate development scenario.

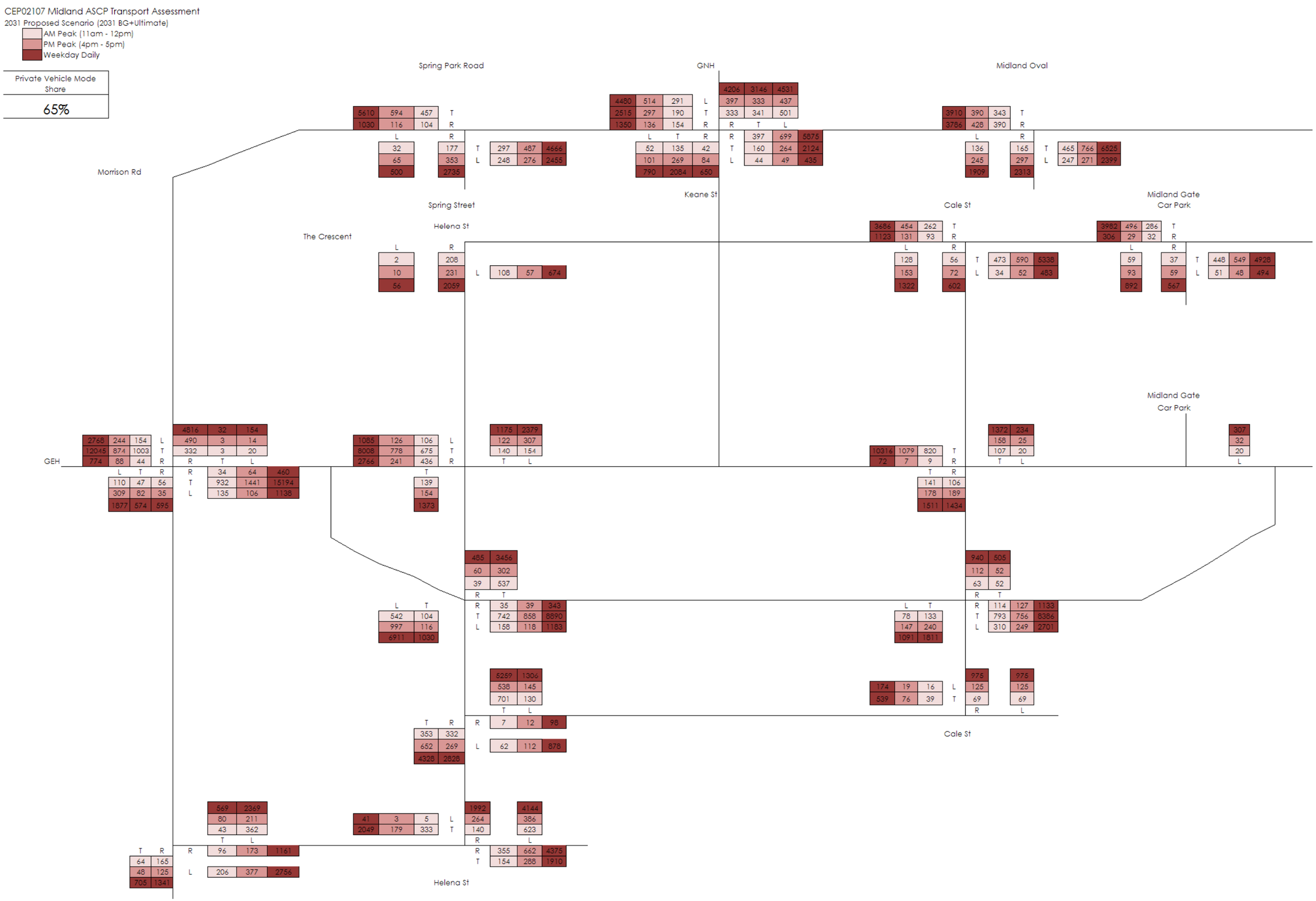


Figure 12 Turning Movement Model - West (2031 Background + Ultimate Development)

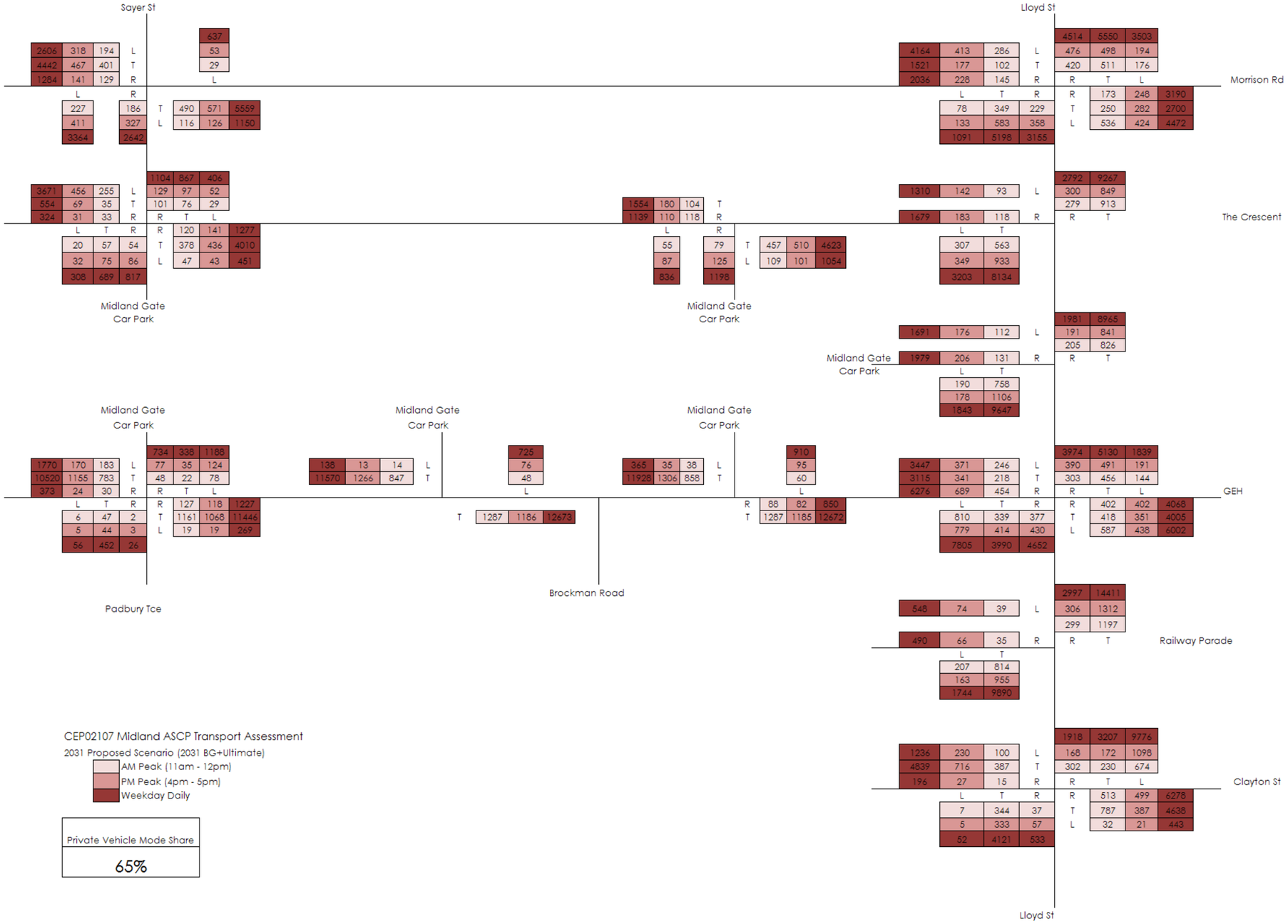


Figure 13 Turning Movement Model - East (2031 Background + Ultimate Development)

7.3 Impact of Regional Traffic

The existing road use shows a high volume of regional trips currently using Great Eastern Highway. This traffic is expected to increase in the future as additional regional connections are made to the east of Midland. Given that Great Eastern Highway bisects the Midland Activity Centre, this additional traffic represents a significant barrier to all forms of transport and impedes the operation of the Activity Centre as an integrated development. Therefore, alternatives to the existing arrangement were sought and a proposed redistribution of local traffic away from Great Eastern Highway is recommended to mitigate the increase in regional traffic not associated with the Activity Centre.

Potential Bypass Route - Morrison Road

Morrison Road was determined to be the best opportunity to redistribute local traffic around the Activity Centre core, rather than along Great Eastern Highway. Morrison Road is generally constructed as a 4-lane dual carriageway with right-turning pockets and is suitable for the high local traffic volumes anticipated.

Eastbound traffic from Great Eastern Highway can be redirected to Morrison Road via a minor reconfiguration of the road to include a left-turn continuous slip lane. SIDRA assessment suggests that this level of mitigation is not required to improve operational performance, but it would tend to promote this route for use by local traffic accessing parking facilities along Morrison Road.

Westbound traffic east of the Centre can be directed along the Clayton Street and Morrison Road corridors, via Lloyd Street as applicable. Of the existing approach routes from the west, only traffic travelling along Great Eastern Highway from Greenmount Hill is likely to prefer to stay on Great Eastern Highway through Midland. Operational analysis suggests only minor upgrades to the Great Eastern Highway / Lloyd Street intersection, which would include a new signal phasing regime, would be required to ensure satisfactory operation.

7.4 Traffic Operations Assessment

To evaluate the impact of the increased volumes anticipated for the ultimate design scenario (including background), SIDRA outputs for each approach are presented in the form of Degree of Saturation (DOS), Average Delay, Level of Service (LOS) and 95th Percentile Queue. These characteristics are defined as follows:

> Degree of Saturation (DOS): is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for varied traffic flow up to one for saturated flow or capacity. The theoretical intersection capacity is exceeded for an un-signalised intersection where DOS > 0.80;

> Average Delay: is the average of all travel time delays for vehicles through the intersection. An un-signalised intersection can be considered to be operated at capacity where the average delay exceeds 40 seconds for any movement;

> Level of Service (LOS): is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The different levels of service can generally be described as follows:

LOS	Description	Signalised Intersection	Unsignalised Intersection
A	Free-flow operations (best condition)	≤10 sec	≤10 sec
B	Reasonable free-flow operations	10-20 sec	10-15 sec
C	At or near free-flow operations	20-35 sec	15-25 sec
D	Decreasing free-flow levels	35-55 sec	5-35 sec
E	Operations at capacity	55-80 sec	35-50 sec
F	A breakdown in vehicular flow (worst condition)	≥80 sec	≥50 sec

> 95% Queue: is the statistical estimate of the queue length below which 95% of all observed queues would be expected.

For the purpose of assessment, vehicle Level of Service is deemed acceptable if the intersection operates at a Level of Service E or better and the delays/queues generated by individual turning movements are not deemed to negatively impact adjacent intersections. These criteria are consistent with the intended operation of Midland as a City Centre with a focus on pedestrian connectivity and sustainable transport modes.

7.5 Impact of Future Volumes using Existing Intersection Geometry

SIDRA intersection operation analysis was undertaken for a series of critical intersections with peak hour traffic volumes determined through the desktop modelling process described above. Intersections were assessed for the ultimate demand scenario including redistribution of local traffic. Restrictions on parking quantum were translated into peak demand reductions on a 1:1 proportional basis. For the purpose of this assessment, therefore, private vehicle generation was reduced to reflect the target mode share of 65%. The locations assessed included the following signalised intersections:

> Great Eastern Highway / Morrison Road
> Morrison Road / Keane Street / Great Northern Highway
> Morrison Road / Lloyd Street
> Lloyd Street / The Crescent
> Lloyd Street / Great Eastern Highway
> Lloyd Street / Clayton Street

The following sections present the anticipated intersection operations for existing geometry.

Great Eastern Highway / Morrison Road

The Great Eastern Highway / Morrison Road intersection represents the entry point to Midland from the west. The intention is that local traffic will tend to use Morrison Road in preference to Great Eastern Highway, encouraged through the use of signage, intersection modifications and the location and access to public parking. If successful, a significant volume of local traffic would divert to Morrison Road.

The existing intersection geometry is shown in **Figure 14**.

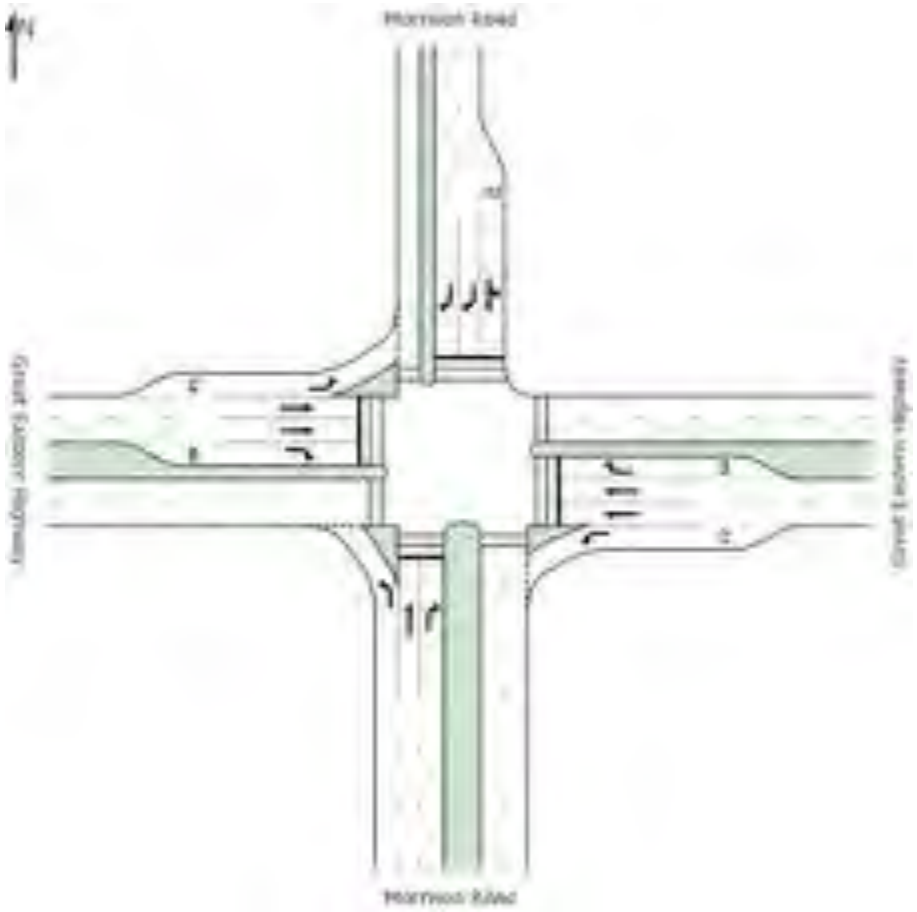


Figure 14 Great Eastern Highway / Morrison Road – Existing Geometry

Table 13 and **Table 14** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 13 SIDRA Analysis for Great Eastern Highway / Morrison Road - Existing Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Morrison Road											
1	L	110	0.0	0.129	15.0	LOS B	2.4	14.2	0.41	0.69	42.6
2	T	47	0.0	0.149	50.7	LOS D	2.6	15.4	0.90	0.68	24.2
3	R	56	0.0	0.187	59.0	LOS E	3.1	18.6	0.90	0.75	23.0
Approach		213	0.0	0.187	34.4	LOS C	3.1	18.6	0.65	0.71	30.6
East: Great Eastern Highway											
4	L	135	0.0	0.109	8.1	LOS A	0.6	3.9	0.13	0.63	49.1
5	T	932	5.0	0.553	28.1	LOS C	21.5	135.2	0.79	0.70	32.4
6	R	34	5.0	0.411	77.8	LOS E	2.3	14.2	1.00	0.73	19.2
Approach		1101	4.4	0.553	27.2	LOS C	21.5	135.2	0.72	0.69	33.1
North: Morrison Road											
7	L	20	5.0	0.079	58.3	LOS E	1.2	7.8	0.88	0.72	23.2
8	T	3	0.0	0.079	50.0	LOS D	1.2	7.8	0.88	0.64	23.5
9	R	332	5.0	0.573	63.3	LOS E	9.9	62.5	0.97	0.81	22.0
Approach		355	5.0	0.573	62.9	LOS E	9.9	62.5	0.97	0.81	22.1
West: Great Eastern Highway											
10	L	154	5.0	0.143	8.3	LOS A	0.8	5.1	0.14	0.63	49.0
11	T	1003	5.0	0.595	28.9	LOS C	23.7	149.3	0.81	0.72	32.0
12	R	44	0.0	0.513	78.0	LOS E	2.9	17.6	1.00	0.74	19.1
Approach		1201	4.8	0.595	28.0	LOS C	23.7	149.3	0.73	0.71	32.7
All Vehicles		2870	4.3	0.595	32.5	LOS C	23.7	149.3	0.75	0.72	30.8

Table 14 SIDRA Analysis for Great Eastern Highway / Morrison Road - Existing Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Morrison Road											
1	L	309	0.0	0.461	32.9	LOS C	14.1	84.5	0.76	0.81	31.7
2	T	82	0.0	0.280	57.4	LOS E	5.0	30.1	0.93	0.73	22.5
3	R	35	0.0	0.126	63.6	LOS E	2.1	12.5	0.90	0.73	21.9
Approach		426	0.0	0.461	40.1	LOS D	14.1	84.5	0.80	0.79	28.4
East: Great Eastern Highway											
4	L	106	0.0	0.092	8.2	LOS A	0.6	3.6	0.14	0.63	49.0
5	T	1441	5.0	0.835	37.4	LOS D	43.9	276.9	0.95	0.88	28.3
6	R	66	5.0	0.644	82.7	LOS F	4.7	29.8	1.00	0.79	18.4
Approach		1613	4.7	0.835	37.3	LOS D	43.9	276.9	0.90	0.86	28.5
North: Morrison Road											
7	L	14	5.0	0.061	61.3	LOS E	1.0	6.1	0.87	0.71	22.5
8	T	3	0.0	0.061	53.0	LOS D	1.0	6.1	0.87	0.62	22.8
9	R	490	5.0	0.832	76.2	LOS E	17.7	111.2	1.00	0.92	19.5
Approach		507	5.0	0.832	75.6	LOS E	17.7	111.2	1.00	0.91	19.6
West: Great Eastern Highway											
10	L	244	5.0	0.275	9.0	LOS A	2.2	13.8	0.19	0.65	48.3
11	T	874	5.0	0.506	28.4	LOS C	20.8	130.8	0.76	0.67	32.3
12	R	88	0.0	0.829	87.2	LOS F	6.6	39.5	1.00	0.91	17.7
Approach		1206	4.6	0.829	28.8	LOS C	20.8	130.8	0.66	0.68	32.6
All Vehicles		3752	4.2	0.835	40.1	LOS D	43.9	276.9	0.82	0.80	27.9

The above results show that the intersection will operate acceptably under the proposed performance criteria, for the ultimate development. To facilitate redirection of local traffic, an alternative geometric arrangement may be warranted, equivalent in intent to the existing Great Eastern Highway Bypass intersection depicted in **Figure 15**, but at a smaller scale.

Figure 15 Great Eastern Highway Bypass Intersection

Morrison Road / Keane Street / Great Northern Highway

The Morrison Road / Keane Street / Great Northern Highway intersection will be a major entry point to Midland from the north, particularly with the increased strategic importance of Great Northern Highway into the future (see **Appendix A - ROM Data**), as a result of the extensive residential development along this corridor. Keane Street provides convenient access to the City Centre and will likely be the primary north-south corridor for access the entertainment / retail precincts. The high volumes of traffic anticipated along Keane Street have been mitigated by providing access to two large-scale multi-deck car parks via Morrison Road, rather than Keane Street. This is intended to improve the pedestrian environment of Keane Street as well as reduce the requirements for road widening and land acquisition.

The existing intersection geometry is shown in **Figure 16**.

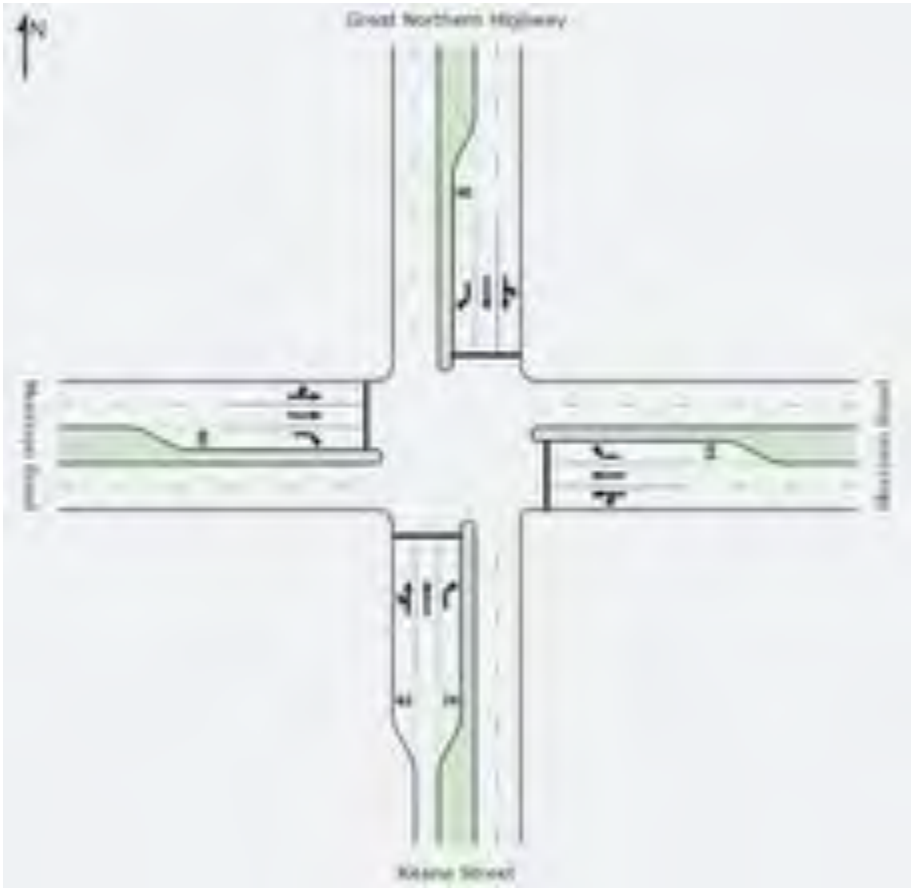


Figure 16 Morrison Road / Keane Street / Great Northern Highway – Existing Geometry

Table 15 and **Table 16** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 15 SIDRA Analysis for Morrison Road / Keane Street / Great Northern Highway - Existing Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Keane Street											
1	L	52	0.0	0.399	38.5	LOS D	4.2	25.0	0.81	0.78	27.2
2	T	269	0.0	0.399	33.0	LOS C	9.0	54.0	0.85	0.70	27.3
3	R	84	0.0	0.682	60.4	LOS E	4.4	26.6	1.00	0.83	21.2
Approach		405	0.0	0.682	39.4	LOS D	9.0	54.0	0.88	0.74	25.8
East: Morrison Road											
4	L	44	0.0	0.480	49.0	LOS D	7.9	49.0	0.94	0.83	25.6
5	T	283	5.0	0.480	42.1	LOS D	7.9	49.0	0.94	0.77	26.0
6	R	274	5.0	1.000	[3]54.2	LOS D	14.0	88.1	1.00	0.84	24.2
Approach		601	4.6	1.000	48.1	LOS D	14.0	88.1	0.97	0.80	25.1
North: Great Northern Highway											
7	L	501	5.0	1.012	131.2	LOS F	47.8	300.9	1.00	1.30	13.0
8	T	384	0.0	0.485	25.7	LOS C	14.4	86.9	0.79	0.71	33.2
9	R	290	5.0	1.000	[3]59.3	LOS E	12.4	78.3	1.00	1.01	22.9
Approach		1175	3.5	1.012	79.0	LOS E	47.8	300.9	0.93	1.04	18.6
West: Morrison Road											
10	L	291	5.0	0.986	88.5	LOS F	19.0	119.4	1.00	1.25	17.5
11	T	190	5.0	0.986	94.3	LOS F	19.0	119.4	1.00	1.29	16.2
12	R	154	0.0	0.871	68.0	LOS E	9.0	53.9	1.00	1.00	20.2
Approach		635	3.8	0.986	85.2	LOS F	19.0	119.4	1.00	1.20	17.6
All Vehicles		2816	3.3	1.012	68.1	LOS E	47.8	300.9	0.95	0.98	20.3

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Table 16 SIDRA Analysis for Morrison Road / Keane Street / Great Northern Highway - Existing Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Keane Street											
1	L	101	0.0	0.564	53.8	LOS D	6.1	36.8	0.86	0.77	22.6
2	T	269	0.0	0.564	50.7	LOS D	15.6	93.7	0.93	0.79	22.3
3	R	84	0.0	0.861	83.8	LOS F	6.2	37.0	0.99	0.98	17.3
Approach		454	0.0	0.861	57.5	LOS E	15.6	93.7	0.93	0.82	21.2
East: Morrison Road											
4	L	49	0.0	0.524	48.9	LOS D	17.3	108.4	0.87	0.88	25.7
5	T	733	5.0	0.832	48.7	LOS D	17.3	108.4	0.95	0.27	26.7
6	R	230	5.0	1.000	[3]62.1	LOS E	14.0	88.1	0.98	0.83	22.2
Approach		1012	4.8	1.000	51.8	LOS D	31.7	199.4	0.95	0.43	24.5
North: Great Northern Highway											
7	L	437	5.0	1.034	177.8	LOS F	54.6	343.9	1.00	1.29	10.2
8	T	474	0.0	0.776	48.0	LOS D	29.5	179.6	0.97	0.87	24.1
9	R	256	5.0	1.000	[3]50.8	LOS D	12.8	80.6	1.00	0.85	25.1
Approach		1167	3.6	1.034	97.2	LOS F	54.6	343.9	0.99	1.02	15.9
West: Morrison Road											
10	L	514	5.0	1.029	143.7	LOS F	49.1	309.5	1.00	1.25	12.1
11	T	297	5.0	0.881	71.9	LOS E	22.4	141.3	1.00	1.02	19.5
12	R	136	0.0	0.789	80.0	LOS F	9.8	58.8	1.00	0.89	18.1
Approach		947	4.3	1.029	112.0	LOS F	49.1	309.5	1.00	1.13	14.5
All Vehicles		3580	3.6	1.034	83.3	LOS F	54.6	343.9	0.97	0.86	17.1

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

These results show that the existing intersection form is generally insufficient to accommodate the changes in trip movements will therefore require upgrade. This intersection has been identified as a *Critical Intersection* with proposed mitigation and upgrade measures discussed further in **Section** 8**.**

Morrison Road / Lloyd Street

The Morrison Road / Lloyd Street intersection has been identified as a *Critical Intersection* due to the large increase in regional traffic volumes along both of these corridors as a result of strategic road linkages to the north and south. Lloyd Street will serve a large and growing residential population, operates as a parallel route to Roe Highway and provides efficient connection to the Midland Health Campus across the rail line.

The Main Roads modelling for the 2031 background scenario with the addition of traffic growth associated with the Midland Activity Centre suggests that intersection volumes will increase from approximately 28,000vpd under the existing scenario to 48,000vpd for the ultimate scenario. This will require some significant changes to the road environment, which are currently being planned and implemented by Main Roads WA. For the purpose of this Transport Assessment, recommendations for intersection improvements are included in **Section** 8.

It should be noted that modifications to the intersection of Roe Highway and Morrison Road (including removing this connection altogether) would have a significant and unknown impact on traffic volumes and flow directions.

The existing intersection geometry is shown in **Figure 17**.

