



Australian Government

**BUILDING OUR FUTURE**



# **M12 Motorway**

Amendment Report - Appendix B

Transport and traffic updated technical  
report

October 2020

# Executive summary

## Background

Transport for New South Wales (TfNSW; formerly Roads and Maritime Services) proposes to build the M12 Motorway between the M7 Motorway at Cecil Hills and The Northern Road at Luddenham (the project), over a distance of about 16 kilometres. The project would provide the main access from the Western Sydney International Airport at Badgerys Creek to Sydney's motorway network and is expected to be opened to traffic before the opening of the Western Sydney International Airport.

TfNSW is seeking approval under Part 5, Division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act) to construct and operate the project. An environmental impact statement (EIS) was prepared to assess the potential impacts of the project and recommend management measures to appropriately address those impacts. The key features of the project as described in the EIS is provided in Section 1.1 of the amendment report. This EIS was placed on public exhibition from 16 October to 18 November 2019.

TfNSW proposes to amend the project following further design development since the exhibition of the EIS. The proposed changes include design changes and construction updates. These provide functional improvements to the design and improved integration with surrounding major transport infrastructure projects and potential future development. They also respond to issues raised in community and stakeholder submissions, and, in some instances, further reduce the potential impacts of the project as described in the EIS.

## Purpose of this report

This transport and traffic updated technical report has been prepared to support the amendment report. The purpose of this technical report is to present an assessment of the construction and operational activities for the amended project that have the potential to impact transport and traffic. To achieve this, the scope of the report is therefore to provide:

- A revised assessment of construction transport and traffic impacts based on amended project and additional ancillary facilities to support construction of the amended project
- A revised assessment of future operational performance of the road network without the amended project
- A revised assessment of future operational transport and traffic impacts with the amended project in operation
- A comparison of impacts between the project as described in the EIS, and the amended project.

This transport and traffic updated technical report should be read in conjunction with the *M12 Motorway Environmental Impact Statement Appendix F Transport and Traffic Assessment Report* (Roads and Maritime Services, 2019) (EIS TTAR).

## Overview of option 1 and option 2 for amended project

The two options for the amended project would be consistent from The Northern Road in the west until Duff Road in the east. At the motorway-to-motorway interchange with the M7 Motorway, the project is proposed to be either:

- Option 1 – without Elizabeth Drive connection
  - Interchange provides entry and exit ramps between the M12 Motorway and the M7 Motorway; in addition, it would maintain the existing connection of the M7 Motorway to Elizabeth Drive with new entry and exit ramps
- Option 2 – with Elizabeth Drive connection
  - Interchange as per option 1 and also provides entry and exit ramps between the M12 Motorway and Elizabeth Drive, Cecil Road and Wallgrove Road.

The decision on which option would proceed is subject to available funding.

## Overview of changes to forecasting and modelling

- The land use and demographics scenario has been updated from LU14 version 4 (developed in 2014 and adjusted for specific developments) to a more recent LU16 (developed in 2016 and adjusted to include Western Sydney International Airport forecast data). The modelling package used for the amendment report changed from WRTM to SMPM version 1.1 as the traffic forecasts for western Sydney from this model are considered to be more robust than the forecasts from WRTM which used for the EIS analysis.
- The changes in forecast land use and improvements in modelling processes with SMPM have resulted in a major reduction in future trips to the south west growth area in western Sydney. Forecast traffic volumes using the amended project and the surrounding network have reduced as a result.

The amended project is showing improved levels of performance to the project as described in the EIS mostly due to this reduction in traffic volumes rather than the changes for the amended project.

## Overview of potential construction impacts

### Performance of the amended project

To support the construction of the amended project, including the change to procurement strategies, nine additional construction ancillary facilities would be required. In addition, changes would be made to four ancillary facilities described in the EIS.

During construction of the amended project the following intersection would perform poorly at Level of Service F:

- Elizabeth Drive / Devonshire Road – would remain at Level of Service F during the morning (368 seconds) and evening (771 seconds) peaks
- Elizabeth Drive / Badgerys Creek Road – would change from Level of Service D (55 seconds) to Level of Service F (124 seconds) during the morning peak.

Increases in delay at this intersection is the result of the addition of construction-related heavy vehicle traffic. Additional delays would be experienced for vehicles waiting for a gap in traffic when turning right or left onto Elizabeth Drive. Due to their length, construction-related heavy vehicles require longer gaps in traffic to safely turn from minor roads at priority-controlled intersections.

## Comparison of amended project to the project as described in the EIS

Comparing the intersection performance results during construction of the amended project and the project as described in the EIS, most intersections would perform better during construction of the amended project. The improvements in intersection performance reflect the change to the demand growth in SMPM version 1.1 and changes to construction traffic generation associated with amended and additional ancillary facilities.

## Overview of potential operational impacts

### ***Changes to regional road network volumes***

#### Performance of the amended project

Analysis of traffic volumes for the amended project shows the following:

- The new M7 Motorway / M12 Motorway interchange would allow for free-flow movement for traffic travelling to and from Western Sydney International Airport via the M12 Motorway instead of through the existing Elizabeth Drive interchange, which would reach capacity by 2026 without the amended project
- By 2036 the amended project would allow a much greater volume of traffic to travel along the M7 Motorway and increase east-west movement on Elizabeth Drive, as it would be unimpeded by existing capacity constraints at the Elizabeth Drive / M7 Motorway interchange
- Comparing option 1 and option 2, option 2 would result in more traffic using the M12 Motorway and less traffic using Elizabeth Drive. Option 2 would also result in more traffic using Cecil Road and Duff Road. This reflects increased connectivity to the local road network that option 2 provides.

## Comparison of amended project to the project as described in the EIS

Comparing traffic volumes for the amended project and traffic volumes presented in the EIS TTAR shows the following for the amended project:

- Total north-south and east-west traffic volumes are lower. This reflects the change to the demand growth in SMPM version 1.1
- Daily and peak hour traffic volumes on the M7 Motorway are higher. Lower total traffic volumes on the network would allow a much greater volume of traffic to travel along the M7 Motorway, unimpeded by existing capacity constraints at Elizabeth Drive
- Daily and peak hour traffic volumes on the M12 Motorway are lower for option 1 and higher for option 2; this reflects increased connectivity to the local road network that option 2 provides.



## ***Changes to network performance***

### **Performance of the amended project**

Analysis of network performance for the amended project shows:

- Network performance statistics between option 1 and option 2 are very similar with option 2 performing marginally better than option 1 in the AM peak by 2036
- The amended project would result in total travel time in peak periods through the study area decreasing by up to eight per by 2036
- The amended project would result in average speeds through the study area in peak hours increasing by up to nine per by 2036
- The amended project would result in total travel distance through the study area increasing by less than 10% due to additional travel distance along the M12 Motorway alignment
- An increase in total travel distance, decrease in total travel time and increase in average speeds shows the amended project would substantially improve traffic conditions in the study area.

### **Comparison of amended project to the project as described in the EIS**

Comparing network performance statistics for the amended project and network performance statistics presented in the EIS TTAR shows the following for the amended project:

- Total traffic demand, total travel distance and total travel time are lower
- Average speeds are higher
- Total unreleased trips are lower.

These changes reflect the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower.

## ***Changes to intersection performance***

### **Performance of the amended project**

Analysis of intersection performance for the amended project shows:

- In 2026 the amended project would result in unchanged or improved intersection performance
- In 2036 the amended project would result in unchanged or improved intersection performance. All intersections would perform at a satisfactory Level of Service
- The improvements in intersection performance can be attributed to the amended project reducing traffic volumes along Elizabeth Drive, which would reduce delays at intersections along Elizabeth Drive
- Comparing option 1 and option 2, option 2 would result in improved performance at most intersections.

### **Comparison of amended project to the project as described in the EIS**

Comparing intersection performance for the amended project and intersection performance presented in the EIS TTAR, the performance of all intersections for the amended project improves with the exception of The Northern Road / M12 Motorway intersection for option 2. This is a result of more traffic using the M12 Motorway. The improvement in performance at other intersections reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower and amended designs for intersections to be upgraded.

## ***Changes to general traffic travel times***

### **Performance of the amended project**

Analysis of general traffic travel times for the amended project shows:

- Travel times on the M7 Motorway would generally increase with the amended project in the morning and evening peaks. These increases in travel time are a result of increased traffic volumes on the M7 Motorway, leading to additional merging of traffic where the M12 Motorway interfaces with the M7 Motorway
- Travel times on Elizabeth Drive between The Northern Road and the M7 Motorway would generally decrease with the amended project
- Travel times on the M12 Motorway would increase marginally between 2026 and 2036, which demonstrates that the amended project has sufficient capacity to perform acceptably with forecast 2036 traffic volumes. Comparing travel times between option 1 and option 2, option 2 would generally result in increased travel times as result of more traffic using the M12 Motorway.

### **Comparison of amended project to the project as described in the EIS**

Comparing the general traffic travel times for the amended project and general traffic travel times as presented in the EIS TTAR shows the majority of travel times for the amended project are similar or lower. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower.

## ***Changes to freight transport***

### **Performance of the amended project**

Analysis of forecast daily heavy vehicle volumes for the amended project shows the following:

- Increase of up to 35 per cent on The Northern Road north of Elizabeth Drive in both directions by 2036
- Overall volumes on Elizabeth Drive would remain unchanged by 2036. However, there would be localised increases and decreases
- Increase of 27 per cent on Mamre Road in the northbound direction by 2036
- Volume changes on other roads would be 10 per cent or less by 2036.

These changes in daily heavy vehicle volumes reflect the update of the freight movement model as part of SMPM version 1.1.

### **Comparison of amended project to the project as described in the EIS**

Comparing the forecast daily heavy vehicle volumes for the amended project and forecast daily heavy vehicle volumes presented in the EIS TTAR shows the following differences:

- Overall volumes on the M12 Motorway are 23 per cent lower in 2026 and nine per cent lower in 2036
- Overall volumes on Elizabeth Drive and Mamre Road are lower in 2026 and in 2036
- Volumes on the M12 Motorway Western Sydney International Airport Access Road and The Northern Road are much higher in 2026 and in 2036.

These changes in daily heavy vehicle volumes reflect the update of the freight movement model as part of SMPM version 1.1.

## Summary of environmental management measures

The environmental management measures for the amended project are the same as those presented in the EIS TTAR. Transport and traffic impacts associated with construction of the amended project would need to be mitigated through environmental management measures. These measures would include the development and implementation of Construction Traffic Management Plans prepared as part of the Construction Environment Management Plan. These plans would be prepared by the construction contractor and would outline the guidelines, general requirements and specific procedures to be used for any works that may have an impact on traffic operation.

## Conclusions

Analysis of road network performance for the 2026 and 2036 'with amended project' scenarios shows that the M12 Motorway is required to allow forecast traffic volumes to access Western Sydney International Airport. The M12 Motorway would improve access to Western Sydney International Airport by providing a motorway-standard access directly from the existing motorway network. It would also reduce travel times and delays on Elizabeth Drive by providing a high-speed alternative to Elizabeth Drive between The Northern Road and the M7 Motorway. The Amended Project is showing improved levels of performance to the project as described in the EIS mostly due to the reduction in overall network demands as result of updating to using SMPM Version 1.1. The increased connection of option 2 provides improved network performance in the allowing more traffic to use the high-speed motorway.

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# Glossary of terms and abbreviations

Term	Meaning
Amended project	The project including all proposed design changes; encompasses both option 1 and option 2
Capacity	The nominal maximum number of vehicles which has a reasonable expectation of passing over a given section of a lane or roadway in one direction during a given time period under prevailing roadway conditions
Carriageway	The portion of a roadway used by vehicles including shoulders and ancillary lanes
CEMP	Construction environmental management plan
Construction ancillary facility	Temporary facilities during construction that include, but are not limited to construction sites (civil and tunnel), sediment basins, temporary water treatment plants, precast yards and material stockpiles, laydown areas, workforce parking, maintenance workshops and offices
Corridor	substantial segment of the transport network, in which parallel, possibly competing, transport routes (and modes, where appropriate) operate between two locations
CTTMP	Construction Transport and Traffic Management Plan
Cumulative impacts	Impacts that, when considered together, have different and/or more substantial impacts than a single impact assessed on its own
Detailed design	The phase of the project following concept design where the design is refined, and plans, specifications and estimates are produced, suitable for construction
Detour	An alternative route, using existing roads, made available to traffic
Do minimum	A future model scenario that does not incorporate the proposed project infrastructure
DPIE	NSW Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings (from EP&A Act)
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
Grade separation	The separation of road, rail or other transport modes, so that crossing movements at intersections are at different levels
h	Hour
Heavy vehicle	A heavy vehicle is classified as a Class 3 vehicle (a two-axle truck) or larger, in accordance with the Austroads Vehicle Classification System

Term	Meaning
Impact	Influence or effect exerted by a project or other activity on the natural, built and community environment
Interchange	An intersection of two or more roads that typically uses grade separation, and one or more ramps, to permit traffic on at least one carriageway to pass through the junction without directly crossing any other traffic stream
km	Kilometres
LU14 and LU16	The 2014 and 2016 versions of land use (population and employment) projections for the Sydney Greater Metropolitan Area produced by the Transport and Performance Analytics section of Transport for NSW
Median	The central reservation which divides a carriageway for traffic travelling in opposite directions
Midblock	A general location on a road between two intersections
Motorway	Fast, high volume, controlled access roads. May be tolled or un-tolled
NSW	New South Wales
Public transport	Includes train, bus (government and private), ferry (government and private) and light rail (government and private) services
Screen line	Theoretical boundaries specifically designed to collectively analyse direction and two-way traffic volumes
SEARs	Secretary's Environmental Assessment Requirements Requirements and specifications for an environmental assessment prepared by the Planning Secretary under section 115Y of the Environmental Planning and Assessment Act 1979 (NSW)
Sensitive road users	Term that refers to road users who are most at risk in traffic and who are most sensitive to road injury; defined as pedestrians and cyclists for the project
SMPM	Sydney Strategic Motorway Planning Model, is a strategic road traffic assignment model
STM	Sydney Strategic Travel Model; a travel demand forecasting model run by Transport for NSW
TfNSW	Transport for New South Wales
Transport infrastructure	Permanent installations including roads, rail, buildings and storage associated with transport
TTAR	Transport and Traffic Assessment Report

Term	Meaning
Unreleased traffic	In a simulation traffic model, this is the number of vehicles unable to enter the model due to congestion extending back into model entry points. The number of unreleased vehicles is an indication of the effectiveness of the modelled network in meeting the forecast traffic demand. The lower the number of unreleased vehicles, the better the modelled network is able to accommodate the forecast demand flows
With project	A future model scenario that incorporates the proposed project infrastructure
WRTM	WestConnex Road Toll Model
WSA Co	Western Sydney Airport Corporation

# 1. Introduction and background

## 1.1 Background

Transport for New South Wales (TfNSW; formerly Roads and Maritime Services) proposes to build the M12 Motorway between the M7 Motorway at Cecil Hills and The Northern Road at Luddenham (the project), over a distance of about 16 kilometres. The project would provide the main access from the Western Sydney International Airport at Badgerys Creek to Sydney's motorway network and is expected to be opened to traffic before the opening of the Western Sydney International Airport.

TfNSW is seeking approval under Part 5, Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to construct and operate the project. An environmental impact statement (EIS) was prepared to assess the potential impacts of the project and recommend management measures to appropriately address those impacts. The key features of the project as described in the EIS is provided in Section 1.1 of the amendment report. This EIS was placed on public exhibition from 16 October to 18 November 2019.

TfNSW proposes to amend the project following further design development since the exhibition of the EIS. The proposed changes include design changes and construction updates. These provide functional improvements to the design and improved integration with surrounding major transport infrastructure projects and potential future development. They also respond to issues raised in community and stakeholder submissions, and, in some instances, further reduce the potential impacts of the project as described in the EIS.

The proposed changes are described in **Section 1.2**.

## 1.2 Proposed changes

The proposed changes to the project as described in the EIS are summarised below and are described in detail in Chapter 3 and Chapter 4 of the amendment report:

- Amendments to the motorway-to-motorway interchange at the M7 Motorway, including:
  - Changes to Elizabeth Drive and Cecil Road intersections, proposed exit ramps, the Wallgrove Road connection to Elizabeth Drive and proposed shared user path realignments
  - The widening of Elizabeth Drive under the M7 Motorway and approaches
- An option to provide a new connection between the M12 Motorway and Elizabeth Drive near the M7 Motorway interchange
- Two new signalised intersections into the Western Sydney International Airport, with provisions for future connection to potential developments north of the Western Sydney International Airport
- Additional ancillary facilities to support the delivery of the project.

The project with all proposed design changes is referred to as the amended project.



Refinements have also been made as part of the ongoing development of the project since the EIS was exhibited. Refinements are changes that are consistent with the parameters of the project description as described in the EIS. For completeness, however, these refinements have been factored into the amended construction and operational footprint and included in the impact assessment described in this supplementary technical memorandum. The refinements are described in Section 3.3 and Section 4.2 of the amendment report and include:

- Lowering the height of the M12 Motorway in and around the Western Sydney International Airport interchange
- Reduction in the scope of work associated with the M12 Motorway and The Northern Road intersection
  - This intersection would still be constructed, but the main infrastructure work would be delivered as part of The Northern Road upgrade project
- Relocation of utilities
- Changes to property access and acquisition
- Changes to drainage
- Adjustments to construction access, hours, haulage, timing and material quantities.

The project with all changes is referred to as the amended project.

## 1.3 Amended project

### 1.3.1 Overview

The amended project would continue to provide the main access from the Western Sydney International Airport at Badgerys Creek to Sydney's motorway network and be located between The Northern Road in the west and the M7 Motorway in the east. The amended project includes an option for a direct connection between the M12 Motorway and Elizabeth Drive at the eastern extent of the project. This option would include some realignment of Wallgrove Road and widening of Elizabeth Drive at the motorway-to-motorway interchange at the M7 Motorway to facilitate the connection. Therefore, two options are being proposed for the amended project at the interchange with the M7 Motorway.

