Liverpool Collaboration Area

Strategic Transport Impact Assessment

Coronation Property and Leamac Property Group

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1 Executive Summary

This Strategic Transport Impact Assessment has been prepared by Aurecon on behalf of Leamac and Coronation to assess strategic transport alignment in relation to a Planning Proposal at Moore Point, Liverpool (the site).

The site is located east of Liverpool CBD on the opposite side of the Georges River and north of Newbridge Road. It provides a site area of 38.5 hectares (approx.) and is currently developed with industrial uses.

The site is situated within Liverpool Collaboration Area's Georges River North precinct and is subject to the priorities and actions of the Liverpool Place Strategy (Strategy), which was released by the Greater Sydney Commission (GSC) in December 2018. Refer to the figure below:

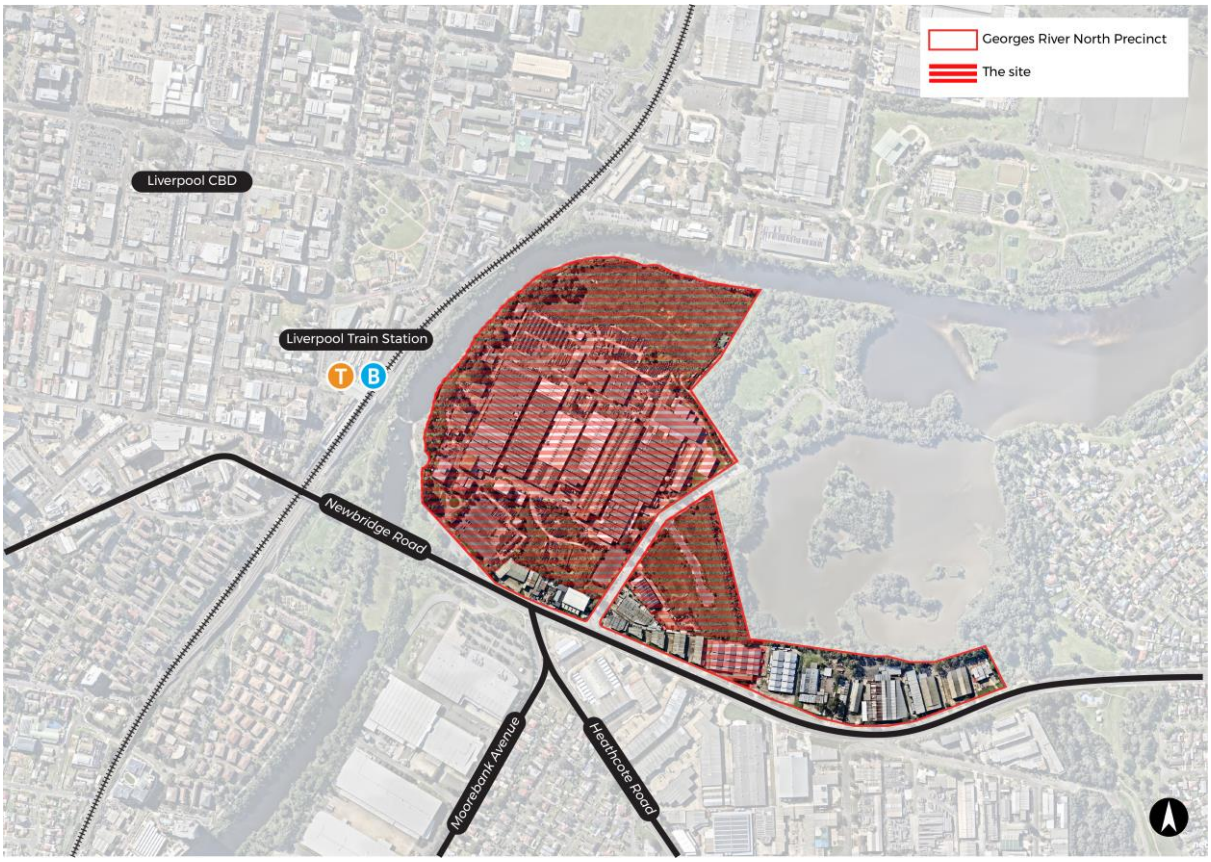

Figure 1-1 Site aerial (Source: Nearmap modified by Mecone)

The Strategy states that by 2036 Liverpool will be a rejuvenated river city, offering diverse and growing residential and employment opportunities. Major health, education and retail precincts, and a mixture of open spaces and parklands alongside the Georges River, will create a rich mix of jobs and workplaces, public spaces, shops and entertainment.

Under the Strategy the site is identified as 'mixed use', which comprises:

> *'a mixture of commercial, retail, residential and community uses that provide sustainable employment, that is complementary to, and not in competition with, the commercial core'*

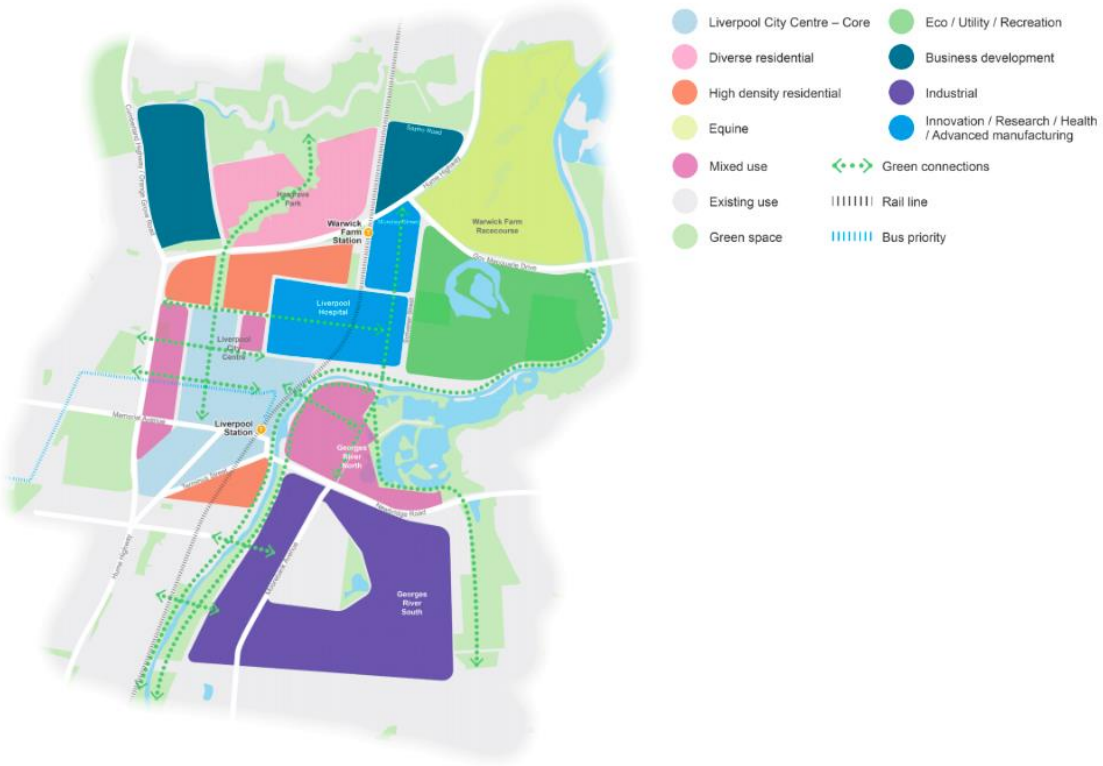

Figure 2 – A Place Strategy for Liverpool (Source: Liverpool Collaboration Area Place Strategy 2018)

The 2019 Annual report summary for Liverpool Collaboration Area highlighted key steps commenced and completed to address the imperatives acknowledged in the Strategy to accelerate the delivery of the Collaboration Area. These included:

- Engagement with TfNSW to prepare the Liverpool Place-based Integrated Transport Strategy and accelerated investment; and
- Flood studies and flooplain risk management plan completed by Liverpool City Council.

The land uses reflected in the Strategy are reinforced in Liverpool City Council's Local Strategic Planning Statement (LSPS), which identifies the site for investigation as residential/mixed use to support the CBD and Innovation Precinct in tandem with linking open space and green corridors.

The LSPS provides the following short to medium term action (12-24 months) specific to the Georges River North precinct:

> *Action 11.2 – Investigate amendments to LEP to rezone River precinct north of Newbridge Road (Moore Point) as a mixed-use zone to support the Liverpool CBD and Innovation Precinct, with an extensive open space system and cross-river linkages (short to medium term)*

The Planning Proposal involves the creation of a mixed use precinct, providing new homes, jobs and open space adjoining the Georges River and connecting to Liverpool CBD. Key features of the proposal include:

- Adaptive re-use of existing heritage;
- Foreshore embellishments and new open spaces;
- Educational and cultural facilities;
- Connections to Liverpool CBD and Train Station; and
- Transport, intersection and collector road improvements.

The Planning Proposal aligns with the priorities of Government and the implementation phase of the Place Strategy by facilitating the transformation of the Collaboration Area with new jobs, infrastructure, green spaces and housing. The Planning Proposal responds to The Pulse of Greater Sydney's performance indicators, which sit under the following key themes:

Infrastructure and Collaboration

The Planning Proposal will facilitate additional jobs, education and housing in close proximity to Liverpool CBD and Train Station. The proposal will support additional medium and long-term housing supply in Liverpool CBD through diverse and new housing products. The proposal supports the continual expansion and growth of Liverpool Innovation precinct and nearby health infrastructure, with potential to provide complementary uses near Liverpool Hospital and educational and cultural facilities on the site.

Productivity

The Planning Proposal supports the growth of the thirty-minute city, ensuring Liverpool emerges as a premier CBD in the Western City. The proposal provides capacity for new transport infrastructure on the site, road and intersection upgrades and locating density near major transport infrastructure (Liverpool Train Station and Badgery's Creek Aerotropolis). The proposal encourages additional business activity and investment in Liverpool by providing new commercial uses that will complement Liverpool CBD.

Liveability

The Planning Proposal significantly improves upon the existing use of the site by creating walkable places for people to live work and play. This includes foreshore embellishments to the Georges River, improved connections across the Georges River and adaptative re-use of existing heritage items. These measures will contribute to Sydney's Green Grid, improve access to services in Liverpool CBD and establish a community that celebrates identity and place.

Sustainability

The Planning Proposal addresses the urban heat island effect by significantly increasing the quantum of green space on the site for active and passive recreational use. The proposal will provide new parks and green connections to surrounding open spaces including Haigh Park, which will contribute to the urban tree canopy of the area.

Overall, the Planning Proposal represents a clear and consistent strategic line of site with the priorities of government. It meets the performance indicators, priorities and objectives expressed in the District Plan, Place Strategy, LSPS and The Pulse of Greater Sydney.

Nothing contained in the body of this report/assessment would preclude the Planning Proposal from rezoning and gazettal for residential/mixed use purposes. Supported by a 'vision' for Moore Point founded on delivering exceptional pedestrian and cycling connectivity both within the precinct itself as well the broader community, the Planning Proposal represents an opportunity to deliver significant movement and place outcomes for the Liverpool Collaboration Area.