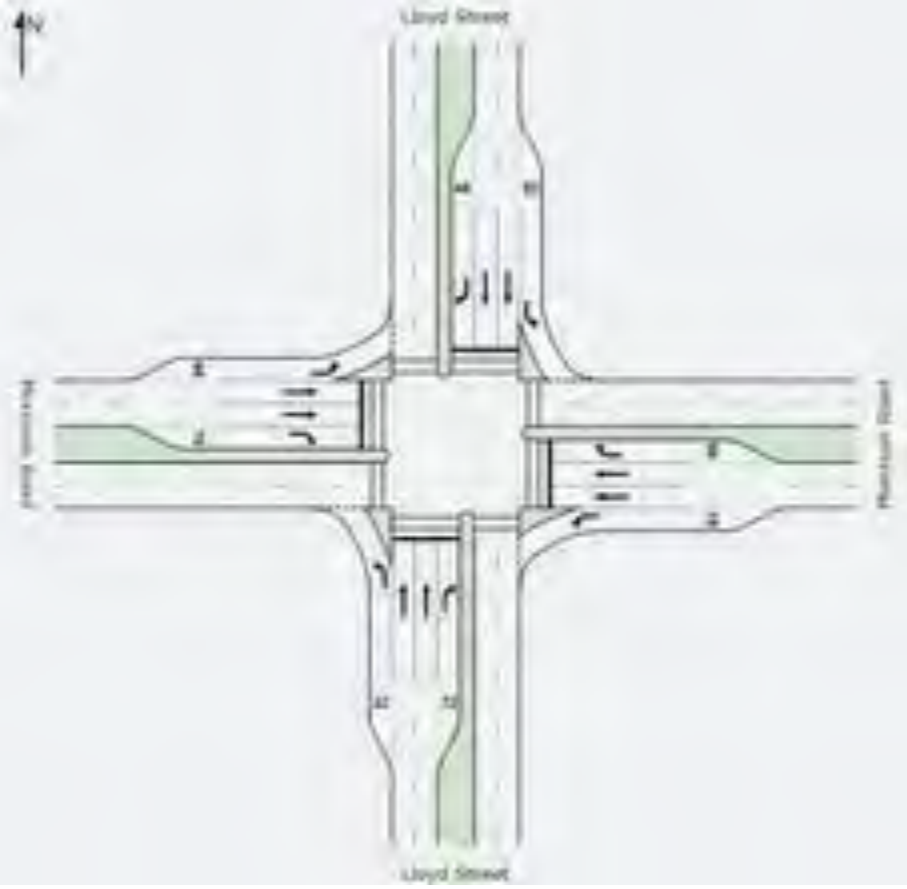


Figure 17 Morrison Road / Lloyd Street – Existing Geometry

Table 17 and **Table 18** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 17 SIDRA Analysis for Morrison Road / Lloyd Street - Existing Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	78	5.0	0.159	11.1	LOS B	1.0	6.0	0.33	0.66	46.1
2	T	349	5.0	0.440	37.6	LOS D	7.5	47.5	0.92	0.75	28.2
3	R	229	5.0	0.608	47.4	LOS D	10.3	65.2	0.96	0.83	26.2
Approach		656	5.0	0.608	37.9	LOS D	10.3	65.2	0.86	0.77	28.8
East: Morrison Road											
4	L	536	5.0	0.580	15.2	LOS B	12.1	75.9	0.56	0.75	42.5
5	T	250	5.0	0.315	36.5	LOS D	5.2	33.0	0.89	0.71	28.7
6	R	173	5.0	0.965	87.9	LOS F	11.7	73.8	1.00	1.23	17.7
Approach		959	5.0	0.965	33.8	LOS C	12.1	75.9	0.73	0.83	30.9
North: Lloyd Street											
7	L	176	5.0	0.304	10.1	LOS B	1.8	11.4	0.30	0.67	47.1
8	T	663	5.0	0.740	40.0	LOS D	15.8	99.7	0.98	0.88	27.0
9	R	268	5.0	1.000	[3]46.0	LOS D	11.9	75.1	0.97	0.83	26.6
Approach		1107	5.0	1.000	36.7	LOS D	15.8	99.7	0.87	0.83	28.9
West: Morrison Road											
10	L	286	5.0	0.360	11.4	LOS B	3.9	24.5	0.37	0.70	45.8
11	T	102	5.0	0.129	34.8	LOS C	2.0	12.8	0.85	0.64	29.4
12	R	145	5.0	0.809	62.1	LOS E	7.7	48.8	1.00	0.93	22.3
Approach		533	5.0	0.809	29.7	LOS C	7.7	48.8	0.64	0.75	32.9
All Vehicles		3255	5.0	1.000	35.0	LOS C	15.8	99.7	0.79	0.80	30.0

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Table 18 SIDRA Analysis for Morrison Road / Lloyd Street - Existing Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	133	5.0	0.287	11.3	LOS B	1.8	11.5	0.32	0.67	45.9
2	T	611	5.0	0.810	52.5	LOS D	17.8	111.9	1.00	0.94	23.6
3	R	331	5.0	1.000	[3]57.6	LOS E	18.7	117.5	1.00	0.85	23.3
Approach		1075	5.0	1.000	49.0	LOS D	18.7	117.5	0.92	0.88	25.0
East: Morrison Road											
4	L	424	5.0	0.534	18.3	LOS B	11.7	74.0	0.58	0.76	40.1
5	T	282	5.0	0.409	45.4	LOS D	7.1	44.7	0.93	0.75	25.7
6	R	248	5.0	0.994	87.1	LOS F	17.6	111.0	1.00	1.04	17.8
Approach		954	5.0	0.994	44.2	LOS D	17.6	111.0	0.79	0.83	26.9
North: Lloyd Street											
7	L	194	5.0	0.456	12.6	LOS B	3.2	20.1	0.38	0.69	44.7
8	T	725	5.0	0.724	42.0	LOS D	19.1	120.4	0.97	0.85	26.3
9	R	249	5.0	1.000	[3]50.0	LOS D	11.9	75.1	0.98	0.83	25.4
Approach		1168	5.0	1.000	38.8	LOS D	19.1	120.4	0.87	0.82	28.0
West: Morrison Road											
10	L	405	5.0	0.678	17.3	LOS B	10.1	63.9	0.55	0.75	40.9
11	T	173	5.0	0.251	43.8	LOS D	4.2	26.5	0.90	0.70	26.2
12	R	220	5.0	0.882	72.4	LOS E	14.1	88.9	1.00	1.01	20.2
Approach		798	5.0	0.882	38.3	LOS D	14.1	88.9	0.75	0.81	29.1
All Vehicles		3995	5.0	1.000	42.7	LOS D	19.1	120.4	0.84	0.83	27.1

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

These results show that the existing intersection form requires some minor improvements to improve individual turning movements, but is largely suitable for the anticipated traffic volumes. Proposed mitigation and upgrade measures discussed further in **Section** 8**.**

Lloyd Street / The Crescent

The Lloyd Street / The Crescent intersection provides secondary access to the Activity Centre but, while it will experience a significant increase in demand along the Lloyd Street corridor, this is not expected to result in a significant change to operation.

The existing intersection geometry is shown in **Figure 18**.

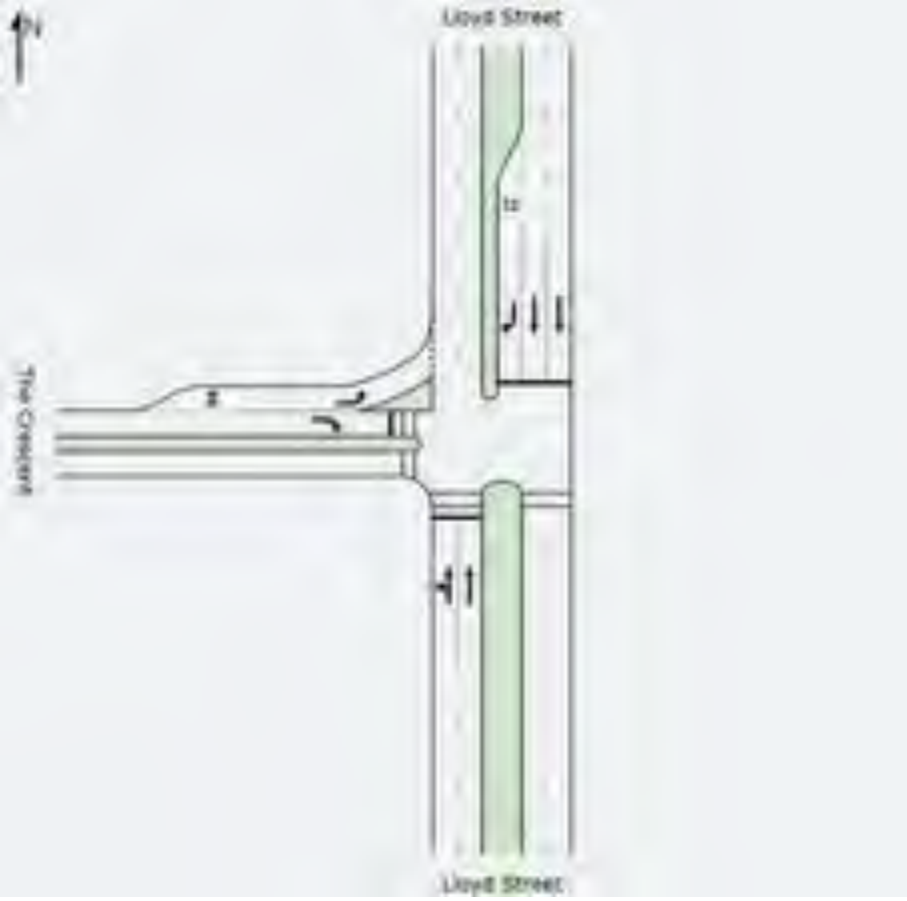


Figure 18 Lloyd Street / The Crescent – Existing Geometry

Table 19 and **Table 20** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 19 SIDRA Analysis for Lloyd Street / The Crescent - Existing Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	307	5.0	0.751	37.4	LOS D	16.0	116.6	0.96	0.90	30.1
2	T	563	5.0	0.751	28.9	LOS C	16.5	120.5	0.96	0.88	31.5
Approach		870	5.0	0.751	31.9	LOS C	16.5	120.5	0.96	0.89	31.0
North: Lloyd Street											
8	T	913	5.0	0.523	16.4	LOS B	12.7	92.4	0.76	0.67	39.3
9	R	279	5.0	0.519	24.7	LOS C	6.5	47.3	0.88	0.83	35.9
Approach		1192	5.0	0.523	18.4	LOS B	12.7	92.4	0.79	0.70	38.5
West: The Crescent											
10	L	93	0.0	0.086	11.4	LOS B	1.1	7.6	0.39	0.68	45.7
12	R	118	0.0	0.726	50.9	LOS D	5.0	34.8	1.00	0.87	25.0
Approach		211	0.0	0.726	33.5	LOS C	5.0	34.8	0.73	0.78	31.3
All Vehicles		2273	4.5	0.751	24.9	LOS C	16.5	120.5	0.85	0.78	34.5

Table 20 SIDRA Analysis for Lloyd Street / The Crescent - Existing Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	349	5.0	0.861	46.1	LOS D	32.4	236.8	0.99	0.98	27.1
2	T	933	5.0	0.861	37.5	LOS D	33.2	242.4	0.99	0.99	28.0
Approach		1282	5.0	0.861	39.8	LOS D	33.2	242.4	0.99	0.99	27.7
North: Lloyd Street											
8	T	842	5.0	0.429	15.8	LOS B	12.6	91.7	0.66	0.58	40.0
9	R	300	5.0	0.697	39.2	LOS D	9.6	70.1	0.97	0.93	29.0
Approach		1142	5.0	0.697	21.9	LOS C	12.6	91.7	0.74	0.67	36.4
West: The Crescent											
10	L	142	0.0	0.163	16.2	LOS B	2.9	20.5	0.50	0.71	41.6
12	R	183	0.0	0.821	61.2	LOS E	9.7	68.2	1.00	0.93	22.3
Approach		325	0.0	0.821	41.6	LOS D	9.7	68.2	0.78	0.83	28.1
All Vehicles		2749	4.4	0.861	32.6	LOS C	33.2	242.4	0.86	0.84	30.8

The above results show that the intersection will operate acceptably under the proposed performance criteria, for the ultimate development.

Lloyd Street / Great Eastern Highway

The Lloyd Street / Great Eastern Highway intersection has been identified as a *Critical Intersection* due to the large increase in regional traffic volumes along both of these corridors as a result of strategic road linkages to the north and south. Lloyd Street will serve a large and growing residential population, operates as a parallel route to Roe Highway and provides efficient connection to the Midland Health Campus across the rail line.

Great Eastern Highway is the primary access into the City Centre for commuter / visitor trips from the east. Under the Main Roads WA 2031 ROM analysis, Great Eastern Highway volumes are predicted to increase by approximately 80%, compared to 2011 demands.

To achieve the desired function for Great Eastern Highway, local traffic will need to be encouraged to use Clayton Street or Morrison Road, via Lloyd Street or Roe Highway, rather than Great Eastern Highway. This is considered achievable due to the relatively low demands for through traffic travelling from the east, but will require improvements at the Lloyd Street / Great Eastern Highway intersection to promote turning traffic from Great Eastern Highway east, as well as replacement signage to reinforce the desired use. Recommendations for intersection improvements are included in **Section** 8.

The existing intersection geometry is shown in **Figure 19**.

Figure 19 Lloyd Street / Great Eastern Highway – Existing Geometry

Table 21 and **Table 22** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 21 SIDRA Analysis for Lloyd Street / Great Eastern Highway - Existing Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	305	5.0	1.000	[3]52.4	LOS D	15.5	97.9	1.00	0.85	24.6
2	T	989	5.0	1.056	157.5	LOS F	49.9	314.2	1.00	0.61	14.7
3	R	232	5.0	1.000	[3]67.6	LOS E	15.5	97.9	0.98	0.83	21.1
Approach		1526	5.0	1.056	122.8	LOS F	72.5	456.6	1.00	0.69	18.1
East: Great Eastern Highway											
4	L	587	5.0	1.067	228.8	LOS F	88.6	558.1	1.00	1.37	8.2
5	T	486	5.0	0.845	57.7	LOS E	35.4	223.2	1.00	0.95	22.2
6	R	334	5.0	1.000	[3]59.9	LOS E	20.7	130.6	1.00	0.86	22.8
Approach		1407	5.0	1.067	129.6	LOS F	88.6	558.1	1.00	1.10	13.1
North: Lloyd Street											
7	L	144	5.0	0.479	50.1	LOS D	7.9	49.5	0.80	0.78	25.2
8	T	580	5.0	0.970	108.7	LOS F	28.8	181.3	1.00	1.23	14.6
9	R	179	5.0	1.000	[3]131.1	LOS F	18.1	114.2	1.00	1.16	13.1
Approach		903	5.0	1.000	103.8	LOS F	28.8	181.3	0.97	1.15	15.3
West: Great Eastern Highway											
10	L	246	5.0	0.363	20.8	LOS C	7.9	49.5	0.52	0.73	38.4
11	T	420	5.0	0.685	64.4	LOS E	15.1	94.9	1.00	0.83	20.6
12	R	252	5.0	1.000	[3]74.1	LOS E	18.1	114.2	1.00	0.84	19.9
Approach		918	5.0	1.000	55.4	LOS E	18.1	114.2	0.87	0.81	23.3
All Vehicles		4754	5.0	1.067	108.2	LOS F	88.6	558.1	0.97	0.92	16.2

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Table 22 SIDRA Analysis for Lloyd Street / Great Eastern Highway - Existing Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	387	5.0	1.000	[3]40.9	LOS D	15.5	97.9	1.00	0.86	28.3
2	T	941	5.0	1.092	246.3	LOS F	68.9	434.0	1.00	1.91	7.6
3	R	296	5.0	1.000	[3]61.3	LOS E	17.1	107.9	1.00	0.84	22.5
Approach		1624	5.0	1.092	163.6	LOS F	68.9	434.0	1.00	1.46	10.7
East: Great Eastern Highway											
4	L	438	5.0	1.080	235.8	LOS F	60.2	379.0	1.00	1.56	8.0
5	T	381	5.0	0.896	60.6	LOS E	24.8	156.1	1.00	1.07	21.6
6	R	372	5.0	1.000	[3]55.5	LOS E	20.7	130.6	1.00	0.86	23.9
Approach		1191	5.0	1.080	123.4	LOS F	60.2	379.0	1.00	1.18	13.6
North: Lloyd Street											
7	L	189	5.0	0.563	50.3	LOS D	9.3	58.5	0.91	0.81	25.2
8	T	671	5.0	0.987	103.6	LOS F	29.5	185.6	1.00	1.37	15.1
9	R	203	5.0	1.000	[3]123.5	LOS F	18.0	113.7	1.00	1.34	13.7
Approach		1063	5.0	1.000	97.9	LOS F	29.5	185.6	0.98	1.26	15.9
West: Great Eastern Highway											
10	L	371	5.0	0.412	23.4	LOS C	11.7	74.0	0.67	0.78	36.7
11	T	699	5.0	0.919	60.0	LOS E	20.1	126.5	1.00	0.47	23.6
12	R	331	5.0	1.000	[3]55.2	LOS E	18.1	114.2	1.00	0.85	24.0
Approach		1401	5.0	1.000	49.2	LOS D	24.7	155.5	0.91	0.64	27.2
All Vehicles		5279	5.0	1.092	111.0	LOS F	68.9	434.0	0.97	1.14	14.3

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

As expected, these results show that the existing intersection form is insufficient to accommodate the increase in regional background and local trips and will therefore require upgrade. This intersection has been identified as a *Critical Intersection* with proposed mitigation and upgrade measures discussed further in **Section** 8**.**

Lloyd Street / Clayton Street

Clayton Street is currently a primary access to the commercial/industrial precinct to the south-east of Midland, largely due to the direct access provided from Roe Highway. Future development of the MRA area, including the Midland Health Campus and Midland Workshops is likely to increase demand for traffic along this corridor.

Currently, Clayton Street near Midland is not constructed to a level consistent with the anticipated traffic volume. Upgrade of both the Clayton Street intersection and the general cross-section will be necessary to accommodate this demand. This will require some significant changes to the road environment, which are currently being planned and implemented by the MRA. For the purpose of this Transport Assessment, recommendations for intersection improvements are included in **Section** 8.

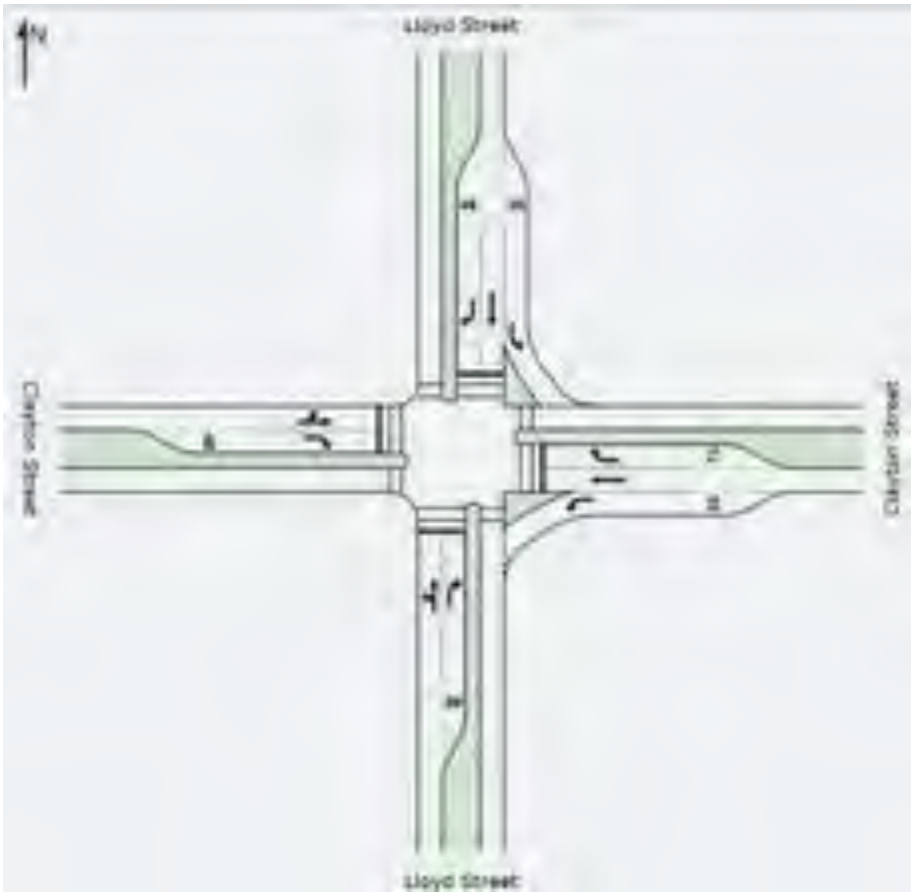


Figure 20 Lloyd Street / Clayton Street – Existing Geometry

Table 23 and **Table 24** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 23 SIDRA Analysis for Lloyd Street / Clayton Street - Existing Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	7	5.0	0.664	59.6	LOS E	22.6	142.6	0.94	0.88	23.8
2	T	344	5.0	0.664	51.2	LOS D	22.6	142.6	0.94	0.82	24.0
3	R	37	5.0	0.516	89.9	LOS F	2.9	18.0	1.00	0.73	17.3
Approach		388	5.0	0.664	55.0	LOS E	22.6	142.6	0.95	0.81	23.1
East: Clayton Street											
4	L	32	0.0	0.055	9.1	LOS A	0.3	1.9	0.18	0.63	48.0
5	T	965	0.0	1.441	872.8	LOS F	324.1	1944.6	1.00	3.71	2.4
6	R	335	0.0	1.000	[3]57.0	LOS E	19.3	115.9	1.00	0.86	23.4
Approach		1332	0.0	1.441	647.1	LOS F	324.1	1944.6	0.98	2.92	3.2
North: Lloyd Street											
7	L	423	5.0	1.000	[3]15.3	LOS B	7.8	49.1	0.61	0.76	42.4
8	T	705	5.0	1.380	766.5	LOS F	218.6	1377.1	1.00	2.91	2.7
9	R	79	5.0	1.095	280.0	LOS F	12.4	78.2	1.00	1.37	6.9
Approach		1206	5.0	1.380	471.3	LOS F	218.6	1377.1	0.86	2.06	4.3
West: Clayton Street											
10	L	100	0.0	1.456	913.9	LOS F	164.5	986.9	1.00	3.45	2.3
11	T	387	0.0	1.456	905.7	LOS F	164.5	986.9	1.00	3.45	2.3
12	R	15	0.0	0.077	63.3	LOS E	0.9	5.4	0.86	0.70	21.9
Approach		502	0.0	1.456	882.2	LOS F	164.5	986.9	1.00	3.36	2.4
All Vehicles		3428	2.3	1.456	552.7	LOS F	324.1	1944.6	0.94	2.44	3.7

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Table 24 SIDRA Analysis for Lloyd Street / Clayton Street - Existing Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	5	5.0	0.537	51.6	LOS D	19.9	125.3	0.87	0.90	25.9
2	T	333	5.0	0.537	43.3	LOS D	19.9	125.3	0.87	0.75	26.4
3	R	57	5.0	0.795	94.2	LOS F	4.6	28.9	1.00	0.86	16.8
Approach		395	5.0	0.795	50.7	LOS D	19.9	125.3	0.89	0.77	24.3
East: Clayton Street											
4	L	21	0.0	0.030	8.4	LOS A	0.1	0.8	0.14	0.62	48.8
5	T	612	0.0	1.713	1368.0	LOS F	257.7	1546.1	1.00	4.32	1.5
6	R	274	0.0	1.000	[3]71.3	LOS E	19.3	115.9	1.00	0.84	20.3
Approach		907	0.0	1.713	945.0	LOS F	257.7	1546.1	0.98	3.18	2.2
North: Lloyd Street											
7	L	308	5.0	1.000	[3]18.5	LOS B	7.8	49.1	0.57	0.74	40.0
8	T	1050	5.0	1.741	1415.9	LOS F	453.2	2855.5	1.00	3.80	1.5
9	R	79	5.0	1.095	280.0	LOS F	12.4	78.3	1.00	1.37	6.9
Approach		1436	5.0	1.741	1054.2	LOS F	453.2	2855.5	0.91	3.01	2.0
West: Clayton Street											
10	L	232	0.0	1.765	1467.4	LOS F	415.7	2494.0	1.00	4.67	1.4
11	T	720	0.0	1.765	1459.2	LOS F	415.7	2494.0	1.00	4.67	1.5
12	R	27	0.0	0.121	49.8	LOS D	1.4	8.5	0.76	0.71	25.3
Approach		979	0.0	1.765	1422.3	LOS F	415.7	2494.0	0.99	4.56	1.5
All Vehicles		3717	2.5	1.765	1017.9	LOS F	453.2	2855.5	0.95	3.22	2.1

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

These results show that the existing intersection form is insufficient to accommodate the increase in regional background and local trips and will therefore require upgrade. This intersection has been identified as a *Critical Intersection* with proposed mitigation and upgrade measures discussed further in **Section** 8**.**

8 Critical Intersections

8.1 Mitigation Measures

Mitigation measures are proposed for each *Critical Intersection* to reduce the operational delays to a sustainable level. Note that peak demands below practical capacity were assumed to be acceptable for the majority of turning movements.

Generally, mitigation measures were limited to turning pocket extensions, minor signal timing changes and the introduction of pedestrian filters. The high volume of right-turning movements was addressed by allowing right-turning traffic to share the adjacent through lane in some locations. This scenario is generally consistent with the scale of these intersections, but restricts the flexibility of signal phasing outside of peak periods.

Intersection upgrades were shown to be necessary at Morrison Road / Lloyd Street and Morrison Road / Keane Street as a result of the significant additional regional traffic utilising the Morrison Road route and local traffic accessing car parking via Morrison Road.

Changes to the Lloyd Street / Clayton Street intersection reflect the impact of MRA development and the generally low level of existing infrastructure.

Morrison Road / Keane Street / Great Northern Highway

Changes to this intersection have been reduced as a result of relocating direct access to the Midland Oval Car Park to Morrison Road. This splits the traffic between two parallel streets and reduces the anticipated demand to a sustainable level. As a result, Keane Street can be retained as a two-lane boulevard with an intersection form as shown in **Figure 21**. This requires the following:

> Installation of left-turning pockets and slip lanes at all approaches;
> Extension of the Morrison Road east right-turning pocket and modification of through lane to a combined through/right-turn lane;
> Extension of the Great Northern Highway right-turning pocket;
> Provision of protected pedestrian facilities across the west, south and east approaches; and
> Modification of signal phasing including pedestrian phasing.

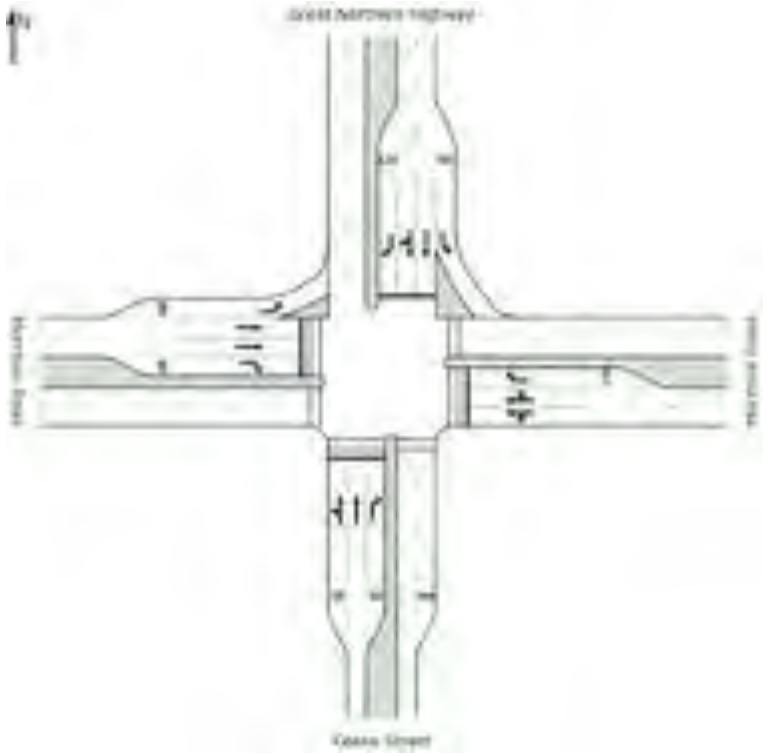


Figure 21 Morrison Road / Keane Street Great Northern Highway – Mitigated Geometry

Table 25 and **Table 26** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 25 SIDRA Analysis for Morrison Road / Keane Street / Great Northern Highway - Mitigated Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Keane Street											
1	L	52	0.0	0.433	41.0	LOS D	5.3	31.8	0.88	0.80	26.5
2	T	269	0.0	0.433	34.5	LOS C	7.6	45.4	0.90	0.73	26.7
3	R	84	0.0	0.274	40.8	LOS D	3.3	19.6	0.87	0.76	26.2
Approach		405	0.0	0.433	36.7	LOS D	7.6	45.4	0.89	0.75	26.6
East: Morrison Road											
4	L	44	0.0	0.478	42.0	LOS D	8.3	51.9	0.91	0.84	28.1
5	T	160	5.0	0.478	34.6	LOS C	8.3	51.9	0.91	0.76	29.0
6	R	397	5.0	0.526	44.7	LOS D	8.4	52.7	0.94	0.81	27.1
Approach		601	4.6	0.526	41.8	LOS D	8.4	52.7	0.93	0.80	27.6
North: Great Northern Highway											
7	L	501	5.0	0.502	9.4	LOS A	4.5	28.4	0.30	0.69	47.8
8	T	341	0.0	0.495	36.0	LOS D	8.8	52.8	0.91	0.75	28.6
9	R	333	5.0	0.882	59.2	LOS E	18.0	113.3	1.00	1.02	23.0
Approach		1175	3.5	0.882	31.2	LOS C	18.0	113.3	0.68	0.80	31.9
West: Morrison Road											
10	L	291	5.0	0.334	11.3	LOS B	3.8	23.9	0.38	0.70	45.9
11	T	190	5.0	0.478	45.2	LOS D	4.4	27.4	0.98	0.77	25.7
12	R	154	0.0	0.875	63.3	LOS E	8.3	49.5	1.00	1.01	21.1
Approach		635	3.8	0.875	34.1	LOS C	8.3	49.5	0.71	0.79	30.4
All Vehicles		2816	3.3	0.882	34.9	LOS C	18.0	113.3	0.77	0.79	29.7

Table 26 SIDRA Analysis for Morrison Road / Keane Street / Great Northern Highway - Mitigated Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Keane Street											
1	L	101	0.0	0.462	41.0	LOS D	5.7	34.2	0.85	0.79	26.3
2	T	269	0.0	0.462	35.4	LOS D	10.1	60.5	0.89	0.74	26.5
3	R	84	0.0	0.294	43.3	LOS D	3.5	21.3	0.86	0.76	25.5
Approach		454	0.0	0.462	38.1	LOS D	10.1	60.5	0.87	0.75	26.2
East: Morrison Road											
4	L	49	0.0	0.780	52.9	LOS D	16.2	101.4	1.00	0.92	24.7
5	T	264	5.0	0.780	45.5	LOS D	16.2	101.4	1.00	0.92	25.3
6	R	699	5.0	0.930	74.5	LOS E	23.0	144.9	1.00	1.10	19.8
Approach		1012	4.8	0.930	65.9	LOS E	23.0	144.9	1.00	1.04	21.2
North: Great Northern Highway											
7	L	437	5.0	0.489	9.9	LOS A	4.8	30.5	0.31	0.69	47.2
8	T	333	0.0	0.942	43.9	LOS D	12.7	76.2	0.93	0.83	25.7
9	R	397	5.0	0.942	78.7	LOS E	25.3	159.4	1.00	1.12	19.1
Approach		1167	3.6	0.942	43.0	LOS D	25.3	159.4	0.72	0.88	27.2
West: Morrison Road											
10	L	514	5.0	0.745	18.3	LOS B	13.4	84.4	0.62	0.78	40.2
11	T	297	5.0	0.917	67.2	LOS E	9.2	57.8	1.00	1.08	20.4
12	R	136	0.0	0.854	67.3	LOS E	7.8	47.1	1.00	0.97	20.3
Approach		947	4.3	0.917	40.7	LOS D	13.4	84.4	0.79	0.90	27.9
All Vehicles		3580	3.6	0.942	48.2	LOS D	25.3	159.4	0.84	0.92	25.2

The results of assessment for this revised geometry show that the intersection will operate acceptably during the weekday peak periods. Queue lengths along Keane Street are maintained at a sustainable level that should minimise impact on nearby access locations and the heavy right turn from Morrison Road east towards Great Northern Highway is accommodated by modifying both the signal phasing and turning geometry.