The two options for the amended project would be consistent from The Northern Road in the west until Duff Road in the east. At the motorway-to-motorway interchange with the M7 Motorway, the project is proposed to be either:

- Option 1 – without Elizabeth Drive connection
  - Interchange provides entry and exit ramps between the M12 Motorway and the M7 Motorway; in addition, it would maintain the existing connection of the M7 Motorway to Elizabeth Drive with new entry and exit ramps
- Option 2 – with Elizabeth Drive connection
  - Interchange as per option 1 and also provides entry and exit ramps between the M12 Motorway and Elizabeth Drive, Cecil Road and Wallgrove Road.

This section of the amended project is shown in **Figure 1-1**, with the Elizabeth Drive connection associated with option 2 shown in a different colour and detailed in inset A. The decision on which option would be built is dependent on funding being available to include the Elizabeth Drive connection. This will be determined during the detailed design and construction phase of the project. The key features of each option are described in the following sections. The key features of each option are presented in the following sections.

The proposed changes (see **Section 1.2**) would result in an amended construction footprint (**Figure 1-2**) and an amended operational footprint (**Figure 1-3**). The footprints would be the same for both options, with each footprint assuming the worst case scenario (ie option 2).

The key features of the amended project are listed in **Section 1.3.2** and include both options.

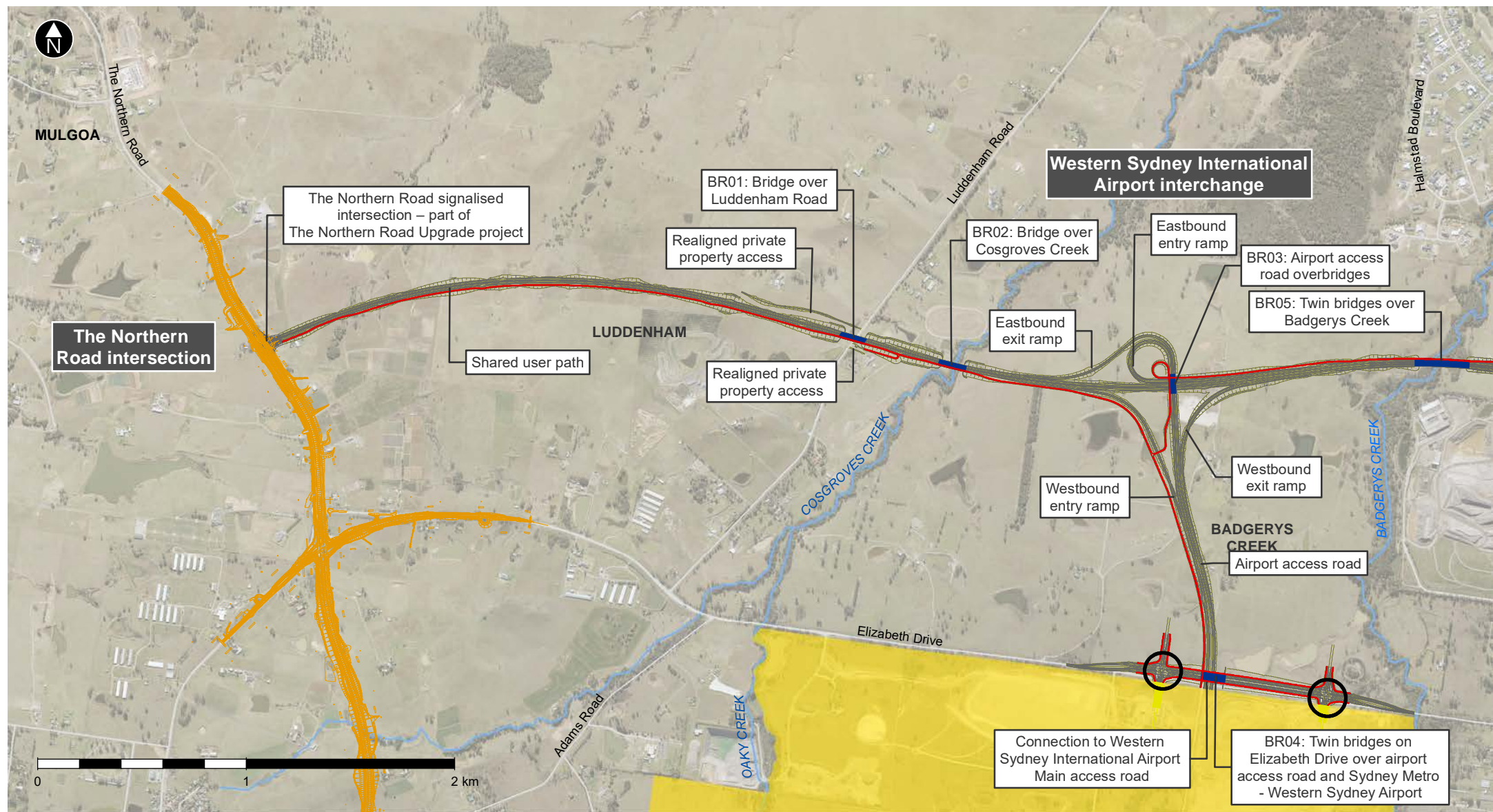
### 1.3.2 Key features of the amended project

The key features of the amended project are listed below. Where the description of the proposed amended project key features differs from the description listed in the EIS (see Section 1.1 of the amendment report), those changes are shown in **bold text**:

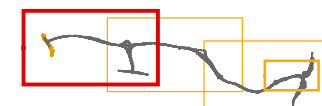
- A new dual-carriageway motorway between the M7 Motorway and The Northern Road with two lanes in each direction with a central median allowing future expansion to six lanes
- Motorway access via three interchanges/intersections:
  - A motorway-to-motorway interchange at the M7 Motorway and associated works (extending about four kilometres within the existing M7 Motorway corridor) **with the following options:**
    - **Option 1 – without connection between the M12 Motorway and Elizabeth Drive**
    - **Option 2 – with connection between the M12 Motorway and Elizabeth Drive**
  - A grade-separated interchange referred to as the Western Sydney International Airport interchange, including a dual-carriageway four-lane airport access road (two lanes in each direction for about 1.5 kilometres) connecting with the Western Sydney International Airport Main Access Road
  - A signalised intersection at The Northern Road with provision for grade separation in the future
- Bridge structures across Ropes Creek, Kemps Creek, South Creek, Badgerys Creek and Cosgroves Creek
- A bridge structure across the M12 Motorway into the Western Sydney Parklands to maintain access to utilities, including the existing water tower and mobile telephone/other service towers on the ridgeline in the vicinity of Cecil Hills, to the west of the M7 Motorway
- Bridge structures at interchanges and at Clifton Avenue, Elizabeth Drive, Luddenham Road and other local roads to maintain local access and connectivity
- Inclusion of active transport (pedestrian and cyclist) facilities through provision of pedestrian bridges and an off-road shared user path, including connections to existing and future shared user path networks

- Modifications to the local road network, as required, to facilitate connections across and around the M12 Motorway including:
  - Realignment of Elizabeth Drive at the Western Sydney International Airport, with Elizabeth Drive overpassing the airport access road and rail infrastructure
  - **Two new signalised intersections from Elizabeth Drive into the Western Sydney International Airport, with provisions for future connection to potential developments to the north**
  - **Widening of Elizabeth Drive under the M7 Motorway and approaches**
  - Realignment of Clifton Avenue over the M12 Motorway, with associated adjustments to nearby property access
  - Relocation of the Salisbury Avenue cul-de-sac, on the southern side of the M12 Motorway
  - **Realignment of Wallgrove Road to connect to Cecil Road, including a connection between Elizabeth Drive and Wallgrove Road via Cecil Road with a signalised intersection with Elizabeth Drive**
- Adjustment, protection or relocation of existing utilities
- Ancillary facilities to support motorway operations, smart motorways operation in the future and the existing M7 Motorway operation, including gantries, electronic signage and ramp metering
- Other roadside furniture including safety barriers, signage and street lighting
- Adjustments of waterways, where required, including Kemps Creek, South Creek and Badgerys Creek
- Permanent water quality management measures including swales and basins
- Establishment and use of temporary ancillary facilities, temporary construction sedimentation basins, access tracks and haul roads during construction
- Permanent and temporary property adjustments and property access refinements as required.

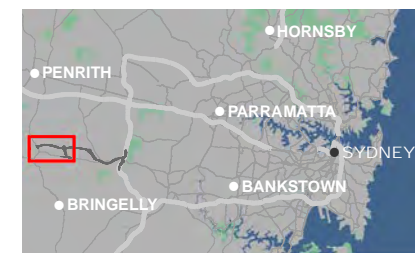
An overview of this option is provided in **Figure 1-1**.



- The amended project
- Existing roads
- Part of The Northern Road upgrade project
- Waterways
- Shared user path
- Bridges
- Western Sydney International Airport
- Signalised intersections into the Western Sydney International Airport  
Note: Indicative, subject to detailed design

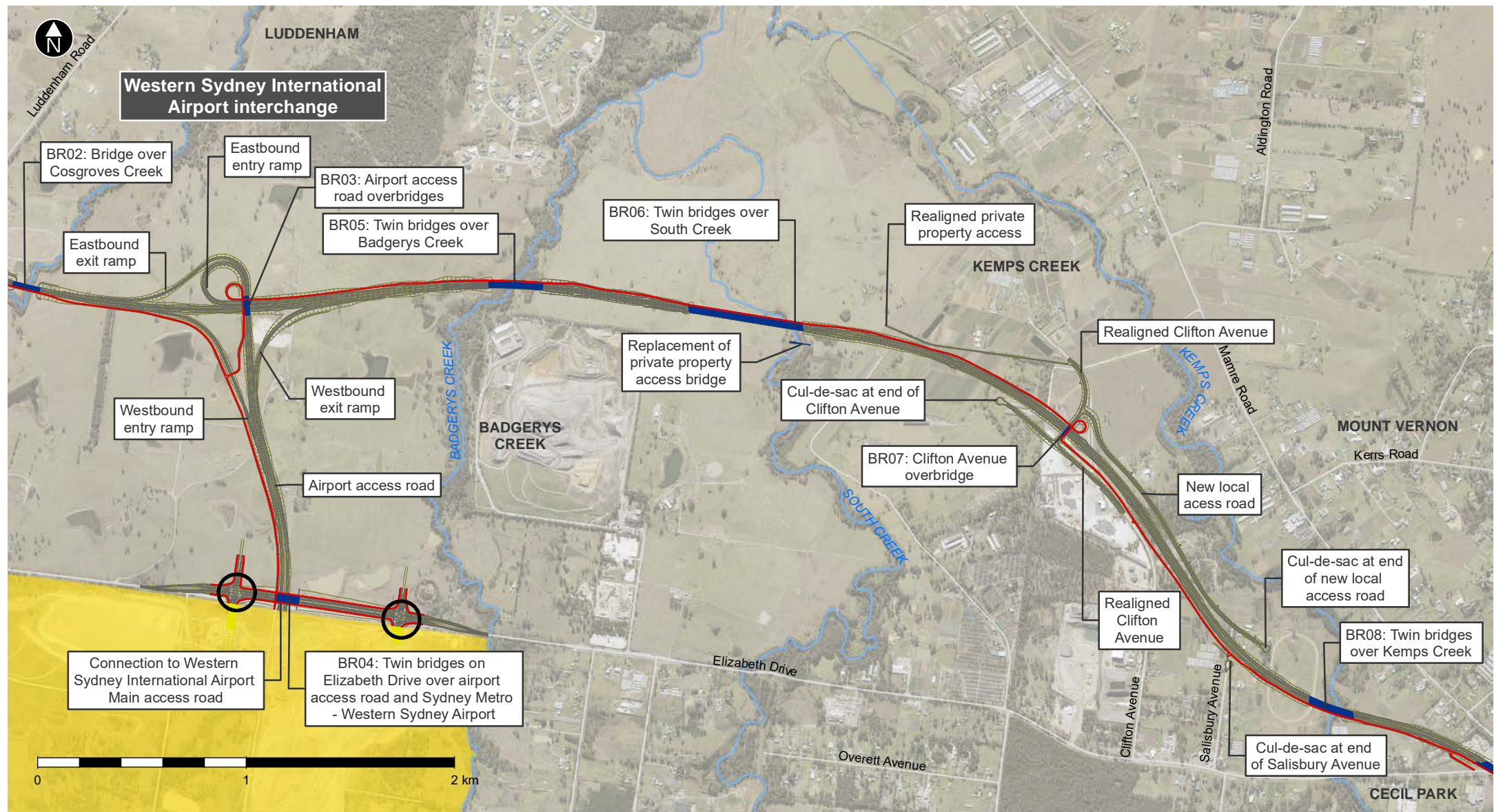


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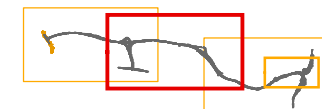


**Figure 1-1** Key features of the amended project

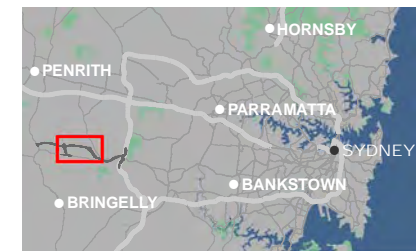




- The amended project
- Existing roads
- Western Sydney International Airport
- Shared user path
- Waterways
- Signalised intersections into the Western Sydney International Airport
- Note: Indicative, subject to detailed design
- Bridges

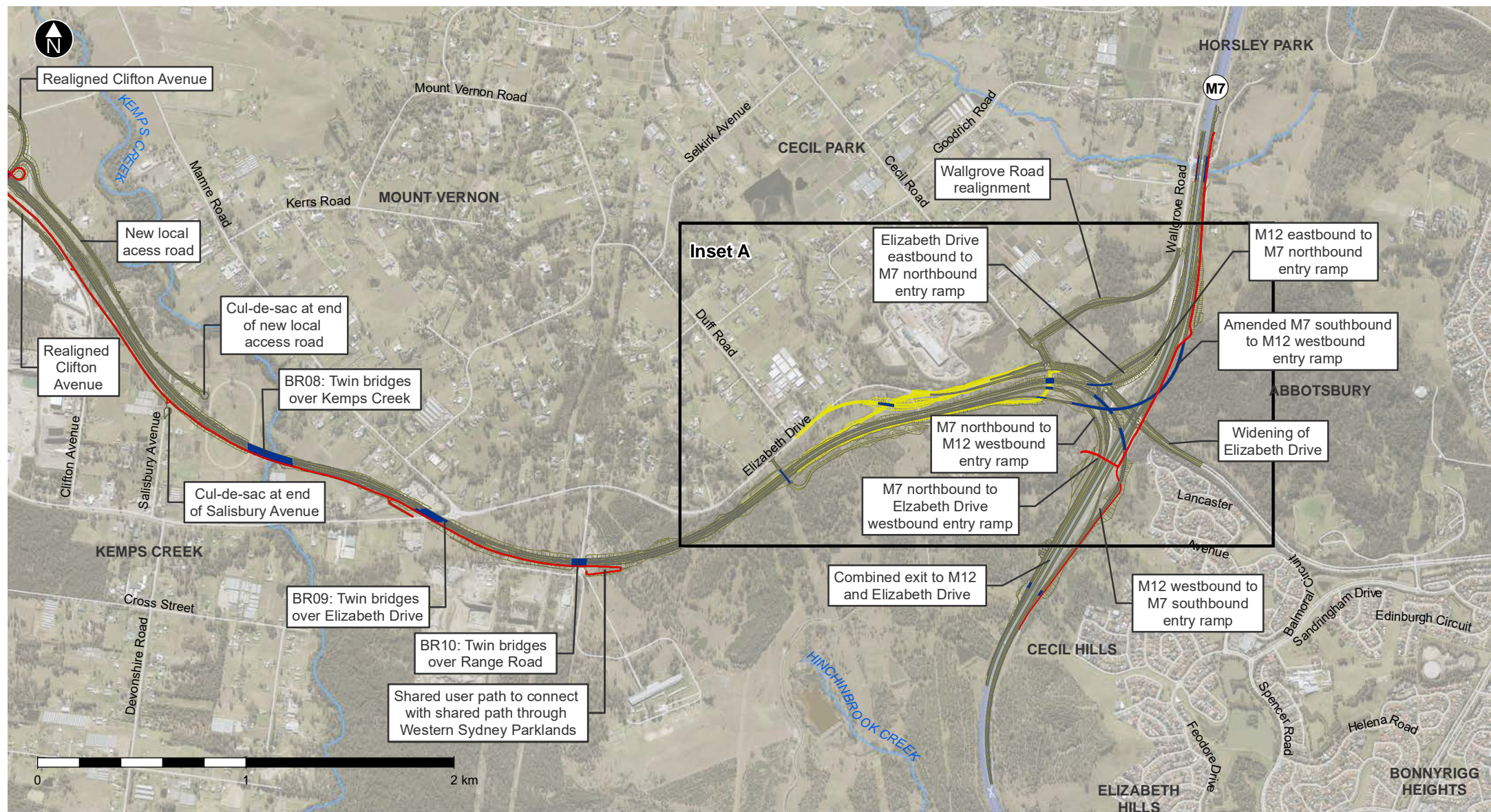


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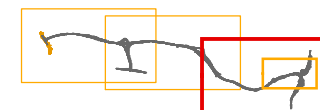