This Strategic Transport Impact Assessment details further works required to understand the detailed transport infrastructure requirements for the precinct, see Section 5 for further details. This work would be delivered in coordination with the Transport Infrastructure Working Group.

Transport Infrastructure Working Group

It was suggested by the Transport Cluster representatives that a Steering Group be formed with TfNSW, RMS, Liverpool City Council, Greater Sydney Commission (GSC)/Department of Planning Industry and Environment (DPIE) and the proponent to oversee the preparation of the TIA Brief and deliver transport infrastructure requirements and costings to support the land being rezoned. As a result, the Transport Infrastructure Working Group (TIWG) was setup.

The TIWG will also discuss and resolve any issues raised and matters that need to be discussed and agreed between relevant stakeholders to allow the TIA and resultant TMAP to be completed in the earliest timeframe possible. The Terms of Reference (ToR) for the TIWG is attached, refer to Appendix A, and identifies appropriate members and roles, intended project outcomes and program. Monthly PWG meetings will be held and attended by the following representatives:

- Liverpool City Council – Chair/Coordinator;

- Greater Sydney Commission;
- Transport for NSW;
- Department of Planning, Industry and Environment (to be confirmed once planning process is determined); and
- Other state agencies as agreed.

2 Strategic Context

2.1 Regional Strategies

2.1.1 Greater Sydney Region Plan, A Metropolis of Three Cities (Greater Sydney Commission)

The Greater Sydney Region Plan, A Metropolis of Three Cities, is built on a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places. This is consistent with the 10 Directions in Directions for a Greater Sydney which establish the aspirations for the region over the next 40 years and are a core component of the vision and a measure of the Plan's performance. The vision brings new thinking to land use and transport patterns to boost Greater Sydney's liveability, productivity and sustainability by spreading the benefits of growth.

To meet the needs of a growing and changing population the vision seeks to transform Greater Sydney into a metropolis of three cities (refer Figure 2-1):

- The Western Parkland City
- The Central River City
- The Eastern Harbour City

Liverpool City is strategically located on a city-shaping public transport corridor providing connectivity between the Central River City and Western Parkland City.

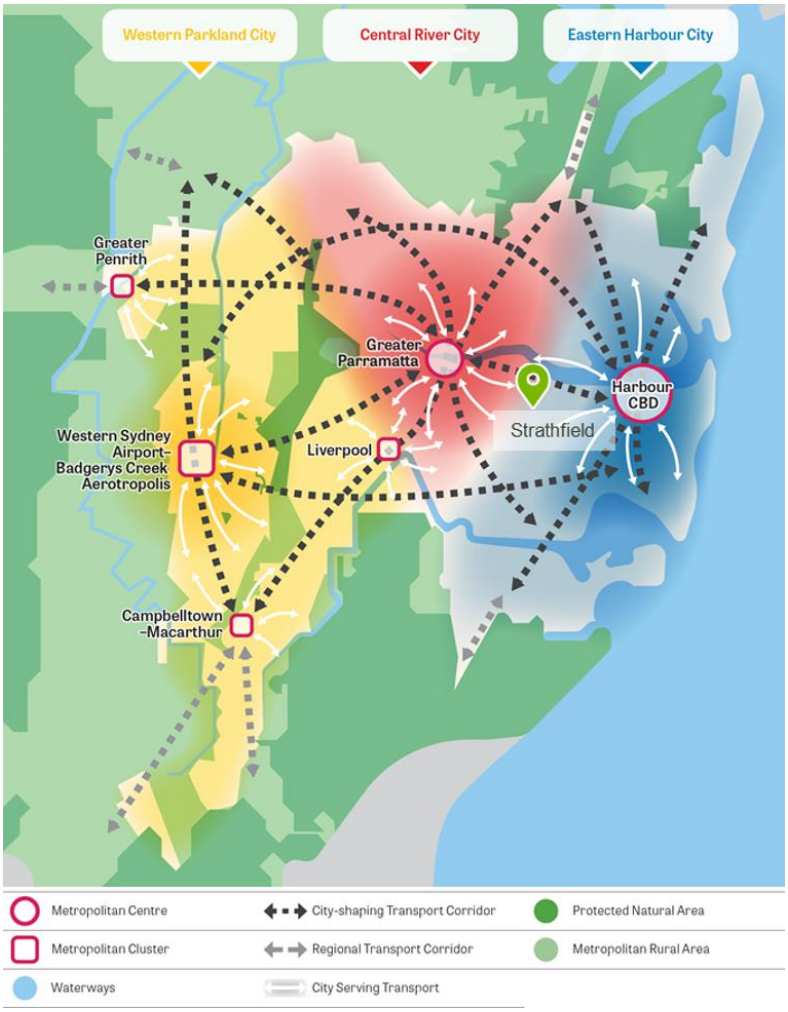

Figure 2-1: A Metropolis Three Cities (Source: Future Transport Strategy 2056)

2.1.2 Western City District Plan

In March 2018, the Greater Sydney Commission (GSC) released the updated Western City District Plan. The Western City District covers the Liverpool, Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Penrith and Wollondilly local government areas.

Over the next 20-year horizon, the Western City District Plan will aim to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney. It contains the planning priorities and actions for implementing the Greater Sydney Region Plan at a district level and is a bridge between regional and local planning. A key focus of the District Plan is to deliver on Greater Sydney Commission's three key themes: Productive, Liveable and Sustainable Cities.

As shown in the structure plan for the Western Parkland City (Figure 2-2 and Figure 2-3), Liverpool is located at the border with the Central River City meaning that Liverpool is a key gateway to and from the Western City District.

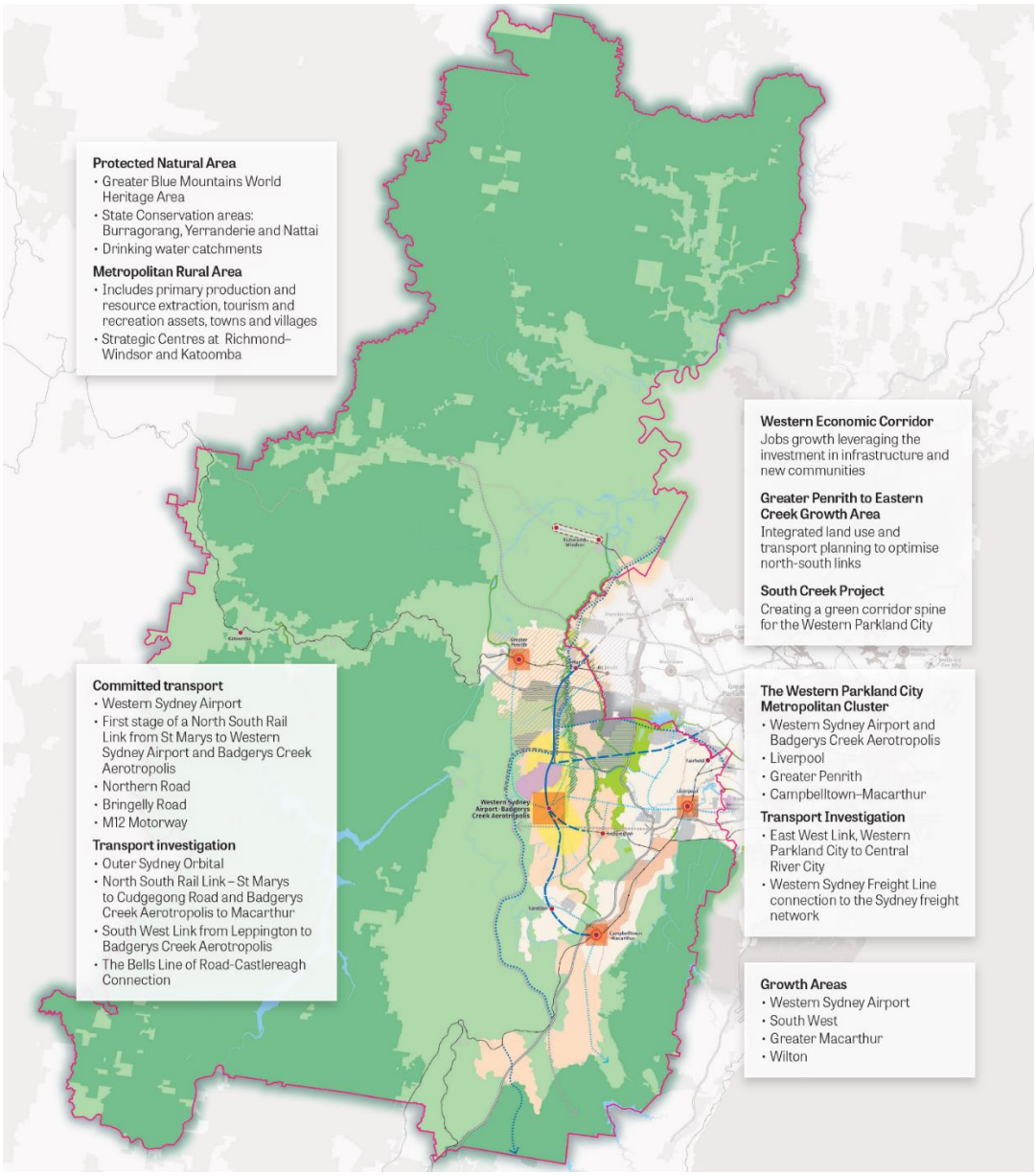

Figure 2-2: Western City District structure plan (Source: Western District Plan, 2018)