Lloyd Street / Morrison Road

Changes to this intersection are generally fairly minimal due to the high capacity intersection form already constructed in this location. The mitigation measures recommended for this intersection are shown **Figure 22**. This requires the following:

> Extension of left- and right-turning pockets at all approaches;
> Modification of through lane on north, south and west approaches to a combined through/right-turn lane; and
> Modification of signal phasing

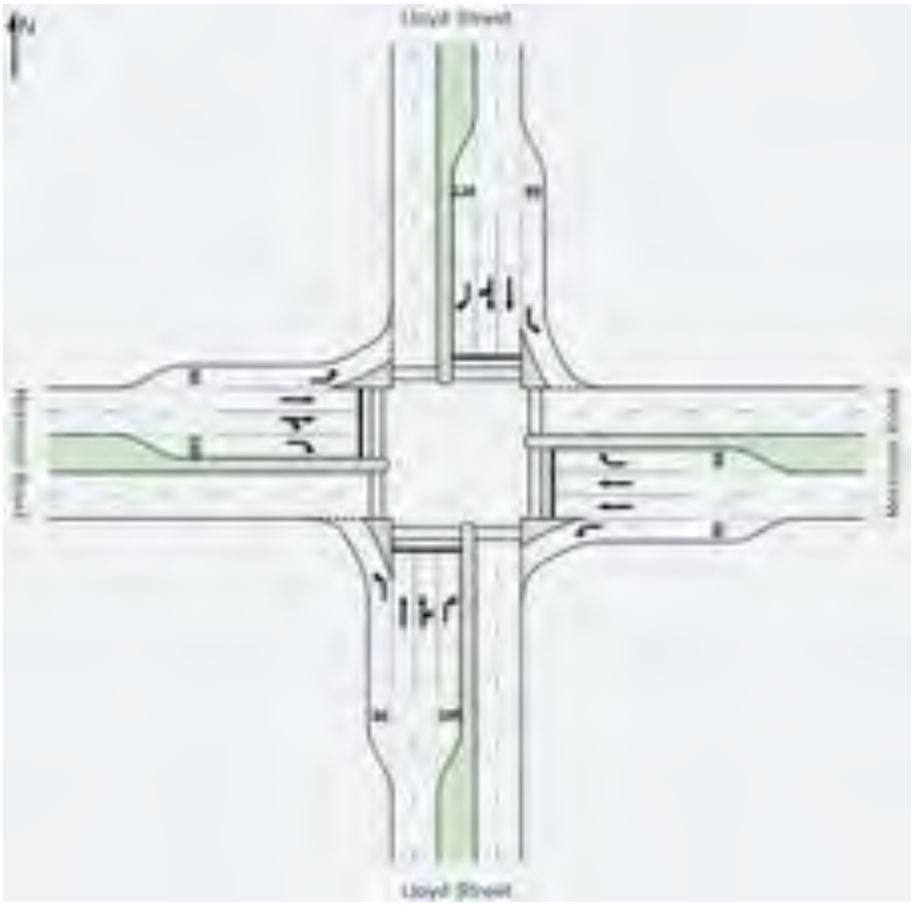


Figure 22 Lloyd Street / Morrison Road – Mitigated Geometry

Table 27 and **Table 28** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 27 SIDRA Analysis for Lloyd Street / Morrison Road - Mitigated Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	78	5.0	0.113	11.7	LOS B	1.0	6.5	0.35	0.67	45.6
2	T	349	5.0	0.496	38.2	LOS D	8.6	54.3	0.93	0.77	27.9
3	R	229	5.0	0.496	46.2	LOS D	8.5	53.7	0.93	0.81	26.7
Approach		656	5.0	0.496	37.9	LOS D	8.6	54.3	0.86	0.77	28.8
East: Morrison Road											
4	L	536	5.0	0.540	13.0	LOS B	10.2	64.4	0.49	0.74	44.3
5	T	250	5.0	0.315	36.5	LOS D	5.2	33.0	0.89	0.71	28.7
6	R	173	5.0	0.804	60.4	LOS E	9.1	57.5	1.00	0.93	22.7
Approach		959	5.0	0.804	27.7	LOS C	10.2	64.4	0.69	0.77	33.8
North: Lloyd Street											
7	L	176	5.0	0.213	10.1	LOS B	1.8	11.4	0.30	0.67	47.1
8	T	511	5.0	0.765	42.6	LOS D	15.5	97.6	1.00	0.91	26.3
9	R	420	5.0	0.765	50.8	LOS D	15.2	95.8	1.00	0.90	25.4
Approach		1107	5.0	0.765	40.5	LOS D	15.5	97.6	0.89	0.87	27.9
West: Morrison Road											
10	L	286	5.0	0.341	11.7	LOS B	4.1	25.6	0.39	0.70	45.5
11	T	102	5.0	0.257	36.0	LOS D	4.2	26.5	0.88	0.69	28.9
12	R	145	5.0	0.337	53.1	LOS D	3.4	21.2	0.96	0.76	24.5
Approach		533	5.0	0.341	27.6	LOS C	4.2	26.5	0.64	0.72	34.0
All Vehicles		3255	5.0	0.804	34.1	LOS C	15.5	97.6	0.78	0.79	30.5

Table 28 SIDRA Analysis for Lloyd Street / Morrison Road - Mitigated Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	133	5.0	0.210	13.0	LOS B	2.2	13.7	0.39	0.68	44.4
2	T	583	5.0	0.811	49.9	LOS D	17.8	112.3	1.00	0.94	24.2
3	R	359	5.0	0.811	58.1	LOS E	17.7	111.4	1.00	0.93	23.3
Approach		1075	5.0	0.811	48.1	LOS D	17.8	112.3	0.92	0.91	25.3
East: Morrison Road											
4	L	424	5.0	0.504	17.1	LOS B	10.8	67.8	0.56	0.75	41.0
5	T	282	5.0	0.391	42.5	LOS D	6.7	42.3	0.92	0.74	26.6
6	R	248	5.0	0.801	60.4	LOS E	13.9	87.9	1.00	0.92	22.7
Approach		954	5.0	0.801	35.9	LOS D	13.9	87.9	0.78	0.79	29.9
North: Lloyd Street											
7	L	194	5.0	0.281	11.9	LOS B	2.9	18.1	0.36	0.68	45.4
8	T	498	5.0	0.808	49.0	LOS D	18.4	116.0	1.00	0.94	24.4
9	R	476	5.0	0.808	57.2	LOS E	18.0	113.3	1.00	0.93	23.6
Approach		1168	5.0	0.808	46.2	LOS D	18.4	116.0	0.89	0.89	26.1
West: Morrison Road											
10	L	405	5.0	0.600	17.2	LOS B	9.8	62.0	0.56	0.75	40.9
11	T	173	5.0	0.252	42.1	LOS D	4.0	25.4	0.90	0.70	26.7
12	R	220	5.0	0.750	58.8	LOS E	12.0	75.6	1.00	0.88	23.1
Approach		798	5.0	0.750	34.1	LOS C	12.0	75.6	0.76	0.78	30.8
All Vehicles		3995	5.0	0.811	41.8	LOS D	18.4	116.0	0.85	0.85	27.6

The results of assessment for this revised geometry show that the intersection will operate acceptably during the weekday peak periods. Queue lengths for all turning movements are maintained at a sustainable level that should minimise impact on nearby access locations and the heavy right turns from Lloyd Street north and Morrison Road west are accommodated by modifying both the signal phasing and turning geometry.

Great Eastern Highway / Lloyd Street

Due to the reallocation of local traffic to Morrison Road, resulting in the reduction of traffic at this location, changes to this intersection are generally fairly minimal. The mitigation measures recommended for this intersection are shown **Figure 23**. This requires the following:

> Construction of a left-turning pocket on the Great Eastern Highway east approach;
> Installation of left-turning slip lanes at the north, east and south approaches;
> Extension of the Great Eastern Highway east right-turning pocket and modification of one through lane to a combined through/right-turn lane for each approach;
> Extension of Lloyd Street turning pockets; and
> Modification of signal phasing.

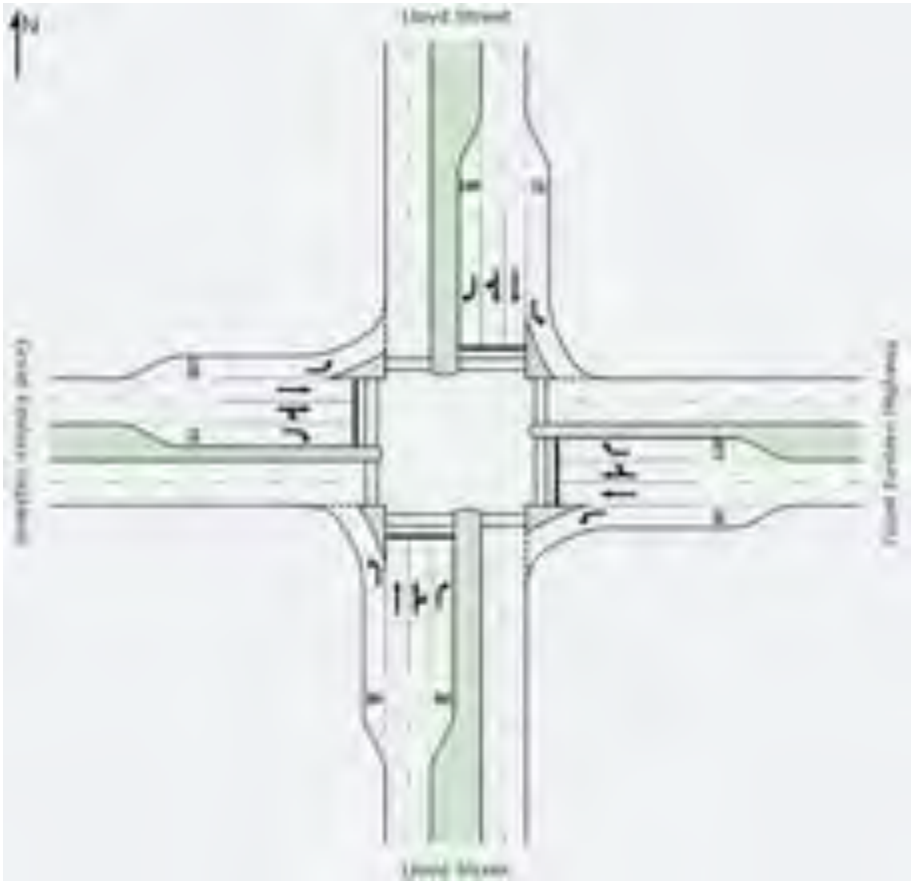


Figure 23 Great Eastern Highway / Lloyd Street – Mitigated Geometry

Table 29 and **Table 30** show the results of SIDRA analysis for the existing intersection geometry under the 2031 background plus full development scenario, for the AM and PM Peak respectively.

Table 29 SIDRA Analysis for Great Eastern Highway / Lloyd Street - Mitigated Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	810	5.0	0.894	22.6	LOS C	20.7	130.6	0.77	0.92	37.3
2	T	339	5.0	0.812	43.2	LOS D	16.5	103.8	1.00	0.95	26.3
3	R	377	5.0	0.832	59.1	LOS E	9.7	61.0	1.00	0.97	23.0
Approach		1526	5.0	0.894	36.2	LOS D	20.7	130.6	0.88	0.94	29.9
East: Great Eastern Highway											
4	L	587	5.0	0.804	22.3	LOS C	17.0	107.2	0.67	0.83	37.5
5	T	418	5.0	0.771	40.9	LOS D	15.7	98.7	1.00	0.91	26.8
6	R	402	5.0	0.771	52.5	LOS D	12.0	75.5	1.00	0.91	24.8
Approach		1407	5.0	0.804	36.5	LOS D	17.0	107.2	0.86	0.88	29.7
North: Lloyd Street											
7	L	144	5.0	0.188	11.8	LOS B	1.9	12.1	0.38	0.68	45.4
8	T	456	5.0	0.833	45.9	LOS D	17.3	109.1	1.00	0.98	25.3
9	R	303	5.0	0.833	58.6	LOS E	11.4	71.5	1.00	0.97	23.3
Approach		903	5.0	0.833	44.8	LOS D	17.3	109.1	0.90	0.93	26.4
West: Great Eastern Highway											
10	L	246	5.0	0.239	15.2	LOS B	4.6	29.3	0.51	0.73	42.5
11	T	218	5.0	0.498	34.7	LOS C	8.9	56.3	0.92	0.76	29.4
12	R	454	5.0	0.752	52.2	LOS D	10.8	68.1	1.00	0.89	24.8
Approach		918	5.0	0.752	38.1	LOS D	10.8	68.1	0.85	0.82	29.2
All Vehicles		4754	5.0	0.894	38.3	LOS D	20.7	130.6	0.87	0.90	29.0

Table 30 SIDRA Analysis for Great Eastern Highway / Lloyd Street - Mitigated Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	780	5.0	0.889	22.1	LOS C	20.7	130.6	0.74	0.90	37.6
2	T	414	5.0	0.896	58.4	LOS E	20.4	128.3	1.00	1.07	22.1
3	R	430	5.0	0.896	68.8	LOS E	15.8	99.3	1.00	1.06	21.0
Approach		1624	5.0	0.896	43.7	LOS D	20.7	130.6	0.88	0.99	27.1
East: Great Eastern Highway											
4	L	438	5.0	0.688	20.5	LOS C	12.2	76.8	0.66	0.78	38.5
5	T	351	5.0	0.734	44.5	LOS D	14.6	91.7	0.99	0.88	25.7
6	R	402	5.0	0.734	55.1	LOS E	12.1	76.5	1.00	0.88	24.1
Approach		1191	5.0	0.734	39.3	LOS D	14.6	91.7	0.87	0.84	28.6
North: Lloyd Street											
7	L	189	5.0	0.309	15.9	LOS B	3.9	24.5	0.49	0.71	41.9
8	T	488	5.0	0.909	61.1	LOS E	21.2	133.8	1.00	1.11	21.5
9	R	386	5.0	0.909	71.1	LOS E	17.5	110.3	1.00	1.08	20.6
Approach		1063	5.0	0.909	56.7	LOS E	21.2	133.8	0.91	1.03	23.1
West: Great Eastern Highway											
10	L	371	5.0	0.349	16.4	LOS B	8.3	52.3	0.54	0.74	41.5
11	T	341	5.0	0.729	40.7	LOS D	16.6	104.6	0.98	0.86	27.1
12	R	689	5.0	0.917	62.5	LOS E	21.9	137.7	1.00	0.98	22.2
Approach		1401	5.0	0.917	45.0	LOS D	21.9	137.7	0.87	0.89	26.7
All Vehicles		5279	5.0	0.917	45.7	LOS D	21.9	137.7	0.88	0.94	26.4

The results of assessment for this revised geometry show that the intersection will operate acceptably during the weekday peak periods. Queue lengths for all turning movements are maintained at a sustainable level that should minimise impact on nearby access locations. The advantage of this modification is that the propose mitigation measures require little resumption of adjacent land (predominantly on the eastern side of Lloyd Street), to achieve significant improvement over the existing (2011) performance.

Lloyd Street / Clayton Street

The strategic importance of Clayton Street east of Lloyd Street, as well as Lloyd Street itself results a requirement for significant modifications to the associated intersection. The geometric form of the proposed intersection has been tested using SIDRA, with a suitable solution shown **Figure 24**. Of particular importance is the disproportionately high movement from Lloyd Street north to Clayton Street east, resulting from the use of Clayton Street as a regional link to Roe Highway. As a result of this, a continuous slip lane is proposed for left-turning traffic into Clayton Street east, mirroring a dual right-turn into Lloyd Street.

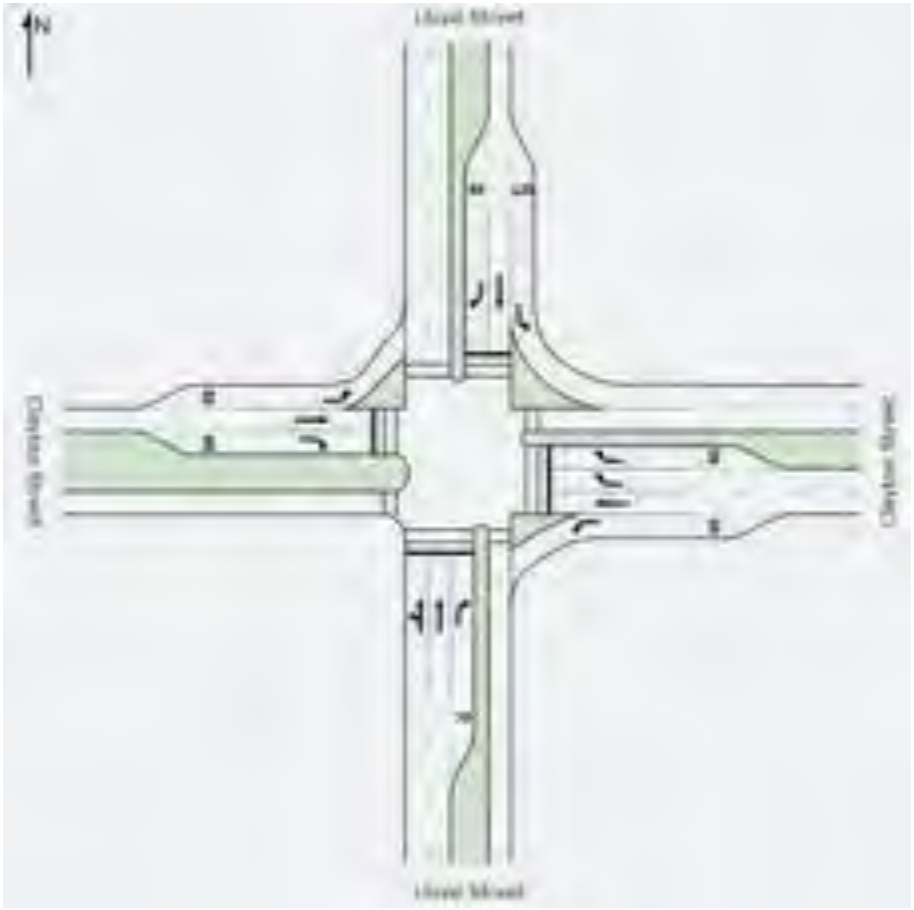


Figure 24 Lloyd Street / Clayton Street – Mitigated Geometry

Table 31 SIDRA Analysis for Lloyd Street / Clayton Street - Mitigated Geometry (2031 Background + Ultimate Development) AM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	7	5.0	0.606	78.9	LOS E	12.1	76.1	0.99	0.84	19.6
2	T	344	5.0	0.606	67.5	LOS E	12.1	76.5	0.99	0.82	20.3
3	R	37	5.0	0.146	66.2	LOS E	2.3	14.7	0.89	0.73	21.4
Approach		388	5.0	0.606	67.6	LOS E	12.1	76.5	0.98	0.81	20.4
East: Clayton Street											
4	L	32	0.0	0.041	9.6	LOS A	0.4	2.1	0.21	0.63	47.5
5	T	787	0.0	1.030	140.3	LOS F	84.3	505.7	0.96	1.39	12.1
6	R	513	0.0	0.454	30.1	LOS C	11.6	69.9	0.79	0.80	32.9
Approach		1332	0.0	1.030	94.7	LOS F	84.3	505.7	0.88	1.15	16.4
North: Lloyd Street											
7	L	674	5.0	0.376	7.8	X	X	X	X	0.60	49.7
8	T	245	5.0	0.558	54.5	LOS D	15.8	99.6	0.94	0.79	23.1
9	R	287	5.0	1.000	[3]77.1	LOS E	21.4	134.7	1.00	0.85	19.4
Approach		1206	5.0	1.000	33.8	LOS C	21.4	134.7	0.43	0.70	31.0
West: Clayton Street											
10	L	100	0.0	0.151	12.9	LOS B	1.9	11.4	0.33	0.67	44.4
11	T	387	0.0	0.827	76.2	LOS E	14.9	89.6	1.00	0.93	18.8
12	R	15	0.0	0.067	71.3	LOS E	1.0	5.9	0.92	0.70	20.3
Approach		502	0.0	0.827	63.4	LOS E	14.9	89.6	0.86	0.87	21.3
All Vehicles		3428	2.3	1.030	65.6	LOS E	84.3	505.7	0.73	0.91	21.1

X: Not applicable for Continuous movement.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Table 32 SIDRA Analysis for Lloyd Street / Clayton Street - Mitigated Geometry (2031 Background + Ultimate Development) PM Peak

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Lloyd Street											
1	L	5	5.0	0.467	59.8	LOS E	8.8	55.7	0.94	0.85	23.7
2	T	333	5.0	0.467	49.1	LOS D	8.9	56.0	0.94	0.77	24.6
3	R	57	5.0	0.293	62.7	LOS E	3.2	20.0	0.96	0.75	22.2
Approach		395	5.0	0.467	51.2	LOS D	8.9	56.0	0.94	0.77	24.2
East: Clayton Street											
4	L	21	0.0	0.022	8.7	LOS A	0.2	0.9	0.18	0.63	48.4
5	T	387	0.0	0.863	57.0	LOS E	20.6	123.6	0.98	0.94	22.5
6	R	499	0.0	0.556	31.5	LOS C	8.0	48.1	0.93	0.82	32.2
Approach		907	0.0	0.863	41.8	LOS D	20.6	123.6	0.93	0.87	27.4
North: Lloyd Street											
7	L	1096	5.0	0.611	7.8	X	X	X	X	0.60	49.6
8	T	172	5.0	0.312	35.6	LOS D	7.8	49.3	0.82	0.68	29.2
9	R	168	5.0	0.865	75.0	LOS E	11.0	69.4	1.00	0.98	19.7
Approach		1436	5.0	0.865	19.0	LOS B	11.0	69.4	0.22	0.65	39.4
West: Clayton Street											
10	L	232	0.0	0.303	12.2	LOS B	3.8	23.1	0.37	0.69	45.0
11	T	720	0.0	0.886	61.6	LOS E	23.8	142.5	1.00	1.04	21.5
12	R	27	0.0	0.091	49.0	LOS D	1.3	7.6	0.83	0.72	25.6
Approach		979	0.0	0.886	49.5	LOS D	23.8	142.5	0.84	0.95	24.7
All Vehicles		3717	2.5	0.886	36.0	LOS D	23.8	142.5	0.63	0.80	29.6

X: Not applicable for Continuous movement.

The results of assessment for this revised geometry show that the intersection will operate acceptably during the weekday peak periods.

9 Pedestrians and Cyclists

9.1 Pedestrian Focus

Pedestrian activity and connections are critical factors in the effectiveness and vitality of an Activity Centre. For this reason, the pedestrian environment must be carefully considered, particularly along primary pedestrian desirelines. This includes construction of high quality paths, shade trees and street furniture to provide amenity. By allocating suitable resources to the pedestrian environment, the use of pedestrian modes will grow, reducing the demand for other modes as well as the requirement for parking.

Parking location is key to determining both traffic and pedestrian movement. The location of car parking towards the periphery limits the impact of parking on trip volumes and land consumption, but requires parkers to travel an additional distance to their destination. The demand for peripheral car parking will be significantly improved where attractive pedestrian facilities are provided.

A Level of Service approach has been considered, which considers the quality of the pedestrian experience across the length of the trip. Therefore, higher-traffic areas with a high concentration of pedestrians require good quality, legible, covered and shaded paths, but so do paths which connect areas of high demand across relatively long distances, approaching or exceeding the nominal 400m or 800m walkable catchment.

9.2 Activated Core

A desire line analysis has been undertaken for the proposed Activity Centre. This primarily consists of pedestrian routes from major transport nodes (i.e. Midland Station and large-scale public/private car parking) to commercial and retail activity in the Activated Core. **Figure 25** shows the results of this analysis.

Figure 25 Pedestrian Desire Lines

9.3 Cycle Network

The Midland Activity Centre's location along strategically important regional transport routes creates opportunities for cycling along these road corridors. This is particularly relevant for commuter cycling trips from locations along the Midland PSP, or from the north and south which can be accessed via the sealed shoulders along Clayton Street and Lloyd Street. Midland has a good internal on-road cycling network that is being expanded through the MRA precincts.

9.4 Cycling Improvements

On-street paths are preferred along regional corridors to facilitate commuter travel, and through activated spaces to minimise conflicts with pedestrians. For these reasons, the cycling provision in Midland is focused primarily on-street, either through dedicated cycle lanes on strategic roads, or in shared bus/cycle or car/cycle lanes in the City Centre.

For on-street facilities, particularly those along major regional roads, headstart boxes should be installed to improve cycling safety and intersection operation. Headstart boxes are most beneficial in the prevailing flow direction on high speed streets and where left-turning pockets are not provided.

A network of off-street paths is also represented between Midland Station, retail nodes, education and residential areas and designed to promote casual cycling as well as for school children. As these facilities are constructed for less confident riders, safe crossing facilities are of primary concern.

A core cycling network of on-street facilities, supplemented by off-street dual use paths is shown in **Figure 26**.

Figure 26 Indicative Future Cycling Network

9.5 End of Trip Facilities

End of trip facilities consist of secure bicycle parking, showers, lockers and other ancillary infrastructure designed to support cycling as a comfortable, practical mode choice. The level of end of trip facility provided depends on the target demographic and the available infrastructure funding sources.

For large-scale multi-level buildings with some proportion of undercroft or basement parking, commuter bicycle parking should be provided in secure areas adjacent to vehicular parking, along with shower and locker facilities sufficient to cater for the projected demand.

Precincts which constitute smaller office and retail, such as high-street environments, generally do not have the private infrastructure to enable businesses to provide secure commuter parking, let alone showers. In this instance, public facilities will be of greatest benefit. It is recommended that a large-scale cycle parking facility be investigated in the Activity Centre, ideally located near the core. A similar facility could be provided in the Workshops Precinct to provide public cycle parking for commuters.

Visitor parking can be of a lower scale, consisting of small clusters of bike racks near retail, office and civic buildings. Consideration should be given to utilising on-street parking areas for bike parking, where pedestrian activity, and therefore the risk of conflict, is high.

9.6 Requirements

The requirements for cycling infrastructure should be mandated through Design Guidelines and a Town Planning Scheme for both public facilities and private development. Austroads recommendations and Green Star ratings provide reasonable industry benchmarks for cycling provision and could be used as target provision rates. Experience suggests that Austroads rates are suitable for smaller developments, while Green Star ratings requirements set appropriate benchmarks for large-scale retail and office facilities.

10 Public Transport

10.1 Service Improvements

The existing bus provision is relatively good from some areas and extremely sporadic from others. An increase in bus service along regional routes to minimum 60 minute headway (20 minutes during the peak) would allow outlying regional residential areas to utilise public transport in a way that is currently infeasible. This is important from both a mobility and equity standpoint, as those areas on the urban fringe are most sensitive to fluctuations in transport and housing costs. In particular, these areas are often occupied by those on fixed incomes, including retirees, and who may not have regular access to private transport.

Effective bus service is contingent on high frequency and direct access. Existing coverage routes are important to provide alternative access, but may never generate sufficient patronage to warrant significant expansion. However, areas within a 5-10km radius of Midland are easily accessible by buses. An increase in service provision in these areas would induce demand for bus connection into Midland, and beyond. This would reduce the existing reliance on expensive park 'n' ride at the Midland Station and better support the existing rail network.

All expansion services will all be designed to interchange at the central Midland Station and will operate from high quality stops adjacent to significant demand nodes. Local services (short loop or link services within 3-5km of the Activity Centre) and shuttle services would operate on a high-frequency basis to minimise both travel and wait times, ideally with a maximum 10 minute headway at all times, decreasing to 5 minutes during peak travel periods.

Bus priority along Cale Street will ensure that services can access the primary road network with a minimum of disruption.

10.2 Midland Station Relocation

The location of the existing Midland Station, at the western boundary of the Activity Centre, is relatively distant from the local residential and business catchments. This reduces its effectiveness as a transport node and tends to promote a high reliance on park 'n' ride adjacent to the station, even for residents living nearby. To alleviate this issue, the Midland Station is proposed to be relocated approximately 1km to the east, towards the City Centre core. This will increase the catchment of residents and businesses within 800m and help promote alternative transport modes.

The relocation of Midland Station and additional inner-city public transport services will improve accessibility for commuters into Midland, and residents within and surrounding the Activity Centre. By reducing the reliance on private vehicle transport, parking rates in the Activity Centre can be reduced, freeing up land for more productive uses. The expansions of local public transport services also improves equity in the region, by supporting households to transition away from private vehicle ownership and thereby reduce their vulnerability to external economic impacts.

The PTA has also proposed to locate a significant quantum of parking, tied to public transport use, immediately adjacent to the new station. This parking will attract a significant quantity of private vehicle trips into the Activity Centre, with no associated benefit to the community. The proposed park 'n' ride is therefore supported only as a solution prior to the extension of the rail line. However, the location of the proposed park 'n' ride, adjacent to the Midland Health Campus and at the heart of the City provides an opportunity for transition to retail and hospital visitor parking in the longer-term, similar to the function of parking stations adjacent to the Perth Train Station.

10.3 Bellevue Rail Extension

The City of Swan supports the construction of a train station at Bellevue, east of Midland, which would provide a number of significant benefits to the public transport network. In particular, this station would facilitate regional commuter transport from residential areas to the east, without park 'n' ride trips adversely impacting the operation of the roads and intersections within the Activity Centre.

10.4 Midland Shuttle

The Midland Shuttle is a local bus service which provides local-area connections between the Midland Station and Midland Gate Shopping Centre. The existing and potential extension alignment for this service is shown in **Figure 27** below.

Figure 27 Existing (left) and Proposed (right) Midland Shuttle Service

Frequency of the Midland Shuttle should be increased to a bus every 10-15 minutes throughout the day, and more often if demand increases sufficiently to warrant improved capacity.

10.5 Local Bus Routes

Analysis of the PTA park 'n' ride license plate survey (2011 data) shows a significant proportion of cars parked at Midland Station have their origin within a 5km radius, primarily to the east and north. While this distance is considered perfect for cycling to the Station, another opportunity is the modification of existing local bus services (such as exist the 314/315, 321/322, 323 and 324/325) to form high frequency two-way circular or paired routes between Midland Station and the surrounding commercial and residential catchments.

One of these local routes could provide high frequency connection between the City Centre and peripheral commuter car parking located outside of the Activity Centre, possibly at the location of the potential Bellevue Station.

Examples of modified local routes are shown in **Figure 28**, which are similar in concept to existing high-frequency services operated by PTA (see **Table 2** and **Figure 29**).