**Figure 1-1** Key features of the amended project





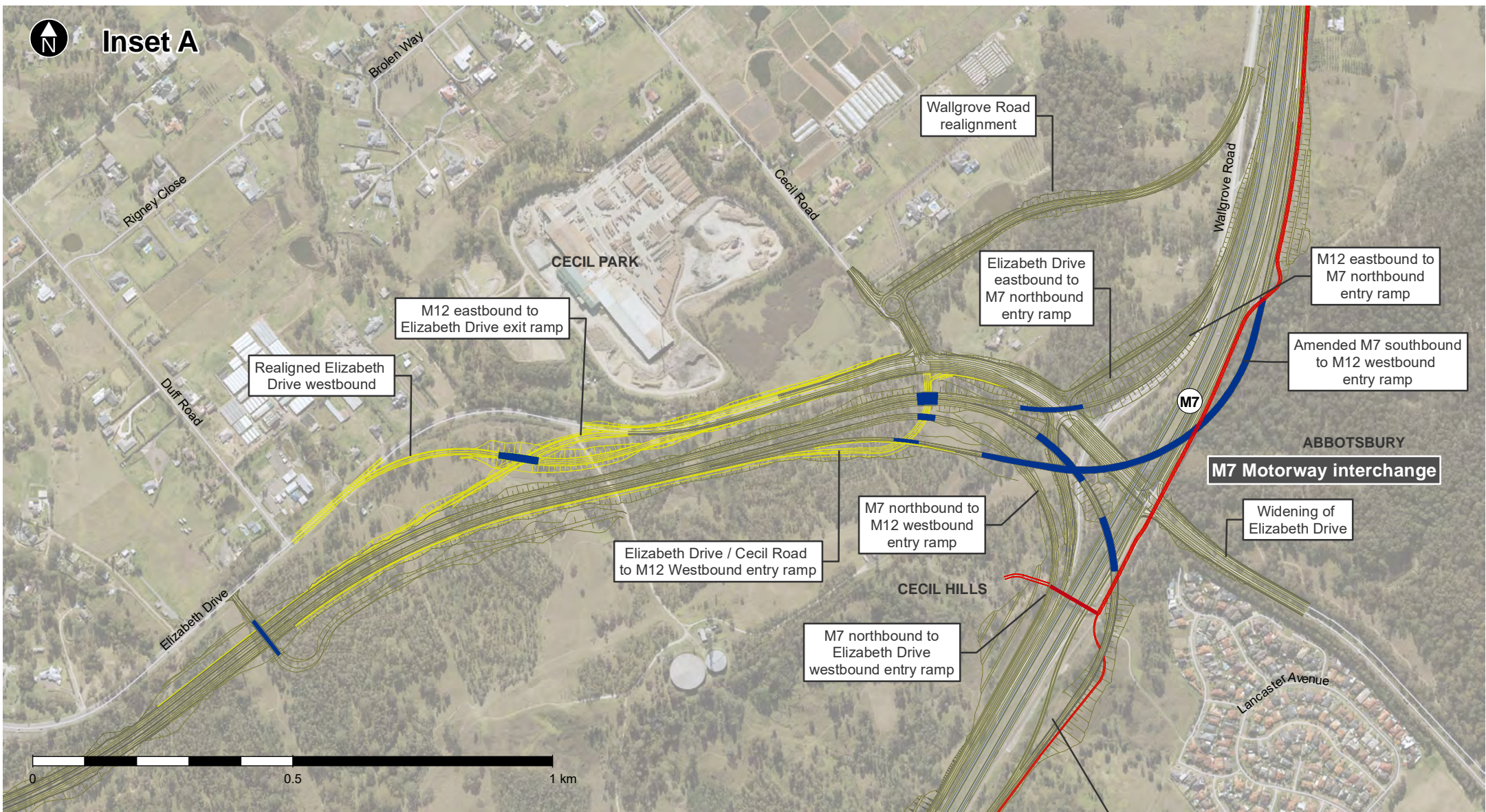
- The amended project
- The amended project (Elizabeth Drive connection)
- Shared user path
- Bridges
- Motorway
- Existing roads
- Waterways



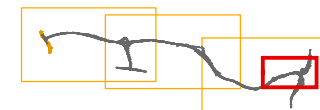
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**Figure 1-1** Key features of the amended project

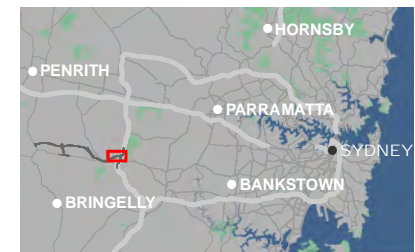




- The amended project
- The amended project with Elizabeth Drive connection
- Shared user path
- Bridges
- Motorway
- Existing roads

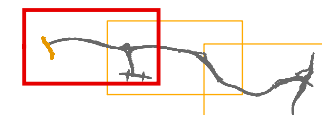
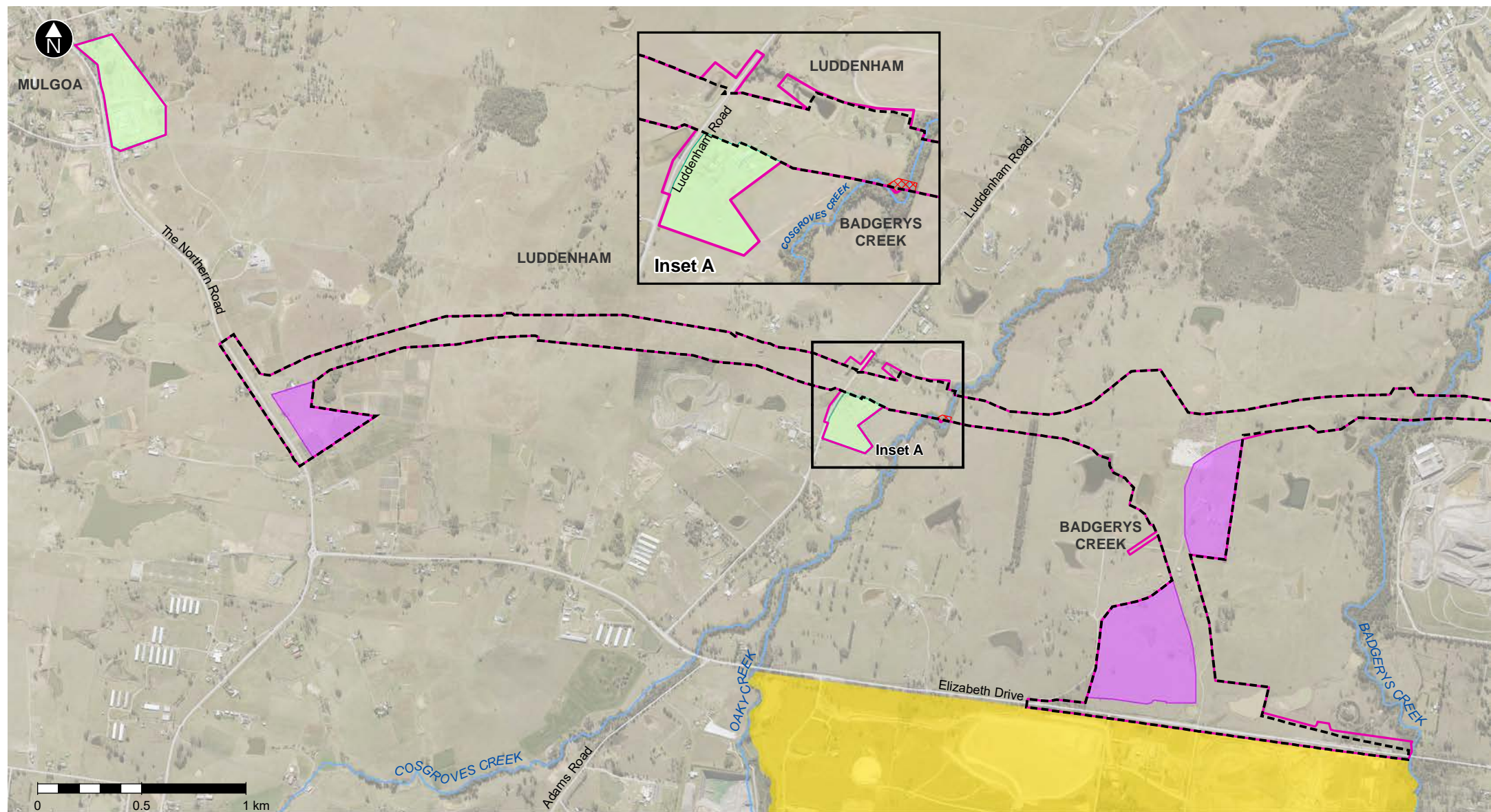


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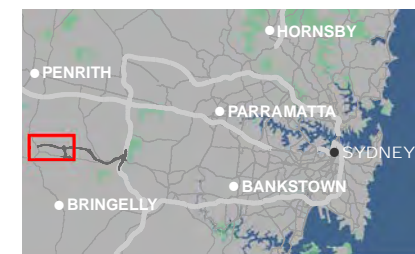


**Figure 1-1** Key features of the amended project



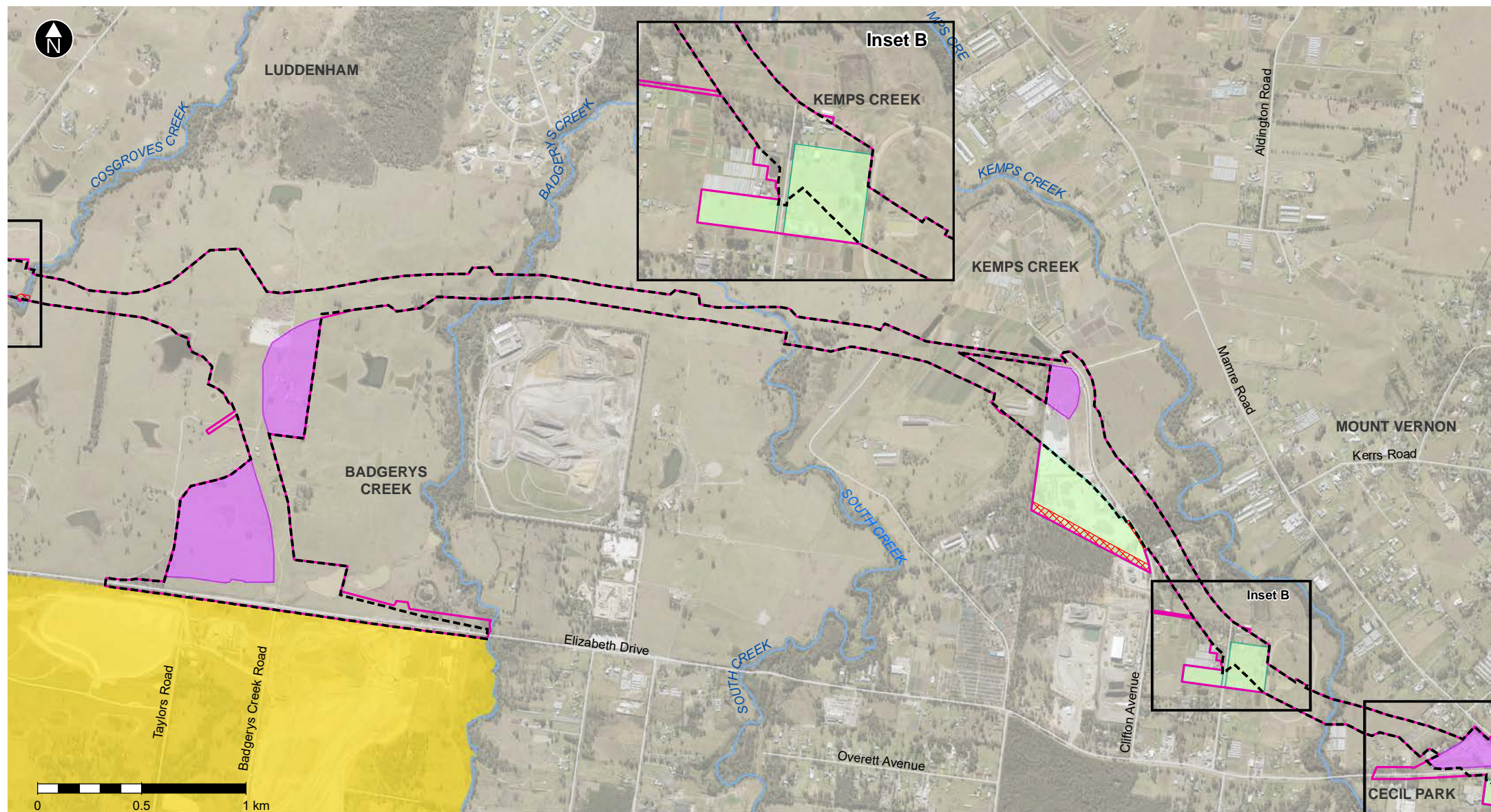


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**Figure 1-2** Construction footprints of the amended project and the project as described in the EIS

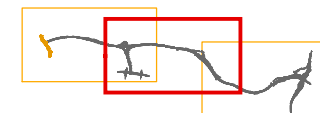




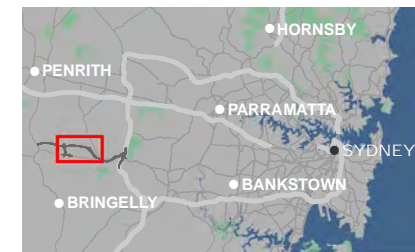
- The project construction footprint as per the EIS
- The amended project construction footprint
- The amended project exclusion zones

- Ancillary facilities as per the EIS
- Additional ancillary facilities
- Western Sydney International Airport

- Waterways
- Motorway
- Existing roads

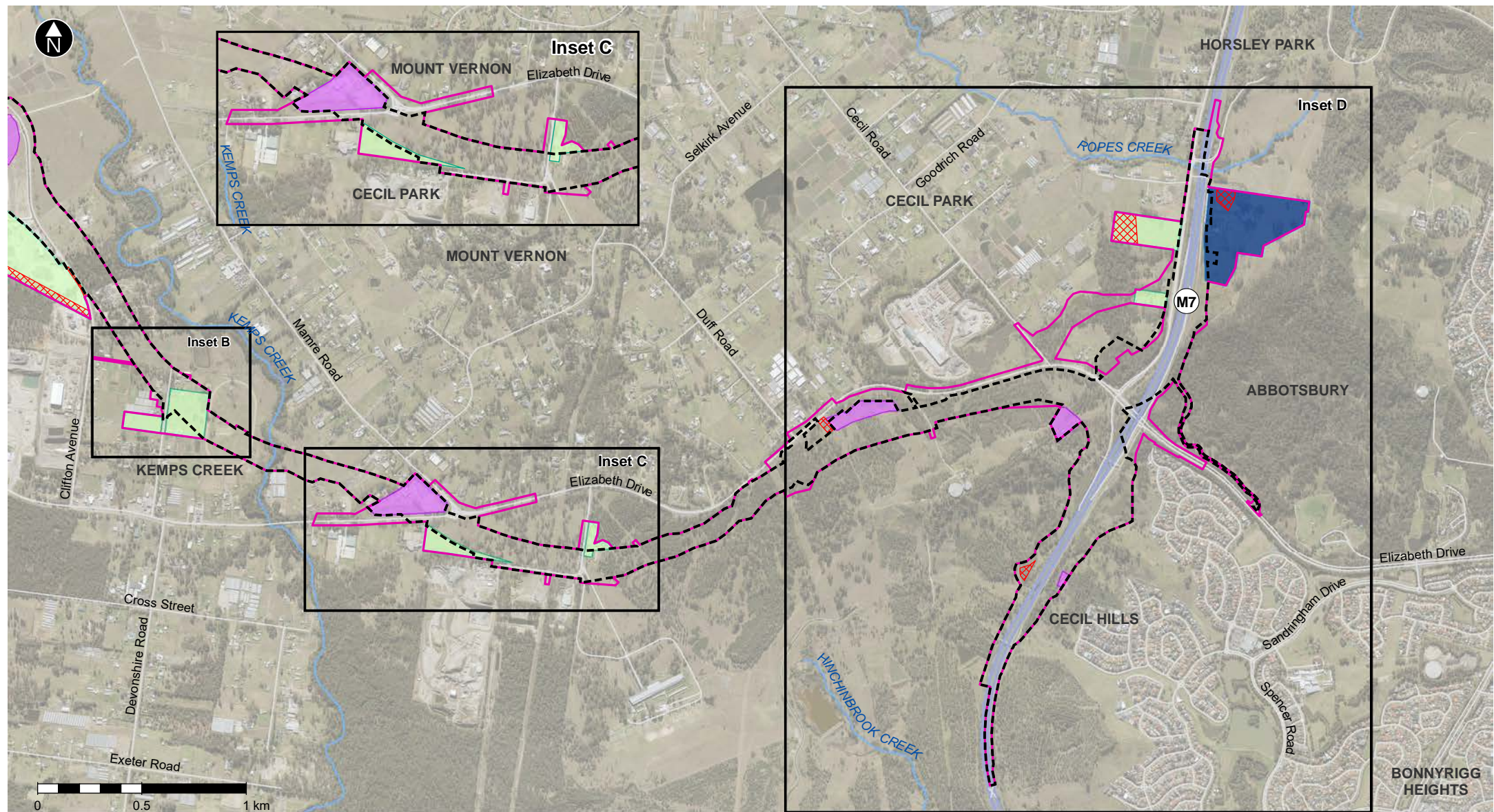


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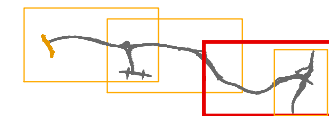
**Figure 1-2** Construction footprints of the amended project and the project as described in the EIS



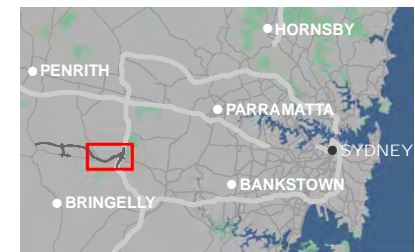


- The project construction footprint as per the EIS
- The amended project construction footprint
- The amended project exclusion zones

- Ancillary facilities as per the EIS
- Additional ancillary facilities
- Amended ancillary facilities
- Waterways
- Motorway
- Existing roads