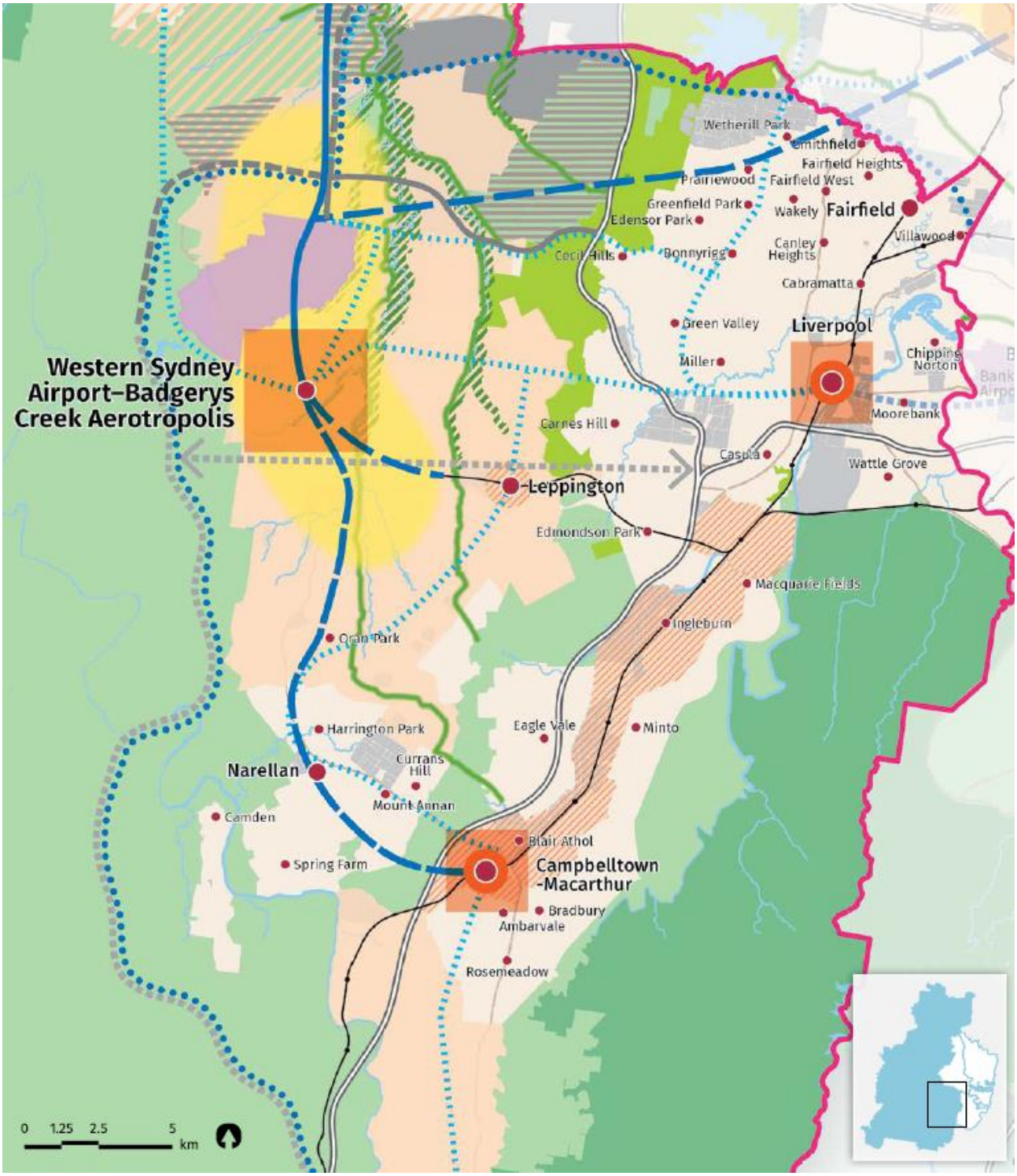

Figure 2-3: Western City District structure plan – Liverpool City focus (Source: Western District Plan, 2018)

The above Western City District Plan also identifies a potential 'Train/Mass Transit Link' to Bankstown and connection to the Sydney Metro network. The identified link/corridor runs very close to the site and is regarded as 'visionary' as it has not been included in the infrastructure identified to be delivered within the next ten (10) years.

2.1.3 Future Transport 2056

Future Transport 2056 is an update of NSW's Long-Term Transport Master Plan. It is a suite of strategies and plans for transport developed in concert with the Greater Sydney Commission's Sydney Region Plan, Infrastructure NSW's State Infrastructure Strategy, and the Department of Planning, Industry and Environment's (DPIE) regional plans, in order to provide an integrated vision for the state.

This vision is built on six outcomes:

- Customer Focused
- Successful Places
- A Strong Economy
- Safety and Performance
- Accessible Services
- Sustainability

To achieve this vision for future transport in Greater Sydney, the strategy identifies key corridors required to support growth:

- City-shaping corridors – major trunk road and public transport corridors providing higher speed and volume links between cities and centres that shape locational decisions of residents and businesses;
- City-serving corridors – higher density corridors concentrated within ~10km of metropolitan centres providing high frequency access to metropolitan cities/centres with more frequent stopping patterns; and
- Centre-serving corridors – local corridors that support buses, walking and cycling, to connect people with their nearest centre and transport node.

As shown in the existing 2018 network maps and the aspirational 2056 network maps, Liverpool is well located on a key City Shaping Corridor, and in proximity of multiple City Serving Corridors making it an ideal location for urban renewal and expansion.

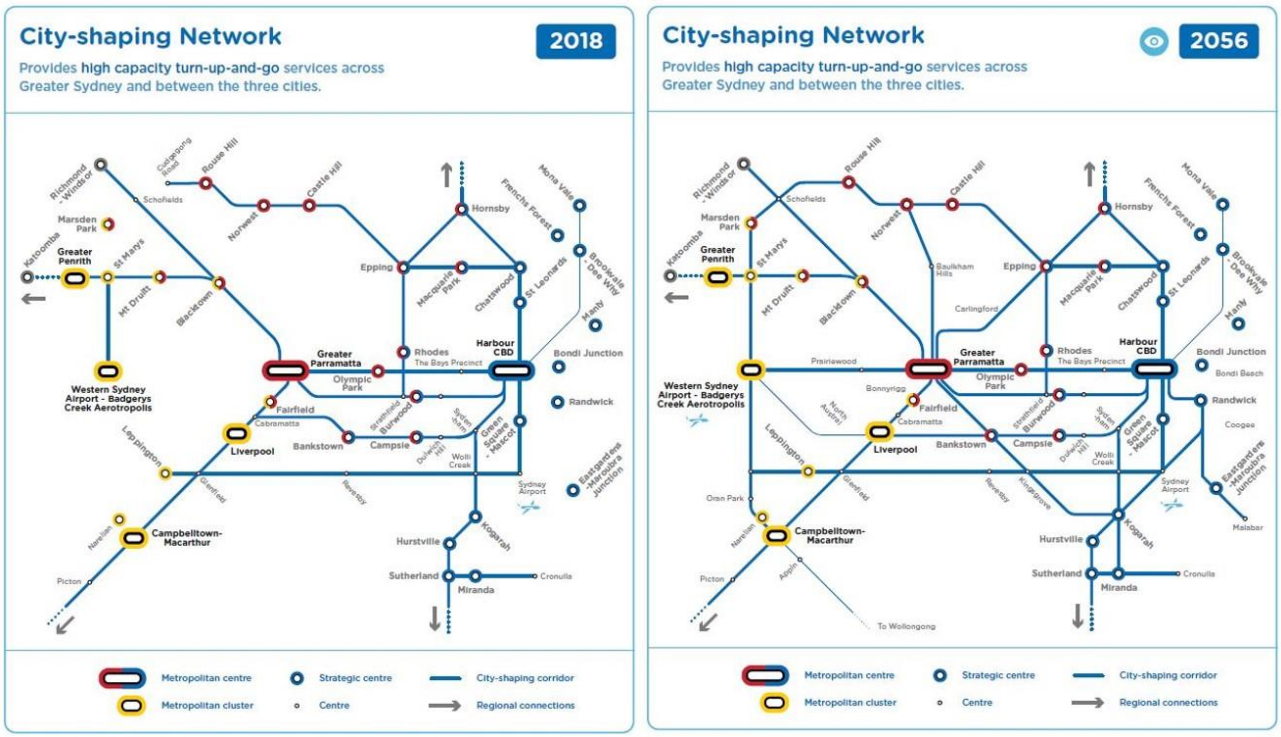

Figure 2-4: City-shaping Networks for 2018 (left) and 2056 (right) (Source: Future Transport Strategy 2056)

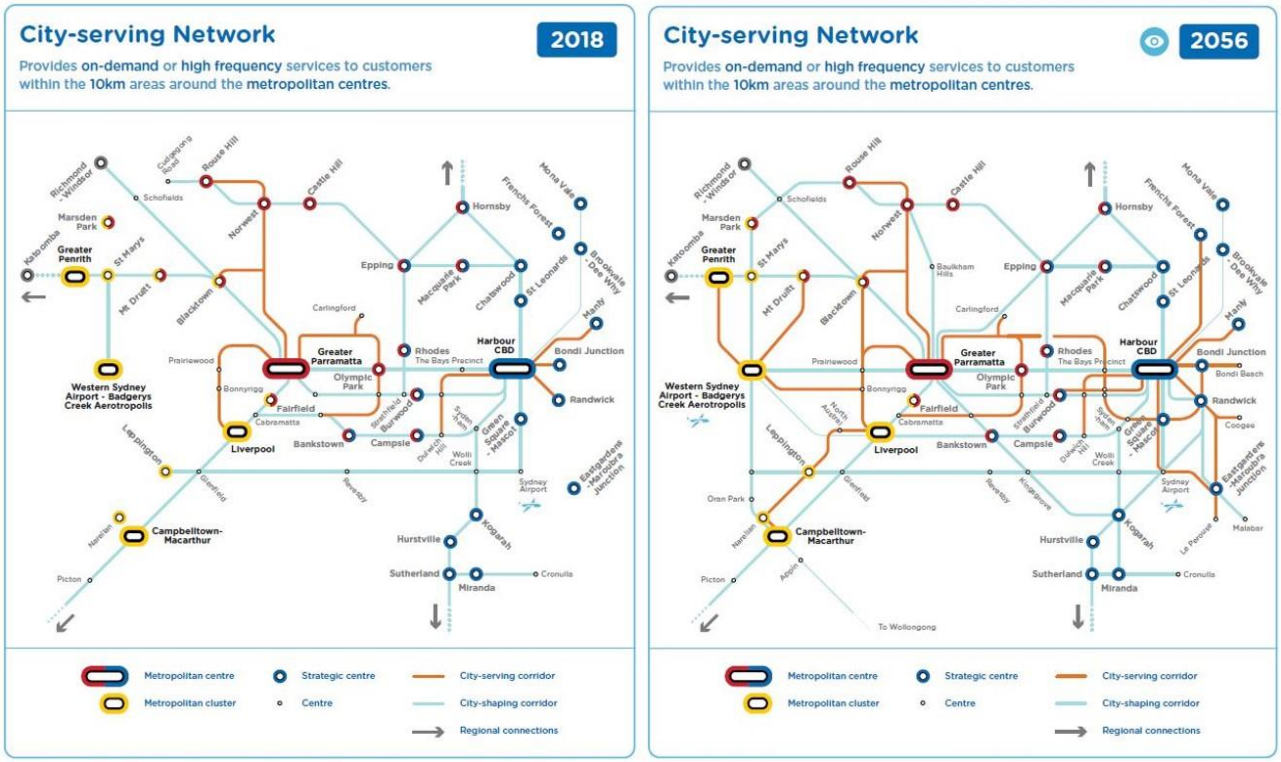

Figure 2-5: City-serving Networks for 2018 (left) and 2056 (right) (Source: Future Transport Strategy 2056)

2.2 Local Strategies and Planning

The following planning and infrastructure strategies/studies have been undertaken or are underway which will inform and direct future land use planning and transport policies for Liverpool LGA. This will also have, to a certain extent, an impact on the Liverpool Collaboration Area including the Georges River North Precinct.

2.2.1 Liverpool Collaboration Area Place Strategy

The Liverpool Collaboration Area Place Strategy is a strategy which identified the need to plan and build infrastructure to keep pace with the demands of the population growth in the area to ensure a sustainable city and maintain high liveability standards. The Place Strategy strives to guide and promote collaboration, identify priority investment opportunities and assist in bringing together local knowledge and professional expertise as Liverpool City transforms. Key aspects considered in the development of the Place Strategy were:

- Establishes a vision for the Liverpool Collaboration Area, based on the community's vision expressed in Our Home Liverpool 2027 and the Western City District Plan;
- Identifies impediments and opportunities;
- Sets priorities for the Collaboration Area; and
- Identifies actions to deliver the vision.