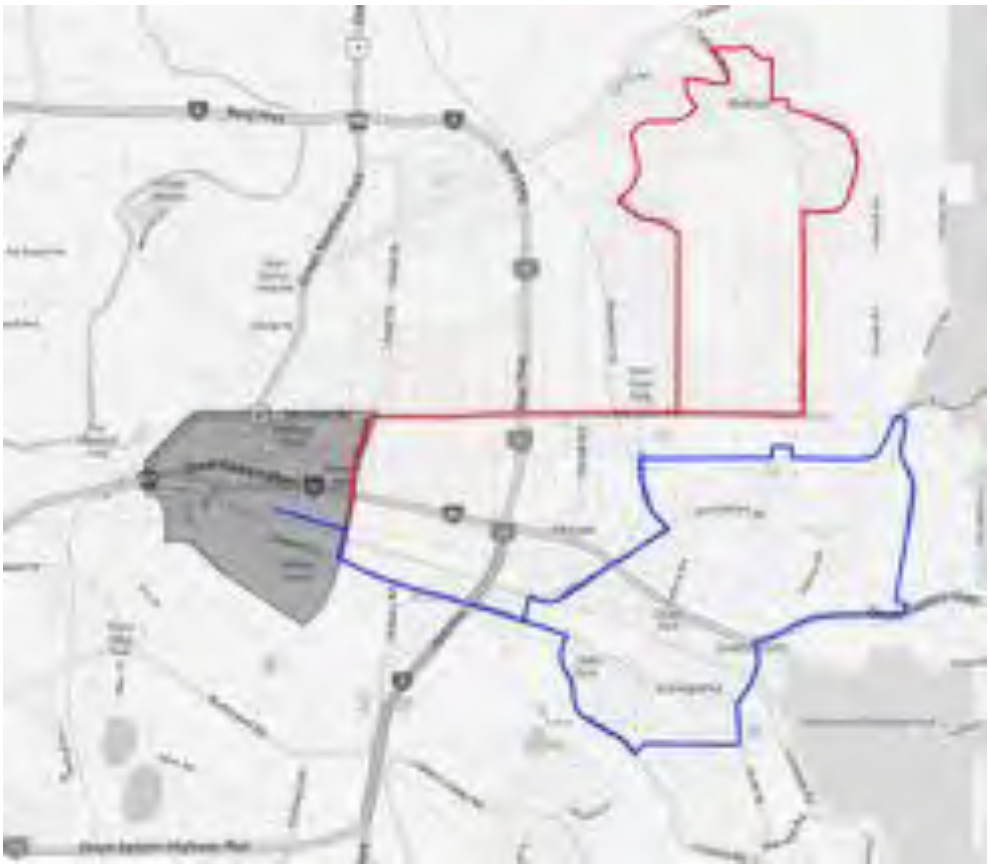


Figure 28 Examples of Local Route Modifications

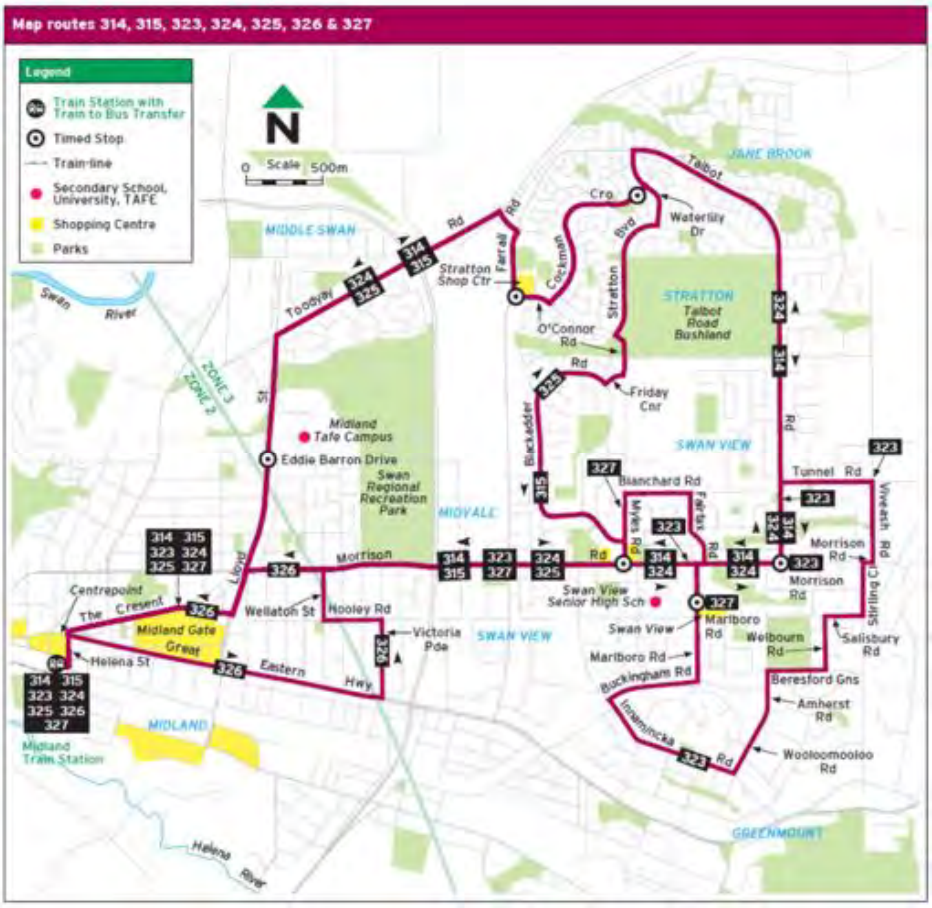


Figure 29 Existing PTA High Frequency Local Routes

11 Service/Loading

11.1 Service / Delivery

Freight and deliveries destined for Midland have the advantage of the high capacity regional road network within the area, including current and future roads such as Great Northern Highway, Great Eastern Highway, Lloyd Street and Roe Highway. Access to the Midland Activity Centre will be supported along these major road links, and restricted through the activated core of the Centre.

Deliveries will be enabled through an increase in on-road loading zone areas, particularly in 'main street' precincts and where smaller office/retail development is located. Larger office/commercial buildings will be serviced via on-site docks connected to basement or undercroft parking structures. Access to dock areas through a laneway network is supported to minimise the impact of service/delivery vehicles on pedestrian, cycling and bus modes.

11.2 Regional Road and Rail Freight

Midland's location along the Great Eastern Highway, as well as its proximity to the Hazelmere industrial area and freight rail terminal, results in a high frequency of bypass freight trips. This is intended to be addressed through relocation of regional freight services away from the City Centre along the existing Roe Highway/Reid Highway and Tonkin Highway corridors and along the Great Eastern Highway Bypass. Long-term investigation of a freight rail bypass to the south of Midland is also supported as this will assist not only in improving road conditions in the area, but also reducing the disruption caused to local traffic as a result of interstate freight trains.

12 Conclusion

The Midland Activity Centre Structure Plan is an ambitious and long-term project that will transform the City Centre. To achieve the high quality transport environment envisaged in this Structure Plan, we propose an integrated network of transport modes encompassing private vehicles, public transport cycling and walking modes.

To accommodate the competing demands for these different forms of movement, the Department of Transport's *"Moving People"* framework has been used to allocated individual road segments to desired users. This enabled the determination of road cross-sections and network provision to ensure that the desired modes have safe, attractive, effective corridors within their activity zones, and without needing to support all users on every road.

The hierarchy chosen consists of the following general elements:

> Local access traffic supported along Morrison Road in preference to Great Eastern Highway
> Local traffic will be encouraged at slow speeds within the Activity Centre, through active and passive traffic management; to minimise the impact on other modes
> Pedestrian movement promoted within the Activated Core through attractive streetscapes, safe and convenient crossings and high quality pedestrian provision
> Bus priority along the Cale Street approach to the relocated Midland Station
> Cycling is proposed on-street throughout Midland, predominantly in separated sealed shoulders, but in mixed traffic within the Activated Core and in low-volume streets. Off-street cycling is proposed along critical routes or where traffic volumes or speeds are high
> Regional freight traffic is not supported within the Activity Centre, particularly along Great Eastern Highway

Parking has been chosen as the focus for mode shift, with quantum and location determined through analysis. This has resulted in a maximum parking provision of 13,000 bays (assuming approximately 85% efficiency). These would be roughly split into 6,000 long-stay (commuter) and 6,000 short-stay (visitor) bays, plus an additional 1,000 park 'n' ride bays associated with Midland Station. All parking within the City Centre is proposed to be restricted to a maximum rate determined for general land uses, and partly offset through public provision via application of a mandatory cash-in-lieu policy.

This parking provision is sufficient to support a 65% private vehicle mode share, a significant reduction from the 95% mode share currently evidenced by commuters to Midland. The remainder of all non-residential trips (140,000 daily) have been allocated among public transport, walking and cycling modes, for an external target mode split as follows:

> Private Vehicles: 65% (60,000 trips)
> Bus: 18% (16,000 trips)
> Train: 10% (9,200 trips)
> Cycling: 5% (4,600 trips)
> Pedestrian: 2% (1,800 trips)

For the purpose of this assessment, all internal trips between land uses within the Activity Centre (48,000 daily), are assumed to be taken by non-car modes. A general split for internal trips has been assumed for the purpose of infrastructure provision:

> Pedestrian: 70% (34,000 trips)
> Cycling: 10% (4,800 trips)
> Shuttle Bus: 20% (9,600 trips)
> Cycling: 4,600 trips (plus 4,800 internal)
> Pedestrian: 1,800 trips (plus 34,000 internal)

By establishing these benchmarks at this early stage of planning, the progress of transport provision and mode shift can be evaluated over time in an effort to create a sustainable, equitable and effective transport system.

Midland Activity Centre Structure Plan Transport Assessment

APPENDIX A

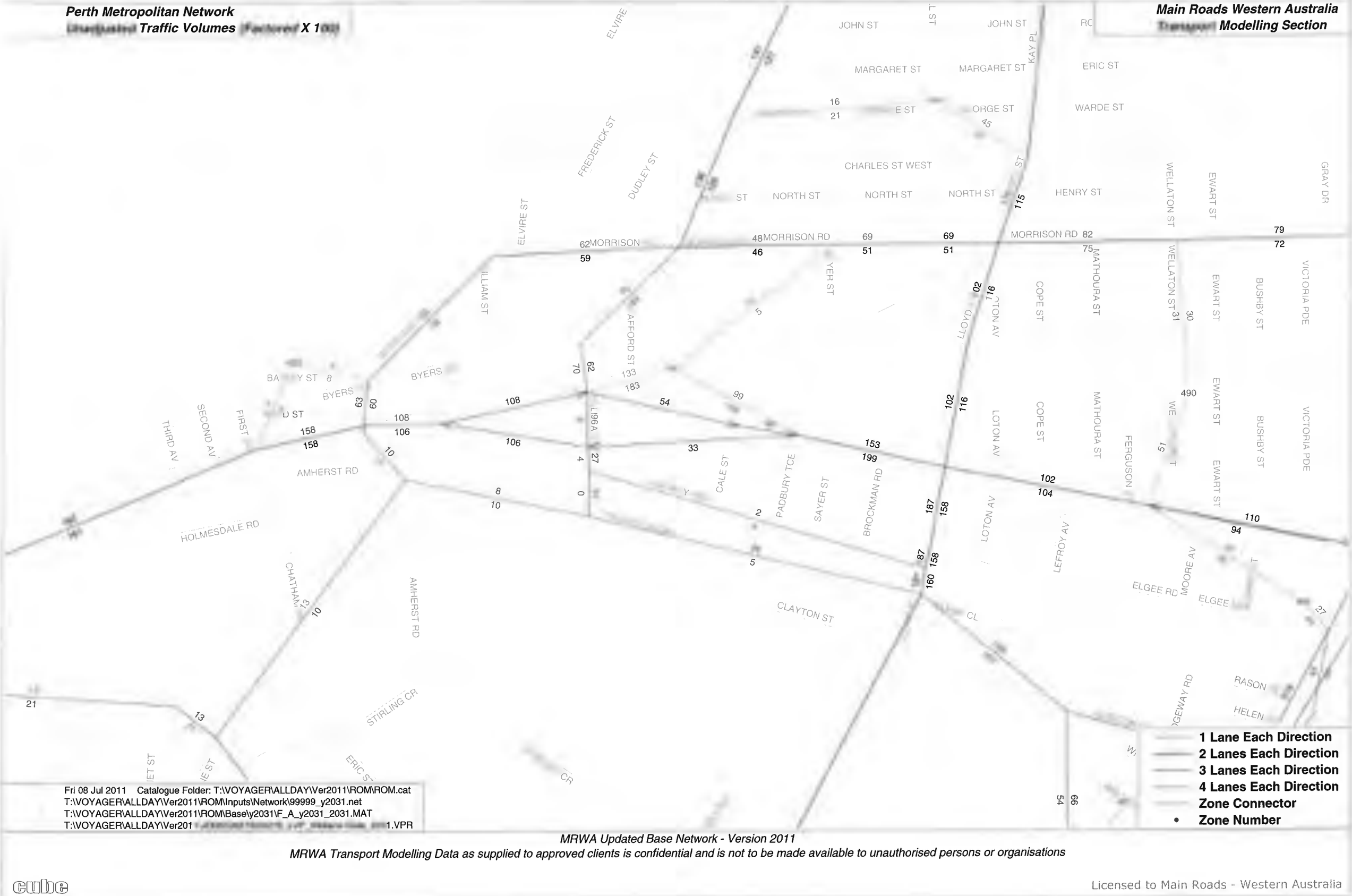
ROM DATA

Cardno
Shaping the Future

2031 Base Model
Link Volume Plot for Midland Gate Redevelopment Traffic Impact Assessment

Perth Metropolitan Network
Unadjusted Traffic Volumes (Factored X 100)

Main Roads Western Australia
Transport Modelling Section



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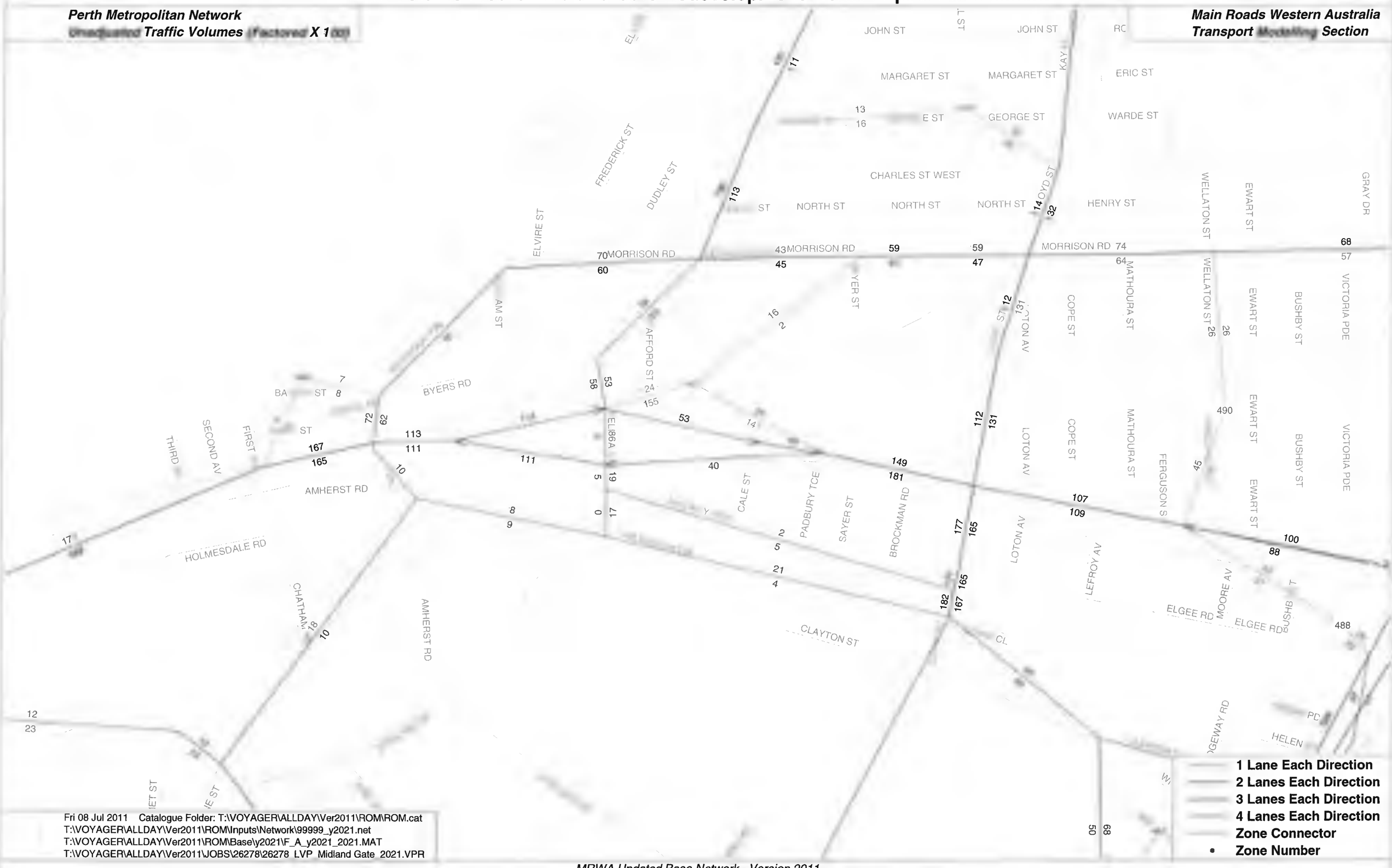
MRWA Updated Base Network - Version 2011

2021 Base Model
Link Volume Plot for Midland Gate Redevelopment Traffic Impact Assessment

Perth Metropolitan Network
Unadjusted Traffic Volumes (Factored X 1.00)

Main Roads Western Australia
Transport Modelling Section



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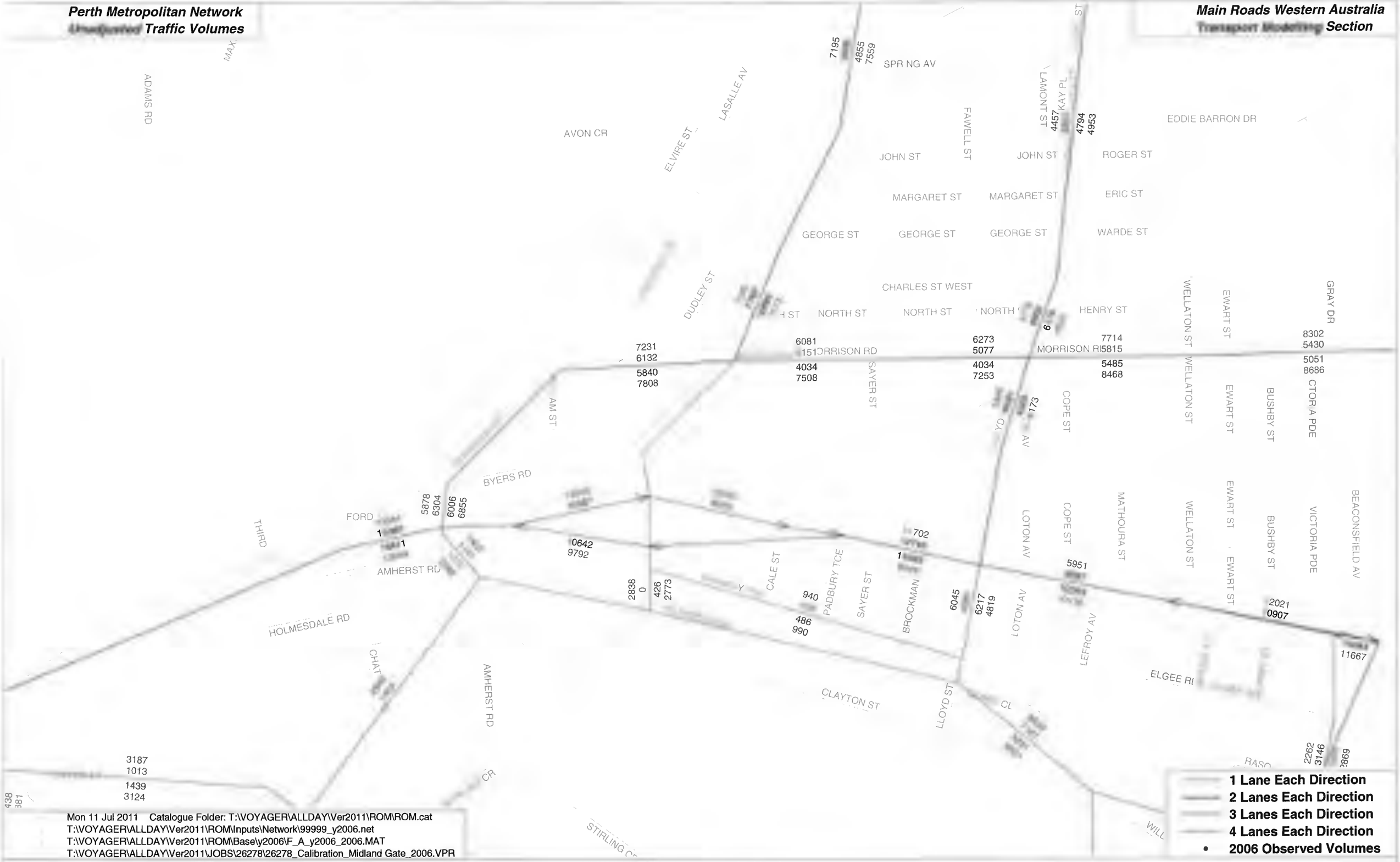
MRWA Updated Base Network - Version 2011

2006 Base Model
Calibration Plot for Midland Gate Redevelopment Traffic Impact Assessment

Perth Metropolitan Network
Unadjusted Traffic Volumes

Main Roads Western Australia
Transport Modelling Section



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MRWA Updated Base Network - Version 2011

Research Report

Economic Advice
Midland Activity Centre Structure Plan
WESTERN AUSTRALIA

Hassell and the City of Swan

June 2012 Ref: RS510238

Contents

1 INTRODUCTION

This report has been prepared by Colliers International in response to a request by Hassell for economic advice on the Midland Activity Centre Structure Plan. The analysis is not intended as a comprehensive retail needs assessment for the Midland town centre but rather as a high level assessment of the impact that redevelopment projects within the town centre might have on the generation of employment and growth and redistribution of Midlands' population over the medium to longer term.

This report acknowledges two previous studies into retail needs and sustainability, notably:

- Midland Gate Shopping Centre Retail Sustainability Assessment produced for Colonial First State Global Asset Management by Urbis (August 2011), and
- The City of Swan Retail Needs Assessment produced by Essential Economics for the City (August 2011)

While the status of these documents is unclear at this stage, Colliers acknowledges these analyses. This report does not intended to duplicate these studies and their respective methodologies, but is more concerned with the preferred configuration of space required to activate the town centre rather than assuming that any developer or operator specific retail sustainability analysis (which supports the case for site specific development) is necessarily in the best interest for the activation of the city centre.

The underlying premise of this analysis is that the Midland Activity Centre Structure Plan will be profoundly influenced by a range of development initiatives which will fundamentally change (and invigorate) the nature and function of the Midland town centre over time. These development initiatives are a mix of strategic, driver projects, capability upgrades and spatial and amenity planning projects that include both private and public sector investment.

This report is comprised of three main sections:

- An analysis of the growth trajectory and drivers of growth for Midland;
- A high level analysis of the supply of and demand for retail space in the town centre;
- An overview of the spatial planning implications of economic factors and commentary on development staging.

This analysis draws on a range of published and confidential reports and information. Where possible the information source is cited but where the information is drawn from sources not in the public domain or not for publication, the information will be referred to only in a general sense.

1.1 WHAT IS AN ACTIVITY CENTRE?

An activity centre, in an urban development context, is a place that features a diversity and concentration of different activities that generate economic and social vitality. Typically, such places may include residential, retail and commercial activity and the presence of employment options. It is important to acknowledge that activity centres are about more than just retail employment and may include specialist activities such as health and education precincts and agglomerations of commercial and industrial activity. Midland, in the context of the Activity Centre Hierarchy[1], is designated as a Strategic Metropolitan Centre which in effect identifies the whole of the Midland town centre as an activity centre. What is important to note however, is that within the Midland centre there are identifiable precincts each of which will have a different function and role within the fabric of the town centre.

It can be argued that as an activity centre, the Midland town centre is dominated by the retail and entertainment offerings available at Midland Gate Shopping Centre and its surrounds, the Great Eastern Hwy retail and commercial strip, the civic and government employment precinct bordered by Old Great Northern Hwy, Morrison Rd and Spring Park Rd, the train station/ Centrepoint precinct and the area bounded by The Crescent, Keane St and The Avenue.

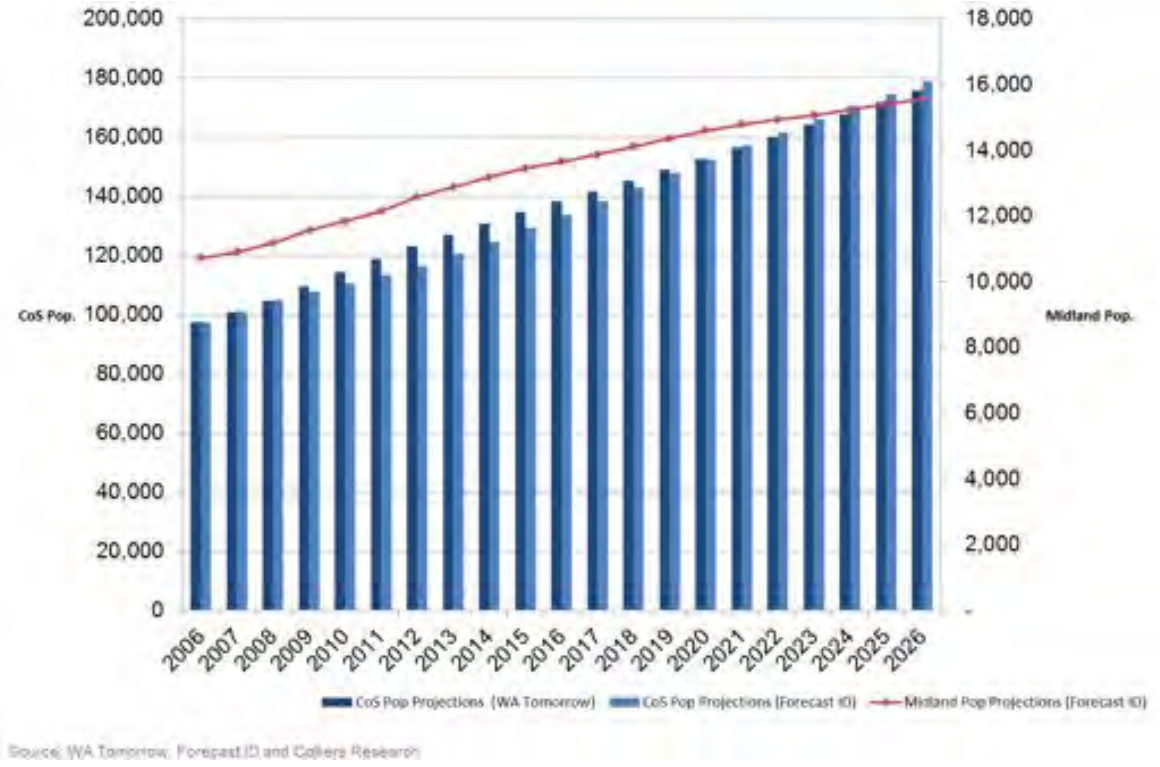
Looking forward, the development of the Midland Health Campus (including the proposed GP super clinic and private hospital), the railyards area, and the relocation of the train station and the potential development of a TOD precinct located in and around the intersection of Cale St and Railway Pde, will change the concentration and balance of activity that occurs in the town centre. The health campus in particular is a prime example of a specialised activity centre which will service substantial catchment. In addition, the current train station site, which will be freed up by the station relocation and suggested development clustered around the Midland Oval will also contribute to a significant reconfiguration of the Midland as an activity centre.

[1] State Planning Policy 4.2 Activity Centres for Perth and Peel, WAPC Aug.2010

2 POPULATION GROWTH

Population estimates by Forecast ID for the City of Swan and those contained in the Department of Planning's Western Australia Tomorrow forecasts, suggest that the City's population is expected to increase by more around 80% to approximately 177,000 between 2006 and 2026. In the same period, the population of Midland is expected to grow approximately 45% to around 15,500.

Figure 1 – City of Swan and Midland Population Projections



Source: WA Tomorrow, Forecast ID and Colliers Research

Anecdotal advice suggests that the rate of population growth for the City of Swan may be conservative and this may be the case depending on the extent of State Government and private sector investment in employment generating initiatives for the area over time.

3 DRIVERS OF GROWTH

Stable residential population growth in metropolitan centres is essentially driven by the perception of amenity that a place offers, which is in turn a function of the intersection of a range of influences including:

- Demographic changes over time
- The availability and accessibility of employment options;
- The availability, range and affordability of accommodation and housing options;
- Real estate return on investment;
- Access to and availability of retail, and population driven services such as health, education, community services, as well as entertainment and recreation offerings;
- The natural environment and physical appeal of a place;
- The degree of connectivity between places provided by road networks and transport options;
- The relative value of substitutes and alternatives (i.e. how does the place in question compare with alternative places open to current or potential residents, and how well does the place address the requirements and expectations of residents?);
- The strength and extent of social networks and cultural connections;
- The extent to which a place exhibits vitality and a cultural heart;
- A sense of safety, personal security and well-being.

There is undoubtedly a socio-cultural component to the choices that people make about where and how they live. That is, notwithstanding the economic considerations of choices of place of residence, people by and large will tend to live in places that address to varying degrees the list of factors above. Understanding the interaction of these influences is at the heart of effective, performance based, place creation and place management.

Arguably, the two biggest determinants of residential take-up are the affordability of accommodation offerings and the availability of jobs and specifically the generation of net new employment in an area.

3.1 ACCOMMODATION AFFORDABILITY

From an affordability perspective, housing stress occurs when housing costs (rental or mortgage payments) exceed approximately 30% of the household income. From an extrapolation of 2006 Census data, Colliers concludes that approximately half of the Midland population would experience housing stress where rental rates exceed around $425 per week and housing / accommodation prices exceed approximately $374,000. For household incomes below the median, particularly those in the first and second quintile income brackets, housing stress becomes critical and such households are increasingly pushed to the margins of population centres.