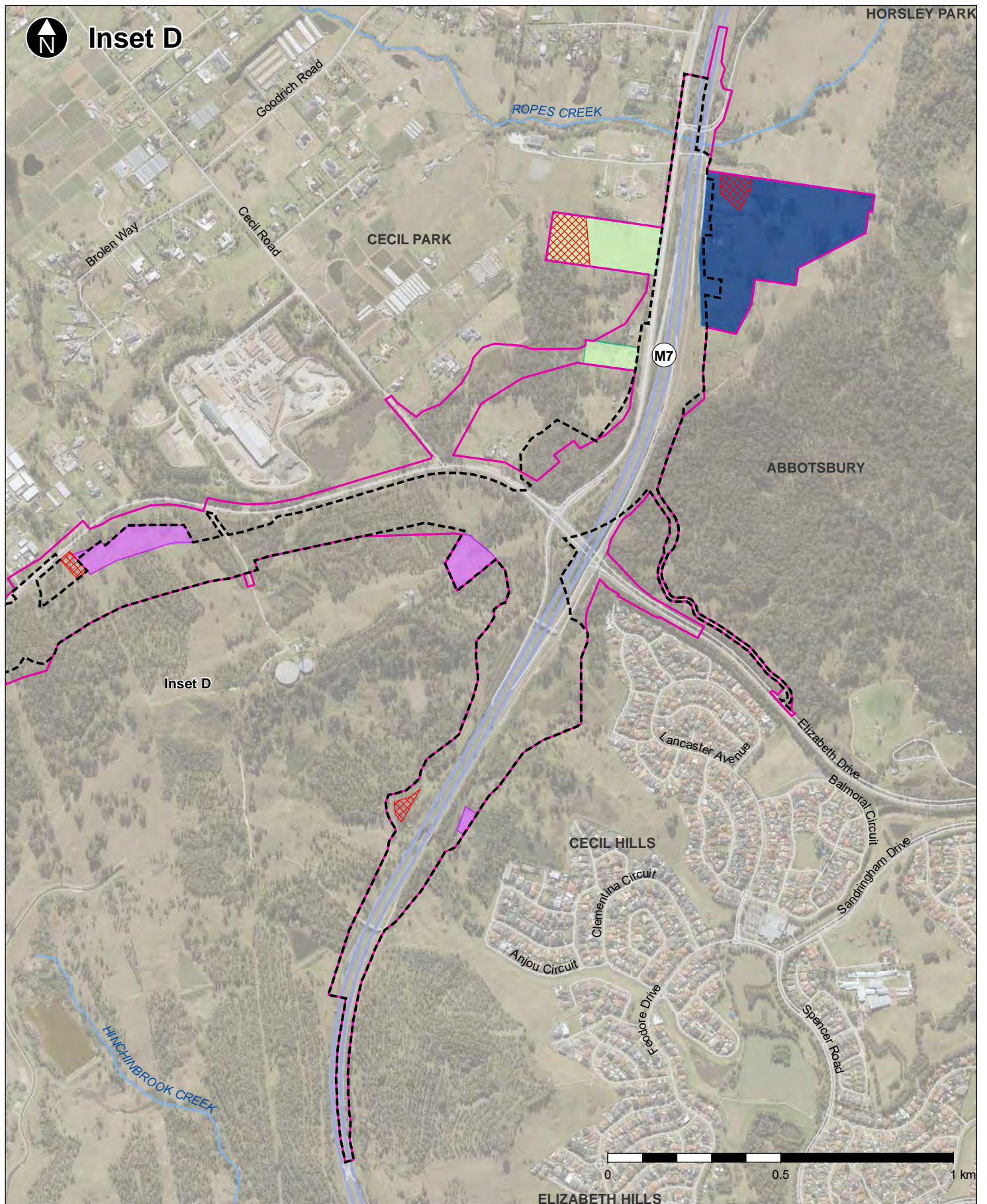


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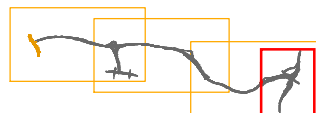


**Figure 1-2** Construction footprints of the amended project and the project as described in the EIS

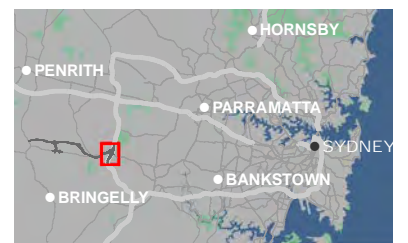




- The project construction footprint as per the EIS
- The amended project construction footprint
- The amended project exclusion zones
- Ancillary facilities as per the EIS
- Additional ancillary facilities
- Amended ancillary facilities

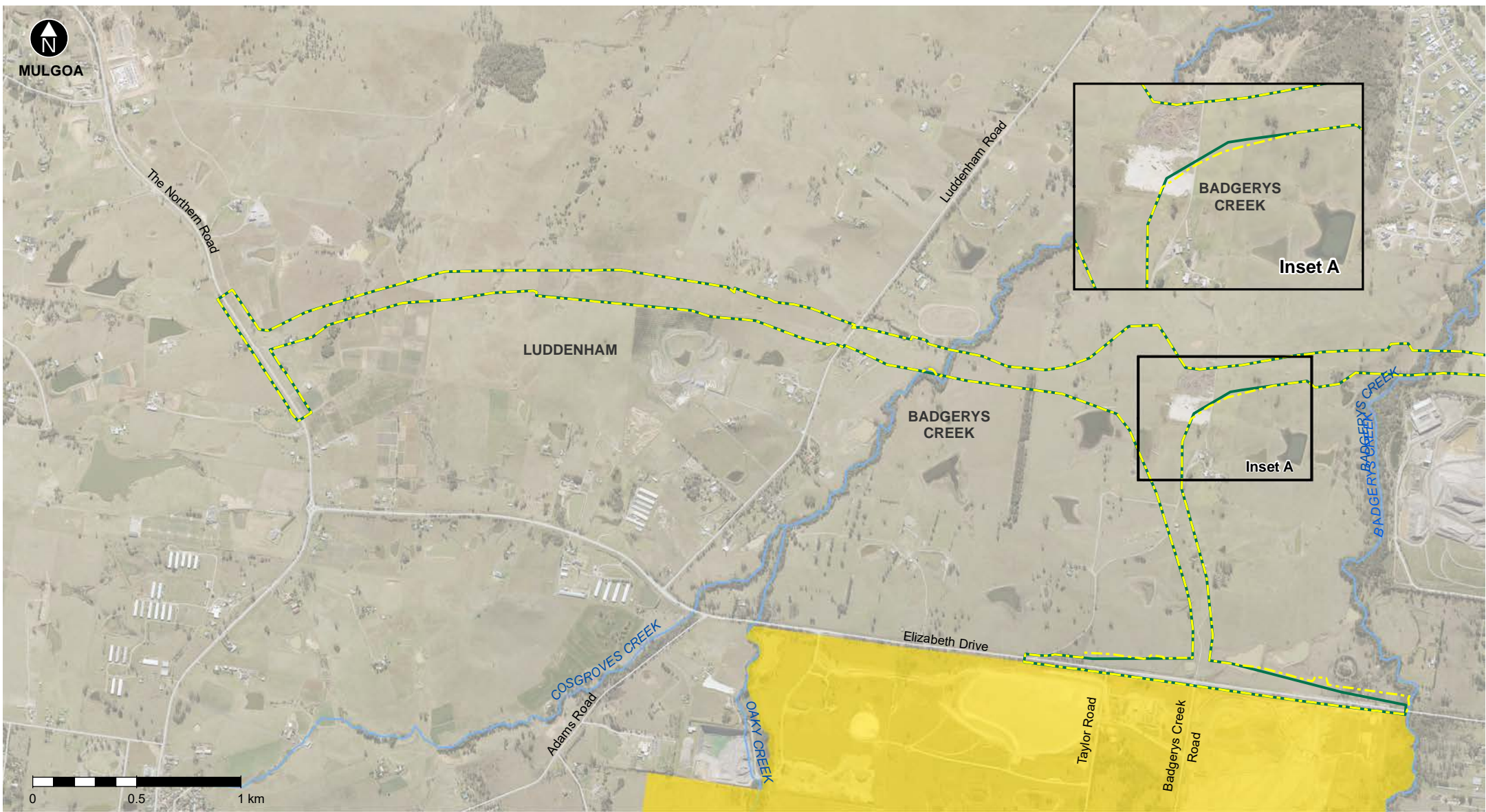


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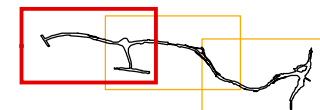


**Figure 1-2 Construction footprints of the amended project and the project as described in the EIS**

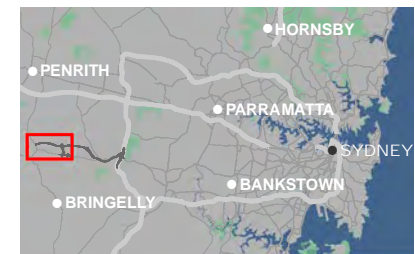




- The project operational footprint as per the EIS
- The amended project operational footprint
- ~~~~~ Waterways
- Western Sydney International Airport
- Existing roads

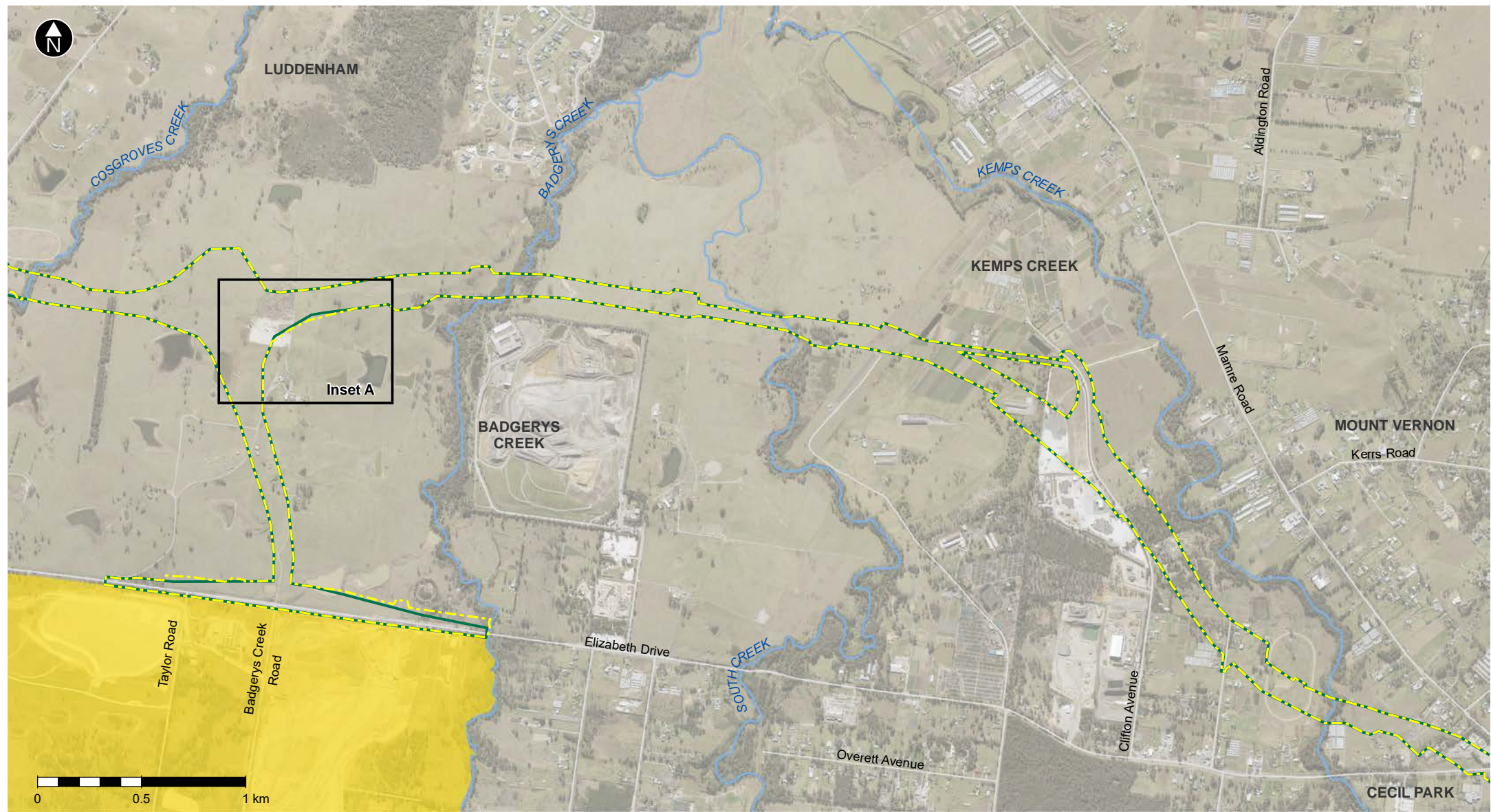


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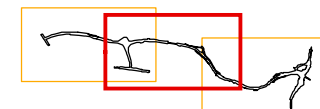


**Figure 1-3** Operational footprints of the amended project and the project as described in the EIS

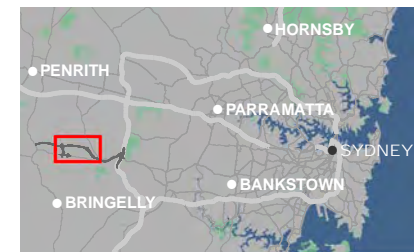




- The project operational footprint as per the EIS
- The amended project operational footprint
- ~~~~~ Waterways
- Western Sydney International Airport
- Existing roads

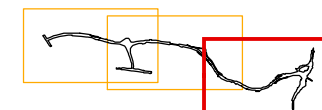
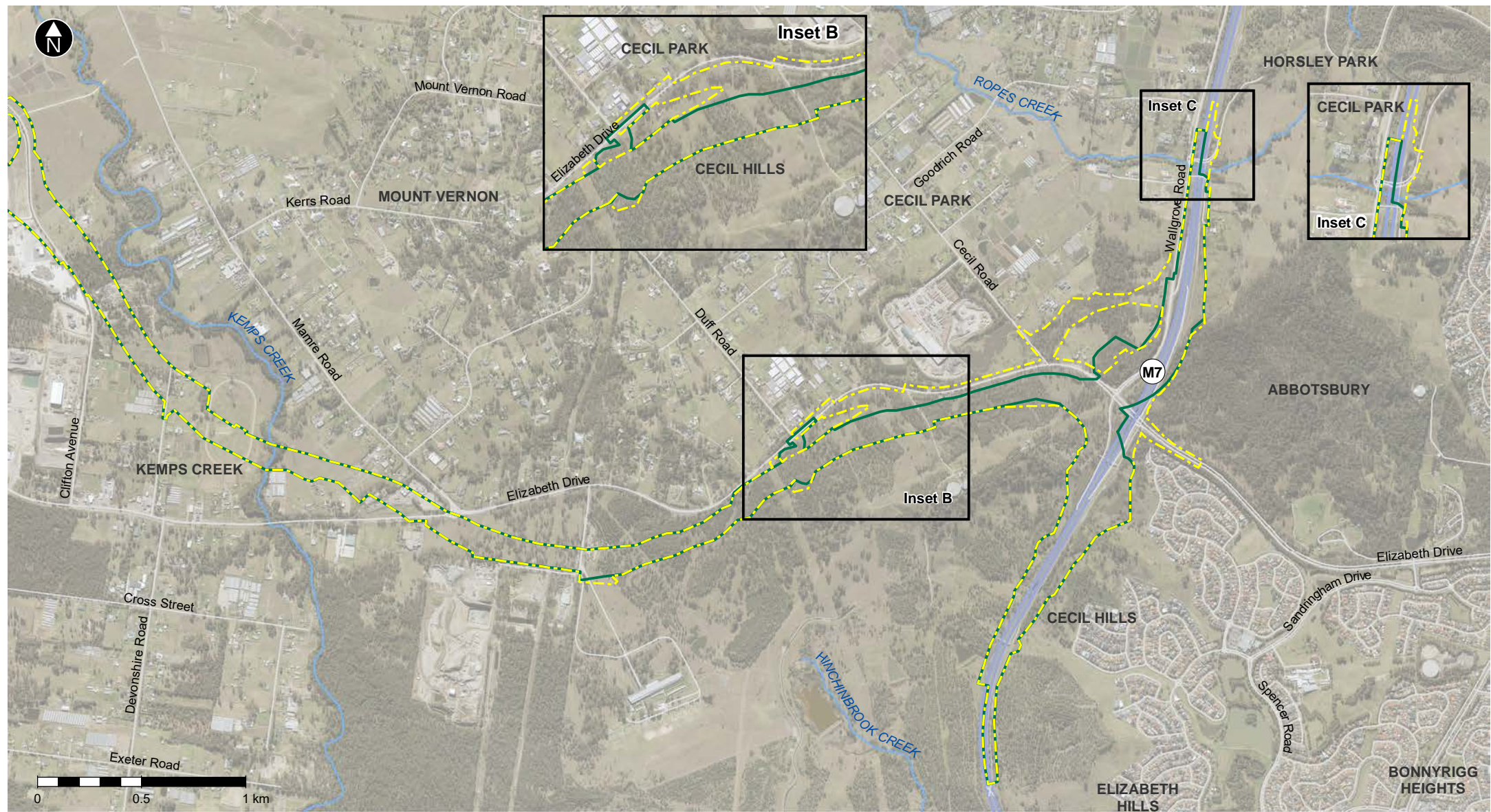


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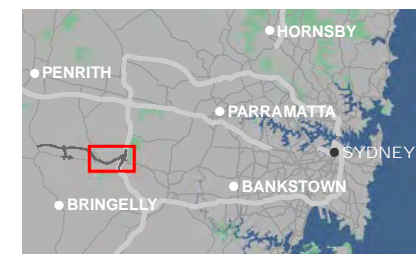


**Figure 1-3** Operational footprints of the amended project and the project as described in the EIS





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**Figure 1-3** Operational footprints of the amended project and the project as described in the EIS

## 1.4 Purpose and scope of this report

This transport and traffic updated technical report has been prepared to support the amendment report. The purpose of this technical report is to present an assessment of the construction and operational activities for the amended project that have the potential to impact transport and traffic. To achieve this, the scope of the report is therefore to provide:

- A revised assessment of construction transport and traffic impacts based on the amended project and additional ancillary facilities to support construction of the amended project
- A revised assessment of future operational performance of the road network without the amended project
- A revised assessment of future operational transport and traffic impacts with the amended project in operation
- A comparison of impacts between the project as described in the EIS, and the amended project.

This transport and traffic updated technical report should be read in conjunction with the *M12 Motorway Environmental Impact Statement Appendix F Transport and Traffic Assessment Report* (Roads and Maritime Services, 2019) (EIS TTAR).