Central to the future development of the Liverpool Collaboration Area Place Strategy is the Georges River which borders the Moore Point site.

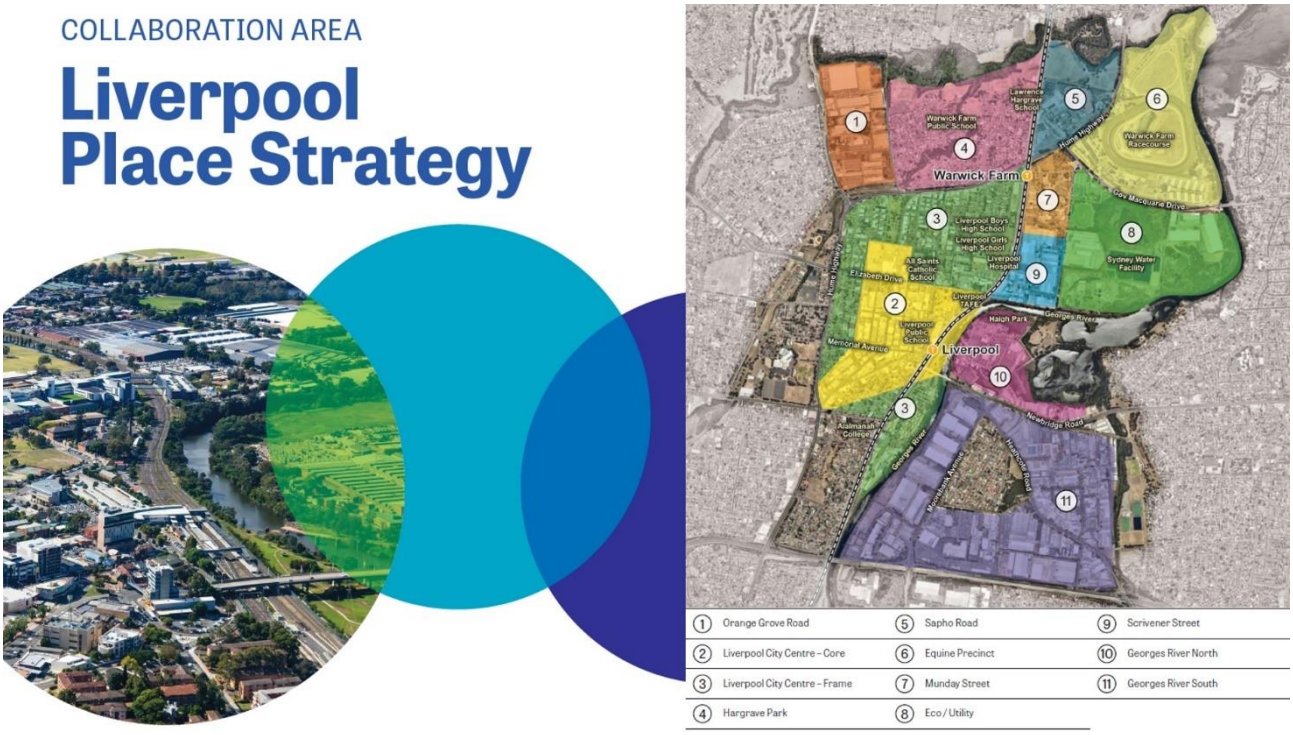

Figure 2-6: Liverpool Collaboration Area Map (Source: Liverpool Collaboration Area Place Strategy, 2018)

2.2.2 Liverpool 2027 Community Strategic Plan

Figure 2-7: Liverpool 2027 Community Strategic Plan (Source: Our Home Liverpool 2027)

The plan defines the vision and priorities for the future development of Liverpool City until 2027 based on the several key themes, including community pride and heritage, social connection, economic development, environmental sustainability and transport accessibility.

2.2.3 Fifteenth Avenue Smart Transit (FAST) Corridor

The upgrading of Fifteenth Avenue into a Smart Transit Corridor is a visionary city-shaping project aimed at delivering a high quality public transport link between the Liverpool Collaboration Area, CBD and the Western Sydney International Airport. The FAST Corridor will be a key gateway into South West Sydney.

Figure 2-8: Fifteenth Avenue upgrade (Source: Liverpool City Council website)

2.2.4 Edmondson Park

In 2008, Edmondson Park was rezoned for urban development as part of the first wave of areas to form part of the NSW Government's South West Sydney Priority Growth Area. The proposed plan outlines the development of approximately 8,200 new homes – an additional 25,000 residents – over a 10 to 15-year horizon.

Figure 2-9: Edmondson Park urban renewal (Source: Liverpool City Council website)

2.2.5 Western Sydney International Airport and Western Sydney Aerotropolis Projects

The highly anticipated Western Sydney International Airport is due to be completed and opened in 2026. As a result, the Western Sydney Planning Partnership (NSW Government and Liverpool City Council) have released the blueprint for the Western Sydney Aerotropolis which outlines the development plans for the redevelopment and modernisation of the area to support future growth and industries.

Figure 2-10: Illustration of the Western Sydney Airport (Source: Liverpool City Council website)

2.2.6 Sydney's Third CBD

Anticipating the increased demand and growth within Liverpool, the City Council has rezoned the city centre to promote future redevelopment which includes the rezoning of 25 hectares within the CBD.

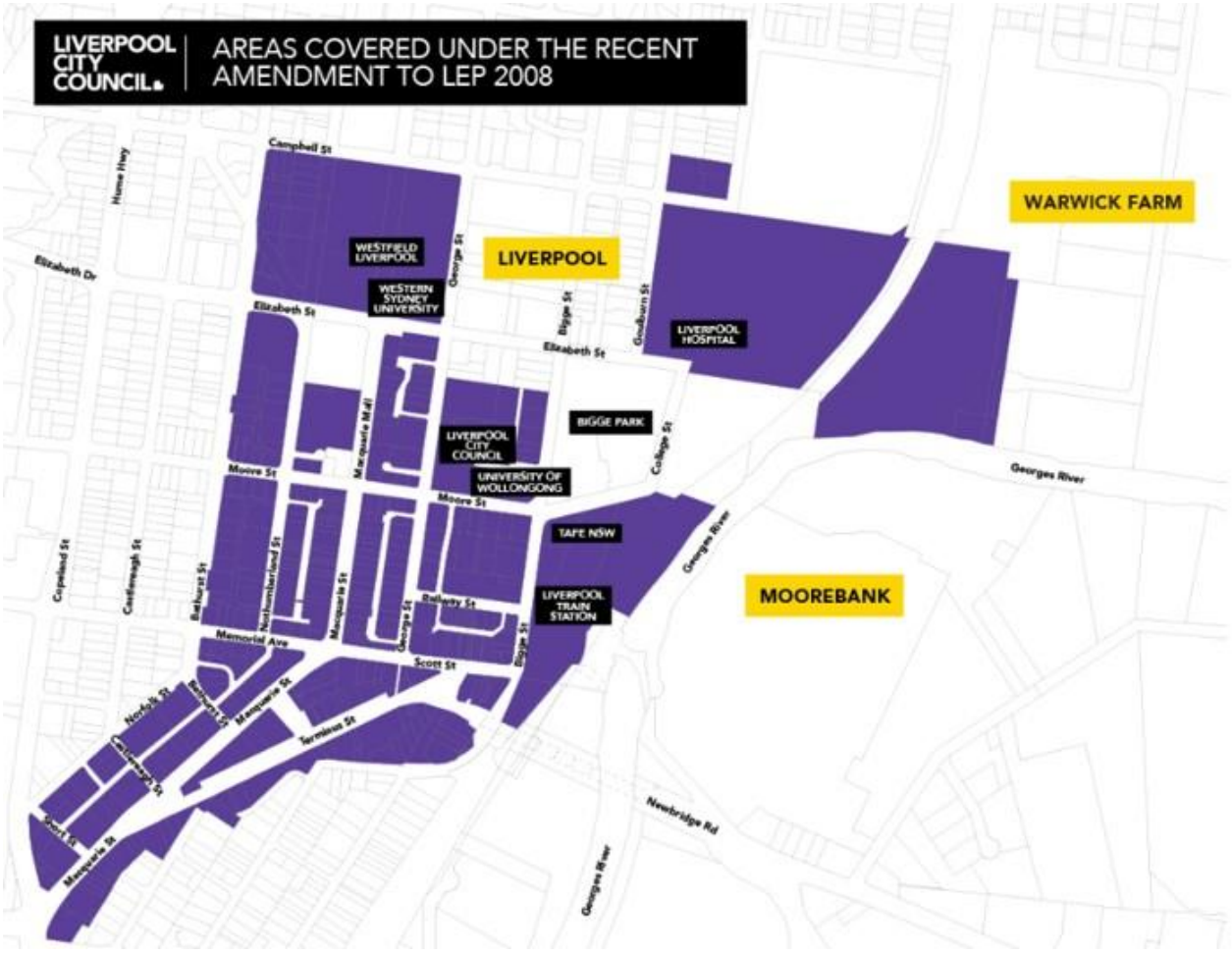

Figure 2-11: Liverpool CBD rezoning plans (Source: Liverpool City Council website)

3 Existing Conditions

The road network surrounding the Georges River North Precinct is well connected and provides access to the major road corridors of the M5 and M7. The proximity of the Precinct to the Liverpool Train Station means that a journey to Sydney CBD via train can currently be achieved in approximately 60 minutes. Although there is no express service currently available that operates directly between Liverpool CBD and the Harbour and Parkland Cities (unlike all other major centres within Sydney) future provision of express services would likely significantly reduce this travel time.

The revitalisation of Liverpool City and precincts such as Georges River North will promote the use of public transport and further expand the network to improve efficiencies. It will also help to alleviate congestion on the road network that may come about as a result of the precinct development.