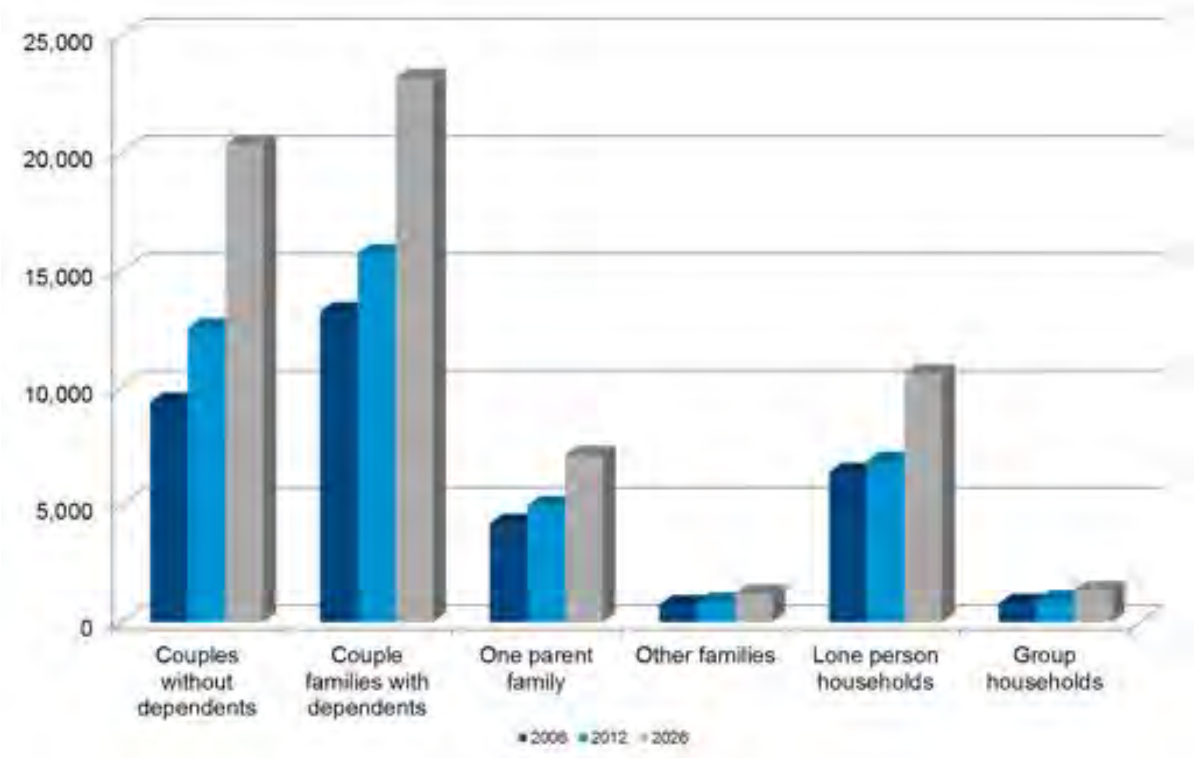
Where accommodation costs rise (rental or purchase), it follows that higher household incomes are required to take up options that both meet amenity requirements and enable households to avoid housing stress. Moreover, household composition, household income and accommodation preference are closely aligned. What is notable from the household number forecasts in the figures below is that between 2006 and 2026 there is expected to be a 117% growth in couples without dependants and a 66% increase in the number of lone person households in the City of Swan. These categories alone account for an anticipated growth of 11,500 households in the study area, many of which may be expected to gravitate to alternative density accommodation types.

This has implications for the provision of accommodation types as disposable income levels change and the capacity for these two groupings in particular to opt for accommodation that suits their financial capability. This, coupled with an emerging trend towards accommodation downsizing in households without dependents may serve to underscore the need for a greater range of density accommodation in the Midland town centre.

				20 Year Increase	
	2006	2012	2026	No.	%
Couples without dependents	9,378	12,532	20,365	10,987	117%
Couple families with dependents	13,230	15,703	23,187	9,957	75%
One parent family	4,201	4,973	7,114	2,913	69%
Other families	738	854	1,214	476	64%
Lone person households	6,385	6,857	10,586	4,201	66%
Group households	798	943	1,346	548	69%

Source: Forecast ID and Colliers Research

Figure 1



Source: Forecast ID and Colliers Research

Chart 1

From a planning perspective, if the intention is to have demographic diversity in the town centre residential base, then it implies the need to integrate affordable accommodation and social housing options into any urban development plan. The issue of affordability will have significant implications for any development feasibility because the concept of what is affordable varies according to the household income which is, in turn, a reflection of the quality of employment and income earning capacity that households display.

3.2 EMPLOYMENT GENERATION

The 2006 census data suggests that the City of Swan estimated total employment as a ratio of the resident population is around 50% (Approximately 34% of the workforce in Swan is derived from the Swan residential base). If a linear relationship between labour force and population growth was assumed (this is in effect a statistical convenience) and the ratio of labour force to resident population remained constant, then, on current population projections, this implies a growth in the Swan labour force of 80% to approximately 87,850 by 2026.

The relationship between labour force and resident population is, however, not as straightforward as this. Labour force growth will be influenced by the availability of employment in an area which is in turn affected by a range of factors not the least of which is the level of private sector and government investment in employment generating projects and ventures, and the changing profile of industry sectors over time. It is suggested that a comprehensive and multi-sector economic development strategy for the City of Swan is required if employment approaching these numbers is to be achieved.

An analysis of 2006 employment data for the City of Swan suggests around 38% of the workforce is employed in white collar areas with just over 14% in retail trade and nearly 15% in manufacturing. Without specifying exact percentages, it is reasonable to assume that a significant volume of employment growth will occur in the town centre, particularly as the health precinct develops and demand for retail and commercial space increases over time. The key issue for planners is to identify the optimal distribution location and configuration of activity nodes within the town centre to facilitate the evolution of a vibrant Midland Strategic Activity Centre.

Section 4 proposes demand scenarios for retail and commercial / office floorspace for the Midland town centre out to 2026. Based on an assumed average per square meterage per employee of around 32 m^2 for retail and approximately 20 m^2 for commercial / office, the demand for floorspace suggests that net new employment in Midland by 2026 could grow by 2,000 to 2,500 in the retail sector and by approximately 1,800 in commercial / office space for the same period.

4 RETAIL AND COMMERCIAL SUPPLY AND DEMAND ANALYSIS

The optimal location, quantum and configuration of retail and commercial floorspace in Midland are central to the establishment of a vibrant and viable city centre. Activity centres are more than just locations for retail activity and depend on a diverse mix of residents, workers and visitors to the area to engender a vital sense of place.

Estimating the likely demand, that is quantum and timing, for retail and commercial floorspace in Midland is a function of the interaction between a numbers of variables including:

- Determination of the trade area catchment
- Projections of population and household growth
- Estimates of the pool of available expenditure in the retail catchment derived from households and inbound people movements
- Estimates of the extent of escaped expenditure or leakage (which will vary between the primary and secondary catchments of the main trade area)
- Estimates of the per square metre productivity for different retail types
- The comparative positioning of the retail precinct relative to alternatives within the area.

The trade area catchment for Midland as defined by Colliers is represented in Appendices A - F

Colliers definition of the main trade area catchment and estimation of the residential population base approximates Urbis's current estimates but adopts a less aggressive growth trajectory of 266,362 residents to Urbis' 295,184 by 2026. While this represents an approximate 11% difference, the key element is the extent to which residential expenditure is retained within the trade area catchment and captured by local retail offerings.

Figure 2 proposes population growth rates in five year increments to 2026 for the primary and secondary catchments of the Midland main trade area.

Figure 2 – Midland Strategic Town Centre Main Trade Area Population Estimates

	2012	2016	2021	2026
Primary Trade Area	74,840	82,480	91,534	101,155
Secondary Trade Area - North	27,496	30,868	34,948	39,291
Secondary Trade Area - East	19,751	20,538	21,286	22,063
Secondary Trade Area - South	36,637	37,868	38,945	40,047
Secondary Trade Area - West	59,389	60,942	62,404	63,805
Total Catchment Population	**218,113**	**232,695**	**249,117**	**266,362**

Source: WA Tomorrow, Forecast ID and Colliers Research

Figure 2

4.1 CURRENT SUPPLY

Essential Economics reports the current level of retail supply in the Midland Strategic Metropolitan Centre is 134,500 m^2 across four precincts: Midland Gate, Midland Activities Area, Great Eastern Hwy and the Midland Railyards.

Of the this supply, Midland Gate accounts for approximately 52,500 m^2 and Centrepoint shopping centre 8,380 m^2. Then primarily bulky goods area at the south eastern end of the Midland railyards precinct is believed to account for about 35,500 m^2 of retail floorspace.

4.2 DEMAND MODELLING

Notwithstanding estimates of retail supply, the more relevant analysis relates to the level of supportable floorspace into the future, particularly the requirement for net new floorspace within the town centre. Calculating demand for floorspace demand is not an exact science and is contingent on various assumptions (as referred to previously) that underline demand models.

In addition to changes in population growth and variations in floorspace turnover, estimates of retail floorspace are most directly influenced by the extent of household expenditure on retail categories within the trade area, and the extent to which some of that expenditure escapes from the catchment. Added to this will be an allowance for expenditure that comes into Midland Strategic Town Centre from outside the main trade area and from the worker population.

Retail Floorspace turnover can vary considerably between centres and within precincts of centres. Figure 3 proposes indicative retail turnovers for a range of different categories escalated to 2026. The escalation rates are in a sense a statistical convenience to inform the demand for floorspace over time and should be considered as indicative measures only.

Figure 3 – Indicative Sales Turnover /m^2 for Different Retail Types 2012 – 2026

Sales Productivity (Retail Turnover Density $/$m^2$)	2012	2016	2021	2026
Supermarket	$ 7,651	$ 7,961	$ 8,368	$ 8,794
Food	$ 7,651	$ 7,961	$ 8,368	$ 8,794
Non food grocery	$ 7,651	$ 7,961	$ 8,368	$ 8,794
Catering	$ 5,611	$ 5,838	$ 6,136	$ 6,449
Clothing & Accessories	$ 5,101	$ 5,308	$ 5,578	$ 5,863
Furniture & Whitegoods	$ 3,060	$ 3,185	$ 3,347	$ 3,518
Electrical	$ 7,651	$ 7,961	$ 8,368	$ 8,794
Houseware & Softgoods	$ 3,060	$ 3,185	$ 3,347	$ 3,518
Hardware	$ 4,590	$ 4,777	$ 5,021	$ 5,277
Sports & Hobbies	$ 4,590	$ 4,777	$ 5,021	$ 5,277
Services	$ 5,611	$ 5,838	$ 6,136	$ 6,449
Newsagent & Chemist	$ 7,651	$ 7,961	$ 8,368	$ 8,794
Bottleshop	$ 10,201	$ 10,615	$ 11,157	$ 11,726
Retail Turonover Density	$ 5,300	$ 5,519	$ 5,805	$ 6,105

Source: Colliers Research

Figure 3

Figure 4 shows an estimate of aggregate retained spend in the Midland main trade area across primary and secondary catchments, based on estimated population growth and percentage of expenditure capture for the area. the main trade area aggregate pool of residential expenditure, assuming is projected to grow from $608 million in 2011 to $960 million in 2026. It is this pool of available expenditure, and estimates of floorspace productivity that inform the estimates of supportable net new floorspace requirements for the city.

Figure 4 – Main Trade Area Market Potential – Retained Residential Expenditure 2011-2026

Market Potential (Retained Resident Expenditure)	2012	2016	2021	2026
Main Trade Area	$ 631,125,602	$ 718,039,281	$ 831,238,515	$ 959,909,571
Supermarket	$ 180,228,945	$ 206,057,268	$ 239,844,025	$ 278,344,892
Food	$ 132,969,820	$ 152,008,687	$ 176,910,522	$ 205,285,540
Non food grocery	$ 47,259,125	$ 54,048,581	$ 62,933,503	$ 73,059,353
Catering	$ 40,242,366	$ 46,170,136	$ 53,945,626	$ 62,820,923
Clothing & Accessories	$ 106,459,831	$ 120,528,835	$ 138,791,383	$ 159,487,892
Furniture & Whitegoods	$ 76,441,632	$ 86,806,157	$ 100,278,407	$ 115,577,227
Electrical	$ 57,099,780	$ 64,831,954	$ 74,882,684	$ 86,294,772
Houseware & Softgoods	$ 29,700,918	$ 33,708,641	$ 38,914,378	$ 44,824,228
Hardware	$ 41,585,146	$ 47,215,486	$ 54,532,066	$ 62,840,042
Sports & Hobbies	$ 31,908,707	$ 36,228,247	$ 41,842,057	$ 48,216,301
Services	$ 23,987,923	$ 27,182,381	$ 31,322,387	$ 36,018,881
Newsagent & Chemist	$ 23,910,187	$ 27,078,406	$ 31,181,476	$ 35,834,658
Bottleshop	$ 19,560,167	$ 22,231,770	$ 25,704,026	$ 29,649,754

Source Colliers Research

Figure 4

Figure 5 proposes three scenarios for the demand for retail floorspace in the Midland Town Centre main trade area that are based on variations in the extent of retained expenditure in different retail categories. The base line parameters that define the expected scenario are detailed in Appendix A. Scenarios 1 and 2 outline changes in net new floorspace requirements arising from an increase of 3% and 5% respectively in retained household expenditure in the primary trade catchment of the Midland Town Centre main trade area. On current model settings, it is suggested that the Midland Strategic Town Centre currently has a shortfall of between 13,000 m^2 and approximately 23,000 m^2 of retail floorspace. This is predicted to rise to between 66,600 and 80,600 m^2 by 2026.

Figure 5 – Midland Strategic Town Centre Main Trade Area Supportable Floorspace Estimates

		2012	2016	2021	2026
Expected Scenario	Total Supportable Floorspace (SQM)	151,561	166,678	183,283	201,094
	Net New Supportable Floorspace (SQM)	17,061	32,178	48,783	66,594
Scenario 1	Total Supportable Floorspace (SQM)	157,625	173,408	190,827	209,513
	Net New Supportable Floorspace (SQM)	23,125	38,908	56,327	75,013
Scenario 2	Total Supportable Floorspace (SQM)	161,668	177,896	195,857	215,127
	Net New Supportable Floorspace (SQM)	27,168	43,396	61,357	80,627

Source: Colliers Research

Figure 5

4.3 COMMERCIAL / OFFICE FLOORSPACE DEMAND

Determination of the demand for demand for commercial / office space in the city centre is not necessarily directly predictable as a ratio of average floorspace to resident population growth. This is, in effect a proxy indicator for demand and does not consider the strategic investment decisions by governments and the private sector as to the establishment of new, long term employment generating projects and strategic infrastructure. While projects such as the establishment of the new Midland health campus, which will be an activity centre in its own right, are set to be realised in the near future, private sector investment, particularly larger scale employment generators, are inherently less predictable.

The Department of Planning's WASLUC data (2008) identifies the (then) supply of floorspace by type. Figure 6 presents an extract from this database along with an estimate of the ratio of per square metre floorspace by category per City of Swan population at the same period.

Figure 6 – Midland Floorspace Provision (2008)

Floorspace Type	m^2	m^2 / Population
Manufacturing / Process / Fabrication	1,552	0.01
Storage / Distribution	1,516	0.01
Services	4,088	0.04
Shop / Retail	68,385	0.65
Other Retail	14,245	0.13
Office / Business	56,552	0.53
Health / Welfare / Community	10,749	0.10
Entertainment	15,389	0.15
Utlities / Communication	1,624	0.02
Total	**174,100**	**1.65**

Source: Department of Planning and Colliers Research

Figure 6

Figure 7 outlines an indicative demand profile for commercial / office floorspace applying the same ratio to projected population growth for the City of Stirling. In theory, Midland town centre presently has a shortfall of around 7,100 m^2 of commercial / office floorspace which is expected to rise (using this methodology) to a requirement for approximately 35,500 m^2 of net new commercial / office floorspace by 2026.

Figure 7 – Midland Supportable Commercial Floorspace Demand (Indicative)

	2012	2016	2021	2026
Supportable Floorpsace (m^2)	63,703	72,144	81,827	92,130
Net New Required (m^2)	7,151	15,592	25,275	35,578

Source: Colliers Research

Figure 7

5 SPATIAL PLANNING IMPLICATIONS

The relationship between amenity provision, development staging and population growth is an iterative one. A certain level of shopping, entertainment and lifestyle amenity is expected of urban development projects but this in turn needs to grow and evolve with the sense of place and the levels of activity over time.

Section 4 of this report proposes a quantum of net new retail and commercial /office floorspace that the Midland Strategic Town Centre could reasonably expect over time but it is the optimal configuration and location of this floorspace that is most important.

A key challenge for Midland will be to generate sufficient levels of activity intensity and diversity over time. While the development and ultimate take-up of medium density accommodation over time will generate an 'in-close' residential population that may be expected to engender a degree of activity in the town centre, this needs to be augmented by a strategy that seeks to attract and concentrate a stable employment base in the town centre. A resident employment base that incorporates knowledge intensive jobs aimed at servicing the needs of the population over and above the primarily retail and commercial services employment that currently exists is important in extending the nature and size of the user groups that interact with the city centre.

A central plank in the development of the Midland Strategic Town Centre and of precincts within the centre is the establishment of the Midland Health Campus. The campus will feature a workforce of approximately 3,000 to 4,000 when fully operational and service potentially 200,000 to 300,000 patient events (inpatients, outpatients and emergency department) annually. In addition to this, the individual patient events are also likely to attract supporting visits from friends and relatives, suggesting that the total throughput of people in the precinct may well exceed 500,000 annually.

Of further key importance to the development of the Midland Town Centre is the prospect of the establishment of a transit oriented development notionally around the Cale St / Railway Pde Junction. This development, in close proximity to the health precinct site, can be expected to fundamentally change the nature of the Midland town centre and how users (i.e. residents, workers and visitors) interact with it. It should be noted that any such development in this area is not in competition per se with the established retail centres anchored by Midland Gate and Centrepoint but is rather, expected to be complementary to the established precincts and the way in which user groups interact (and their reasons for doing so) will differ to varying degrees from user behaviours in other precincts.

5.1 FLOORSPACE ALLOCATION AND PLACE PURPOSE

A conventional approach to the planning of the Midland town centre would concentrate on the allocation of retail and commercial / office floorspace in and around the Midland Gate complex and effectively work out from there. The development of the railyards, the establishment of the health precinct and the potential relocation of the Midland train station to a Cale St transit oriented development will mean a substantial reconfiguration of the Midland town centre. The development of key employment nodes south of Railway Pde and the emergence of density housing in these areas mean that careful consideration needs to be given to the allocation of net new retail and commercial space in these areas over time.

It is apparent that not all of the Midland town centre can be activated and revitalised at the same time. Vitality is about the concentration and frequency of economic and social transactions that occur within a given area and consideration must be given to the areas that most require and will be most suited to activation over the period to 2026. Moreover, the allocation of net new floorspace, or indeed the relocation of existing floorspace, for town centre is neither formulaic nor prescriptive. Colliers suggests that retail and commercial development should focus in the short to medium term on a relatively small number of nodes within the town centre including

- The Cale St / Railway Pde TOD location
- The Cale St and Padbury Tce corridors between the ostensible TOD site and Midland Gate
- The existing train station site and area adjacent to Midland Centrepoint
- The Crescent and Keane St borders of Midland Oval (assuming residential development of that precinct)
- The Railyards
- Midland Gate

The extent of these sites is graphically presented in Appendix G.
This analysis is not intended as a site specific feasibility investigation and therefore makes no recommendation on the exact quantum of space in each location. The intention is, rather, to present the case for balanced and effective development of the town centre in the context of what it is intended to become and considering the likely quantum of floorspace required for the town centre as a whole.

Vibrancy of place, or economic vitality, is about maximising the incidence and concentration of transactions, both economic and social, that occur within a place or precinct. This is an iterative and self-reinforcing process that, if done effectively, will bolster the property performance of a place and make it a desirable place for residents and for commercial and retail tenancies. The planning of the Midland Strategic City Centre should consider a number of place creation and activation principles that may guide the development of the city's precincts. These principles include:

- Purpose of place – that is; understanding the reason why the place exists in the first instance and how, why and how often different users will engage with the place. Is the precinct primarily a residential place or an employment node, or is it primarily a place of retail and entertainment amenity? And to what extent might the place incorporate a measure of all these functions? What times of the day and week is the place intended to operate and is there a significant seasonality component to the nature of interactions that occur there.

- Place focal point – what is the core focus of the place and how is this expressed in a design sense and in a functional sense? How do users know when they've arrived at the focal point or core of the precinct, what will they find there and how does what they find there determine the nature of their interactions?

- Accessibility, connectivity and legibility – how and where do users arrive at the place? How easy is the place to access by car or public transport, or by pedestrian and cycle traffic? How easy is the place to navigate internally and how well connected is it with other places in the city centre? How well is it supported by parking?

- Attraction and amenity provision – what are the elements additional to the functional purpose of the place that will attract users, that is, what are the major destinations within the place and how might they be augmented / expanded to provide the level of amenity and infrastructure that users seek?

- Governance, priority sites usage and control – what are the priority sites within the place or precinct and to what extent can a place activation and management strategy control both the nature of development on the sites and the type of tenancies that that might be attracted to the location? What governance model is required to ensure that the development and management of strategic sites is consonant with the City's development and planning objectives? What is the preferred development model for the place? (Appendix H outlines suggested strategic sites within the Cale St TOD precinct and adjoining activity corridors)

Appendix A – Midland Strategic Centre Main Trade Area Catchment

Appendix B – Midland Strategic Centre Primary Catchment

Appendix C – Midland West Catchment Map

Appendix D – Midland East Catchment Map

Appendix E – Midland South Catchment Map

Appendix F – Midland North Catchment Map

Appendix G – Midland Strategic Town Centre Key Development Zones

Appendix H – Cale St TOD Area

city of swan

HASSELL

Midland
Activity Centre Structure Plan Design Guidelines

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4.0	13.08.13	SD	RC / NM
5.0	28.10.13	SD	SD / MR

Content

Internal space within the Midland Railway Workshops

Introduction

Midland has the opportunity and the ability to become a thriving city in its own right, serving Perth's eastern region, Perth Hills, the Avon Arc and beyond. With the capacity to house 30,000 residents and be a major employment destination with a high degree of self-sufficiency, Midland can deliver an attractive, affordable, productive and sustainable city living environment beside the rivers in the eastern corridor.

The Midland Railway Workshops

1.0____Introduction

The Midland Activity Centre (MAC) Design Guidelines have been prepared to guide the revitalisation and urban form of Midland City Centre. The design guidelines are focused on improving the quality of development so that principles established by the Midland Activity Centre Structure Plan can be achieved.

The guidelines are focused on encouraging high quality development throughout the Midland Activity Centre. The guidelines introduce standards for development to create the intended character and amenity for each precinct in the town centre, and although some design criteria is mandatory, the general approach is to provide a series of principles that development shall follow, thus allowing flexibility in design outcomes.

The guidelines set objectives which state specific design requirements that must be achieved and a related set of acceptable development standards that satisfy the design intent and stated objective.

The guidelines are divided into four main sections:

Part 1: Introduction
Outlines the purpose of the design guidelines and relationship to the planning framework.

Part 2: Town Centre Precincts
Establishes the precinct boundaries across the town centre for which place specific provisions apply.

Part 3: General Provisions
Contains the guideline principles and design elements applicable to all development within the town centre.

Part 4: Precinct Guidelines
Contains the precinct specific guidelines.

Figure 01_ Former Midland Primary School, now operating in a civic capacity as a performing arts centre. Historic buildings in Midland provide a rich context to its built fabric

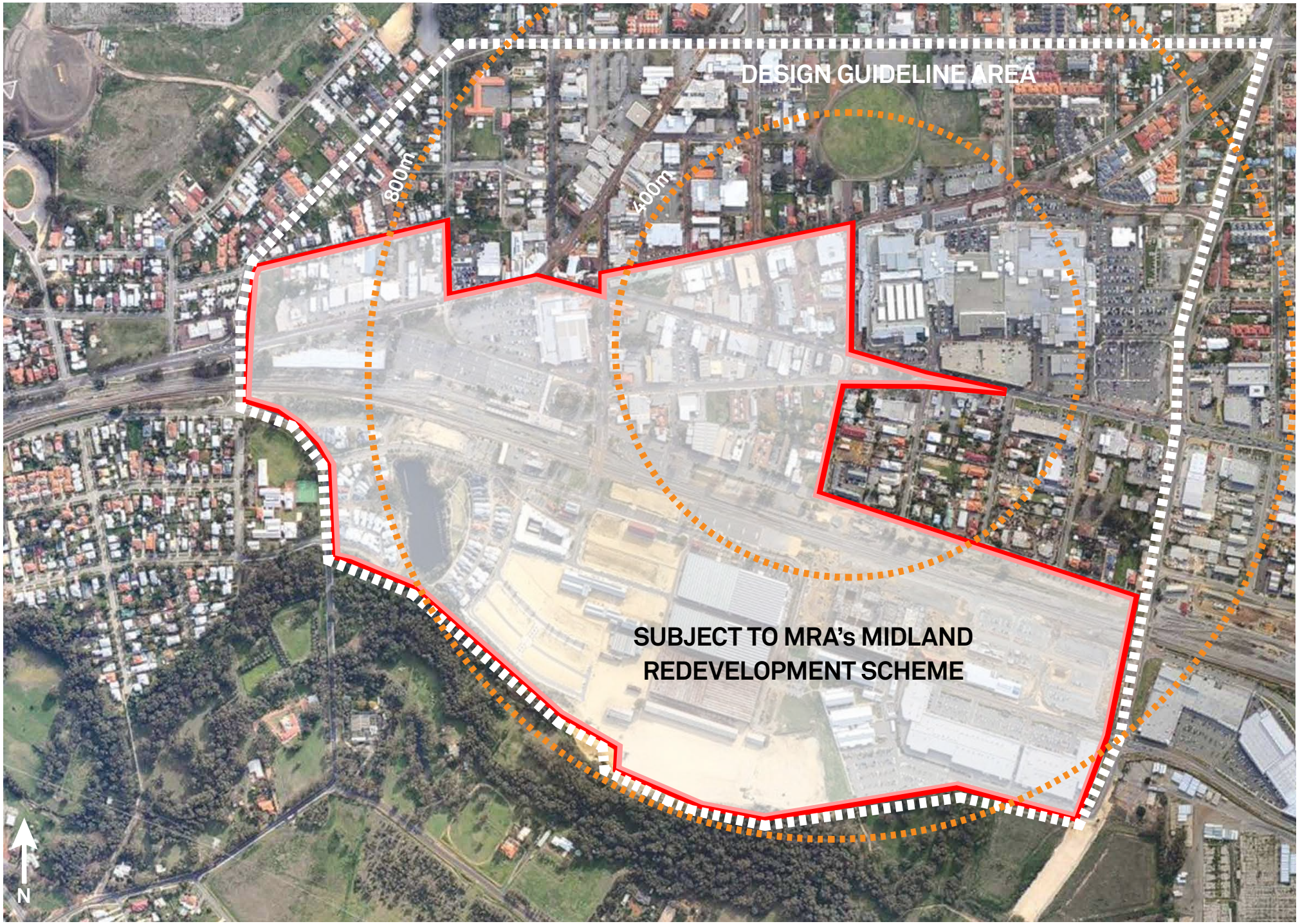


Figure 02_ Midland Activity Centre's design guidelines area

1.0____Introduction

1.1 THE DESIGN GUIDELINES

1.1.1 Purpose

These Design Guidelines (the guidelines) have been prepared to guide development within Midland Activity Centre under the authority of the City of Swan. Implementation of the guidelines will ensure the centre is realised as a key strategic centre for the north-east metropolitan region providing high density development.

The centre presents numerous opportunities for redevelopment and revitalisation to increase land use density and public realm activation.

Opportunities for mixed use retail, residential and commercial development abound to enhance the quality of the existing activity areas. Enhancing these areas will significantly increase the experience of living, shopping and working within a centre that celebrates city life, dining and socialising in a sophisticated urban environment.

1.1.2 The Design Guideline Policy Area

This design guideline policy document applies to the Midland Activity Centre under the jurisdiction of the City of Swan and does not include the area governed by the Metropolitan Redevelopment Authority's Midland Redevelopment Scheme and Design Guidelines.

The Midland Activity Centre is bounded by the following:

- Lloyd Street to the east
- The Helena River to the South
- Amherst Road and Morrison Road to the west, and
- Morrison Road to the north

Figure 03_ Old Great Northern Highway, Midland

1.0____Introduction

1.1.3 Relationship to Local Planning Scheme No. 17 and Midland Activity Centre Structure Plan

The design guidelines are adopted under the provisions of Part 2 and 5 of the Local Planning Scheme No. 17 (the Scheme). General planning policies applicable to the design guideline area are also outlined in the Scheme. These guidelines have been adopted by the City of Swan as policy in accordance with Scheme provisions, and should be read in conjunction with the Scheme and Midland Activity Centre Structure Plan. In determining any application for development approval, the City will utilise these guidelines, in conjunction with the Scheme and Policies, as the primary assessment criteria.

1.1.4 Relationship to Midland Activity Centre Structure Plan

The Midland Activity Centre Structure Plan is a strategic document and establishes the high order development and design principles relating to Midland's town centre. In particular, it establishes land use, movement, activity, urban form and resource enhancement principles to ensure Midland operates as an effective Strategic Metropolitan Centre.

The Structure Plan's objectives and high level development standards are described in Schedule 4 of the Scheme. The design guidelines build on the principles established by the structure plan and provide more detailed guidance on development standards in the form of a local planning policy.

Figure 04_ Clayton Street, Midland

1.0____Introduction

1.1.5 Guideline Framework

The detailed Design Guidelines contained in the General Provisions section are set out with the following framework:

Design Intent: A statement outlining the design philosophy for each Objective.

Objective: Describes the main goal which must be achieved. It is mandatory to meet the objective.

Acceptable Development Criteria: Standards that identify design criteria which will satisfy the specific Objective. Compliance with all of the criteria will achieve the Objective. However individual criteria are not mandatory and alternative solutions for complying with the Objective may be considered.

1.1.6 Discretion

An important provision within the Design Guidelines is the opportunity for the applicant(s) or owner(s) to meet the Objective through an alternative solution.

The City of Swan may approve a development application where the applicant(s) or owner(s) has departed from the recommended Acceptable Development Criteria where, in the City's opinion, the applicant(s) or owner(s) has demonstrated that the alternative solution(s) is consistent with the Midland Activity Centre Structure Plan's vision and principles, meets the Design Guideline Objective(s) and the intent of the Acceptable Development Criteria.