## 1.5 SEARs

The Secretary of the NSW Department of Planning, Industry and Environment (Planning and Assessment; DPIE) issued the Secretary's environmental assessment requirements (SEARs) for the M12 Motorway EIS to inform TfNSW's assessment of the project. The project was determined to be a controlled action under the *Environment Protection and Biodiversity Act (Commonwealth)* (EPBC Act) As such, the SEARs included the Commonwealth assessment requirements under the Act. A request to amend the project was submitted to DPIE on 20 May 2020. In response, DPIE confirmed on 28 May 2020 that an amendment report is appropriate to address the environmental impacts associated with the amended project. No additional or updated SEARs were issued by DPIE.

**Table 1-1** lists the SEARs requirements relating specifically to the assessment of the project's potential impacts on transport and traffic, with a reference to the chapter or section of the EIS TTAR where each requirement was addressed, and reference to the chapter or section within this report where requirements have been updated as a result of the amended project.



Table 1-1 SEARs (Transport and traffic)

Secretary's requirement	Where addressed in the EIS TTAR	Where addressed in this report
<b>6. Transport and traffic</b>		
1. The Proponent must assess construction transport and traffic (vehicle, marine, pedestrian and cyclists) impacts, including, but not necessarily limited to:	Section 6.1	Section 6.1
a. considered approach to route identification and scheduling of transport movements;		
b. the number, frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements);	Section 6.1.1	Section 6.1.1
c. construction worker parking;	Section 6.1.1	Section 6.1.1
d. the nature of existing traffic (types and number of movements) on construction access routes (including consideration of peak traffic times and sensitive road users and parking arrangements);	Section 4	Addressed in the EIS TTAR
e. access constraints and impacts on public transport, pedestrians and cyclists;	Section 6.1.2	Addressed in the EIS TTAR
f. the need to close, divert or otherwise reconfigure elements of the road and cycle network associated with construction of the project.	Section 6.1.2	Addressed in the EIS TTAR
2. The Proponent must assess (and model) the operational transport impacts of the project, including:	Section 6.2.2	Section 6.2.2
a. forecast travel demand and traffic volumes for the project and the surrounding road, cycle and public transport network;		
b. travel time analysis;	Section 6.2.2	Section 6.2.2
c. performance of key interchanges and intersections by undertaking a level of service analysis at key locations;	Section 6.2.2	Section 6.2.2
d. wider transport interactions (local and regional roads, cycling, public and freight transport);	Section 6.2.2	Section 6.2.2
e. induced traffic and operational implications for public transport (particularly with respect to strategic bus corridors and bus routes) and consideration of opportunities to improve public transport;	Section 3.4.2 Section 6.2.2	Addressed in the EIS TTAR
f. impacts on cyclists and pedestrian access and safety; and	Section 6.2.2	Addressed in the EIS TTAR
g. opportunities to integrate cycling and pedestrian elements with surrounding networks and in the project.	Section 6.1.2 Section 6.2.2	Addressed in the EIS TTAR



## 2. Strategic and planning context

Section 2 of the EIS TTAR describes the strategic and planning context within which the assessment was undertaken and includes:

- Strategic transport need for the project
- Regional transport and land use context
  - Supporting Western Sydney Aerotropolis in the short term
  - Providing access to Western Sydney Aerotropolis
- Alignment with transport policies and plans
  - State Infrastructure Strategy 2018-2038
  - A Metropolis of Three Cities – the Greater Sydney Region Plan
  - Future Transport Strategy 2056 and Greater Sydney Services and Infrastructure Plan
  - NSW Freight and Ports Plan
  - Western Sydney Infrastructure Plan

The strategic and planning context described in the EIS TTAR is still applicable to the amended project.

Since the EIS was prepared, the NSW Government has released for community and stakeholder comment a number of planning documents for the next phase of planning for the Western Sydney Aerotropolis. These include:

- Draft Western Sydney Aerotropolis Plan 2019 (Draft WSAP)
- Draft Western Sydney Aerotropolis Development Control Plan 2019
- Western Sydney Aerotropolis Discussion Paper on the Proposed State Environmental Planning Policy 2019.

The Draft WSAP revises the Stage 1 Land Use Infrastructure and Implementation Plan (Stage 1 LUIIP) and presents the vision and planning framework for the Western Sydney Aerotropolis. The Draft WSAP updates the structure plan presented in Stage 1 LUIIP in response to feedback received on the Stage 1 LUIIP and outcomes of further investigations.

### 3. Assessment methodology

Section 3 of the EIS TTAR describes the methodology used to carry out the assessment and includes:

- Overview
- Relevant guidelines and policies
- Data collection
  - Intersection turning movements
  - Automatic traffic counts
  - Travel times
  - Pedestrians and cyclists
  - Other transport and traffic data
- Transport forecasting and modelling process
  - Stage 1 – Sydney Strategic Travel Model
  - Stage 2 – WestConnex Road Toll Model
  - Stage 3 – Western Sydney International Airport Growth Area mesoscopic traffic model
- Construction assessment
- Modelled scenarios
- Assessment criteria
  - Network-wide statistics
  - Midblock Level of Service
  - Intersection Level of Service.

Changes to the methodology used to carry out the assessment of the amended project are discussed in the following sections.

The study area for the amended project would be unchanged from that described in Section 7.2.3 of the EIS, and is bounded by the following roads:

- The M4 Motorway
- The M7 Motorway
- The Northern Road
- Bringelly Road.

#### 3.1 Transport forecasting and modelling process

Development of the WestConnex Road Toll Model (WRTM), described in Section 3.4.2 of the EIS TTAR, commenced in January 2013. It was originally produced as a project model to support the WestConnex Business Case. Since that time, it has been progressively improved to support business case, design, financial, economic and environmental assessments for all stages of WestConnex.

The WRTM has been used for the preliminary assessment of other motorway projects such as the Western Harbour Tunnel, Beaches Link, Sydney Gateway, M6 Stage 1 and M12 Motorway. To support ongoing investigations of these projects, the WRTM was recalibrated in 2016 (to a 2014 base year) for the area outside the immediate WestConnex catchment and renamed the Sydney Strategic Motorway Planning Model (SMPM).

Assessment of the project as described in the EIS was undertaken using WRTM version 2.3. Updates of critical inputs and improvements to the modelling process were undertaken to produce SMPM version 1.0 and then version 1.1 that significantly improved the predictive robustness of the model for the western Sydney area. SMPM version 1.1 has been used for the assessment of the amended project.

The critical differences between WRTM version 2.3 and SMPM version 1.1 are:

- Land use and demographics scenario has been updated from LU14 version 4 (developed in 2014 and adjusted for specific developments) to a more recent LU16 (developed in 2016)
- Revised Sydney Strategic Travel Model (STM) (described in Section 3.4.1 of the EIS TTAR) runs have been used for the calculation of forecast traffic demands. Changes were made within the STM including:
  - New LU16 land use
  - Revised port and airport assumptions
  - Update of the freight movement model (undertaken in March 2018)
- Improvements to the development of the SMPM including:
  - Intensive data collection in areas outside the WestConnex corridor
  - Re-estimation of base year demands for all time periods to a 2014 base year (previously 2012)
  - Simplification of toll choice parameters
  - Network modifications to improve travel time responses to congestion
  - Changes to the future demand growth process, correcting for issues with large greenfield areas and improving airport and port growth calculations.

The implications of the change from WRTM version 2.3 to SMPM version 1.1 with respect to modelling of the amended project is that the traffic forecasts for western Sydney have been improved.

Significant changes in forecast land use and improvements in modelling processes both within STM and SMPM have resulted in corresponding changes in future traffic demands. The SMPM growth process did not fully account for large greenfield zones where new land use was forecasted for the future. As a result, the growth process was updated in SMPM version 1.1 to account for this, which led to significantly reduced future traffic demand within these large greenfield zones. In particular, the change to the demand growth process in SMPM has resulted in a significant reduction in future trips to the South West Growth Area and the Western Sydney Employment Area. As a result, the existing, 'do minimum' and 'with project' scenarios described in Section 7.2.2 of the EIS have been updated and are assessed in this section and in Appendix B. Where relevant, these updated scenarios and the scenarios of the project as described in the EIS are described throughout this section.

Forecast traffic volumes using the amended project and the surrounding network have reduced as a result. The revised SMPM version 1.1 traffic forecasts for western Sydney are considered to be more robust than the forecasts previously used from WRTM version 2.3.

## 3.2 Modelled scenarios

To assess the performance of the road network with and without the amended project and identify the impacts of the amended project, both under construction and operation, traffic modelling of six scenarios has been undertaken. These scenarios are consistent with the EIS:

- 2024 'do minimum': reflects the forecast transport network and traffic demand without the amended project in 2024, which includes the completion of The Northern Road upgrade between Mersey Road and Jamison Road, and Bringelly Road upgrade between Camden Valley Way and The Northern Road; it also includes forecast traffic growth to 2024 based on the LU16 land use and demographics scenario
- 2024 'with construction': as per 2024 'do minimum' but includes construction transport and traffic management measures to facilitate access for construction vehicles to construction ancillary facilities during the peak period of construction
- 2026 'do minimum': includes The Northern Road upgrade, Bringelly Road upgrade, Elizabeth Drive upgrade between M7 Motorway and Mamre Road, and the opening and operation of the Western Sydney International Airport and two access intersections along Elizabeth Drive between Adams Road and Taylors Road. It also includes forecast traffic growth to 2026 based on the LU16 land use and demographics scenario and Western Sydney Airport Corporation (WSA Co) growth forecasts
- 2026 'with amended project': as per 2026 'do minimum' but includes operation of the project (option 1 – without Elizabeth Drive connection and option 2 – with Elizabeth Drive connection)
- 2036 'do minimum': includes all upgrades assumed in the 2026 'do minimum' scenario as well as:
  - Upgrade of the M7 Motorway to three lanes in each direction
  - Upgrade of Cowpasture Road between M7 Motorway and Camden Valley Way
  - Realignment and upgrade of the Luddenham Road / Adams Road intersection
  - Realignment of the Mamre Road to Elizabeth Drive/Devonshire Road intersection
  - Upgrade of Elizabeth Drive to four lanes between The Northern Road and Mamre Road
  - Upgrade of Fifteenth Avenue between Cowpasture Road and Fourth Avenue
  - Forecast traffic growth to 2036 based on the LU16 land use and demographics scenario and WSA Co growth forecasts
- 2036 'with amended project': as per 2036 'do minimum' but includes operation of the project (option 1 – without Elizabeth Drive connection and option 2 – with Elizabeth Drive connection).

The purpose of modelling each of these scenarios is to determine the difference in traffic flows and road network performance between the business-as-usual scenario (with the opening of Western Sydney International Airport) and the two project options to determine the impacts of the amended project on the transport network, using revised SMPM version 1.1 traffic forecasts for western Sydney.

## 4. Existing transport and traffic transport environment

Section 4 of the EIS TTAR describes the existing transport and traffic environment and includes:

- Existing road network
  - Regional road network
  - Local road network
  - Existing parking
- Existing traffic volumes and patterns
- Existing modes of travel
- Existing public transport network
- Existing active transport network
- Existing freight network.

Since the EIS was prepared, major upgrades to the regional road network have been completed and opened to traffic including:

- The Northern Road Stage 1 between Old Northern Road, Narellan and Peter Brock Drive, Oran Park (opened in April 2018)
- Bringelly Road Stage 1 between Camden Valley Way, Leppington and King Street, Rossmore (opened in December 2018).

In addition, it is recognised that existing traffic volumes have changed due to ongoing development in the broader study area when compared to the existing traffic volumes presented in the EIS TTAR, which were based on traffic counts collected in 2015.

Notwithstanding the changes described above, it is considered that the assessment of the existing transport and traffic environment presented in the EIS TTAR provides a relevant baseline from which to assess the amended project.

## 5. Existing road network performance

Section 5 of the EIS TTAR describes the existing road network performance and includes:

- Regional road network conditions
- Existing travel times and travel speeds
- Existing intersection performance
- Existing road safety performance.

The existing road network performance described in the EIS TTAR is still applicable to the amended project.

## 6. Assessment of potential impacts

### 6.1 Construction impacts

Section 6.1 of the EIS TTAR provides an assessment of the potential transport and traffic impacts during construction of the amended project and includes:

- Construction overview
- Construction activities
- Construction stages and program
- Construction footprint
- Haulage routes
- Work site and construction ancillary facility traffic generation
- Work site and construction ancillary facility access assumptions
- Road closures, detours and other temporary traffic management
- Construction impact assessment
- Background traffic volumes and patterns
- Intersection performance
- Construction worker parking and impacts on on-street parking
- Impacts on public transport
- Impacts on pedestrians and cyclists
- Other impacts of construction.

Where the construction impacts have changed as a result of the amended project, these are discussed in the following sections. Where the construction impacts as a result of the amended project are consistent with the construction impacts documented in Section 6.1 of the EIS TTAR, these sections have not been repeated.

#### 6.1.1 Construction overview

##### ***Construction stages and program***

Since the EIS was prepared, further development of the project's procurement and delivery strategy has been carried out. Instead of the project being the subject of a single design and construct contract, it is now planned to be divided into multiple contracts to maximise efficiency.

As a result of the change in delivery strategy, an amended indicative construction program is proposed which allows certain construction activities to begin earlier. This is presented in **Figure 6-1**, with amendments shown in grey.

While there would be multiple contracts, it is likely that there would be significant overlap between the construction phases of each contract. As a result, the construction program has not been divided into these contracts to allow for flexibility in construction activities and maximise efficiency.

It is noted that the proposed construction schedule would be subject to change, and that the construction program is anticipated to apply to both option 1 and option 2.

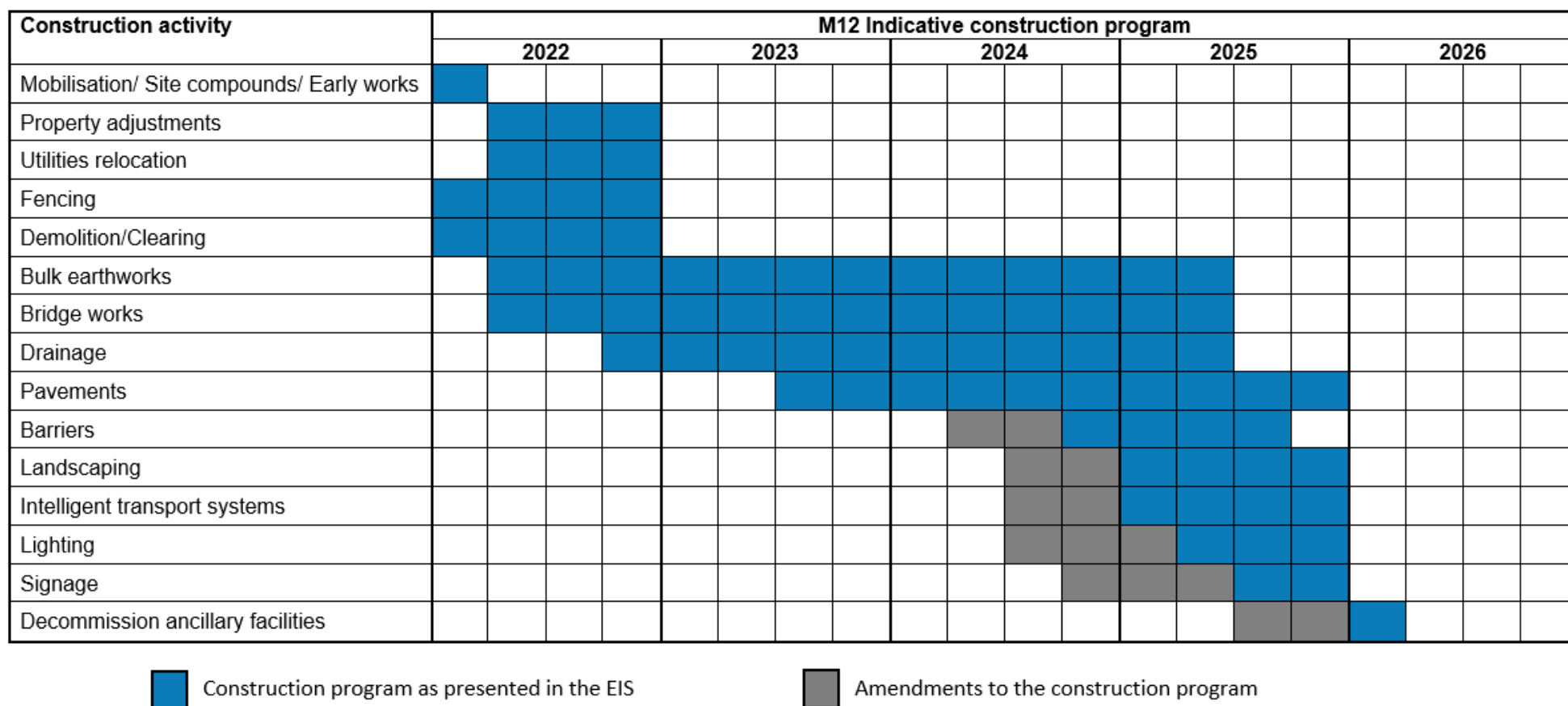


Figure 6-1 Amended construction program



### Construction footprint

To support the construction of the amended project, including the change to the delivery strategy described above, nine additional construction ancillary facilities would be required (refer to **Table 6-1**). In addition, the following changes would be made to the ancillary facilities described in the EIS:

- AF 1 – Material crushing and screening activities would take place within the ancillary facility
- AF 2 – Material crushing and screening activities would take place within the ancillary facility
- AF 4 – A concrete/asphalt batching plant would be located within the ancillary facility
- AF 9 – Size would be increased, and crushing and screening activities would take place within the ancillary facility.

The amended ancillary facilities (including both the amended ancillary facilities and the nine additional ancillary facilities) and their locations are presented in **Table 6-1** (with changes to the ancillary facilities as described in the EIS presented in **bold text**) and **Figure 6-2**. The remaining ancillary facilities described in the EIS would not be amended and have not been included in the below table.

These additional ancillary facilities and their purposes are indicative only. The final type, use, location and number of ancillary facilities would be determined by the construction contractor and identified in a site establishment management plan.