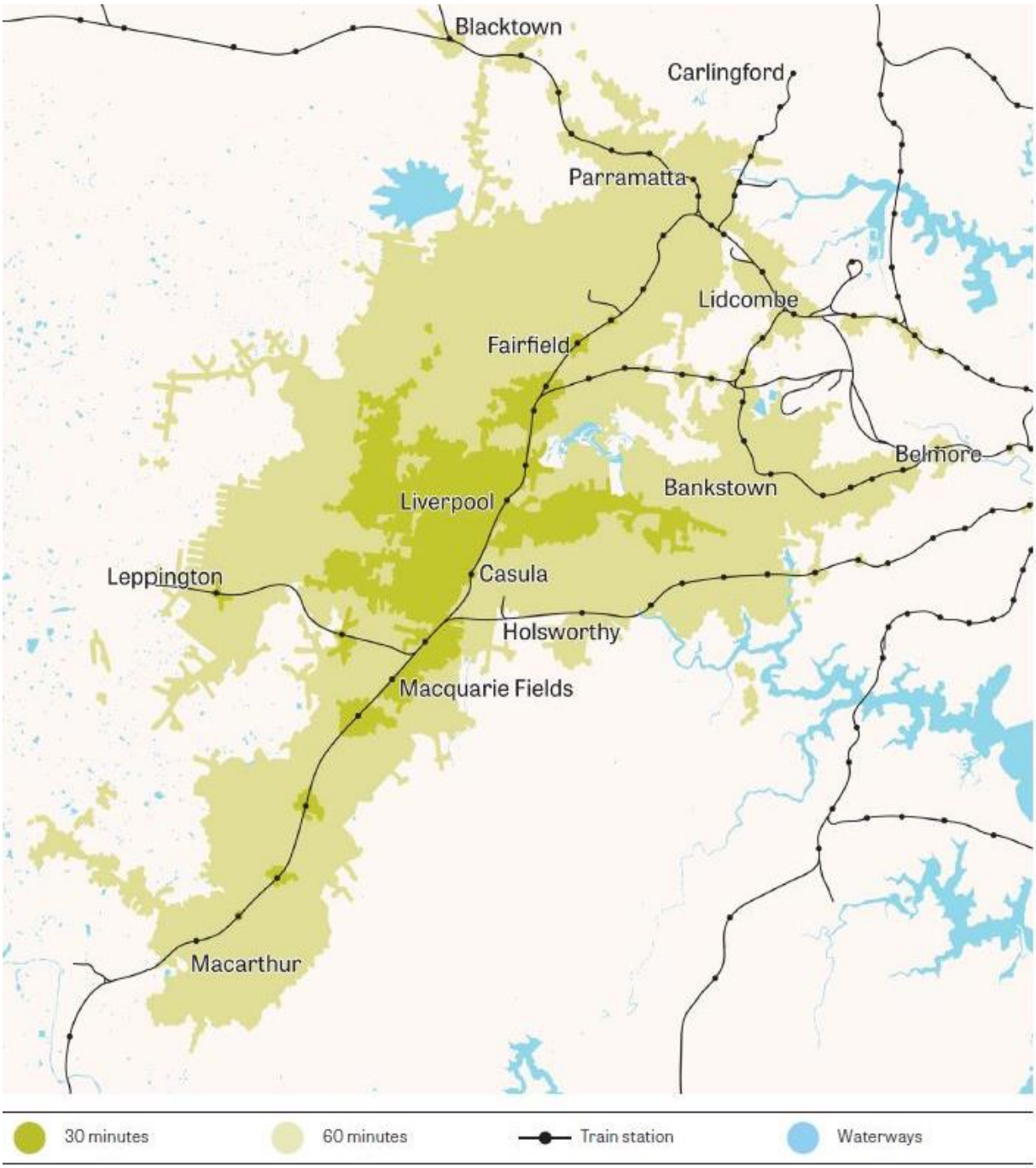

Figure 3-1: Sydney's population with 30 and 60 minutes of Liverpool, 2018 (Source: Greater Sydney Commission)

It is essential to understand the current operation of the transport network to identify opportunities and constraints with the different access arrangements proposed, which will be achieved through the completion

of a Strategic Transport Assessment that identifies current and future opportunities and constraints. The transport assessment is being undertaken by the Transport Infrastructure Working Group (TIWG) – a steering group comprised of TfNSW, Liverpool City Council (Chair), Greater Sydney Commission, Department of Planning Industry and Environment and the proponent to oversee the preparation of the TIA Brief, and deliver transport infrastructure requirements and costings to support the land being rezoned.

3.1 Roads

The road network surrounding the Georges River North Precinct connects vehicles travelling to and along the Hume Highway resulting in high traffic volumes in the North-South direction.

Figure 3-2: Surrounding road network to the Precinct (Source: Open Street Map)

The network also facilitates the movement of local traffic in the East-West direction, linking suburbs such as Bankstown, Milperra and Moorebank in the east to the western suburbs of Ashcroft and Cartwright. General traffic and buses gain access to the southern end of the Precinct via Newbridge Road, and exit similarly. General traffic can gain further access to the industries and business located within the Precinct via Bridges Road and Haig Avenue.

3.1.1 Road Network Designation

State Roads

Figure 3-3: Surrounding road network to the Precinct (Source: Open Street Map)

Newbridge Road

Newbridge Road is signposted at 60km/h within the Precinct and increases to 70km/h when traveling in an easterly direction towards Moorebank. Typically, Newbridge Road carries three traffic lanes in each direction separated by a central median island before reducing to two traffic lanes in each direction as the road crosses over the Georges River.

Heathcote Road

Heathcote Road acts as a connector road, running in a south-east direction connecting Newbridge Road to the South Western Motorway and terminating at the Princes Highway. This section of road is beyond the scope of the study area.

Within the Precinct, Heathcote Road is signposted at 60km/h and carries two traffic lanes in each direction. Prior to the intersection with Newbridge Road, Heathcote Road converges with Moorebank Avenue by way of a three-way signalised intersection. A 'bus only' auxiliary lane is provided on the approach to the intersection along Heathcote Road.

The intersection with Newbridge Road is another three-way signalised intersection with Heathcote Road diverging into two left-hand and two right-hand turning lanes onto Newbridge Road.

Moorebank Avenue

Moorebank Avenue runs in a north-south direction connecting Newbridge Road to the South Western Highway and beyond. This section of road is beyond the scope of the study area.

Within the Precinct, Moorebank Avenue is signposted at 60km/h and carries two traffic lanes in each direction. As mentioned above, prior to the intersection with Newbridge Road, Moorebank Avenue converges with Heathcote Road by way of a three-way signalised intersection.

The intersection with Newbridge Road is another three-way signalised intersection with Heathcote Road diverging into two left-hand and two right-hand turning lanes onto Newbridge Road. TfNSW have identified this intersection for a major upgrade.

Local Roads

Bridges Road

Within the study area, Bridges Road has a single traffic lane in each direction with on-street parking provided on both sides of the roadway.

Haig Avenue

Haig Avenue is accessible via two means off Newbridge Road. Travelling from west to east along Newbridge Road, Haig Avenue is accessible via a left-hand off ramp. Travelling in the opposite direction, access is achieved via an underpass below Newbridge Road which leads into the study area. Haig Avenue has a single traffic lane in each direction and within the study area has on street parking on either side.

Kerbside Use

Figure 3-4: Road network kerbside uses and network constraints (Source: Open Street Map modified by Aurecon)

3.2 Rail

Liverpool Station serves as a key interchange between the T2 Inner West and Leppington line, T3 Bankstown line and T5 Cumberland line. Northern and Western line and T2 Inner West and South line.

The approximate number of suburban services stopping at Liverpool Station during the weekday AM and PM peak periods is provided in Table 3-1.

Table 3-1: Suburban rail service frequencies at Liverpool Station (Source: Sydney Trains, 2020)

Destination	AM Weekday Peak (07:00-09:00)	PM Weekday Peak (16:00-18:00)	Weekend Peak (13:00-15:00)
T2 Inner West and Leppington Line			
Liverpool to City (Central)	27	16	16
City (Central) to Liverpool	18	20	16
T3 Bankstown Line			
Liverpool to City (Central)	9	4	4
City (Central) to Liverpool	9	6	4
T5 Cumberland Line			
Leppington to Parramatta via Liverpool	4	4	-
Parramatta to Leppington via Liverpool	4	4	-

3.3 Bus

The existing bus interchange comprises of seven distinct stands which service several routes, as illustrated in Figure 3-5.

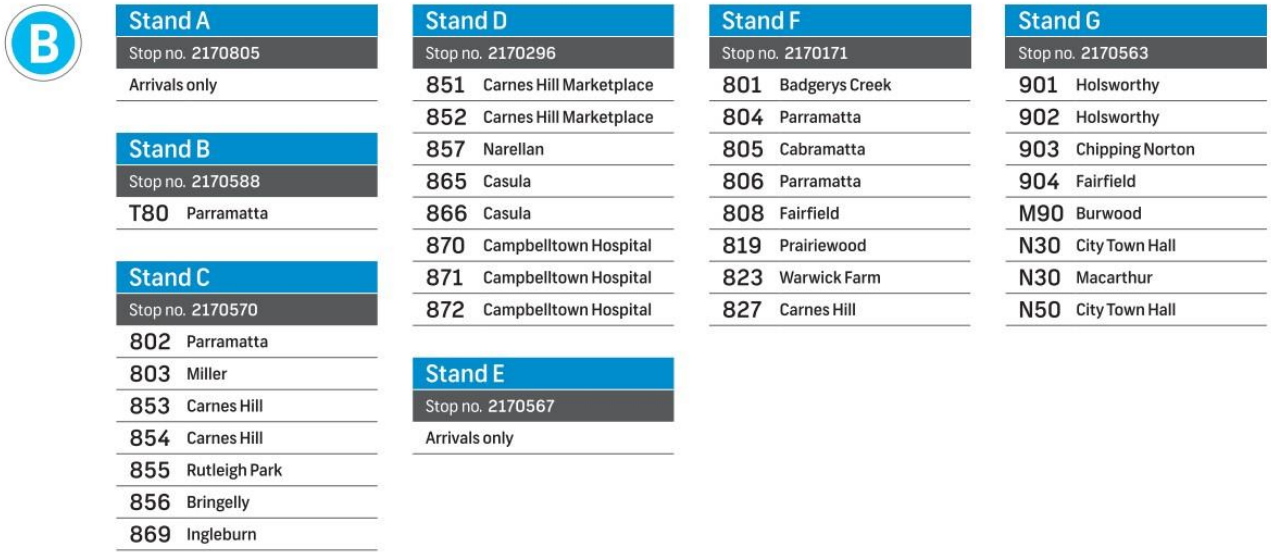

Figure 3-5: Liverpool station bus interchange (Source: Transport for NSW website)

During the AM and PM peak periods (generally 7:00-8:00am and 5:00-6:00pm respectively), the interchange services approximately 110 bus movements during peak hour across all the stands. Overnight, lower levels of activity are observed.

There are certain sections of Moore Street which have been designated for buses but generally buses are mixed with general traffic.

3.4 On-demand Services

The provision of urban mobility is changing as more accessible and flexible service offerings become available, powered by advances in technology.

In a joint initiative by the government and private sector, a new South and South West on-demand bus service (still in the trial phase) was launched in January 2018 and has been extended to June 2020. The trial area, located in Edmondson Park, allows residents to utilise the service to book a bus to the Edmondson Park train station. The mini-bus service is designed to complement existing public transport and alleviate parking shortages at the train station by providing the 'last mile' gap.