Compliance with the recommended standards does not guarantee approval. The City may refuse development applications that are considered not to be in keeping with the design intent and objectives of the design guidelines.

Each application for development approval will be assessed on an individual basis and the approval of an alternative solution will not set a precedent for other developments.

Figure 05_ Development on The Crescent, showing mixed use development with active frontages

Markets in well designed streets provide activation and community focus

Town Centre Precincts

Figure 06_A conceptual plan of Midland Activity Centre

2.0____Town Centre Precincts

2.1 KEY ELEMENTS FOR THE MIDLAND ACTIVITY CENTRE

The development of Midland Activity Centre will be guided by the following key elements, established by the Midland Activity Centre Structure Plan:

- Provide attractive, pedestrian-oriented streets and public spaces that create an environment for positive community engagement and business exchange
- Activation at ground level by retail and hospitality uses in key streets identified by the Midland Activity Centre Structure Plan
- Enable buildings and public realm to engage with pedestrians and facilitate a comfortable and safe urban environment
- Intensification of development near the new Midland Train Station to establish mixed use neighbourhoods and maximise access to and benefit of public transport
- Redevelopment of land along the railway spine
- Optimise residential development potential whilst maintaining the intended character of Midland's historic core
- Minimise the impact of car parking on the pedestrian experience and quality of the public realm
- Promote the use of sustainable modes of transport and a healthy way of living through active engagement with the urban environment

Figure 07_A conceptual model showing the proposed structure of Midland (looking east)

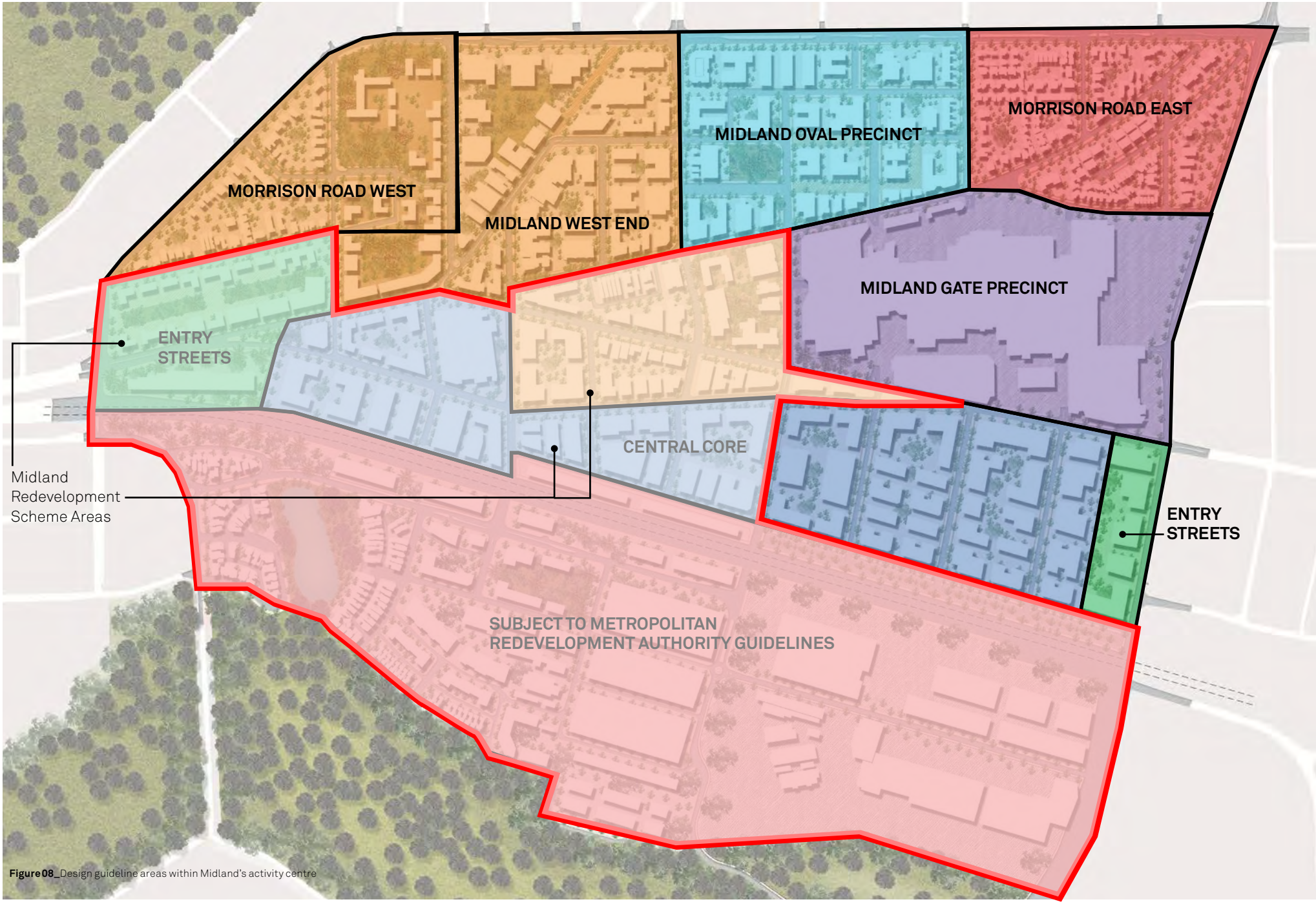


Figure 08_Design guideline areas within Midland's activity centre

2.0____Town Centre Precincts

2.2 THE PRECINCTS

Midland's town centre is divided into a number of precincts, as defined by the Midland Activity Centre. This policy applies to those precincts under the control of the City of Swan.

For those precincts north of the railway line the subject of the Midland Redevelopment Scheme, this document shall be used as a guide to amend the MRA policies and design guidelines.

2.2.1 Morrison Road West:
A residential neighbourhood providing high quality housing opportunities around a shared open space with the Swan District Education Office (former primary school).

2.2.2 Midland West End:
The historic core of Midland providing a range of retail, hospitality, office and service functions, complemented by residential development. The historic character of the precinct informs the scale of development.

2.2.3 Central Core:
The most intensely developed precinct to afford greatest access to the future location of the Midland Train Station and promote the intended activity diversity. The precinct is primarily commercial and residential in nature.

2.2.4 Midland Oval Precinct:
A key redevelopment opportunity for residential and commercial development to the north of Midland's historic core. A mix of residential and commercial office buildings of medium to large scale coupled with retail, civic and entertainment land uses allow a higher concentration of people and businesses within an attractive environment.

2.2.5 Morrison Road East:
A residential neighbourhood of medium density.

Note: This design guideline document does not provide specific design guideance as the area is largely developed. Development shall be as per the Midland Activity Centre Structure Plan and Residential Design Codes

2.2.6 Midland Gate:
Midland's primary internal shopping mall, containing retail, hospitality and business services activities. Development addresses and helps activate the identified pedestrian oriented streets.

Note: This document does not provide specific guideline requirements as development shall be as per the Midland Activity Centre Structure Plan and any approved Midland Gate development plan.

2.2.7 Entry Streets:
Key entry areas to Midland's town centre, accommodating car oriented businesses in an attractive, tree lined setting.

Figure 09_ Inside Midland's Railway Workshops

Left objects in Midland's Railway Workshops

General Provisions

3.0____General Provisions

3.1 LAND USE

The Midland Activity Centre is the Strategic Metropolitan Centre for the north east region, intended to provide a range of commercial, civic, hospitality, retail and entertainment uses for the benefit of the surrounding region. A mix of residential accommodation will complement the centre and its function as a major destination. The centre's role is to provide a balance of land use mix and accommodate a high density urban environment.

This section will address:

- Land use mix
- Active edges and street relationship
- Dwelling mix

Figure 10_A mix of uses and concentration of activity allow for a vibrant public realm

3.0____General Provisions

Design Element 3.1.1 Land Use Mix

Design Intent	Objective	Acceptable Development
The mix of land use within the centre will increase the residential population, commercial and retail activity, provision of services and facilitate a range of employment opportunities for the north-eastern region.	To foster a mix of land uses that complement the intended precinct character across Midland. The mix of activity will be greatest along active streets.	• Comply with the provisions of the precinct guidelines and Midland Activity Centre Structure Plan

Design Element 3.1.2 Dwelling Mix

Design Intent	Objective	Acceptable Development
The activity centre accommodates a growing population with changing household structures. Development will focus on providing diverse and affordable housing options.	Each new development containing permanent residential dwellings is required to provide a variety of one-bedroom, two-bedroom and three-bedroom units with exception in mixed-use areas. The provision of different dwellings will support market demand and growth within the centre.	• Development is to be in accordance with the dwelling size and mix acceptable development criteria established by the Residential DesignCodes of Western Australia (R-Codes)

3.0____General Provisions

Design Element 3.1.3 Active Edges and Street Relationship

Design Intent	Objective	Acceptable Development
The activation of streets and other publicly accessible spaces are fundamental to enable the activity centre to provide an attractive and safe pedestrian environment.	Where identified in the Midland Activity Centre Structure Plan, development is to be designed to activate all streets and laneways through major openings, shop front windows, alfresco dining, pedestrian shelter and legible building entries to create a vibrant, diverse and safe urban environment.	• Passive surveillance of communal areas and public spaces are to be integrated into building design, and each residential dwelling and commercial tenancy within development should have more than one major opening from habitable room or balcony overlooking the street, public space or communal open space • Pedestrian entrances are to be highly visible and identifiable as entry points, within a 180 degree line-of-site, from each entry and exit point. Minor obstructions to views are acceptable • Ground floor non-residential frontages should be designed as shop fronts with no less than 70% of the shop front glazed with clear glass • Provide entries, visually transparent frontages, windows and balconies fronting the street • Permanent blank walls are not permitted • Car park entries are to be located appropriately to avoid disruption of the pedestrian experience • Inactive ground floor uses are to be avoided along the stipulated active streets • Maximise the number of entries to each building

Figure 11_Some streets in Midland must have active frontages, especially at ground level, to ensure it functions as a proper centre for the community

3.0____General Provisions

3.2 BUILT FORM REQUIREMENTS

Built form should provide a pedestrian scale and define streets and public spaces, creating an urban presence and a sense of enclosure without affecting the intended streetscape character.

Building height responds to the urban form expressed in the Midland Activity Centre Structure Plan, with the tallest buildings being near to public transport and points of amenity / neighbourhood focus. Midland's historic character provides important cues for building scale, character and materiality.

The elements that will be addressed are:
- Architectural expression
- Facades
- Setbacks
- Height
- Building bulk
- Plot ratio
- Roof form
- Visual privacy
- Fencing
- Ground floor separation
- Acoustics
- Solar access

Figure 12_ Development in Midland must be of high quality, framing public spaces, providing architectural interest and being of a form that promotes safe and comfortable streets

3.0____General Provisions

Figure 13_A range of complementary materials and elements helps to create architectural expression

3.0___General Provisions

Design Element 3.2.1 Architectural Expression

Design Intent	Objective	Acceptable Development
Buildings should offer contemporary and innovative expression and complement existing character areas appropriately. The urban environment will facilitate positive spaces and establish a vibrant urban environment through original architecture.	The buildings must represent creative architecture, contemporary aesthetic and incorporate a range of materials into the finished design. Contemporary design and variety of materials can achieve visual interest and create a high quality urban environment that reflects Midland's sense of place.	• Buildings to incorporate variation in building articulation, texture, colour, openings to reduce the overall bulk appearance of the building • Building design to acknowledge character areas and respond appropriately to existing urban development in a contemporary manner • New development that interfaces with heritage buildings shall exhibit appropriate development form by relating to the intended street character and ensuring bulk and building lines respect adjacent development. • Lower four storeys to incorporate human scale design elements such as balconies, windows, awnings and terraces • Buildings at lower storeys to be designed to address the street and facilitate a visual relationship with pedestrians • Use of privacy and shade screening to contribute positively to the building and pedestrian environment • Permanent blank walls, reflective glass, large areas of undetailed precast concrete, superficial and superfluous detailing and highly saturated colour palettes are discouraged

3.0____General Provisions

Design Element 3.2.2 Setbacks

Design Intent	Objective	Acceptable Development
Building setbacks are related to the intended character of a precinct and its streetscape quality. The building setback is related to the intended function of the street, where active streets exhibit nil setbacks and residential/non-retail streets are more open and delineated from the public realm. Setbacks are highly influential in creating a comfortable pedestrian environment and achieving quality inner urban streetscapes.	Building form and setbacks will create a pedestrian scale throughout Midland, with street setbacks consistent with the precinct character. • Tower buildings are to be set back from the street to maintain the intended pedestrian scale • Where identified in the Activity Centre Structure Plan, ground level setbacks are to achieve a commercial edge as well as facilitate alfresco dining opportunities	• Setbacks to be in accordance with the provisions of the Scheme, Activity Centre Structure Plan and precinct specific requirements




Figure 14_ Building setbacks will be consistent with a precinct's intended character; buildings on active streets will be constructed at the property line to promote engagement and commercial interaction with the public realm

3.0____General Provisions

Design Element 3.2.3 Height

Design Intent	Objective	Acceptable Development
Building heights will be tallest near to public transport and areas with limited character constraints. Midland's historic core will contain pedestrian scaled buildings. Development throughout Midland will facilitate the intended building heights for the respective centre precincts.	• To provide an attractive and activated area at street level through the incorporation of pedestrian-scaled form to provide a comfortable environment • To provide a graduation of heights with taller building elements within the Central Core and Midland Oval • To minimise overshadowing of adjacent streets and public spaces	• Heights to be in accordance with Activity Centre Structure Plan and the precinct specific requirements of these Design Guidelines • Building heights (number of floors) to be calculated from the adjacent external street • Minor variations to heights and building levels will be contemplated based on impacts to the amenity of the precinct and the intended urban design outcome Note: Under-croft and basement parking is not considered to be a storey but any part of a building used for parking above ground level is included in the calculation of the overall building height.




Figure 15_ Building heights will create a comfortable pedestrian scale, with taller elements set back from the building line

3.0____General Provisions

Design Element 3.2.4 Facades

Design Intent	Objective	Acceptable Development
Building facades significantly contribute to the public realm and its vitality. A vibrant and beautiful activity centre will require the provision of visually interesting building exteriors which encourages passive surveillance of adjacent spaces and contribute to the character of the area.	• All buildings are required to provde an interface to adjacent streets by utilising major windows, pedestrian entrances, balconies in order to activate the streetscape	• External ducting, airconditioners, plants, pipes, lift over-runs, service doors and similar building services must be screened from public view or adjacent property and incorporated into the building at the intial design stage • Mixed-use buildings should provide separate entries for non-residential and residential uses for legibility of appropriate passages. Residential lobbies are to be clearly delineated, well lit and safe to access • Building walls should contain windows, entrances, balconies and awnings to create visual cohesiveness, interest and relationship to the public realm • An exposed parapet must have the same level of finish as the primary facade as unfinished blank walls are unacceptable. Detailing for permanently exposed blank walls should include texture patterns and where appropriate, balconies and windows

Figure 16_ Interesting facades are important in activity centres where a positive experience and impression are required

3.0___General Provisions

Design Element 3.2.5 Building Bulk

Design Intent	Objective	Acceptable Development
To ensure that built form allows adequate solar access to adjacent buildings, to streets and open spaces and positively contributes to the overall built environment of Midland.	• To promote pedestrian scale buildings that are appropriately articulated to provide street presence and interest • To achieve contemporary, slender and taller building elements that will not significantly overshadow the public realm	• Lower floors and/or podium levels of buildings are to express an identified street rhythm established by existing development • Tower buildings are to be designed to be slender, contemporary and sculptural in form • Built form to provide articulation of building elements to break up the mass and scale large developments

Design Element 3.2.6 Plot Ratio

Design Intent	Objective	Acceptable Development
To assist in ascertaining development potential for the centre and to control building bulk and mass	• To control the building bulk and mass within the allowable building heights and setbacks to appropriately address the streetscape and public realm	• Plot ratio is to be in accordance with the Midland Activity Centre Structure Plan • Bonus plot ratio may be awarded by the City of Swan consistent with the Midland Activity Centre Structure Plan and any associated policy

3.0___General Provisions

Design Element 3.2.7 Roof Form

Design Intent	Objective	Acceptable Development
The roofscape of each development should make a positive contribution to the local area and provide, where appropriate, a local landmark through the use of integrated architectural form and detail.	• Roof forms are to be an integral aspect of the overall innovative architectural design of each building. • Contemporary and innovative approach will be required for tall tower buildings to ensure the building assists with way finding to direct people towards the activity nodes	• Tower development is encouraged to incorporate well designed rooftops which are integrated into the design of the building and add visual interest to the skyline • Roof designs must conceal roof plant equipment and lift over run structures from view • Lighting or similar feature may be used to accentuate the roofscape to provide a feature at night • Roof design should allow for installation of PV solar collectors to help minimise the building's energy consumption

Design Element 3.2.8 Private Open Space

Design Intent	Objective	Acceptable Development
To provide a useable space for residents and contribute to the building's aesthetics.	To provide functional private open space for development which is attractive and secure	• Private open space must be provided for each dwelling that is of a usable size (10sqm for balconies and 12sqm for ground floor courtyards) • Residential dwellings in Morrison Road East and West are required to satisfy requirements of the Residential R-Codes of Western Australia (R-Codes) • Private open space is to be designed to prevent direct overlooking from neighbouring dwellings • Private open space is encouraged for use as break out space for commercial development as roof top gardens and other appropriate means

3.0____General Provisions

Design Element 3.2.9 Visual Privacy

Design Intent	Objective	Acceptable Development
To acknowledge the inner city character of Midland and the corresponding urban standard of development, whilst providing an adequate level of visual privacy	• Total protection from overlooking is unlikely in an inner city context, however design should take into account the desire to minimise overlooking of adjacent private residential space.	Developments should: • not facilitate direct overlooking of adjoining private properties • provide screening and openings at the appropriate sill heights when direct overlooking occurs

Design Element 3.2.10 Fencing

Design Intent	Objective	Acceptable Development
Security and private enclosures are an important feature for residents. The provision of permeable fencing can provide a safe enclosure and activate the private realm simultaneously through passive surveillance for pedestrians.	To provide a safe activated enclosure which enhances private and public security for residential development at ground level.	• Any fencing fronting the street is not to exceed 1.8m in height from natural ground level • Solid fence walls shall have a maximum height of 1.2m addressing the public realm • Any component of the fence more than 1.2m above ground level shall be 70% visually permeable. • Fencing adjacent or viewed from the public realm shall be constructed of high quality materials and must not contain sheet metal or hardifence material • Letter boxes should be incorporated into the fence or into the development Note: Fences to street boundaries of commercial properties will generally only be approved in exceptional circumstances (such as to define an outdoor eating area on private property), and they shall not detract from the intended activation of streets.

3.0____General Provisions

Design Element 3.2.11 Ground Floor Levels

Design Intent	Objective	Acceptable Development
Activation and appropriately scaled pedestrian built form are closely related. Buildings are to be designed at a level which establishes a direct relationship between the pedestrian path and entrance of the building creating a successful interface for pedestrians.	• To ensure development maintains a positive relationship with the street such that pedestrian movement, sightlines and streetscape character are maximised.	• Where development is situated on an identified active street, the ground floor level shall be at the same level of the adjacent footpath • Ground floor levels of buildings are to be at or near ground level • Where residential uses are proposed for the ground floor, a small level change between the private and public realm can aid in the privacy and livability of dwellings. The interface of any level change should be consistent with the provision above as well as allowing for passive surveillance of the street via permeable fencing




Figure 17_ Fences and steps provide a transition from the public to the private realm. However surveillance and a sense of ownership of the street are also important

3.0____General Provisions

Design Element 3.2.12 Acoustics

Design Intent	Objective	Acceptable Development
To alleviate noise intrusion from external sources, particularly from significant events and traffic.	To employ sound attenuation on development to minimise noise impact for residential development from outdoor, entertainment or cultural activities or events.	• Development to comply with the requirements of the City's Development Policy relating to sound attenuation • Residential Development must minimise intrusion of noise from residual break out noise from entertainment uses and venues, street noise, mechanical plant, traffic, aircraft, passenger rail and freight rail through appropriate construction techniques • Commercial Development must minimise intrusion of noise from residual break out noise from entertainment uses and venues, mechanical plant through appropriate construction techniques • All new applications for development must be supported by a report prepared by a qualified acoustic consultant equivalent to those required for admission as a Member of the Australian Acoustical Society • Building extensions under 500 square metres may, at the discretion of the City, be exempt

Design Element 3.2.13 Daylight Access and Overshadowing

Design Intent	Objective	Acceptable Development
To maximise the comfort and amenity of internal and external living and working spaces	To ensure that daylight access is provided to all habitable rooms and encouraged in all other areas of residential flat development. To provide adequate ambient lighting and minimise the need for artificial lighting during daylight hours. To provide residents with the ability to adjust the quantity of daylight to suit their needs. To ensure impact of overshadowing from development on the public realm and adjacent development is minimised to within appropriate constraints given the city centre context.	• Orient new development to optimise northern aspect • For 1-2 storey developments, provide living rooms and principal ground level open spaces with at least 2 hours sunlight between 8.00 am and 4.00 pm in mid-winter • For 3 or more storey developments provide modelling to demonstrate a minimum of 65% of residential apartments shall receive a minimum of 2 hours direct sunlight to living rooms and private open space between 8am and 4pm in mid winter (21 June) • No more than 50% of the public domain (excluding streets) and communal space areas are overshadowed between 10.00 am and 2.00 pm between 21st April and 21st August. • Provide appropriate shading in summer. • Shadow diagrams showing the impact of a proposal on adjacent residential developments, PV solar collectors and their private open space will be required. Development should not unduly impact on the potential for daylight access on adjacent sites.

3.3 PUBLIC REALM REQUIREMENTS

The public realm is the environment that people can access, interact and see. Elements of the public realm include the streetscape, public art, lighting and crime prevention.

A high quality public realm is vital to the activity of a city and determines how people experience a space. It allows for community development, social interaction, physical wellbeing and private contemplation.

This section addresses:

- Streetscape
- Public lighting
- Public art
- Crime prevention

Figure 18_A high quality public realm is important for Midland's growth and development

3.0____General Provisions

Design Element 3.3.1 Streetscape

Design Intent	Objective	Acceptable Development
The streets and streetscapes will contribute to and promote a sense of identity and character by recognising the existing urban form of the local area reflected through the design of both the built form and landscape.	To create a pedestrian focussed, comfortable and safe environment that encourages social interaction and activation by providing pedestrian amenities and passive surveillance from built form.	• Ensure that pedestrian networks are uninterrupted, continuous paths of movement that do not exclude people of disabilities from accessing all services and amenities available • Ensure streets, pedestrian links and car parks are easy to navigate with signage and directional elements • Link pedestrian pathways to all entry and egress points of adjacent buildings • Provide on-street visitor parking bays that are dispersed by street tree planting to ensure parking does not visually dominate the streetscape • Minimise surface run-off by providing permeable surfaces and infiltration/bio-retention opportunities within the streetscape design • Appropriate lighting is provided under pedestrian awnings, along streets and within parks and open spaces • Awnings should be provided where buildings have a nil setback to street in order to provide pedestrian comfort. Design shall be consistent with the City of Swan's local law • Design shall promote safe urban environments consistent with Crime Prevention Through Environmental Design Principles • Public seating shall be provided throughout the centre in appropriate areas • Shade will be maximised through awnings attached to buildings and the planting of leafy street trees to all streets.

3.0____General Provisions

Design Element 3.3.2 Public Art

Design Intent	Objective	Acceptable Development
Public art within an activity centre contributes significantly to the cultural presence of an area. Local art helps to promote a sense of place and is unique to the area and promotes a sense of local pride and placemaking.	• To create an interesting and creative environment through the use of public art that reflects the historic significance and cultural context of the precinct • Contributes to place making via incorporating innovative and interactive public art on buildings or in the streetscape, to be easily seen and accessible from the public realm	• Comply with the City of Swan's Local Planning Policy POL-LP-1.10 Provision of Public Art

Figure 19_ Public art assists in creating local landmarks - visual markers for interest and orientation

3.0____General Provisions

Design Element 3.3.3 Lighting

Design Intent	Objective	Acceptable Development
Midland will be a high density mixed use hub and will require the provision of good lighting to promote feelings of safety and comfort for residents and visitors.	To ensure perceived and actual safety for all users of the centre is achieved by providing lighting in public spaces that allows for a high degree of visibility for pedestrians at all times.	• Lighting to be integrated into built form to highlight architectural features and public art • Lighting shall be used to promote safety and security • Light pole and fitting selection to align with the City of Swan's standards • Lighting design should minimise light spill to residential dwellings • Light poles should be appropriately placed, preferably located in the same alignment as street trees • Ensure inset spaces, access, egress and signage are well lit • Lighting is to be incorporated into building awnings over the footpath and building entrances

Figure 20_ By integrating lighting into built elements, the public realm becomes a safer and more interesting place to be at night

3.0___General Provisions

Design Element 3.3.4 Crime Prevention

Design Intent	Objective	Acceptable Development
Crime prevention via design is important to provide real and perceived feelings of safety for all users of the city so that it remains a desirable place to work, live and visit at any time during day or night.	To create a safe environment during the day and night for building occupiers, residents, and visitors including pedestrians through techniques such as passive surveillance, avoiding concealed spaces and good lighting of the public realm.	• Developments to have regard to the WAPC publication Planning Bulletin 79 'Designing Out Crime Planning Guidelines' • Ground and upper floors designed to provide passive surveillance from the windows of habitable rooms, balconies and terraces of the streets and public realm • Buildings to be designed to avoid the creation of spaces that by their nature, are not easily visible and/ or provide the opportunity for concealment or physical entrapment • All publicly accessible spaces to be visible and well lit • The public realm, including pedestrian and cycle routes, are to be of high quality and provide for easy way finding both day and night as well as link with the wider network • Building entrances are to be designed so they can easily be identified

3.0____General Provisions

3.4 PARKING, SERVICE INFRASTRUCTURE AND ACCESS

Service infrastructure is an important part of allowing development and the broader centre to function effectively. However, it can often be unsightly and therefore appropriate treatment is required to make it an integral part of new development.

This section will address:

- Parking
- Parking location and access
- Sleeved parking
- Storage
- End of trip facilities
- Universal access
- Site services

Figure 21_ Screening elements can be incorporated into a building's architecture to conceal services

3.0____General Provisions

Design Element 3.4.1 Car Parking Rates

Design Intent	Objective	Acceptable Development
The Midland train station is centrally located and a majority of land uses are within a comfortable walking distance. Parking for development within the activity centre is required to take into account the proximity to the station and other public transport nodes. Future development should support the existing public transport and encourage alternatives to car use.	Urban development to encourage and support alternative modes of transport to the car through limiting and screening the provision of car parking.	• Council may waive car parking requirements for residential development in cases where the development is expressly designed and marketed as a zero parking development that incorporates such elements as provision of parking on site for bicycles / scooters; operation of a formal shared vehicle ownership scheme amongst the residents; or un-bundling of parking bays from residential strata • Reciprocal use of car parking bays for uses within a comprehensive development with different peak usage requirements (such as restaurants and offices) may be approved, provided that bays for residential use are always available • The provision of parking is to be in accordance with the Maximum Parking Rates as stated in the Midland Activity Centre Structure Plan and where applicable, the Residential Design Codes

Design Element 3.4.2 Parking Location and Access

Design Intent	Objective	Acceptable Development
Urban built form to conceal car parking facilities and ensure they do not dominate streetscapes or create conflict with pedestrians and vehicle movement.	The number of vehicle crossovers into the development is to be minimised to create a pedestrian friendly environment.	• Car parking entry is to consider building entries, street spaces, building returns and recesses • A maximum one vehicle crossover per development site unless need is demonstrated through a parking and access plan • Vehicle crossovers shall be designed to reduce the street impact and pedestrian environment, including to minimise loss of on street parking bays • A plan is to be provided at Development Approval stage demonstrating that access to car parking areas considers pedestrians, cyclists and other vehicle users demonstrating that potential conflicts are minimised

3.0___General Provisions

Design Element 3.4.3 Screened Parking

Design Intent	Objective	Acceptable Development
Multi storey car parking can maximise the efficient use of land but has the potential to negatively impact on the public realm. All multi storey car parking should be sleeved by development to ensure car parking is screened from view of the public realm.	To screen multi storey car parks from the public realm and to provide active frontages to the street.	• Car parking shall be concealed from public view by active street frontages, or at upper levels by well designed screening systems that may include public art. • Car parking structures that contain 3 or more storeys must be appropriately designed and screened from adjacent or nearby buildings and the street through the use of innovative wall detailing, decorative screening, patterning and vegetation • Consideration will be given to design that enables natural ventilation whilst presenting an attractive public interface • Apartments sleeving the public car park are to maximise frontage to the external environment for improved solar access and ventilation

Design Element 3.4.4 Storage for Dwellings

Design Intent	Objective	Acceptable Development
To ensure residential uses are provided with functional and accessible storage areas in addition to bicyle parking facilities.	Provision of integrated locakable storage stuctures which meet the needs of residents and allow for a range of lifestyle activities.	• Lockable storage to be provided for each apartment/dwelling. If external storage cannot be provided a functional storage enclosure must be demonstrated • External storage structures must not impact on the external appearance of the dwelling • A minimum lockable storage area of 4sqm is required per apartment/dwelling with a minimum internal dimension of 1.5 metres • Smaller storage areas can be considered for single bedroom and studio apartments at the discretion of the City of Swan

3.0____General Provisions

Design Element 3.4.5 Bicycle Parking and End of Trip Facilities

Design Intent	Objective	Acceptable Development
To encourage the use of bicycles, walking and other alternative means of transport to reduce the use of private motor vehicles and contribute to public health	Provision of adequate bicycle and changeroom facilities, secure lockers, bicycle storage and showers will be provided within buildings	• Public bicycle storage to be located throughout the activity centre and greater storage in plaza or communal areas • Developments are to be provided with end of trip facilities in accordance with the following table • Where development does not meet the threshold, provision of bicycle parking and end of trip facilities is encouraged

Commercial Buildings more than 2,000 square metres in floor area:		Bicycle parking facilities must be provided at a minimum rate of 1 bay per 150 square metres of the floor area of a non residential building.
	Accessible showers:	There must be a minimum of two female and two male showers, located in separate changing rooms, for the first 10 bicycle parking bays. Where less than 10 bicycles parking bays are required, 1 unisex shower and change room shall be provided. Additional shower facilities to be provided at a rate of one male and one female shower for every 10 bicycle parking bays;
	Changing facilities:	The changing rooms must be secure facilities capable of being locked. A locker must be provided for every bicycle parking bay provided. Lockers should be well ventilated and be of a size sufficient to allow the storage of cycle attire and equipment.
	Visitor Bicycle Storage:	A minimum of 1 space per 750m2 of NLA up to a maximum of 15 bays. Located and signed near the main public entrance to the building.
Residential:		Bicycle parking facilities for multiple dwellings, shortstay accommodation and serviced apartments shall be provided at a minimum of 1 bay for every three units.