Table 6-1 Amended and additional ancillary facilities and their purposes

Ancillary facility	Location	Approximate size (ha)	Purpose
AF 1	East of The Northern Road	6.4	Plant servicing workshop Stockpile and laydown area ( <b>including crushing and screening activities</b> ) Secondary offices Amenities Vehicular access Car park
AF 2	North of Elizabeth Drive opposite the Elizabeth Drive/Badgerys Creek Road intersection	23.2	Plant servicing workshop Stockpile and laydown area ( <b>including crushing and screening activities</b> ) Main office Amenities Vehicular access Car park
AF 4	West of Clifton Avenue	3.0	<b>Concrete/asphalt batching plant</b> Plant servicing workshop Stockpile and laydown area Secondary offices Amenities Vehicular access Car park

Ancillary facility	Location	Approximate size (ha)	Purpose
AF 9	East of the M7 Motorway	14.0	Stockpile and laydown area Site offices Amenities Vehicular access Car park
AF 10	East of The Northern Road, South of Gates Road. Existing ancillary facility for construction of Stages 5 and 6 of The Northern Road	12.2	Concrete/asphalt batching plant Stockpile and laydown area (including crushing and screening activities) Site offices Amenities Vehicular access Car park
AF 11	East of Luddenham Road	4.6	Stockpile and laydown area Site offices Amenities Vehicular access Car park
AF 12	West of Clifton Avenue	14.0	Stockpile and laydown area Amenities Vehicular access Car park
AF 13	East of Salisbury Avenue	4.1	Stockpile and laydown area Site offices Amenities Vehicular access Car park
AF 14	West of Salisbury Avenue	1.5	Stockpile and laydown area Vehicular access Car park
AF 15	South of the intersection of Elizabeth Drive and Mamre Road	2.1	Stockpile and laydown area Site offices Amenities Vehicular access Car park
AF 16	Within the carpark of the Wylde Mountain Bike Trail	1.0	Stockpile and laydown area Site offices Amenities Vehicular access Car park

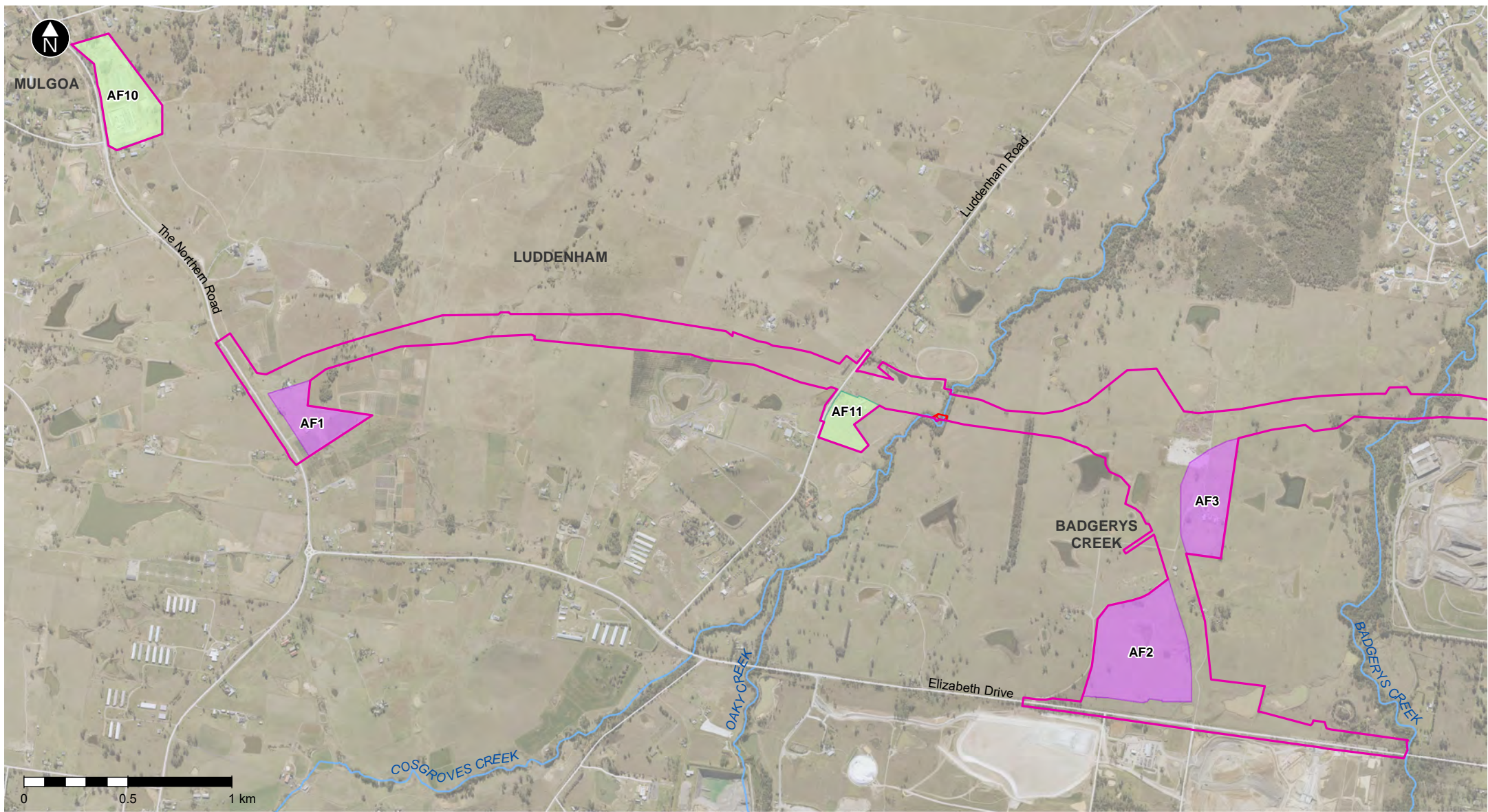
Ancillary facility	Location	Approximate size (ha)	Purpose
AF 17	West of the M7 Motorway	4.5	<b>Stockpile and laydown area</b> <b>Amenities</b> <b>Vehicular access</b> <b>Car park</b>
AF 18	West of the M7 Motorway	1.1	<b>Stockpile and laydown area</b> <b>Site offices</b> <b>Amenities</b> <b>Vehicular access</b> <b>Car park</b>

### ***Access to additional ancillary facilities***

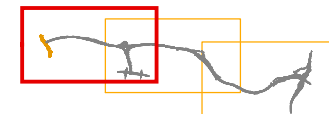
Access to ancillary facilities AF 1 to AF 9 would remain unchanged for the amended project compared to what was described in the EIS. To access the additional ancillary facilities described above, namely AF 10 to AF 18, additional construction accesses would be required as presented in **Table 6-2**. The access points for the additional and amended construction ancillary facilities are presented in **Figure 6-3**. No other construction accesses as described in the EIS would be altered as a result of the amended project.

Table 6-2 Additional construction accesses

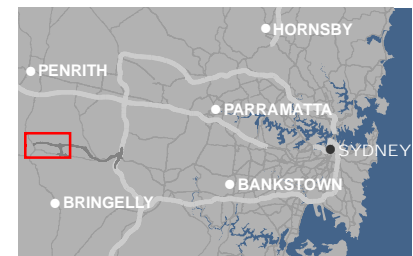
Ancillary facility	Access
AF 10	Access from The Northern Road, via the existing ancillary facility access point
AF 11	Access from Luddenham Road via an existing property access
AF 12	Access via Clifton Avenue via an existing property access
AF 13	Access via Salisbury Avenue via an existing property access
AF 14	Access via Salisbury Avenue via an access road to be constructed
AF 15	Access via Range Road via an access road to be constructed
AF 16	Access via Range Road via an existing access to the carpark of the Wylde Mountain Bike Trail
AF 17	Access via Wallgrove Road via an access point to be constructed
AF 18	Access along the proposed project alignment. Vehicles would enter AF 17 and travel through the amended construction footprint to AF 18



- The amended project construction footprint
- Ancillary facilities as per the EIS
- Additional ancillary facilities
- The amended project exclusion zones
- Waterways
- Motorway
- Existing roads

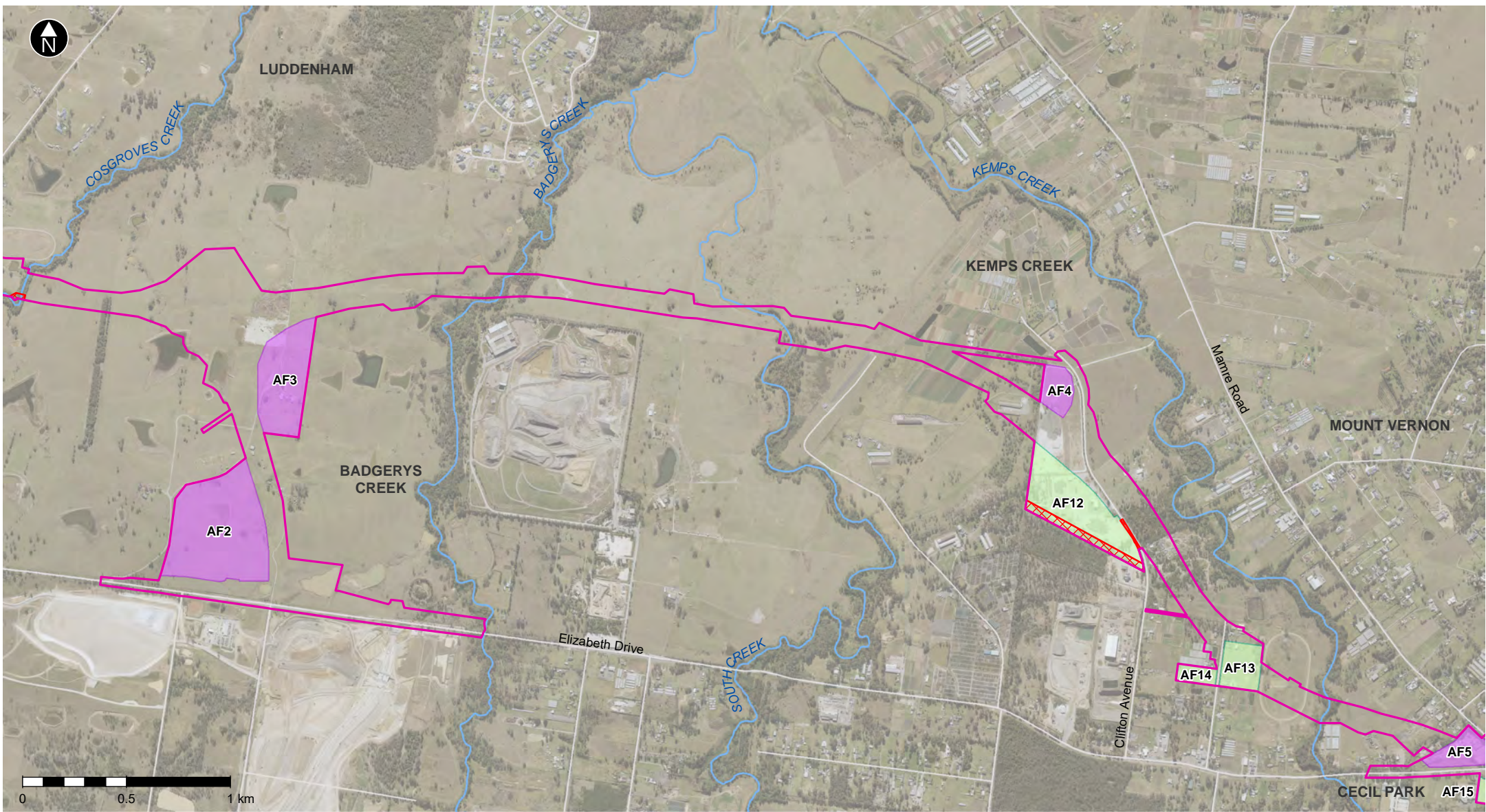


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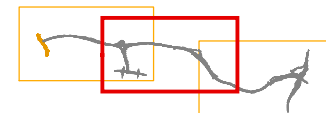


**Figure 6-2** Location of proposed additional ancillary facilities

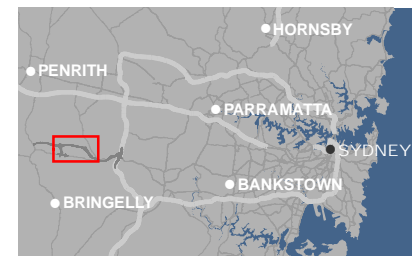




- The amended project construction footprint
- Ancillary facilities as per the EIS
- Additional ancillary facilities
- The amended project exclusion zones
- Waterways
- Motorway
- Existing roads

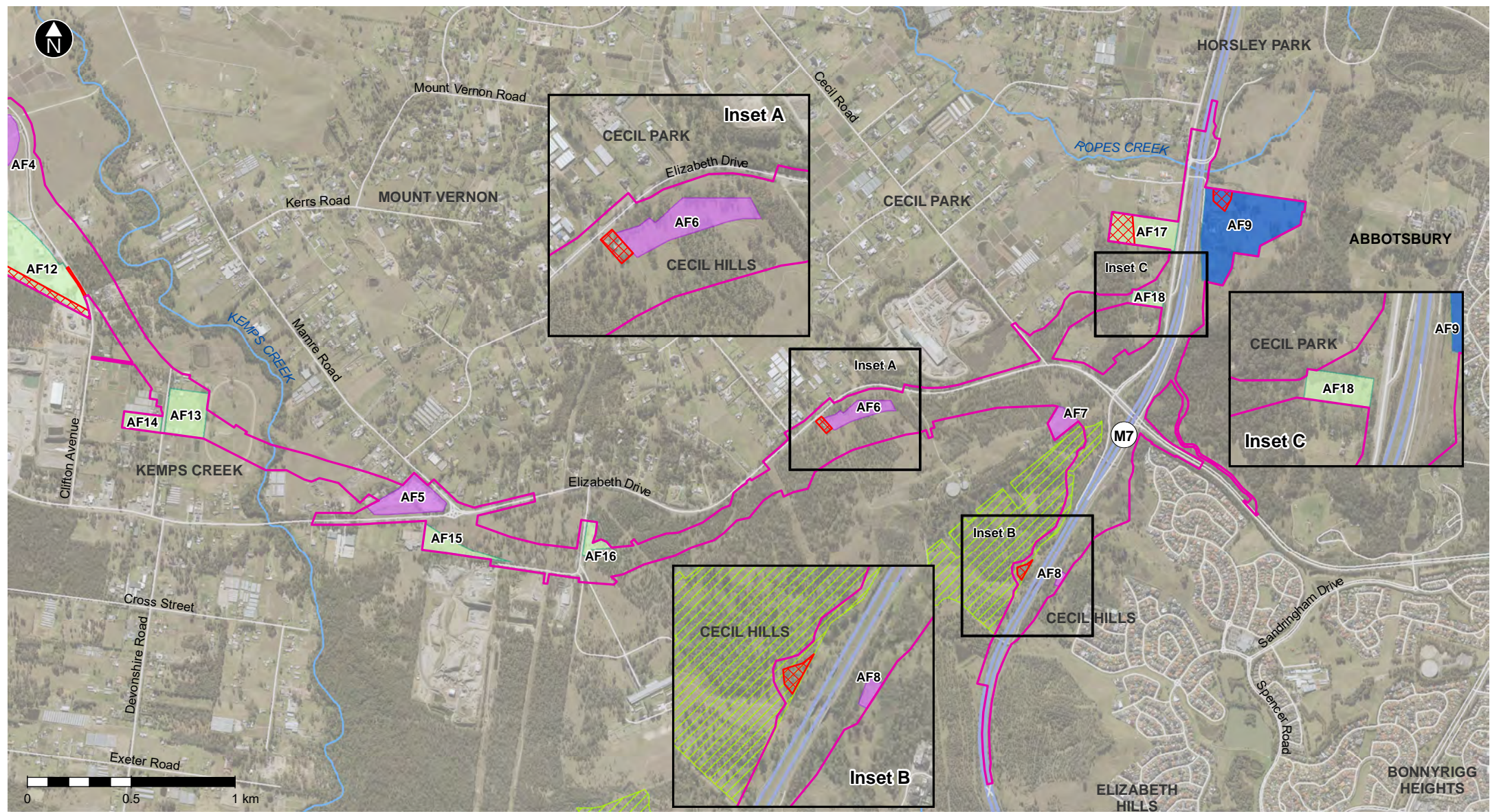


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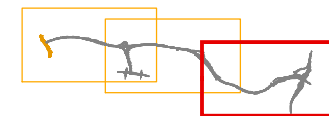


**Figure 6-2** Location of proposed additional ancillary facilities

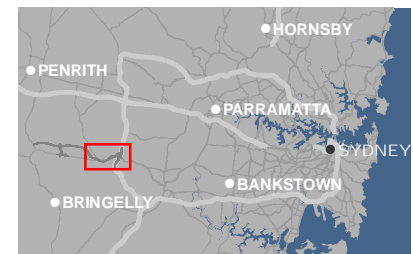




- |  |                      |
|--|----------------------|
| The amended project construction footprint | Waterways            |
| Ancillary facilities as per the EIS        | Motorway             |
| Additional ancillary facilities            | Existing roads       |
| Amended ancillary facilities               | WSPT Biobanking site |
| The amended project exclusion zones        |                      |