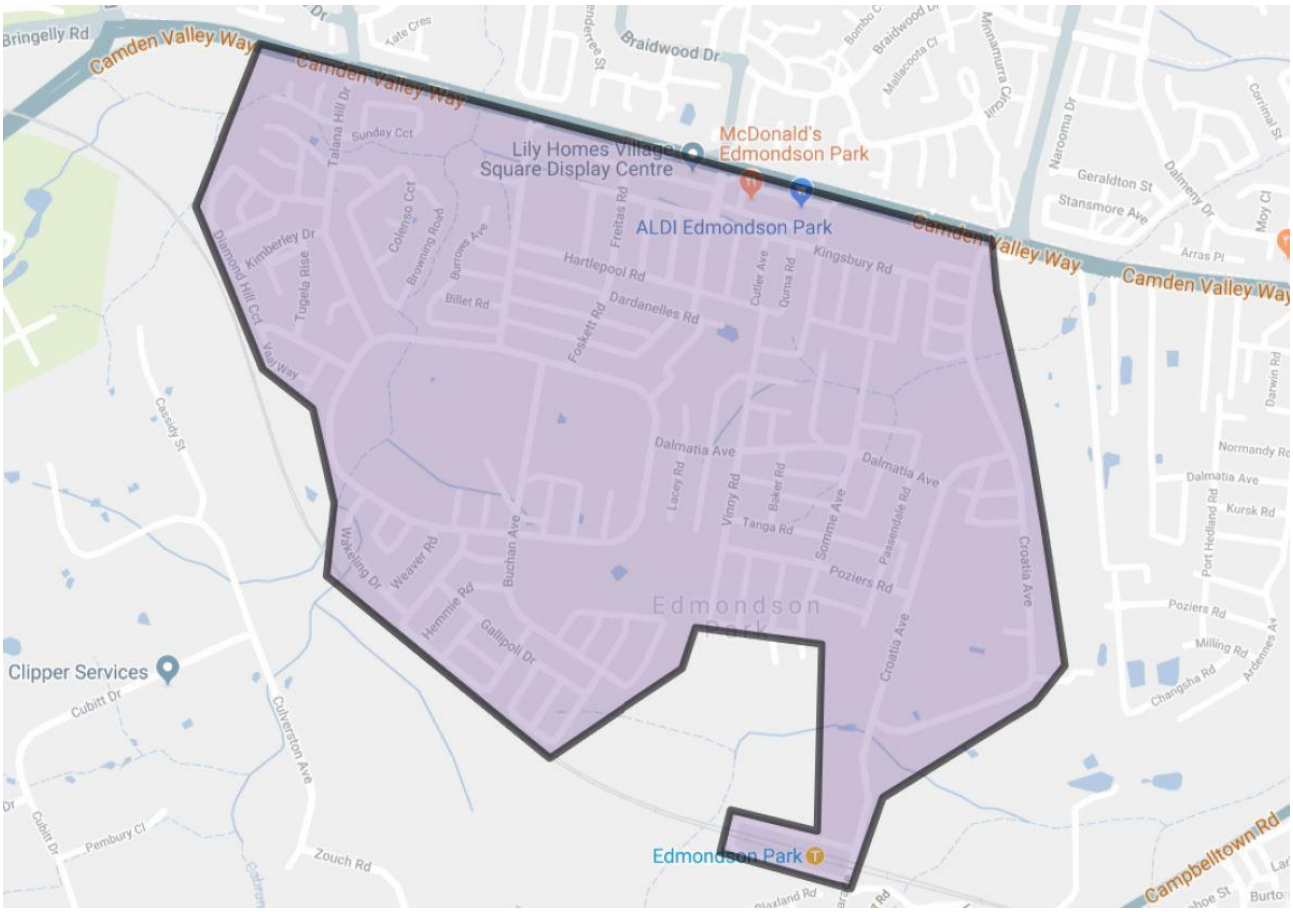

Figure 3-6: Edmondson Park on-demand bus service catchment (Source: Transport for NSW website)

Pick-up points are flexible and are not constrained to existing bus stops, however, increasing demand for the service may drive other requirements at interchanges, including an increased demand for kerbside drop-off locations.

3.5 Commuter Carpark

There is existing parking within the study area for the employees and visitors to the manufacturing and retail businesses. At Liverpool Station there is very limited parking provided for commuters utilising public transport services.

3.6 Special Events

Liverpool City Council hosts several social events throughout the year from the Way Out West Festival, Eat Your Heart Out Liverpool and Light Up the Lake (New Year's Eve) which attract thousands of visitors and spectators. Although special events are infrequent, they should be accounted for when planning the access and aggress arrangements within the area surrounding the study area.

4 Proposed Development

The Moore Point Development Planning Proposal seeks the creation of a mixed-use precinct, providing new homes, jobs and open space adjoining the Georges River and connecting to Liverpool CBD. Key features of the proposal include:

- Adaptive re-use of existing heritage
- Foreshore embellishments and new open spaces
- Educational and cultural facilities
- Connections to Liverpool CBD and Train Station
- Transport, intersection and collector road improvements

The vision for the development of Moore Point is:

> *"A riverfront place for people which is well served by public transport, connected to its surrounding landscape and complements Liverpool City Centre. It will be mixed use with cultural and educational opportunities for residents and visitors. Connected with green gridded streets, bridges and landscaped waterfront it will be a focal point for the growing Western Sydney metropolis and place for everyone."*

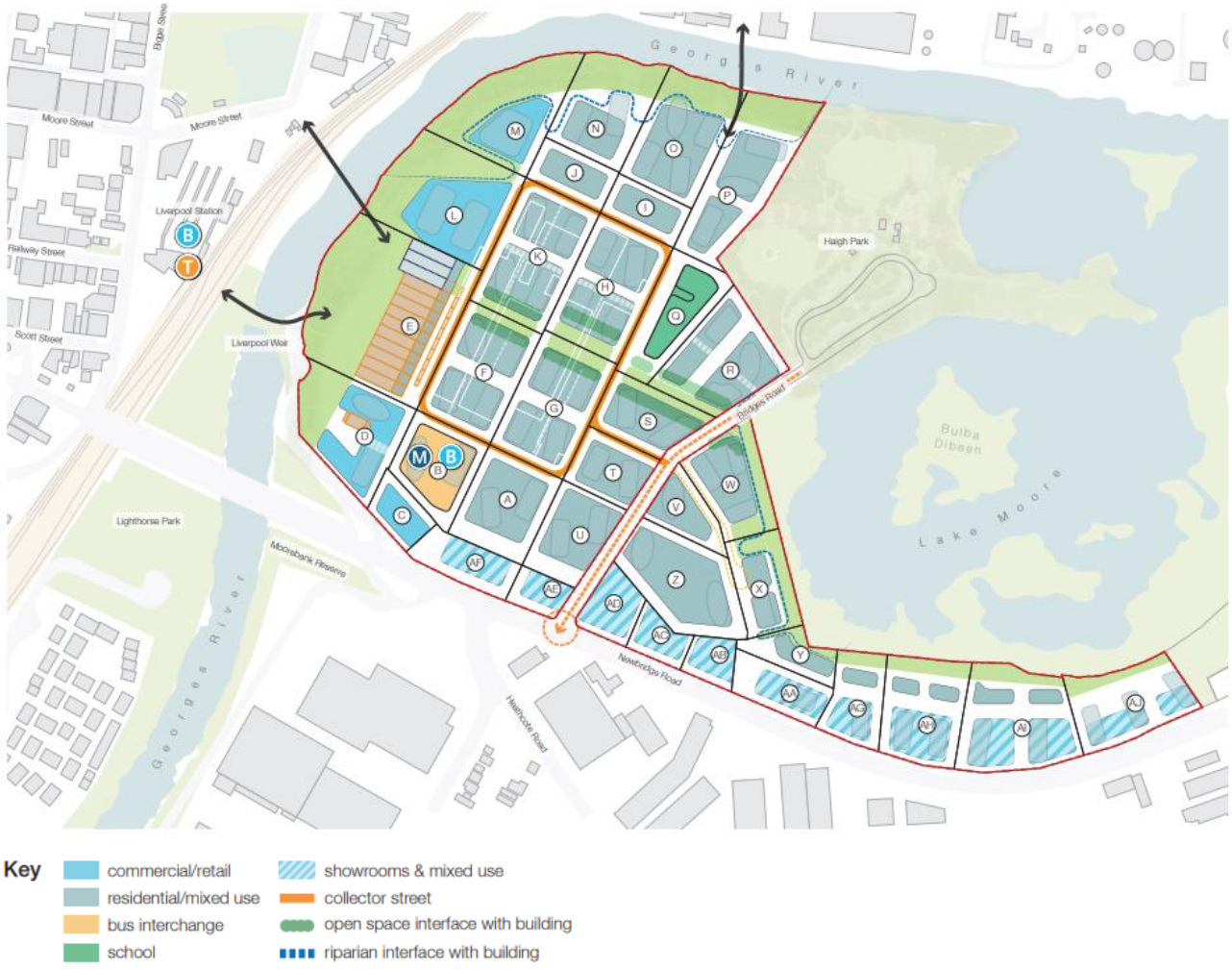

Figure 4-1: Moore Point Structure Plan (Source: SJB Urban)

The proposed development seeks to deliver the desired amenity, activation and walkability in an urban setting to create a place that is welcoming, comfortable, safe and family friendly. To achieve this, the planning proposal aims to deliver improved public transport and amenity connectivity, both within Moore Point and with neighbouring precincts. The planning proposal and structure plan propose the following key transport infrastructure elements and approach to identifying transport needs for the rezoning.

4.1 Road Network

The main access to the development shall be gained via Bridges Road which will be upgraded and formalised to meet the traffic demands and volumes forecasted. The proposed upgrading of Bridges Road will require the formalisation and upgrading of the intersection between Newbridge Road and Bridges Road, most likely to a signalised three-way intersection. Final location and design will be determined on completion of the Transport Impact Assessment currently being undertaken by the TIWG. This intersection has previously been identified by TfNSW and Liverpool City Council as a priority intersection for upgrade to facilitate the growth and development of the CBD and surrounding precincts.

Supporting Bridges Road will be an internal collector ring road that will provide access to the area west of Bridges Road, as illustrated in Figure 4-1. Additionally, localised minor access roads will ensure connectivity throughout the development.

4.2 Public Transport

The Moore Point Development proposes locating a bus interchange within the precinct which will be integrated into the regional public transport network. Access to the bus interchange shall be obtained via Bridges Road and the internal ring road. Additionally, the planning proposal acknowledges the importance and benefits of utilising the existing Liverpool Station which is located directly across the Georges River. As a result, the development proposes providing pedestrian and active transport connectivity to the station over the Georges River.

In line with the proposed future expansion of the metro system, namely Sydney Metro West, the Moore Point Development has made allowance for the potential inclusion of a metro station at the bus interchange.

4.3 Pedestrian and Active Transport

Key to the proposed development plan is the promotion of active transport within Moore Point. Supporting infrastructure to endorse and encourage pedestrian and cycling will be provided throughout the development, connecting active transport routes to the adjacent Liverpool precincts across the Georges River.

5 Transport Connectivity and Support Studies

The ‘vision’ for Moore Point is founded on delivering exceptional pedestrian and cycling connectivity both within the precinct itself as well the broader community, the adjacent Liverpool CBD, Liverpool Station and hospital which located across the Georges River. In conjunction with the provision of world class active transport infrastructure, the precinct will strive to integrate seamlessly into the future upgraded public transport network which will be rolled out to and within the Liverpool Collaboration Area.