Figure 22_ Use of bicycles for short trips in Midland will become increasingly important, so allowing for comfortable and convenient trips is key

3.0____General Provisions

Design Element 3.4.6 Universal Access

Design Intent	Objective	Acceptable Development
The urban built form and environment is to promote and support 'equity of access', accommodating people of varying physical capabilities throughout the centre to create a cohesive and inclusive community.	To ensure the Midland Activity Centre is an inclusive, accessible urban environment for all people through the provision of appropriate access facilities.	• Urban development shall consider the City of Swan's Disability and Inclusion Plan 2007 - 2011 • Incorporate the "Seven Principles of Universal Design" from the Disability Services Commission into the design of developments

Design Element 3.4.7 Site Services

Design Intent	Objective	Acceptable Development
The location of building services has the potential to impact visually on the intended building design and adjacent spaces if not appropriately considered.	Ensure that services and related elements required for the function of the building are appropriately screened or integrated into the building design.	• Air-conditioning units must not be visible from the streets • Service pipes and wired services are to be concealed from public view • All meters to be contained wthin development lots to the requirements of the appropriate authorities • Provide secure and accessible facilities for mail delivery • Commerical utility and waste storage areas are to be screened or located behind buildings and not visible from public view and residential apartments

3.0____General Provisions

3.5 SUSTAINABILITY REQUIREMENTS

The sustainability design for Midland's town centre is based on an integrated approach to resource management, and best practice to achieve sustainable urban redevelopment. Integral to the sustainability of Midland will be the provision of facilities to encourage alternative modes of transport to the private car and the promotion of a healthy lifestyle that encourages people to actively engage with the urban environment. Encouraging walking and the use of bicycles through the provision of end of trip facilities, improved connectivity and pathways is integral to this vision.

This section addresses:

- Sustainable travel
- Building efficiency
- Water resource management
- Waste reduction and management
- Sustainable use of materials

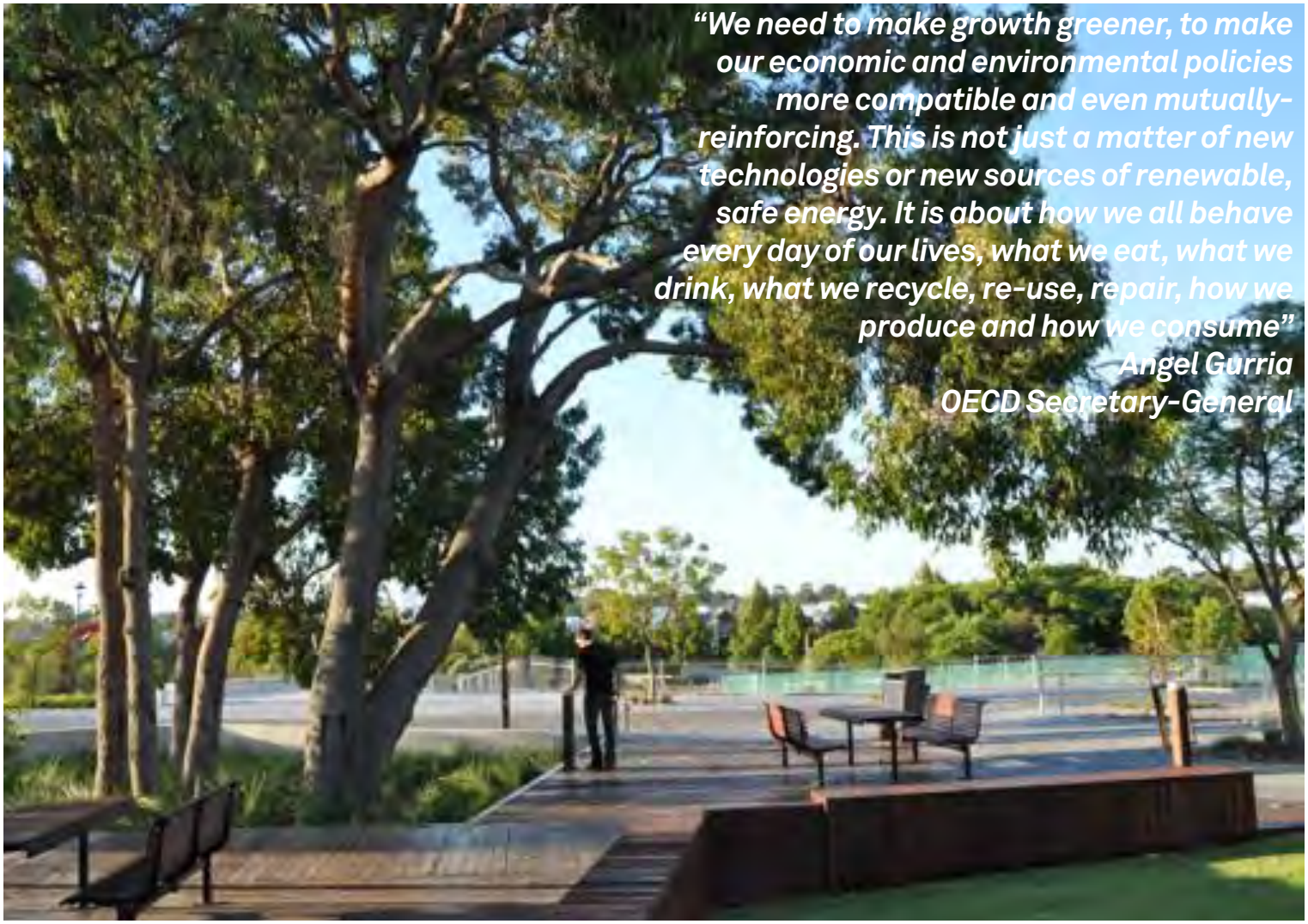


Figure 23_High quality public spaces can provide for a more sustainable Midland

3.0____General Provisions

Design Element 3.5.1 Sustainable Travel

Design Intent	Objective	Acceptable Development

To reduce greenhouse gases through the reduction of motorised transport to and from Midland and encourage residents and visitors to improve their physical health through walking, cycling or other physically active forms of transport either solely or in combination with public transport.	Developments will promote a non-vehicular lifestyle, minimise private car use, maximise access to public transport and facilitate alternative choices for residents, workers and visitors.	• Non-residential development over 2,000 square metres in area must prepare a Travel Plan to demonstrate how the development will maximise access to public transport and provide alternative transportation choices for workers. These should outline management strategies, programs and incentives to encourage:
		  • The use of public transport and non vehicular transport options
		  • Car pooling and car sharing
		• Demonstrate that the needs of pedestrians and cyclists have been prioritised within the development, including the provision of the following:
		  • Surface finishes of all roads and pathways to be safe and comfortable for pedestrians and cyclists
		  • Grade changes between private and public spaces to be complementary and accessible
		  • All pedestrian areas should be adequately shaded and should include complementary amenities such as drinking fountains and rest points in locations best suited to promote non-vehicular travel
		• Demonstrate integrated transport services and facilities, including the provision of the following:
		  • Pick-up | set-down at key place and activation nodes
		  • Clear pedestrian and bicycle access to public transport nodes and amenities
		  • Supporting infrastructure, such as required bike storage and drinking fountains, to be located at key place and activation nodes and in a manner that best integrates into the day-to-day journeys of residents

3.0____General Provisions

Design Element 3.5.2 Building Energy Efficiency

Design Intent	Objective	Acceptable Development
To ensure buildings minimise use of resources and employ market-leading sustainable design, construction and management to contribute to a sustainable outcome	Development in Midland is to exhibit superior environmentally sustainable design, construction and management principles	• Office Development between 2,000 and 4,999 square metres is encouraged to achieve NABERS Office - Energy 5 stars or equivalent • Residential Development over 5,000 square metres in area will be encouraged to achieve a minimum 4 star rating under a current version of Green Star - Multi Unit Residential rating tool or equivalent • Office Development over 5,000 square metres in area will be encouraged to achieve a minimum 5 star rating under a current version of Green Star - Office rating tool or equivalent • Retail Development over 5,000 square metres in area will be encouraged to achieve a 5 star rating under a current version of Green Star - Retail Centre rating tool or equivalent

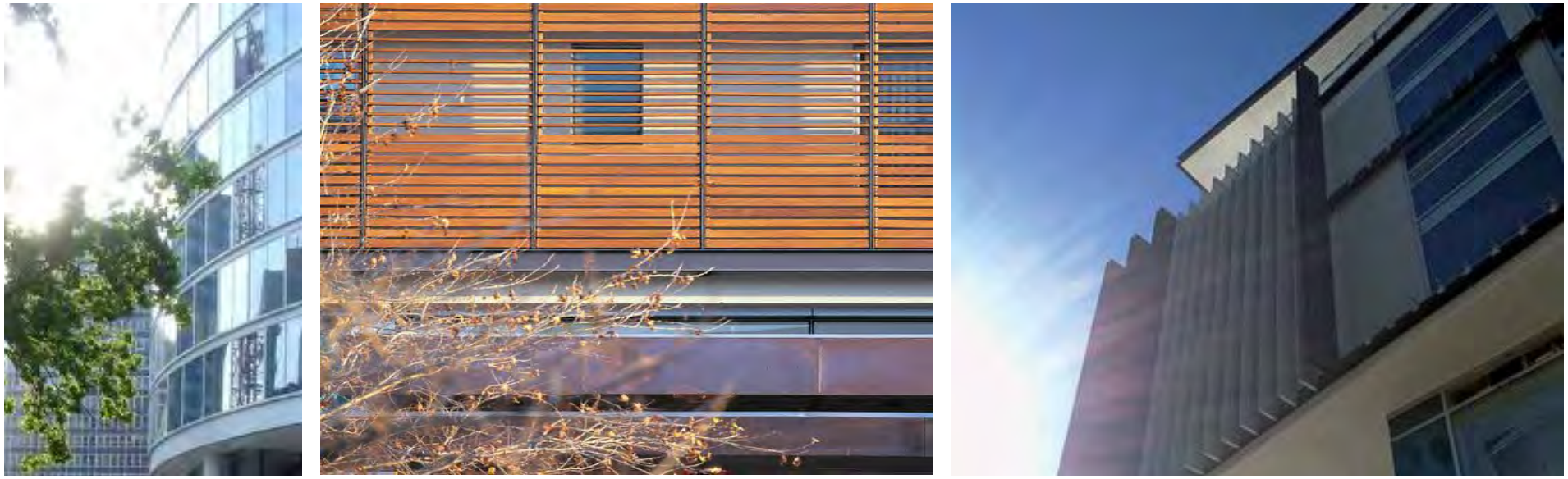


Figure 24_ Shading devices and double glazing allow for more energy efficient buildings

3.0____General Provisions

Design Element 3.5.3 Water Resource Management

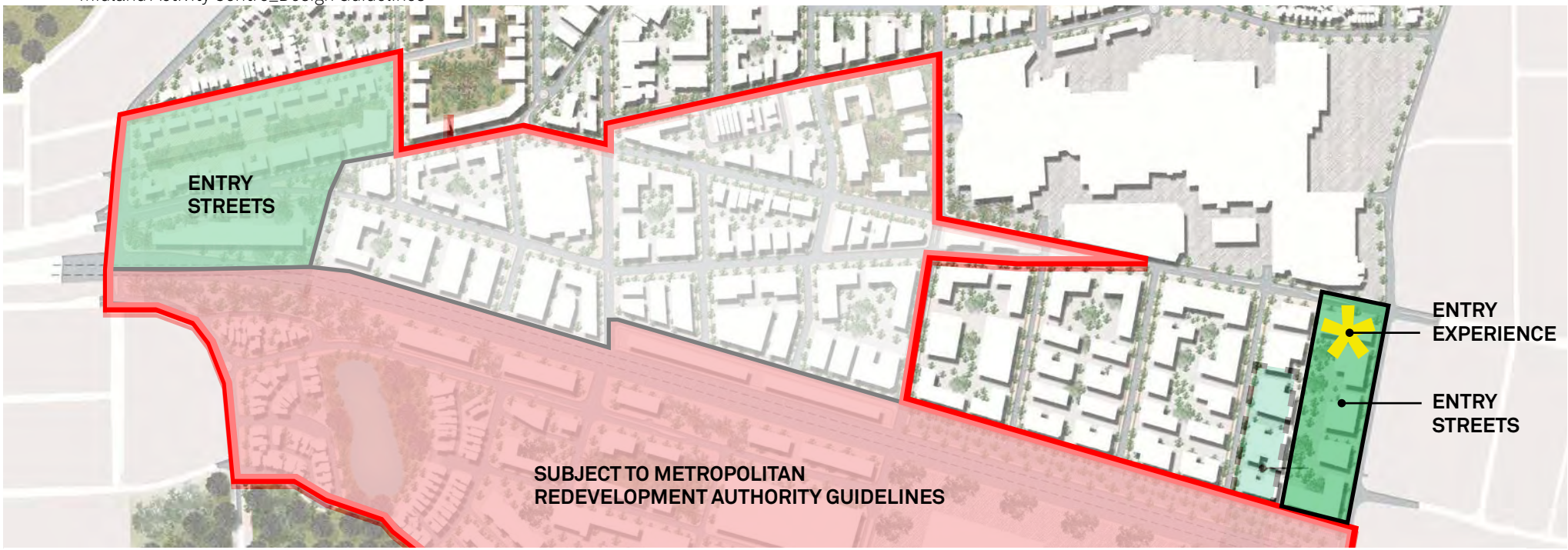
Design Intent	Objective	Acceptable Development
Water management strategies for Midland will be based on the combined strategies of demand reduction and fit-for-purpose use of all water streams on site. Design must take into account the requirement to connect to the City of Swan's district drainage system.	To demonstrate a sustainable approach to water management on the site by reducing water demand, maximising water reuse and incorporating water management initiatives throughout the life of the development.	• Demonstrate the inclusion of water efficient infrastructure to reduce water consumption, without increasing energy consumption (such as low flow tapware, recirculating systems for irrigation, smart sewer networks etc.) within Development Applications • Development is encouraged to provide grey water systems for use consistent with Department of Health guidelines • A landscape plan is to be submitted that demonstrates full compliance with the Water Corporation's Waterwise Development criteria, which requires the use of plants with low water requirements and use of waterwise irrigation types and practices. This includes subsurface irrigation systems, selection of 'waterwise' species, and soils improved with conditioners and mulch to reduce water demand

Design Element 3.5.4 Waste Reduction and Sustainable Use of Materials

Design Intent	Objective	Acceptable Development
Sustainable waste management will be achieved through the combined strategies of waste reduction, reuse and recycling, waste awareness and performance monitoring. To reduce energy consumption and greenhouse gases through the construction and lifecycle of all buildings and associated infrastructure; whereby the appropriate choice of materials and efficient manufacturing processes assist in the minimisation of impacts on the environment.	To make systems for the collection and disposal of recyclables and organic waste user friendly and well integrated so that recycling and waste avoidance become 'standard' behaviour, as well as encourage commercial occupants to adopt waste minimisation and sustainable practices. All building materials will be selected for their suitability to the required use as well as for sustainability criteria which consider internal environmental quality of buildings and environmental impact both on site and through the life-cycle of the building materials.	• Building design is to include space for waste and recycling - storage and collection requirements • All residential developments are encouraged to have waste separation bins included in the kitchen and waste collection areas, allowing for as a minimum: ("Organic", "Recycling" and "General Waste") • Refuse storage and collection facilities are to comply with the requirements of the City of Swan Waste and Recycling and collection regimes • Service areas are located in appropriate locations away from adjacent sensitive land uses • A Waste Management Plan is to be provided which details how sustainable waste management will be achieved and maintained through the combined strategies of waste reduction, reuse and recycling, waste awareness and performance monitoring • Demonstrated incorporation of principles of minimal material use, recyclability and use of recycled materials

Public art, helping to explain Midland's past in The Workshops precinct

Precinct Guidelines



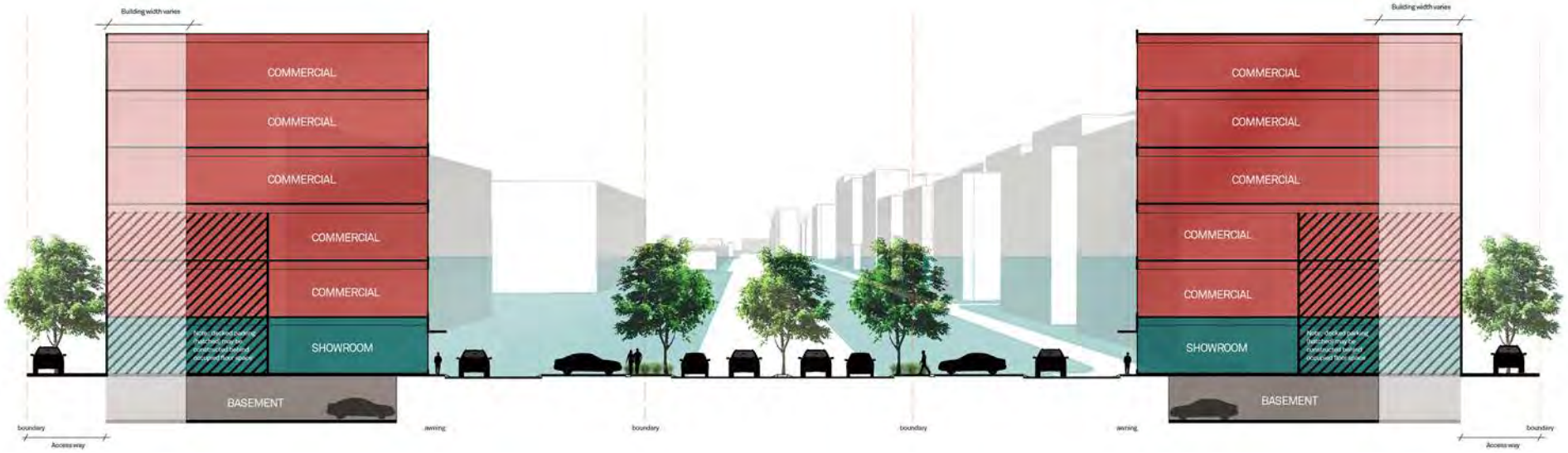


Figure 26_A typical cross section of the Entry Streets precinct showing building setbacks, height, car parking and street characteristics

4.0___Precinct Guidelines

3.6 ENTRY STREETS

3.6.1 Character Statement	3.6.2 Land Use	3.6.3 Building Setbacks	3.6.4 Car Parking and Access	3.6.5 Building Articulation	3.6.6 Building Height
The entry street precincts are ideal locations for high quality architectural design to create visual interest and welcome people to Midland. Great Eastern Highway and Lloyd Street will be intensely landscaped to create a positive impression of Midland and create a boulevard character. Buildings shall be built up to six storeys to create an urban edge that will define the public realm and accommodate a mix of commercial and highway oriented land uses. A landmark building at the corner of Morrison Road and Great Eastern Highway will provide a sense of arrival into the centre. Here, development will directly address the street and frame the entry experience.	Land use is defined by the Midland Activity Centre Structure Plan.	• Building setbacks are defined by the Midland Activity Centre Structure Plan • Front setbacks may contain car parking and shared access ways • The setback area must be well landscaped with tree planting providing shade for parked cars at the rate of one tree per four car bays • A minimum 1.5 metre landscape strip is required at the street boundary to contribute to the boulevard entry character • Rear setbacks are to be 3 metres and will provide for vehicle circulation or landscaping. Variations to the rear setback may be contemplated based on impacts to amenity of the adjoining property	Car park design must take into account pedestrian circulation. A pedestrian path along the front building edge and connecting car parking areas to the building entry is required at a minimum width of 1.2 metres. Vehicle entry, car parking design and access from Lloyd Street and Great Eastern Highway is governed by a “Highway Access Strategy” or Council Policy until such a Strategy is completed. Crossovers will be limited to the zones identified on the Highway Access Strategy and vehicle circulation will be shared across lots and controlled by an easement to the benefit of the public and the City of Swan.	• The urban form for the entry streets shall be distinct, contemporary in design and avoid excessive building massing and bulk • Permanent blank walls are not permitted and buildings require major openings to provide surveillance and interface to the public realm • Windows shall make up no less than 50% of the ground floor and 40% of the upper floor • All ‘building frontages’ to have no area of wall greater than 10m in length being without a door or significant window • Facade design shall be continued to all external facades of the building. The facade detail may be simplified on loading areas, parapet walls and facades to ‘back-of-lot’ areas • The facade of the building shall be designed to express vertical proportion and to provide interest through the inclusion of complementary architectural elements and treatments	Maximum building height is 6 storeys and lots on the corner of Great Eastern Highway and Morrison Road West and Lloyd Street are required to provide an iconic or landmark design to the satisfaction of the planning authority.

Note: These development provisions apply only to the area under the authority of the City of Swan. For areas under the authority of the Metropolitan Redevelopment Authority, refer to the Midland Redevelopment Scheme and associated development policies and design guidelines.

4.0____Precinct Guidelines

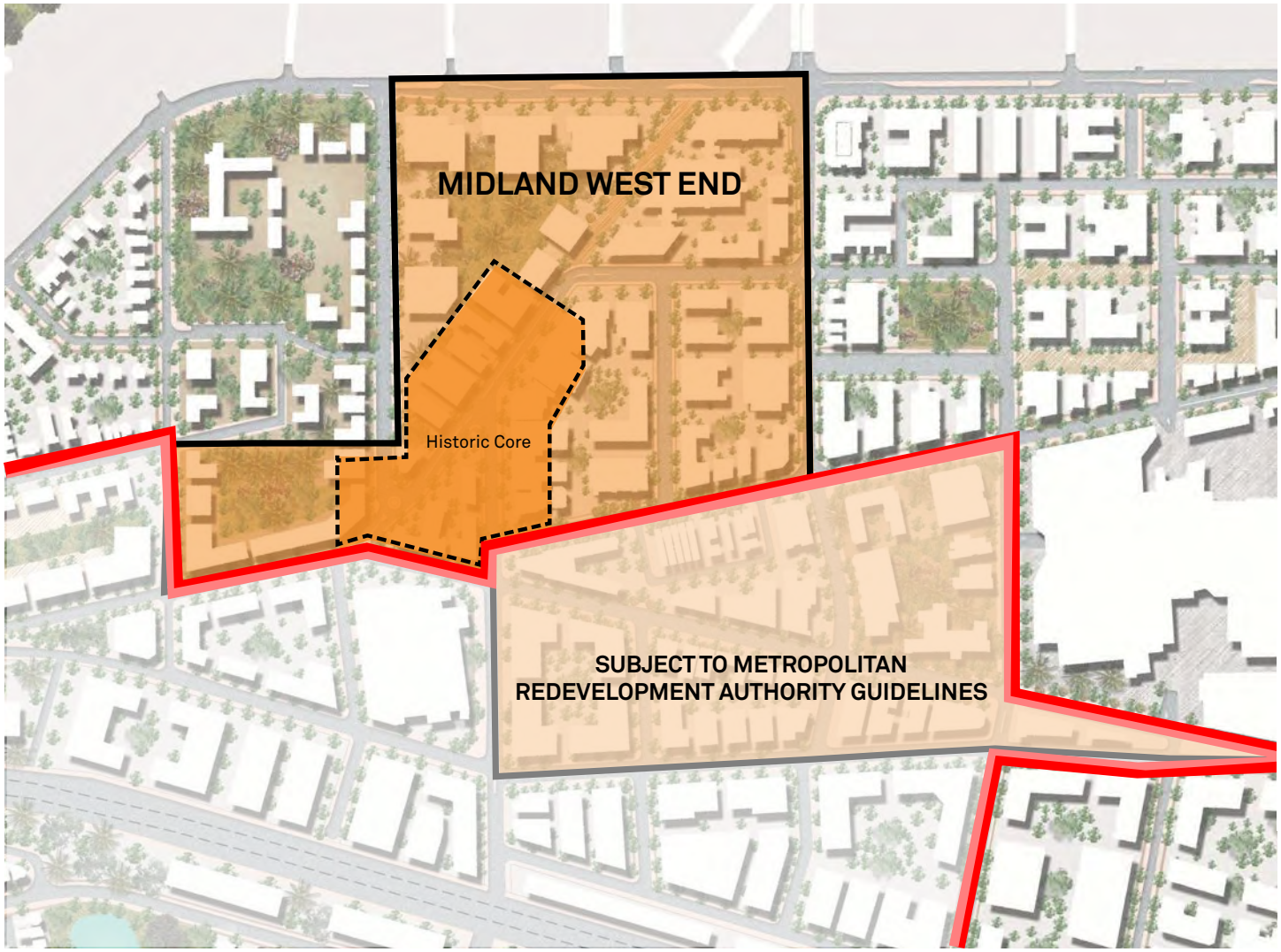


Figure 28_ The Midland West End Precinct within the activity centre, showing the historic core which has particular design characteristics

4.0____Precinct Guidelines

3.7 MIDLAND WEST END

3.7.1 Character Statement	3.7.2 Land Use	3.7.3 Building Setbacks: Historic Core	3.7.4 Building Setbacks: Rest of Precinct	3.7.5 Building Articulation
New development in Midland West End will contribute to the pedestrian scaled character established by the historic building fabric. The area will continue its mix of retail, offices, cafe/restaurant uses that activate the street and are evocative of a traditional town centre. Non-residential uses will be located at street level and residential uses can be accommodated at upper storeys. The built form will spark visual interest, passive surveillance and interface with pedestrians to contribute to development of Midland's heart. Within the historic core, careful attention will be paid to enhancing the existing character established by the historic fabric. Here, the building facade at the street interface will be limited to two storeys and upper floors will be set back, thus protecting the historic streetscape of Old Great Northern Highway and Helena Street. New development that interfaces with heritage buildings shall exhibit appropriate development form by relating to the intended street character and ensuring bulk and building lines respect adjacent development.	Land use is defined by the Midland Activity Centre Structure Plan.	• Within the historic core, buildings must be constructed to the street frontage for the first two storeys. Upper storeys shall be setback three metres from the street frontage • Side setbacks shall be nil to create a continuous built frontage for the first two storeys and 3 metres for upper floors • Rear setbacks may be nil for the first two storeys and 3 metres for upper floors	• Outside the historic core, buildings must be constructed to the street frontage for the first three storeys. Development up to the fifth floor may be constructed to the street or set back. • A sixth storey is permitted, but must be setback 3 metres from the street frontage • Where adjacent to a heritage building, new development shall provide a complementary and respectful building form. The street interface height and setbacks may be two to three storeys with upper levels set back. • Side setbacks shall be nil to create a continuous built frontage for the first four storeys. The fifth storeys may also be constructed to the side boundary • Rear setbacks may be nil for the first two storeys and 3 metres for upper floors	• The built form for the area shall provide continuous vertical rhythym and pedestrian amenities such as awnings • Development shall respect the established architecture providing clearly defined door and window openings in predominantly solid exterior walls. Windows shall make up no less than 50% of the width of the facade on upper storeys • The proportion of window and openings to solid wall should be increased on the ground floor. Windows and doors shall make up no less than 70% of the width of the ground floor facade • Development shall express vertical emphasis through the design of openings and the use of architectural features to break up larger surface areas • The façade shall be broken into individual elements with a strong relationship and rhythm • Permanent blank walls are not supported. • Awnings over footpaths are to be provided for no less than 80% of the street front • Balconies are encouraged but shall not run continuously along the façade. Separate individual balconies are appropriate

Note: These development provisions apply only to the area under the authority of the City of Swan. For areas under the authority of the Metropolitan Redevelopment Authority, refer to the Midland Redevelopment Scheme and associated development policies and design guidelines.

4.0____Precinct Guidelines

3.7.6 Building Levels	3.7.7 Roof Form	3.7.8 Parapet Walls	3.7.9 Building Height: Historic Core	3.7.10 Building Height: Rest of Precinct	3.7.11 Building Materials
• Facade heights and vertical lines should be compatible with key historic mercantile and hotel buildings in the area • Floor to ceiling heights on the ground floor should be a minimum of 3.5 metres • The ground floor should be flush with the adjacent footpath at the boundary line	Roof forms and designs which complement the existing urban built form are encouraged to support the existing character and amenity.	Building parapets to the street facade are encouraged to provide a consistent character to the established development pattern.	• Maximum building height of 6 storeys is acceptable provided storeys above 2 storeys are setback 3m from the street frontage to create a consistent streetscape and ensure development is sensitive to the historic fabric • The minimum building height is 2 storeys	• Maximum building height of 6 storeys is acceptable provided the top storey is setback 3m from the street frontage to create a pedestrian scale • The minimum building height is 2 storeys	Extensive use of concrete tilt panels is discouraged. Where concrete tilt panels are used, their colour shall be an integral part of the material. Painted finishes are not permitted.

Note: These development provisions apply only to the area under the authority of the City of Swan. For areas under the authority of the Metropolitan Redevelopment Authority, refer to the Midland Redevelopment Scheme and associated development policies and design guidelines.