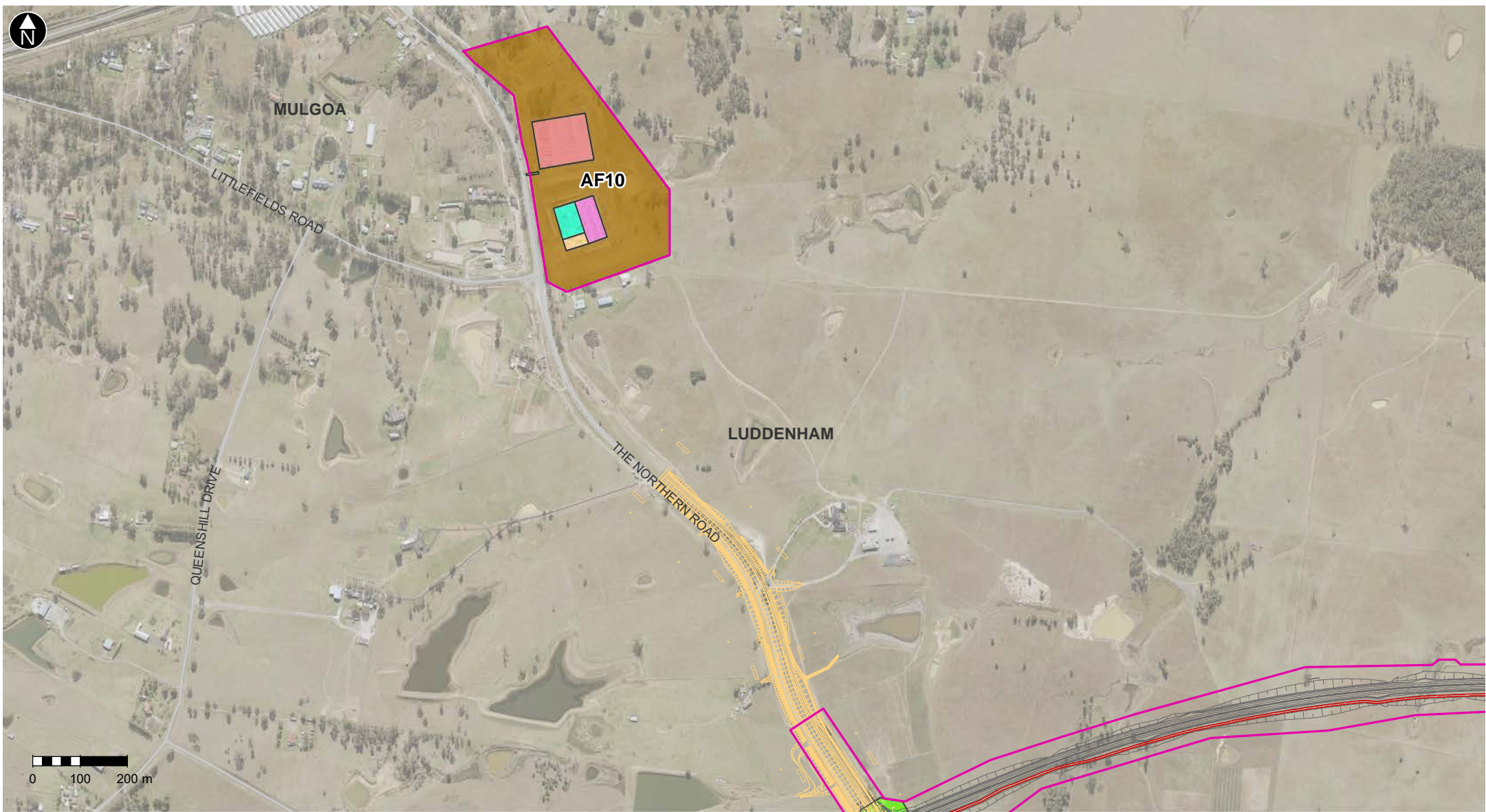


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**Figure 6-2** Location of proposed additional ancillary facilities

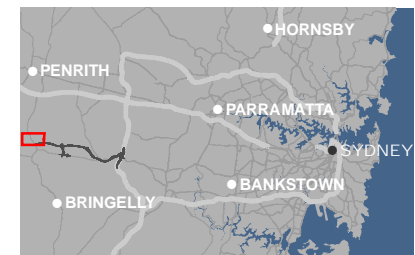




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| The amended project construction footprint | Amenities                       | Site offices                             |
| The amended project (option 2)             | Car park                        | Plant servicing workshop                 |
| Amended project shared user path           | Concrete/asphalt batching plant | Vehicular access to ancillary facilities |
| Existing roads                             | Stockpile and laydown area      |  |

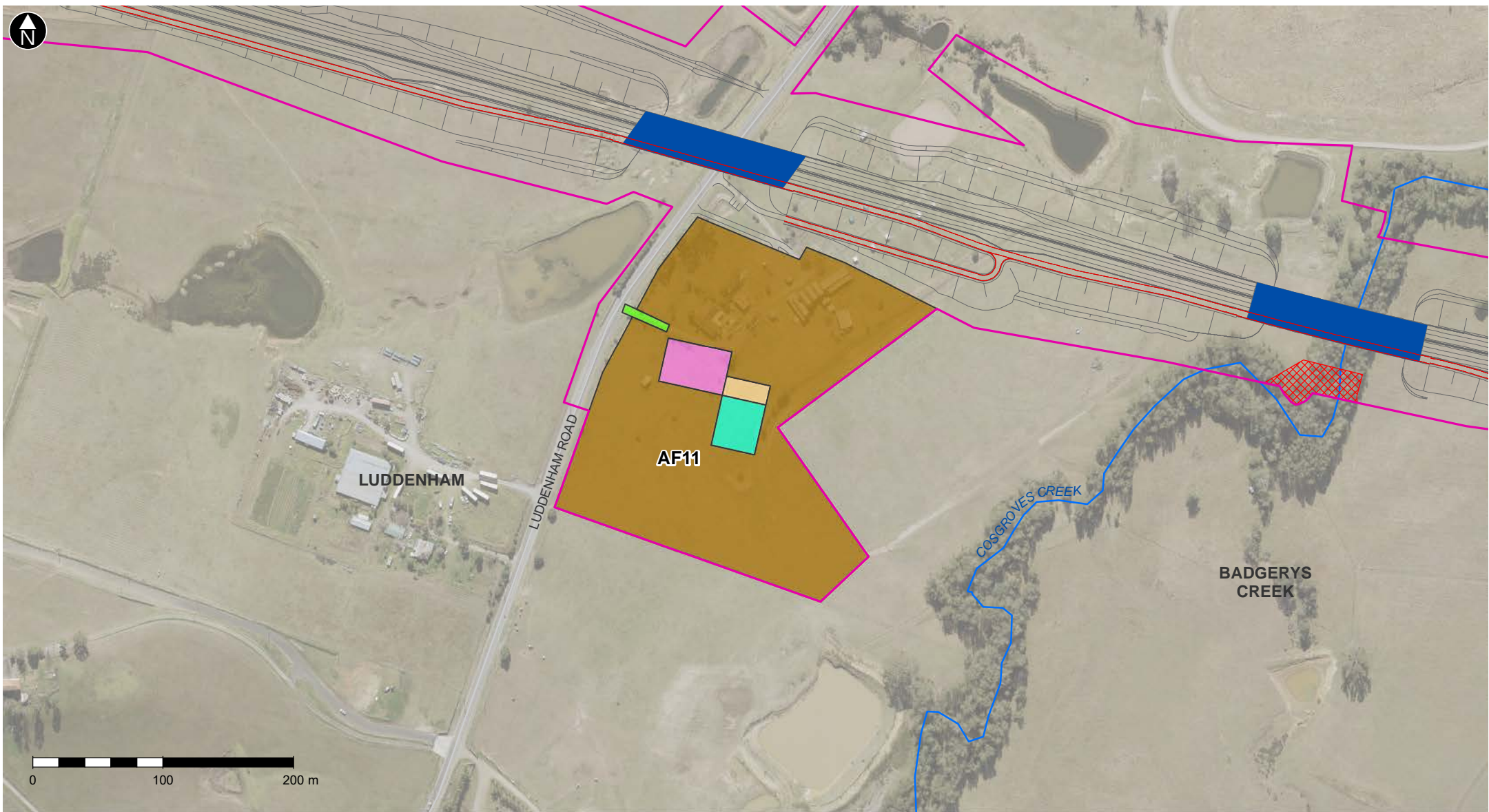


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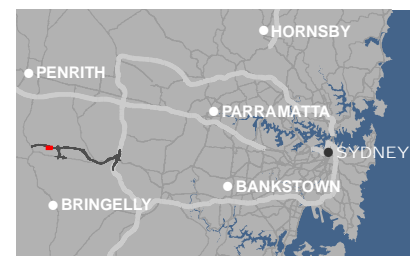


**Figure 6-3** Access points for the additional and amended construction ancillary facilities



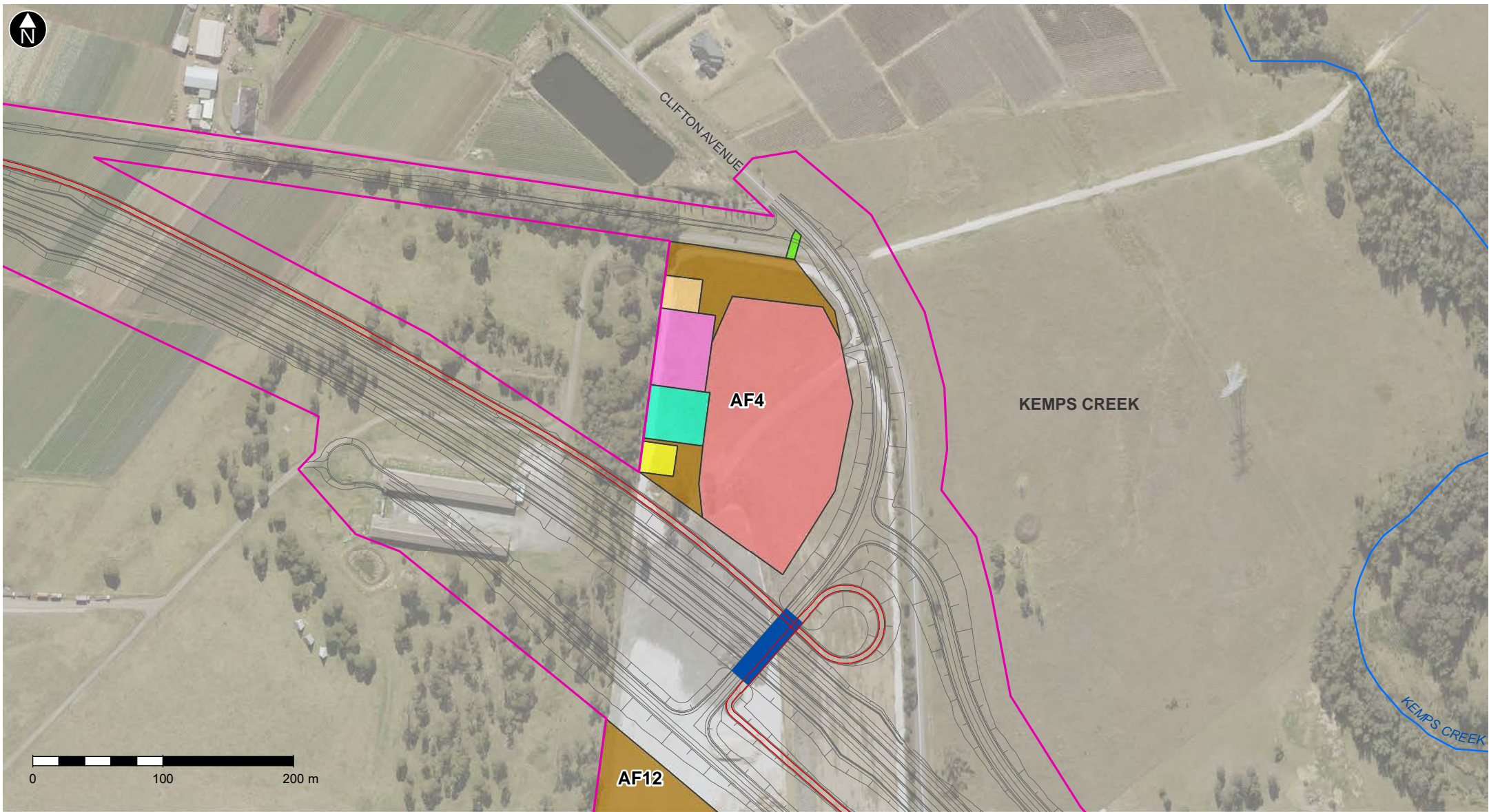


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|--|-------------------------------------|---------------------------------|--|
| The amended project construction footprint | Amended project bridges             | Amenities                       | Site offices                             |
| The amended project (option 2)             | The amended project exclusion zones | Car park                        | Plant servicing workshop                 |
| Amended project shared user path           | Existing roads                      | Concrete/asphalt batching plant | Vehicular access to ancillary facilities |
| Waterways                                  | Stockpile and laydown area          |                                 |  |

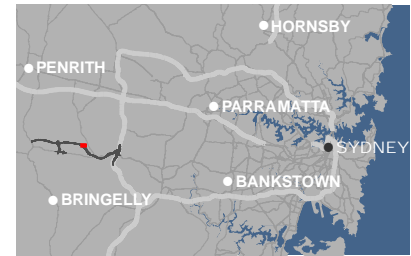


**Figure 6-3** Access points for the additional and amended construction ancillary facilities



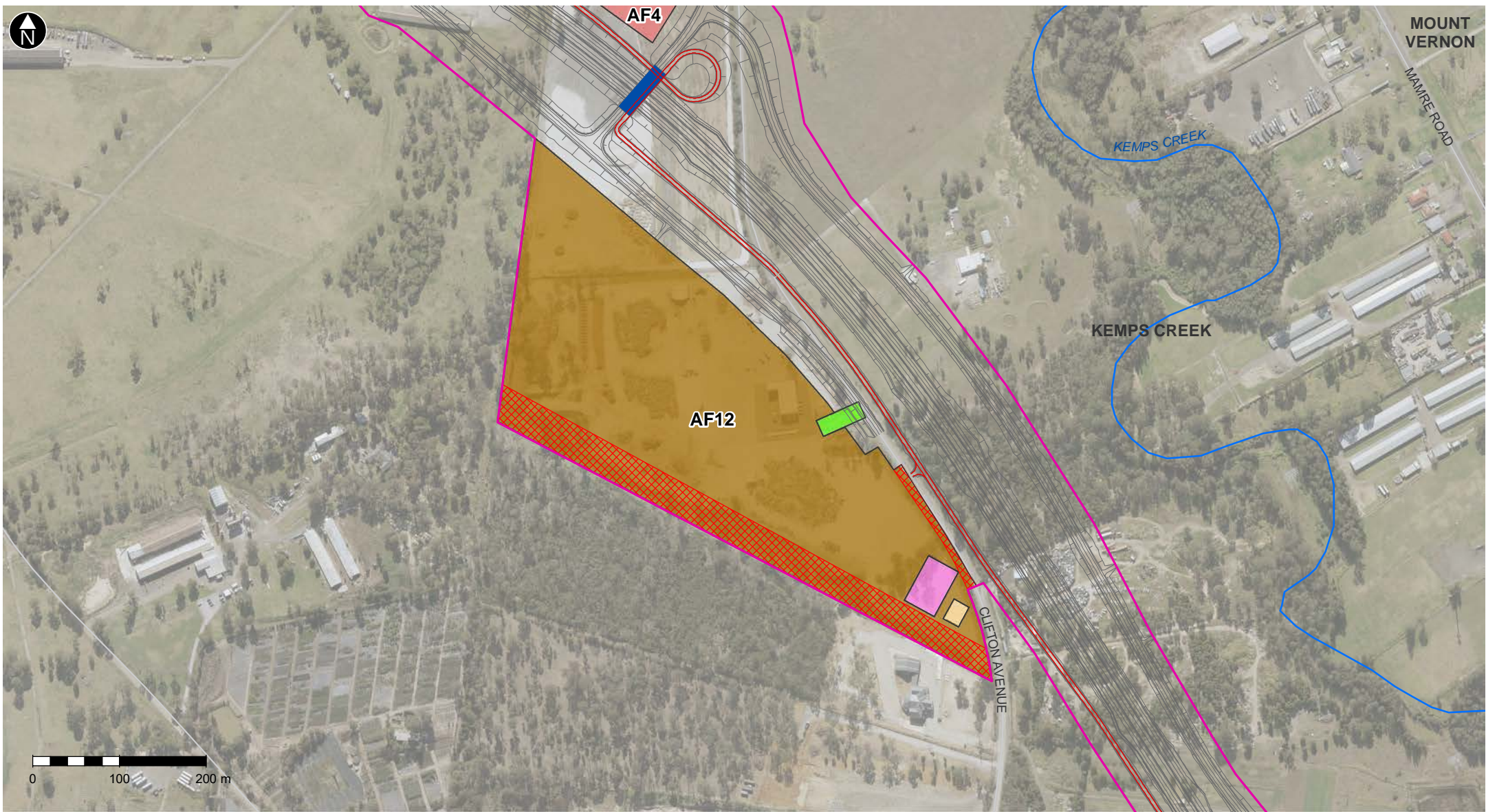


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|--|-------------------------|---------------------------------|--|
| The amended project construction footprint | Amended project bridges | Amenities                       | Site offices                             |
| The amended project (option 2)             | Existing roads          | Car park                        | Plant servicing workshop                 |
| Amended project shared user path           | Waterways               | Concrete/asphalt batching plant | Vehicular access to ancillary facilities |
|  |                         | Stockpile and laydown area      |  |