To achieve an integrated and connected Moore Point Development, a two-stage approach has been developed in line with the Terms of Reference provided by the TIWG (refer attached Appendix A). The approach to developing Stage 1 of this assessment, the Transport and Land Use Strategy, is outlined in Section 5.1. An overview of works anticipated in Stage 2 is provided in Section 5.2. A detailed methodology for this assessment will be drafted when the outcomes of the Stage 1 assessment have been finalised.

Our approach aims to drive efficient and collaborative decision making to streamline the planning approvals for the development through early engagement with key stakeholders and the formation of the Transport Infrastructure Working Group (TWIG). By initiating this early dialogue and working group, the objective is to ensure the planning proposals align with the overarching place-making strategy for the Liverpool Collaboration Area and the successful integration of the Moore Point Development into the current and future planned transport network.

5.1 Stage 1 – Due Diligence and Strategic Assessment

This stage will provide a strategic understanding of the infrastructure and services required to support the planning proposals for the Moore Point Development. The strategic assessment will need to be undertaken in the context of cumulative impacts due to growth in the Collaboration Area and surrounds. The outputs of this phase will also inform the feasibility and commercial viability of the planning proposal.

As agreed through the TIWG (March 2020), the assessment will be informed by work undertaken by Transport for NSW to develop a Place-based Transport Strategy for the Liverpool Collaboration Area. The outcomes of this study will feed directly into the development of Scenarios for assessment, see Figure 5-2.

The Joint Landowners Group (JLG) is required to discuss and come to an agreement with Council on appropriate staging land use scenarios, giving effect to the recommended growth profile for the overall Collaboration Area. In parallel, discussions with TfNSW and Roads and Maritime Services should be undertaken to agree on the committed and planned transport infrastructure and services to be included in the assessment as part of the baseline scenario.

Once the above assumptions have been agreed, strategic transport modelling shall be carried out using the TfNSW’s Sydney Strategic Transport Model (STM) and Public Transport Project Model (PTPM). This will derive the addition and redistribution of transport demand across the various parts of the transport network as a result of the land use changes envisaged across the Liverpool Collaboration Area.

The outputs of the demand modelling, STM and PTPM, will be further assessed in the Strategic Traffic Forecasting Model (STFM), to inform the strategic transport evaluation component and provide an understanding of the scale of impacts of the planning proposals on the transport networks, and any required changes and associated costs. Based on the required upgrades to the network, strategic cost estimates for the additional infrastructure and service requirements shall be developed.

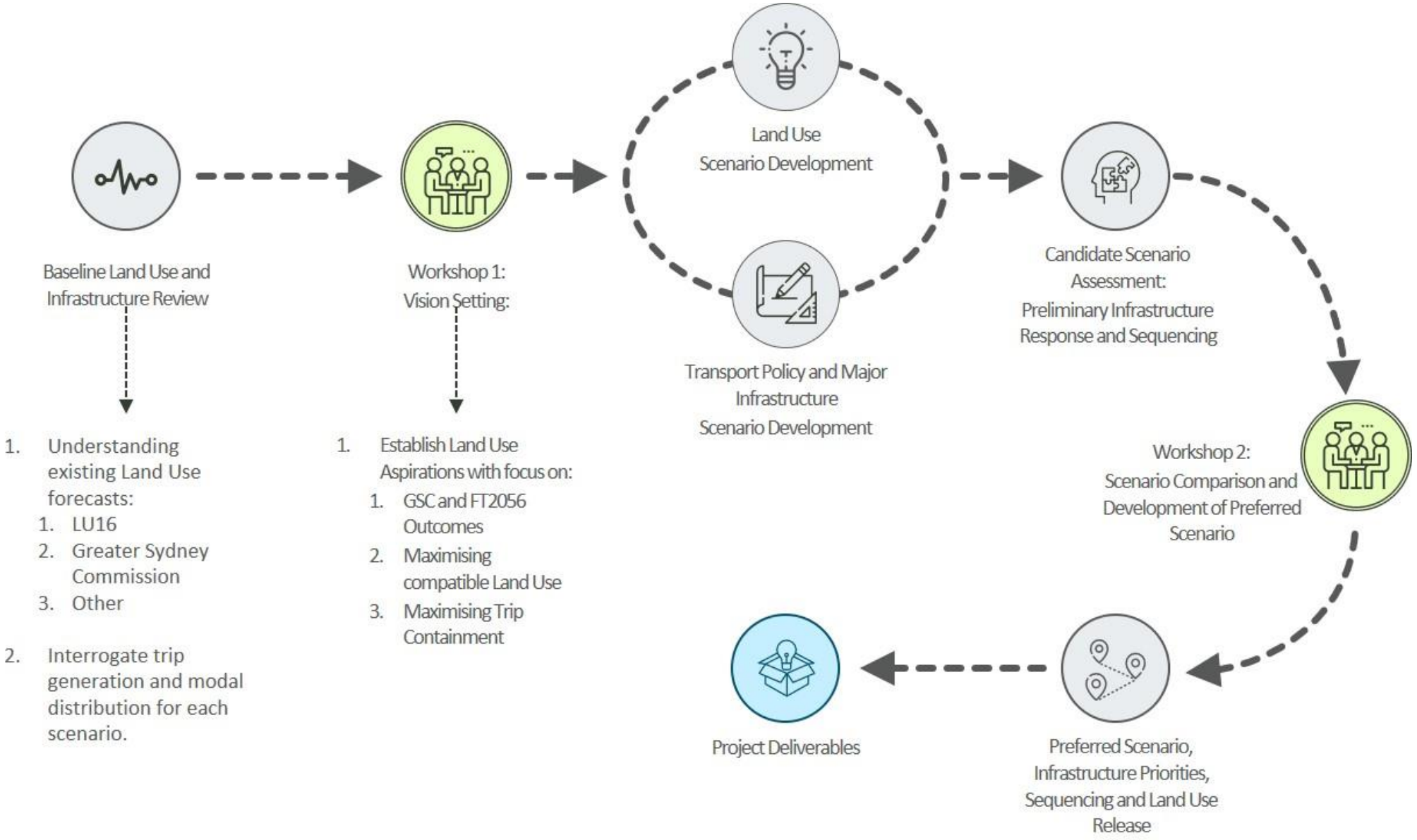

Figure 5-1: Proposed Stage 1 approach

The **key tasks** in Stage 1 include:

- Baseline Scenario test
  - Agreement on the baseline inputs and assumptions based on existing and draft plans, policies and strategies (i.e. Western District Plan, Future Transport 2056, Liverpool Place Strategy, etc.)
    - Set and agree the horizon timelines for testing (2026, 2036 and 2056).
    - Set and agree development staging (i.e. development yield and timeline).
    - The baseline Scenario is anticipated to be consistent with the outcomes of the Place-based Transport Strategy developed by Transport for NSW, to be provided to the TIWG for information. This will include a list of anticipated Transport Infrastructure, Policy and Service requirements to support the development of the Collaboration Area to 2036.
  - Initial scenario testing and analysis
    - Review and agree land use and network assumptions.
    - Develop and run Strategic Transport Model (STM) and Public Transport Project Model (PTPM).
    - High level analysis of the STM and PTPM outputs.
    - Assessment of Baseline Scenario in STFM and PTPM for horizon years, inclusive of agreed infrastructure rollout.
  - Compile a Baseline Scenario Memo including network performance, analysis of additional infrastructure requirements and land use release profiles.
  - Development of suggested alternate scenarios for testing (i.e. alternative land uses, infrastructure, mode shift assumptions and staging) including identification of mechanisms to reduce trip generation for identified constrained modes.
  - Baseline Scenario presentation to the Working Group.
- Analysis and testing of alternative scenarios, maximum of 5, in STM, STFM and PTPM. Refer to Figure 5-2: Scenario development and Figure 5-3: Scenario assessment outlining the proposed process.
- Development of a Preferred Scenario and staging plan for land use release and transport infrastructure, refer to Figure 5-4: Preferred scenario determination.
- High level cost estimation of key required infrastructure and development of an investment profile.
- Preferred Scenario presentation to the Working Group for endorsement to proceed to Stage 2.