4.0____Precinct Guidelines

Figure 29_A typical cross section within the broader Midland West End precinct, showing building heights, setbacks, land use and street characteristics

Figure 30_ An example of the types of buildings to be expected within the Midland West End precinct

4.0____Precinct Guidelines

Figure 31_ Examples of public realm and built form elements expected within Midland's West End precinct

4.0____Precinct Guidelines

Figure 32_A typical cross section within the historic core of the Midland West End precinct, showing building heights, setbacks, land use and street characteristics





Figure 33_ Historic fabric in Midland's Historic Core can be incorporated into larger and contemporary buildings of appropriate scale

4.0____Precinct Guidelines

Figure 34_ An example of the quality of built form expected within the Morrison Road West precinct

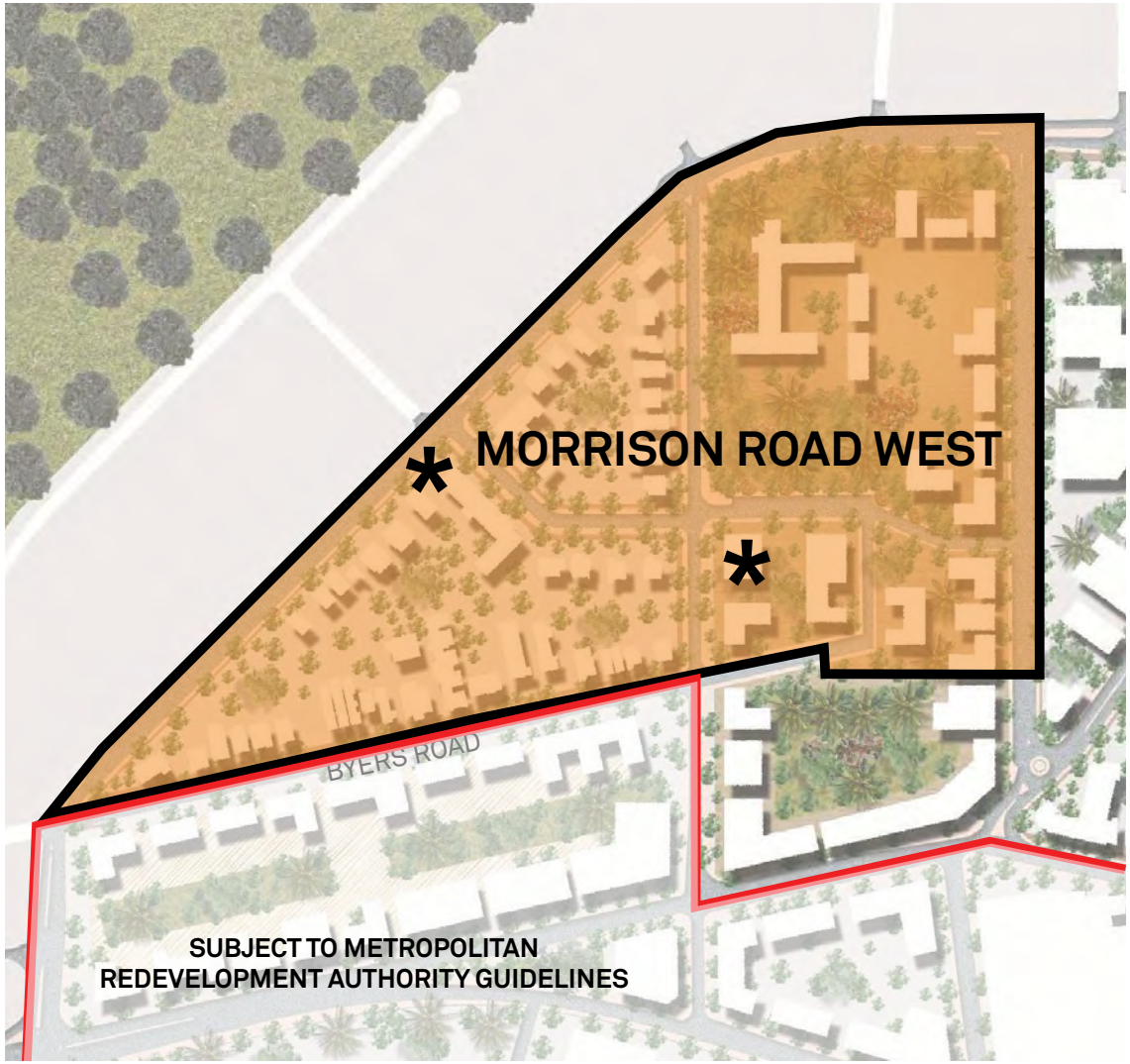


Figure 35_ The Morrison Road West Precinct, showing landmark sites

4.0____Precinct Guidelines

3.8 MORRISON ROAD WEST

3.8.1 Character Statement	3.8.2 Land Use	3.8.3 Building Setbacks: Byers Road
Morrison Road West will be an important medium to high density housing precinct, providing a mix of housing opportunities near to Midland's core. Leafy streets and landscaped front setbacks will combine to create a soft and comfortable urban setting for apartment buildings. A new park associated with the former primary school site will provide a neighbourhood focus and point of amenity. Retention and adaptive re-use of character building stock will occur, providing a unique sense of place to the precinct.	Land use is governed by the Midland Activity Centre Structure Plan.	• To preserve the character of Byers Road in relation to the existing character buildings, the front setback of buildings shall be 4 metres for the first two storeys with upper floors setback a further 4 metres from the building face • Side setbacks may be nil to both side boundaries, except where development is adjacent to an identified character building • Where development is adjacent to a character building, the side setback may be nil for the first level, 1 metre for the second level and 3 metres for any additional level • Rear setbacks shall be 4 metres • Balconies projections may vary but must be provided wholly within the building envelope

Figure 36_ Appropriate apartment development, showing articulation, a range of materials, respecting nearby development and an approach to landmark development

4.0____Precinct Guidelines

Figure 37_A typical cross section of development in the Morrison Road West precinct, showing building scale, setbacks, and street characteristics. Upper floors can be setback inside the building envelope to create building articulation and visual interest.

Figure 38_ Appropriate apartment development, showing articulation and a range of materials

4.0____Precinct Guidelines

3.8.4 Building Setbacks: Morrison Road

To take into account future road widening of Morrison Road, front setbacks shall be 4 metres from the new boundary line (11 metres overall including 7 metre road widening).

Site boundary setbacks may be nil to both side boundaries.

Rear setbacks shall be 4 metres.

3.8.5 Building Setbacks: Landmark Sites

Building setbacks shall be as per the setbacks identified for the "rest of precinct" except for development above the fifth storey, where an 8 metre setback from all boundaries is required.

3.8.6 Building Setbacks: Rest of Precinct

- Front setbacks shall be 4 metres.
- Side setbacks may be nil to both side boundaries.
- Rear setbacks shall be 4 metres.

3.8.7 Building Height

Buildings may be constructed to a maximum of six storeys across the precinct apart from identified exceptions. A minimum building height of 2 storeys or 6 metres applies.

Byers Road: Buildings may be constructed to six storeys, however the upper three storeys must be setback 4 metres from the building face.

Landmark Sites: Two landmark sites are identified within Morrison Road West. These sites may be constructed to eight storeys.

Figure 39_ Diagram showing the extent of road widening required for Morrison Road

Figure 40_ An example of appropriate development for Byers Road, showing new development behind conserved buildings

4.0____Precinct Guidelines

Figure 41_ Sites along Byers Road that have retention value and contribute to a sense of place

Figure 42_ Historic built fabric along Byers Road, Midland

4.0____Precinct Guidelines

3.8.8 Byers Road Character Buildings

A number of character homes exist on Byers Road that contribute to the character of the precinct, aswell as the old Masonic Hall on Lot 6 (St. No. 23) Spring Park Road. These buildings should be retained.

Development may be accommodated to the rear of the character residential buildings or at least retention of the front facade and the depth of one room bay subject to compliance with the provisions of these design guidelines and the Midland Activity Centre Structure Plan.

3.8.9 Morrison Road Access

- Access to lots from Morrison Road should be shared or consolidated where possible
- The Midland Activity Centre Structure plan requires the creation of rear laneways or shared private roads in order to provide access to lots from Morrison Road
- The rear lane or accessway shall be 6 metres in width to provide space for two way vehicle movement

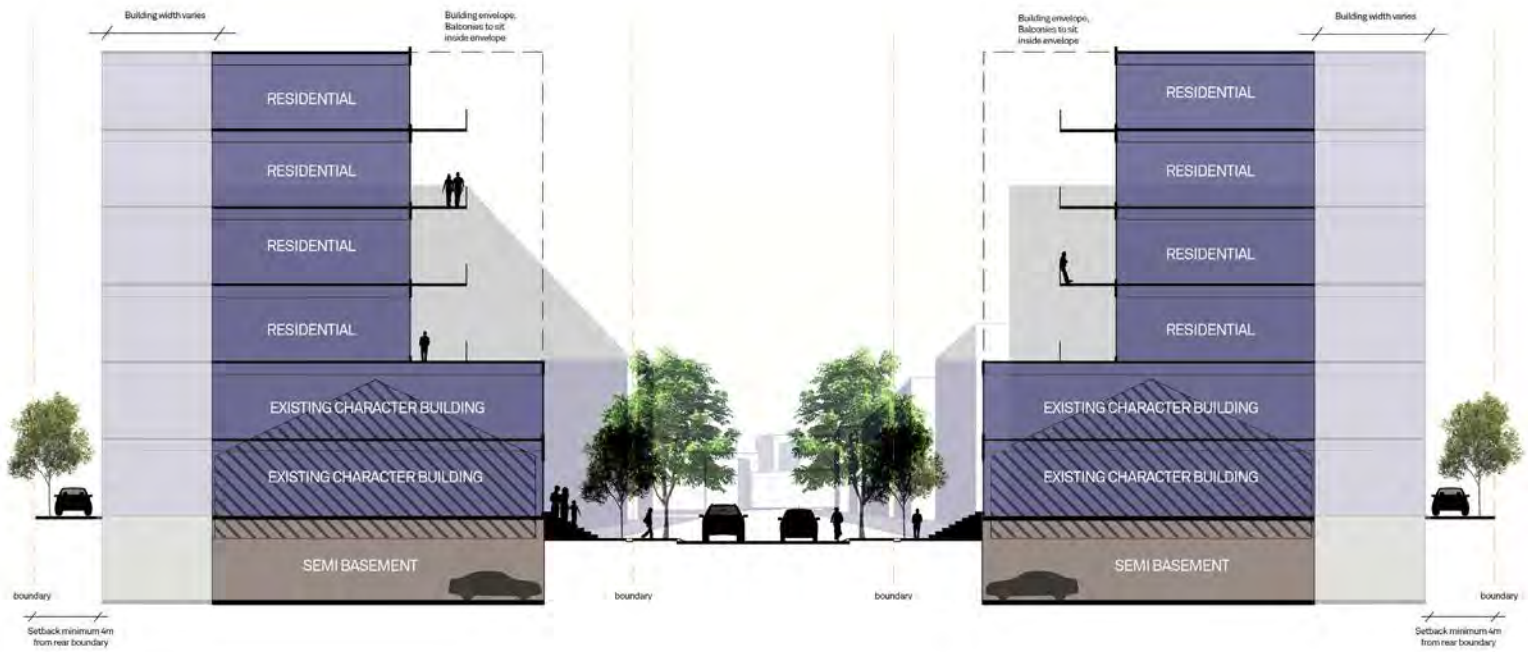


Figure 43_A typical cross section of Byers Road, showing street characteristics and building form

4.0____Precinct Guidelines

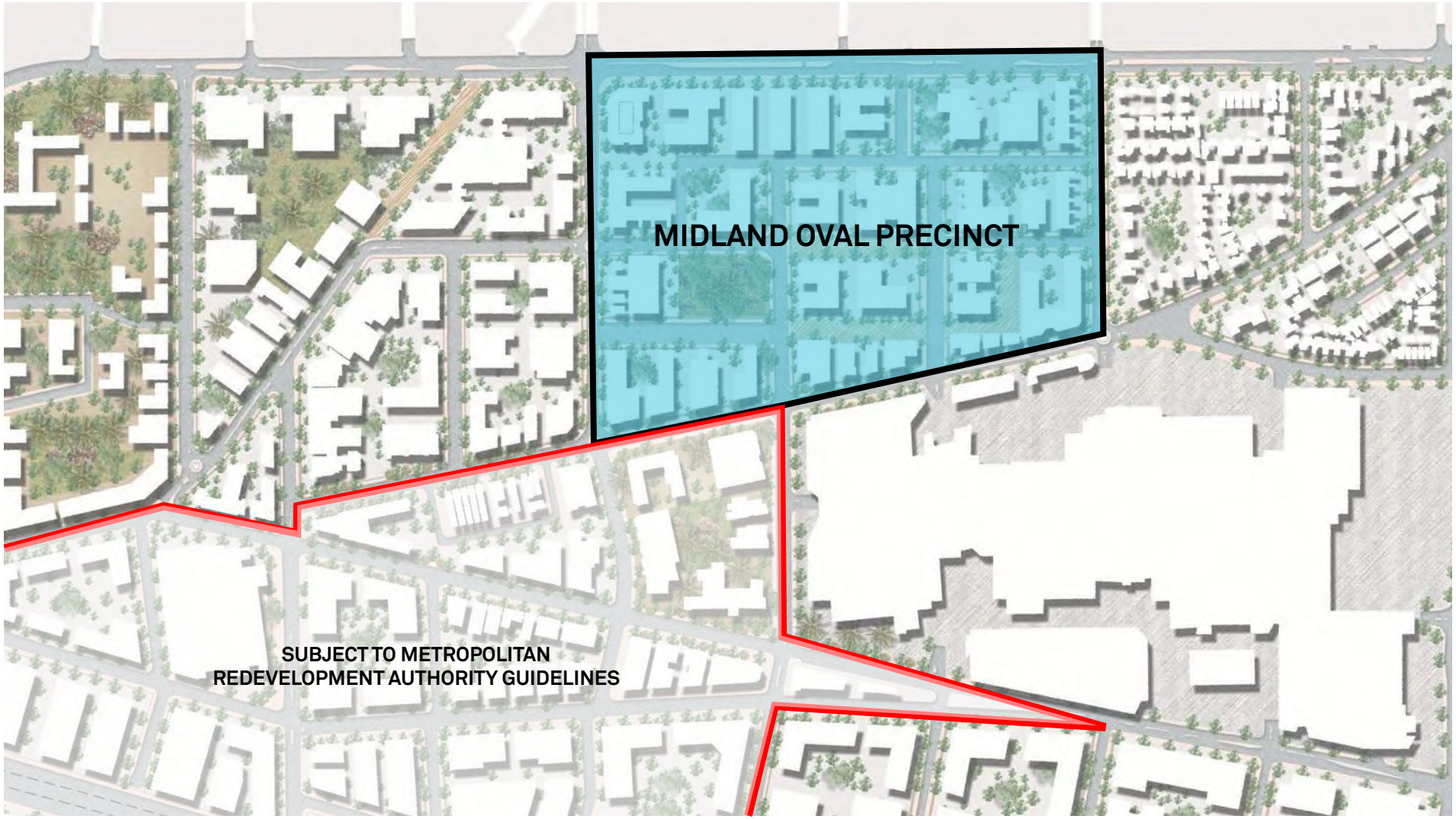


Figure 44_ The Midland Oval precinct

4.0____Precinct Guidelines

3.9 MIDLAND OVAL

3.9.1 Character Statement

The Midland Oval precinct offers one of the greatest opportunities in the activity centre to establish a more intense residential presence whilst also bolstering the commercial office offer.

An urban green is proposed within the precinct to provide amenity for future residents and workers, albeit in a form more appropriate to an urban centre. The urban green will also help drive redevelopment opportunities by creating a point of focus within the precinct and allow space for respite and calm amongst the activity centre.

Along The Crescent, development will be pedestrian scaled and complement the activated retail function of that street. Taller development up to ten storeys will be accommodated across the remainder of the precinct, containing a mix of office, residential, retail, civic, entertainment and dining land uses. This taller development will address the street to provide an urban setting, complemented by extensive street tree planting.

3.9.2 Land Use

Land use is defined by the Midland Activity Centre Structure Plan.

3.9.3 The Crescent and Cale Street

Ground floor uses along The Crescent and Cale Street will contribute towards an activated streetscape. Retail, dining, business services, civic and entertainment uses are preferred. Less active uses including office and residential accommodation are appropriate at upper storeys or where shown on the indicative precinct plan.

3.9.4 Rest of Precinct

The remainder of the Midland Oval Precinct will be a mixed use office, commercial and residential precinct. A civic focus will be created around the centrally located open space to support Midland's community needs.

Figure 45_ An example of the quality of development expected within the Midland Oval precinct

4.0____Precinct Guidelines

3.9.5 Building Setbacks	3.9.6 Roof Form	3.9.7 Building Height	4.4.8 Rear Laneways
The Crescent • Buildings must be constructed to the street frontage for the first four storeys. A fifth and sixth storey is permitted, but must be setback 4 metres from the floor below it. • Side setbacks shall be nil to create a continuous built frontage for the first four storeys. Upper storeys shall be set back by 3 metres from the side boundary. • Rear setbacks may be nil for the first four storeys. Upper floors shall be setback 3 metres from the property boundary. Cale Street, Keane Street • Buildings must be constructed to the street frontage for the first four storeys. Upper storeys must be setback 4 metres from the street boundary. • Side and rear setbacks may be nil for the first four storeys. Upper floors shall be setback 3 metres from the property boundary. Morrison Road, Sayer Street, The Avenue (East) • Buildings must be constructed to the street frontage for the first four storeys. Upper storeys must be setback 4 metres from the street boundary. • Side and rear setbacks may be nil for the first four storeys. Upper floors shall be setback 3 metres from the property boundary. Laneways • Buildings may be constructed to the laneway boundary. Buildings must be designed to provide surveillance and engagement with the laneways.	The roof form of development shall be designed to create distinct elements and not appear as one element.	Minimum and maximum building height is established by the Midland Activity Centre Structure Plan.	The intricate laneways will encourage vehicle access and be designed to be safe and well lit which facilitates activation and surveillance.

4.0____Precinct Guidelines

3.10 CENTRAL CORE

3.10.1 Character Statement	3.10.2 Setbacks	3.10.3 Land Use
The Central Core is divided into three components (Victoria Street, Cale Street and Helena Street) which have individual goals for activation and building setbacks and height. Victoria Street is the key western link and proposes a commercial ground floor and semi-activation with the public realm, whereas Cale Street and Helena Street which are key north-south connections will achieve complete activation. The three streets will be developed to the front boundary to optimise development potential and facilitate pedestrian interface, safety and comfort. This precinct will be developed intensively to optimise activation and connectivity with the overall activity centre. The urban environment will focus on pedestrian comfort and safety by providing continuous vegetation by providing appropriate setbacks to shop fronts and residential development to allow for a leafy and green environment. The Central Core will be primarily office and residential and the three key streets (Victoria, Cale and Helena) will have a particular design intent for activation. Victoria Street will serve as the key western link to neighbouring precincts and Cale Street and Helena Street will facilitate connectivity with the south of the railway.	• Built form within the general streets will be setback 4 metres. Victoria Street, Cale Street and Helena Street will allow built form to be built up to the boundary for the first four storeys, the fifth level will be setback three metres from the boundary and the tower component will be setback 10 metres • The side and rear setbacks for the general streets are 4 metres whereas the three key streets can allow a nil side setback • New development that interfaces with heritage buildings shall exhibit appropriate development form by relating to the intended street character and ensuring bulk and building lines respect adjacent development.	• The land use permissibility for the Central Core is governed by the structure plan. T

Note: These development provisions apply only to the area under the authority of the City of Swan. For areas under the authority of the Metropolitan Redevelopment Authority, refer to the Midland Redevelopment Scheme and associated development policies and design guidelines.

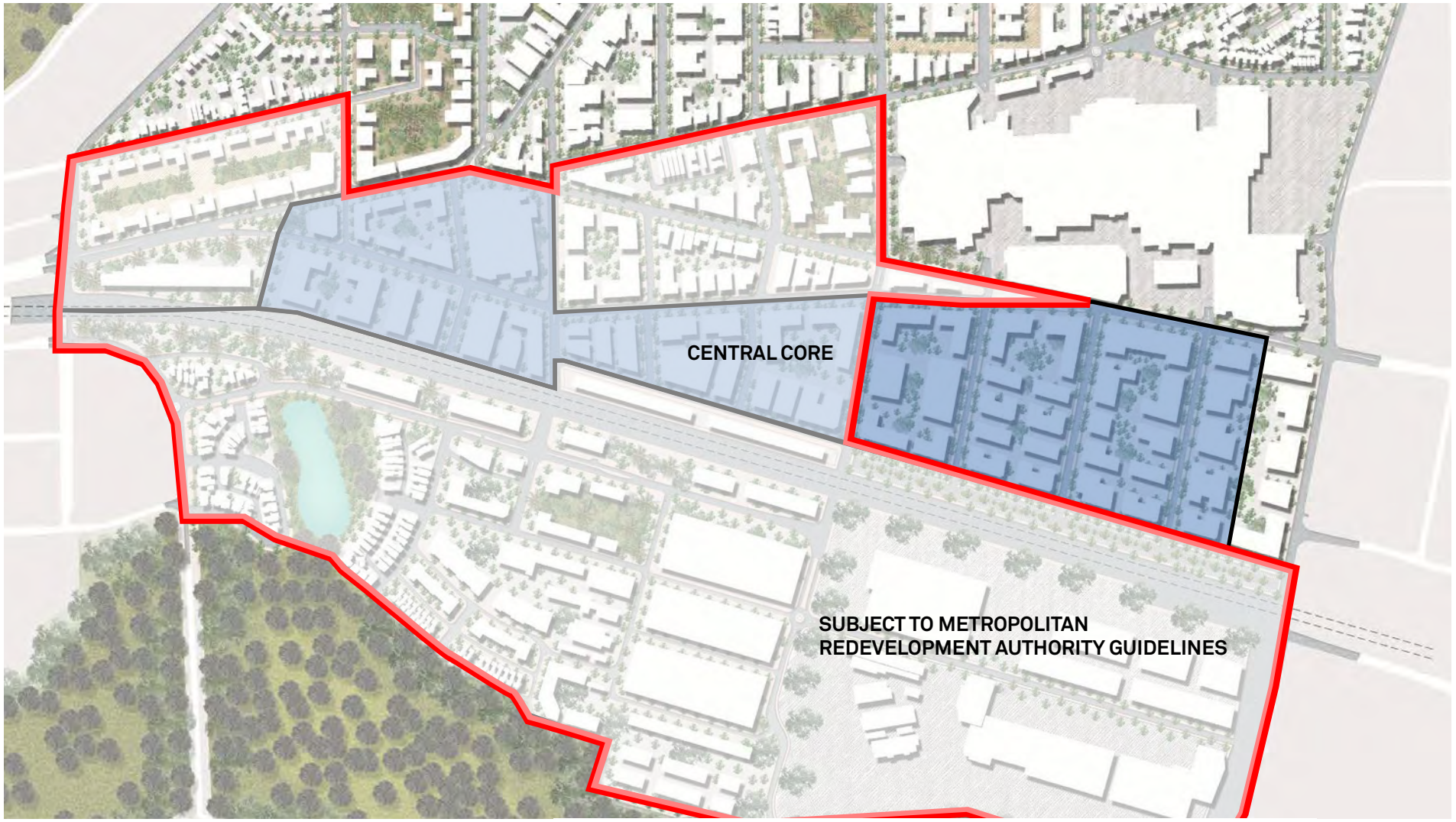


Figure 46_ Design guideline areas within Midland's activity centre

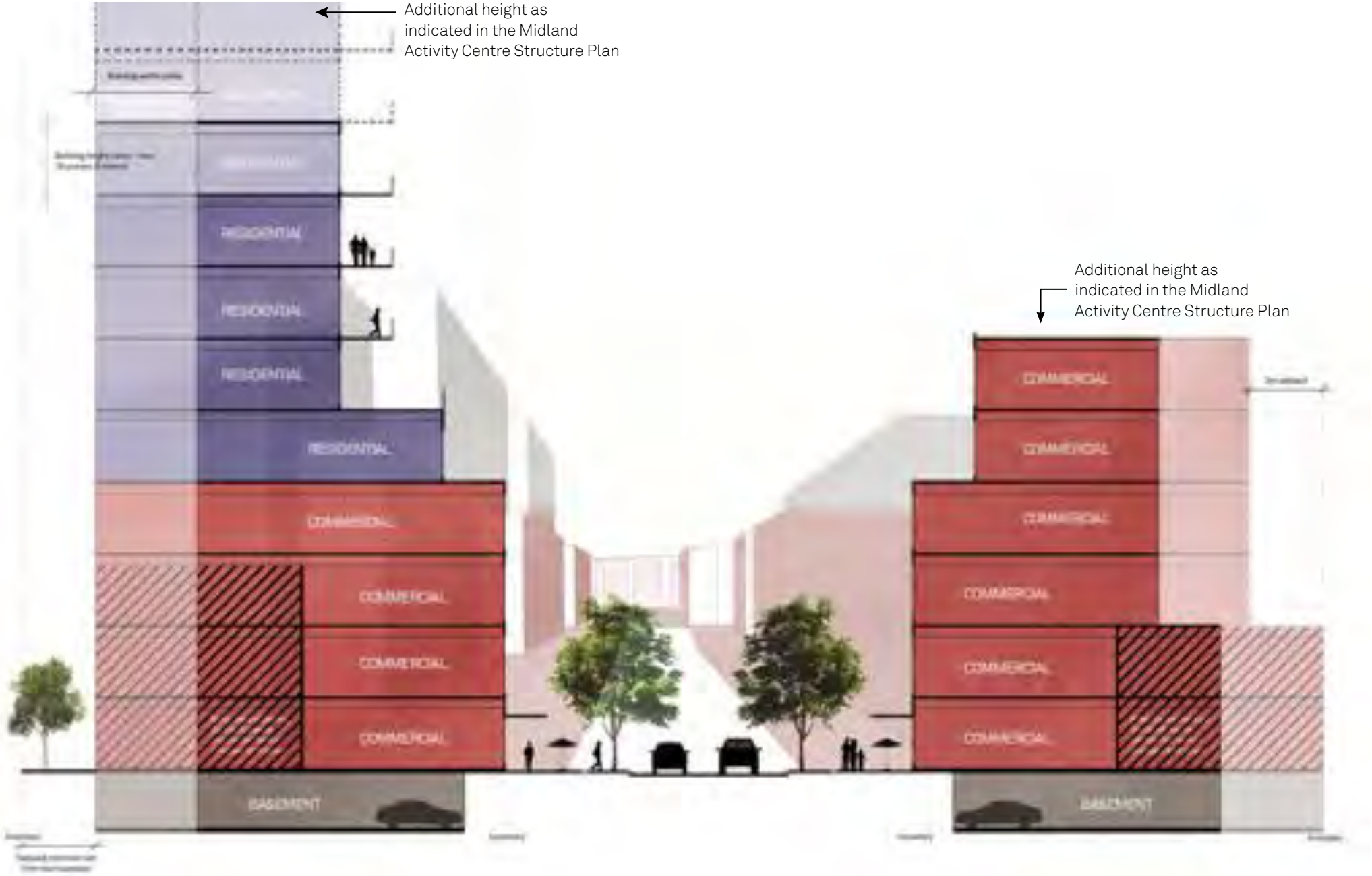


Figure 47_A typical cross section of development along Victoria Street, showing street characteristics and building form

4.0____Precinct Guidelines

Figure 48_A typical cross section of development along southern Cale and Helena Streets, showing street characteristics and building form

4.0____Precinct Guidelines

3.10.4 Heights	3.10.5 Building Articulation	3.10.6 Landscaping
Maximum Building Height: 12 storeys, except for the land bound by Helena Street, Victoria Street, Great Eastern Highway, where a maximum of 10 storeys applies. Minimum Huilding Height: Cale Street - 5 storeys (16 metres) Rest of precinct - 3 storeys (10 metres)	• The built form for the Central Core precinct will be characteristic of contemporary architecture utilising contemporary design, demonstrate architectural features and building articulation throughout the urban environment • Buildings along Victoria Street, Cale Street and Helena Street will provide awnings for 80% of the frontage. Tilt panel construction within the precinct is allowable, but the colour and finish must be integral to the material	• The precinct is a highly activated precinct with high frequency of pedestrian movement which provides setback areas that are landscaped to a high quality • The front setback area must contain a large proportion of soft landscaping and in ground landscaping is preferred over shallow landscaping above basements, particularly in front setback areas which provides the opportunity for tree planting • Alternative landscaping approaches will be considered where basement parking to the boundary is required

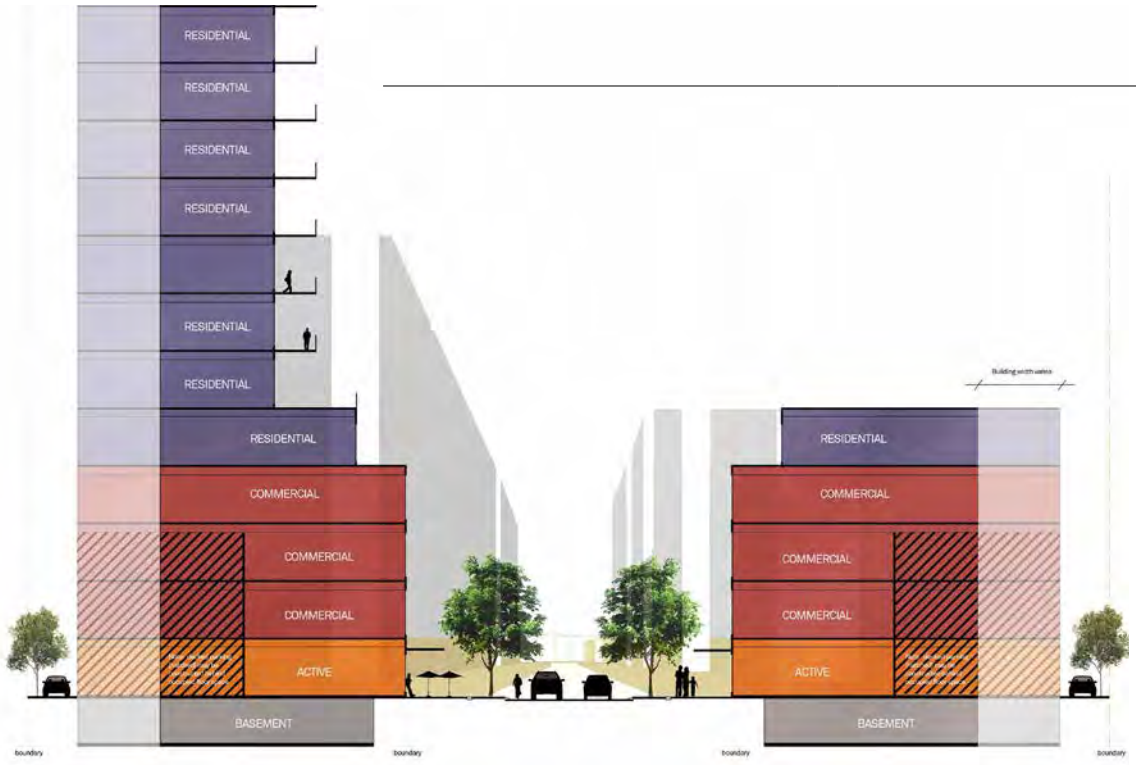


Figure 49_ Demonstration of the approach to taller built form

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