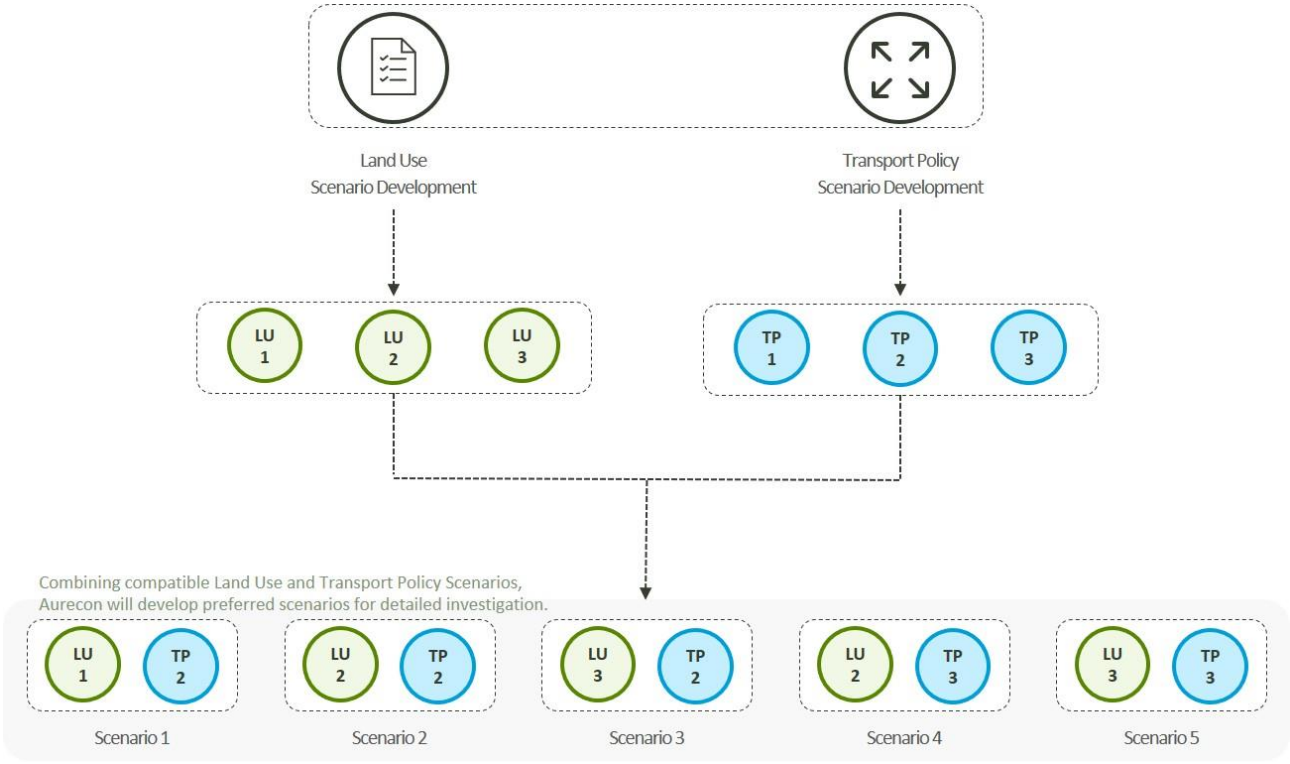

Figure 5-2: Scenario development

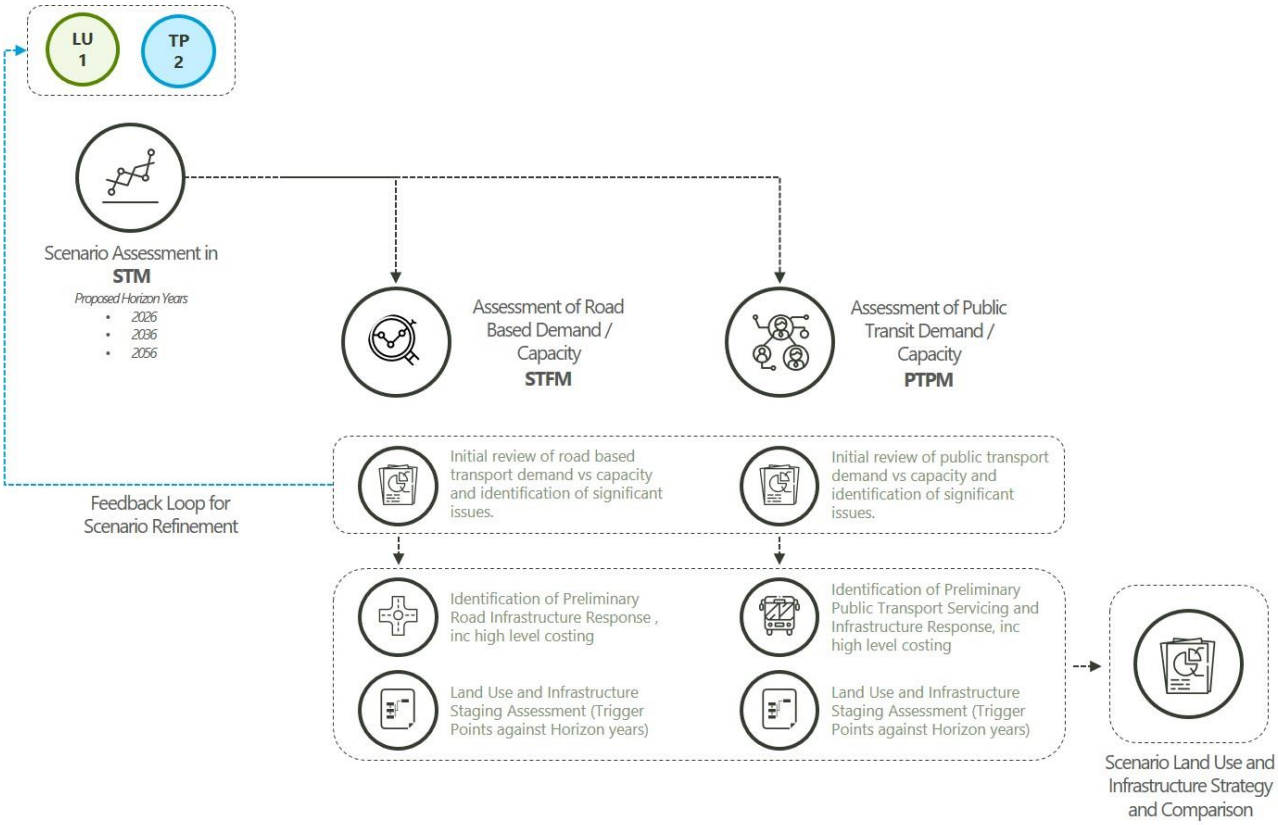

Figure 5-3: Scenario assessment

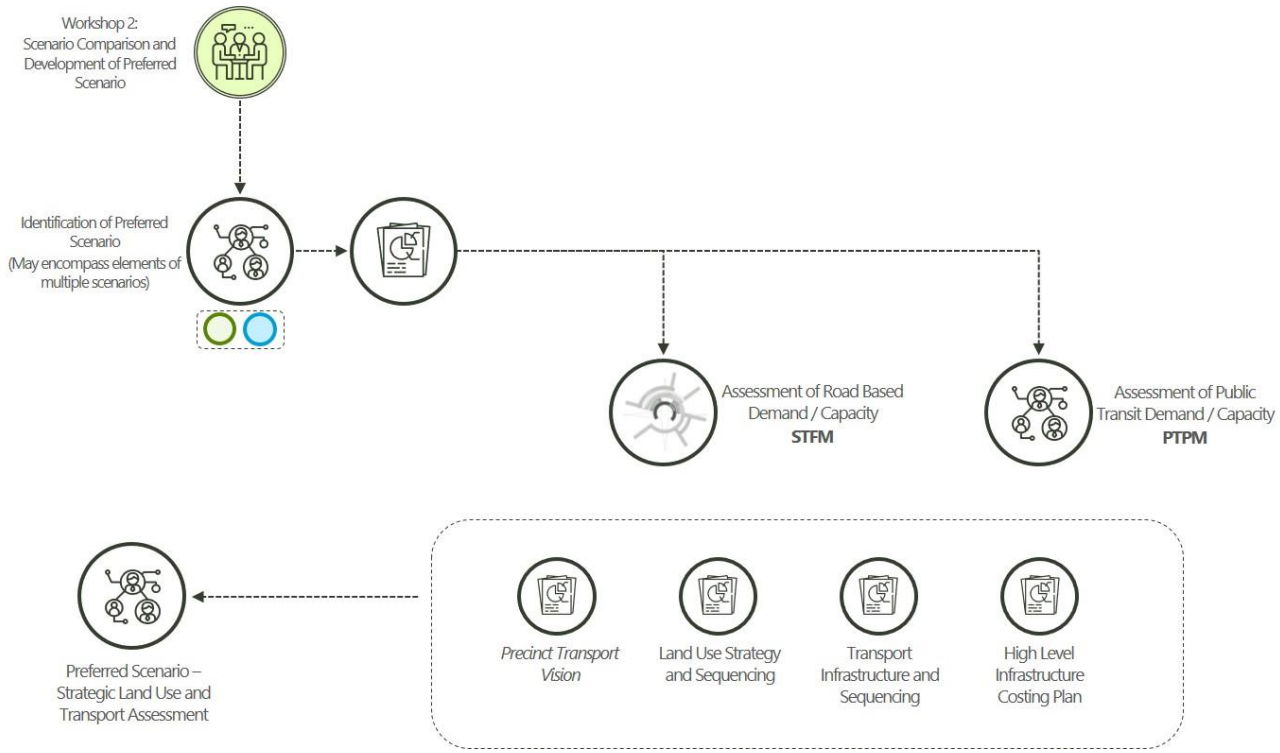

Figure 5-4: Preferred scenario determination

Deliverable of Stage 1:

Submission of a Preferred Land Use and Transport Infrastructure Scenario Report including:

- Land Use and Transport Infrastructure Strategy for Liverpool Collaboration Area;
- High level cost estimation of the key infrastructure requirements and transport access strategy for interim and ultimate developments; and
- An agreed upon funding mechanism.

5.2 Stage 2 – Detailed Transport and Traffic Assessment

Stage 2 shall commence once there is consensus and agreement on the strategic assessment (completion of Stage 1) of the proposed land use changes for the Collaboration Area over time, including the identified infrastructure and services requirements. Building on the findings of Stage 1, Stage 2 will entail the development of a more detailed assessment to assist in more accurately identifying and informing the scope and costs for any infrastructure, including local transport infrastructure.

A detailed transport and traffic assessment largely in the context of a Transport Management and Accessibility Plan (TMAP) will be required to identify the infrastructure and service requirements and determine the development contributions. For land use changes of the scale anticipated, the TMAP may require the support of mesoscopic transport modelling (e.g. Aimsun software), to build on the strategic transport evaluation undertaken in Stage 1. It needs to detail the transport infrastructure and services required to support the land use changes. Findings of Stage 2 TIA will provide a sound basis for the preparation of a suitable funding mechanism for the entire precinct (SIC, LIC, TIC, VPAs and the like). These funding mechanisms will work in tandem with Federal, State and Local Government funding to support the Liverpool Collaboration Area.

TfNSW and Liverpool City Council welcome the opportunity to advise further on the detailed scope for Stage 2 of the study as Stage 1 progresses.

Deliverables of Stage 2:

Deliverables prior to rezoning include:

- Agreed Development Scenario over 2026, 2036 and 2056 planning horizons

- Identified list of Transport infrastructure/policy requirements to support agreed development Scenario – including timing of delivery and costings, and
- Appropriate funding mechanism to identify fair and reasonable developer contributions in addition to Federal, State and Local Government Infrastructure investment.

6 Gateway Approval and Proposed Conditions

Nothing contained in the body of this report/assessment would preclude the Planning Proposal from rezoning and gazettal for residential/mixed use purposes. Supported by a 'vision' for Moore Point founded on delivering exceptional pedestrian and cycling connectivity both within the precinct itself as well the broader community, the Planning Proposal represents an opportunity to deliver significant movement and place outcomes for the Liverpool Collaboration Area.

The following is the TIWG agreed planning schedule.

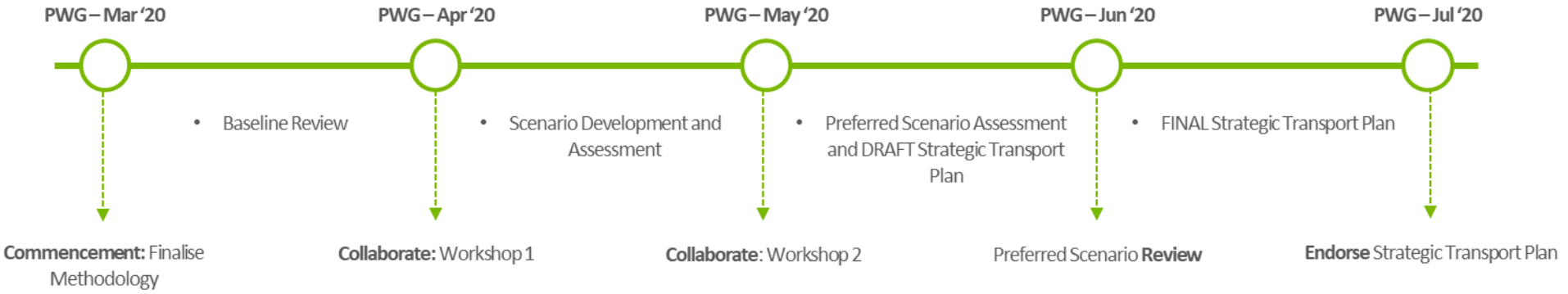

Figure 6-1: Indicative strategic transport plan and impact assessment timeline

Gateway approval conditions would be aligned with the outcomes of the Stage 1 Strategic Assessment, as agreed by the TIWG.

- Land-use and Transport Infrastructure strategy for Liverpool Collaboration Area. – Placed-based Transport Strategy;
- High level costing of key infrastructure requirements and transport access strategy for interim and ultimate developments;
- Agree funding mechanism;

Appendix A – TIWG Terms of Reference

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