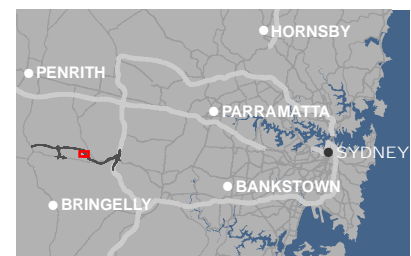


**Figure 6-3** Access points for the additional and amended construction ancillary facilities



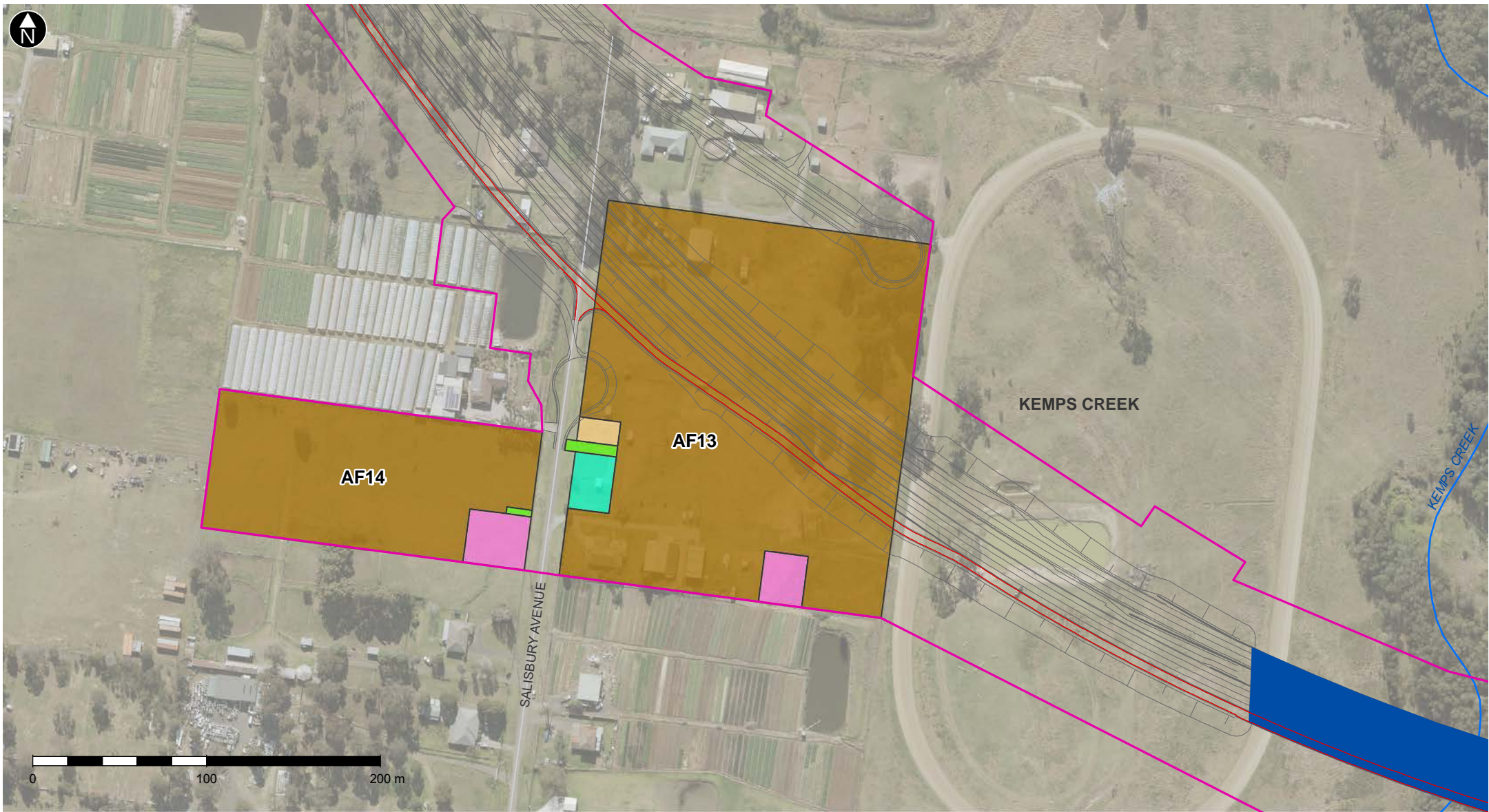


- |  |                                     |                                 |  |
|--|-------------------------------------|---------------------------------|--|
| The amended project construction footprint | Amended project bridges             | Amenities                       | Site offices                             |
| The amended project (option 2)             | The amended project exclusion zones | Car park                        | Plant servicing workshop                 |
| Amended project shared user path           | Existing roads                      | Concrete/asphalt batching plant | Vehicular access to ancillary facilities |
| Waterways                                  | Stockpile and laydown area          |                                 |  |

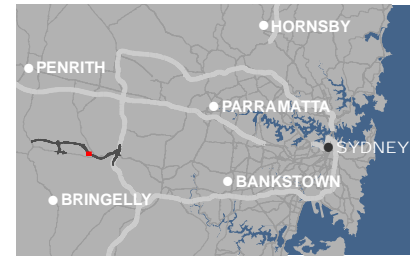


**Figure 6-3** Access points for the additional and amended construction ancillary facilities



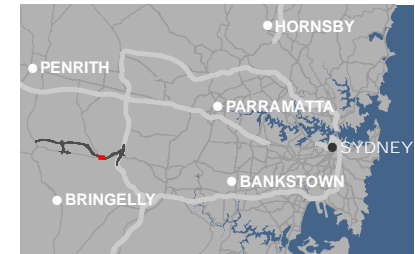
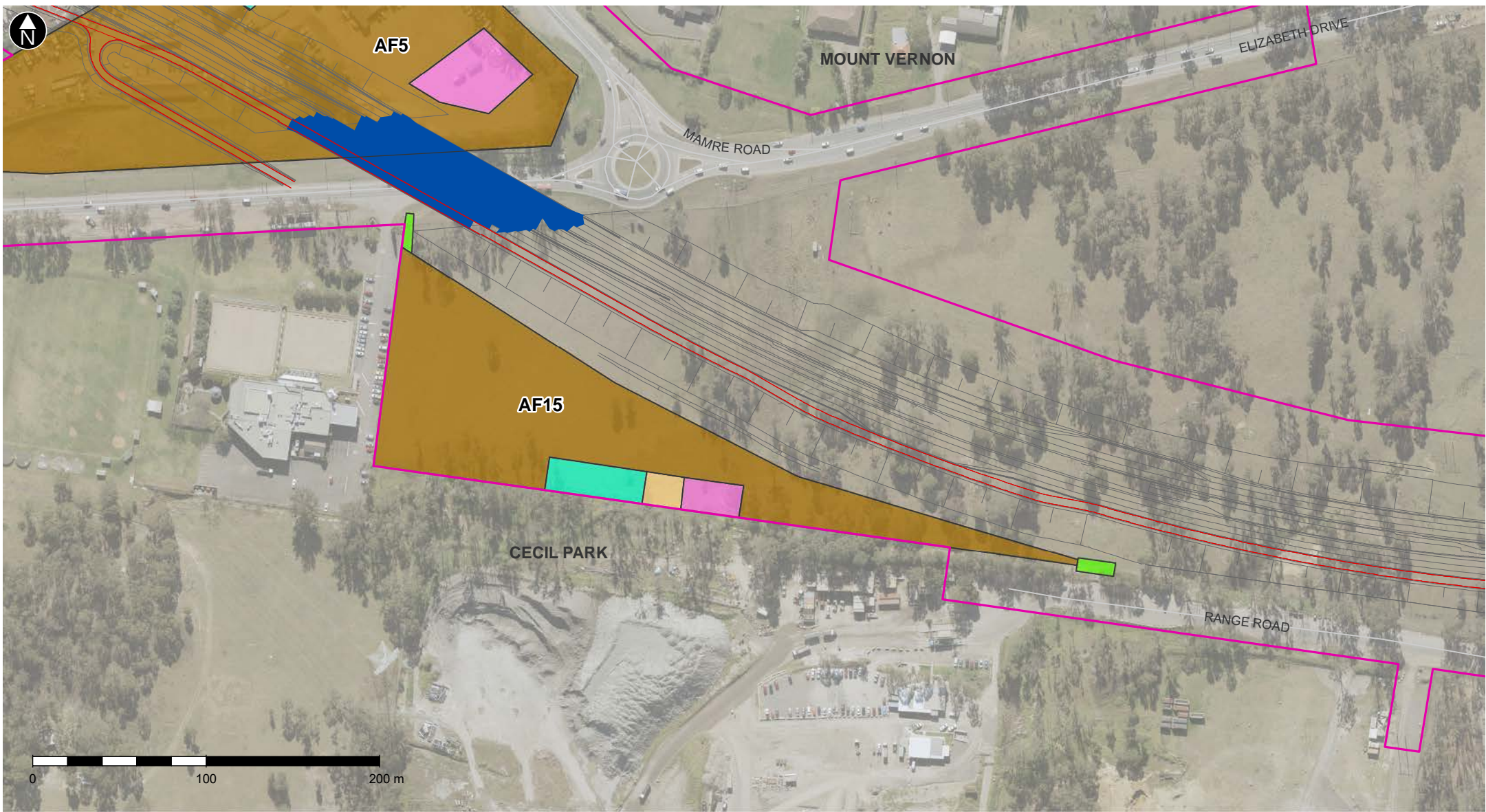


- |  |                         |                                 |  |
|--|-------------------------|---------------------------------|--|
| The amended project construction footprint | Amended project bridges | Amenities                       | Site offices                             |
| The amended project (option 2)             | Existing roads          | Car park                        | Plant servicing workshop                 |
| Amended project shared user path           | Waterways               | Concrete/asphalt batching plant | Vehicular access to ancillary facilities |
|  |                         | Stockpile and laydown area      |  |



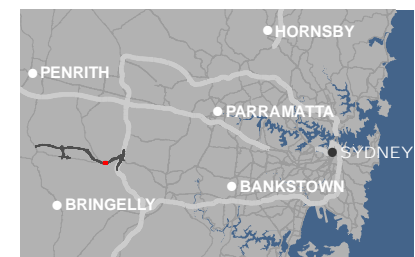
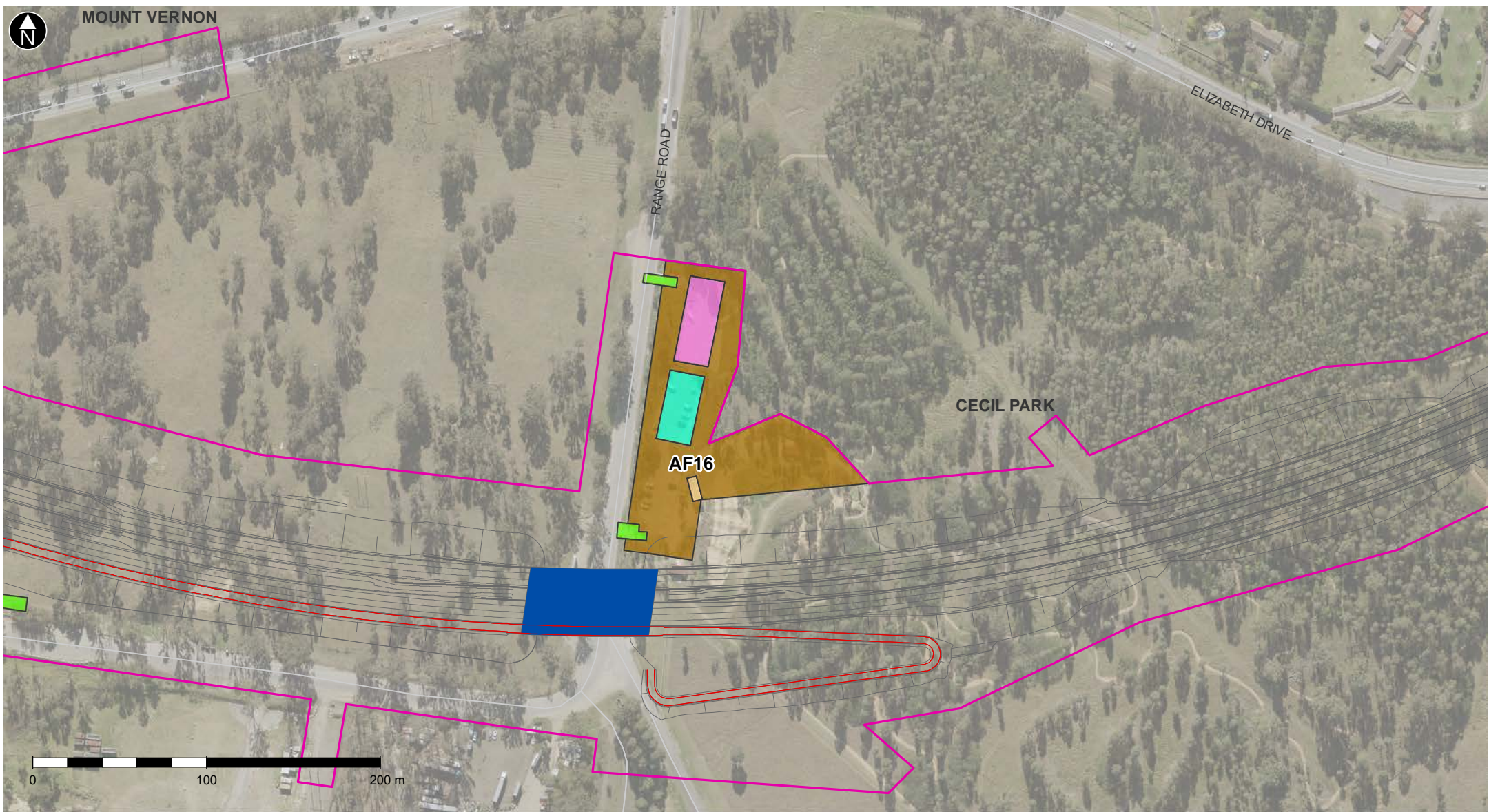
**Figure 6-3** Access points for the additional and amended construction ancillary facilities





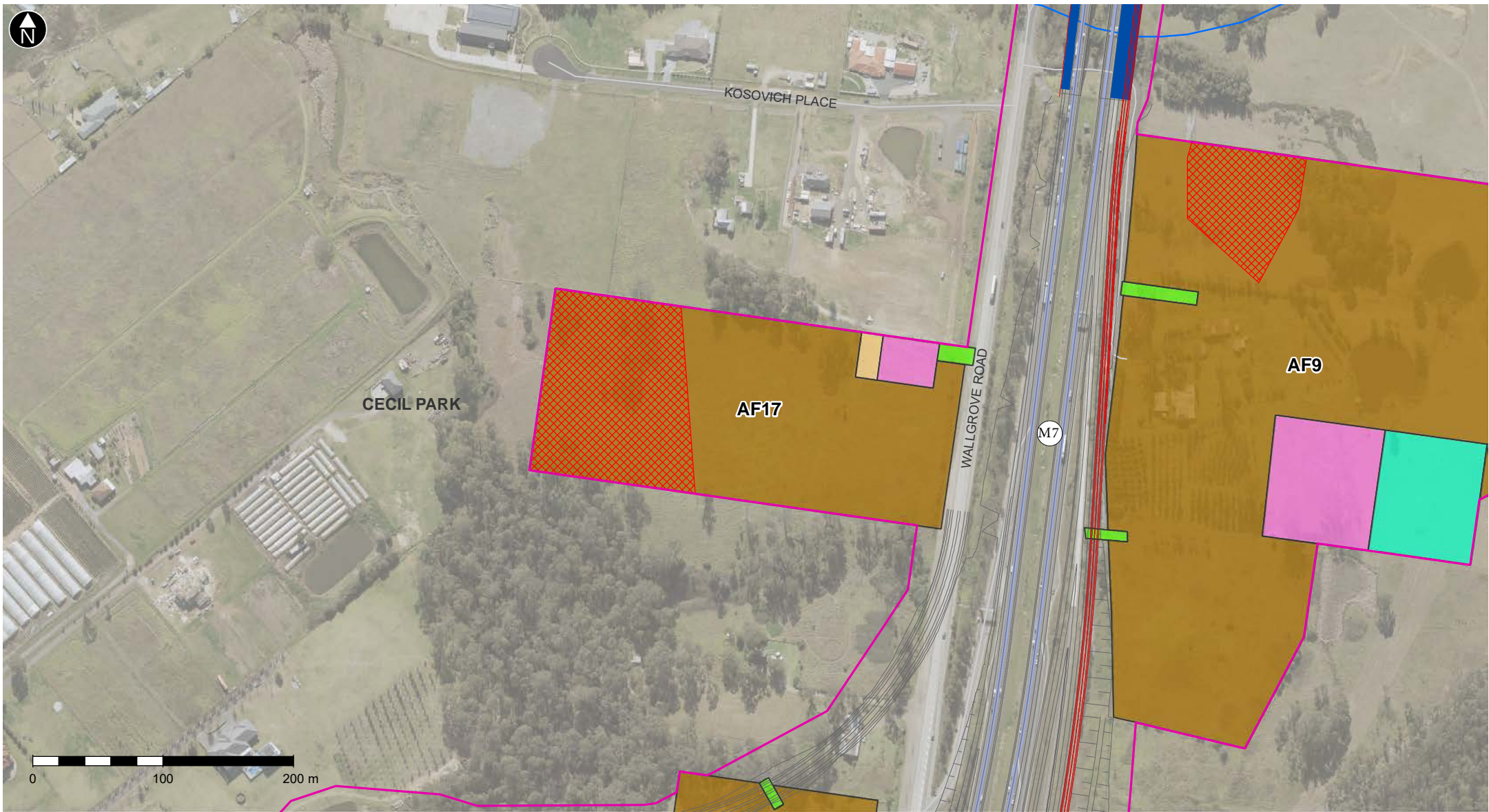
**Figure 6-3** Access points for the additional and amended construction ancillary facilities



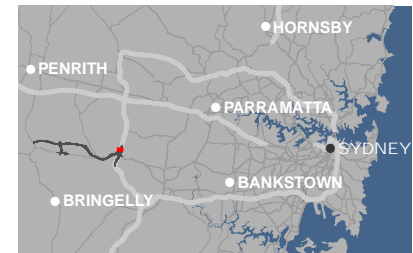


**Figure 6-3** Access points for the additional and amended construction ancillary facilities



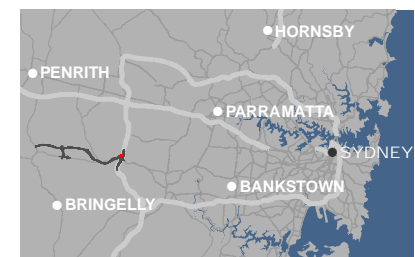


- |  |                                     |                                 |  |
|--|-------------------------------------|---------------------------------|--|
| The amended project construction footprint | Amended project bridges             | Amenities                       | Site offices                             |
| The amended project (option 2)             | The amended project exclusion zones | Car park                        | Plant servicing workshop                 |
| Amended project shared user path           | Existing roads                      | Concrete/asphalt batching plant | Vehicular access to ancillary facilities |
| Waterways                                  | Stockpile and laydown area          |                                 |  |



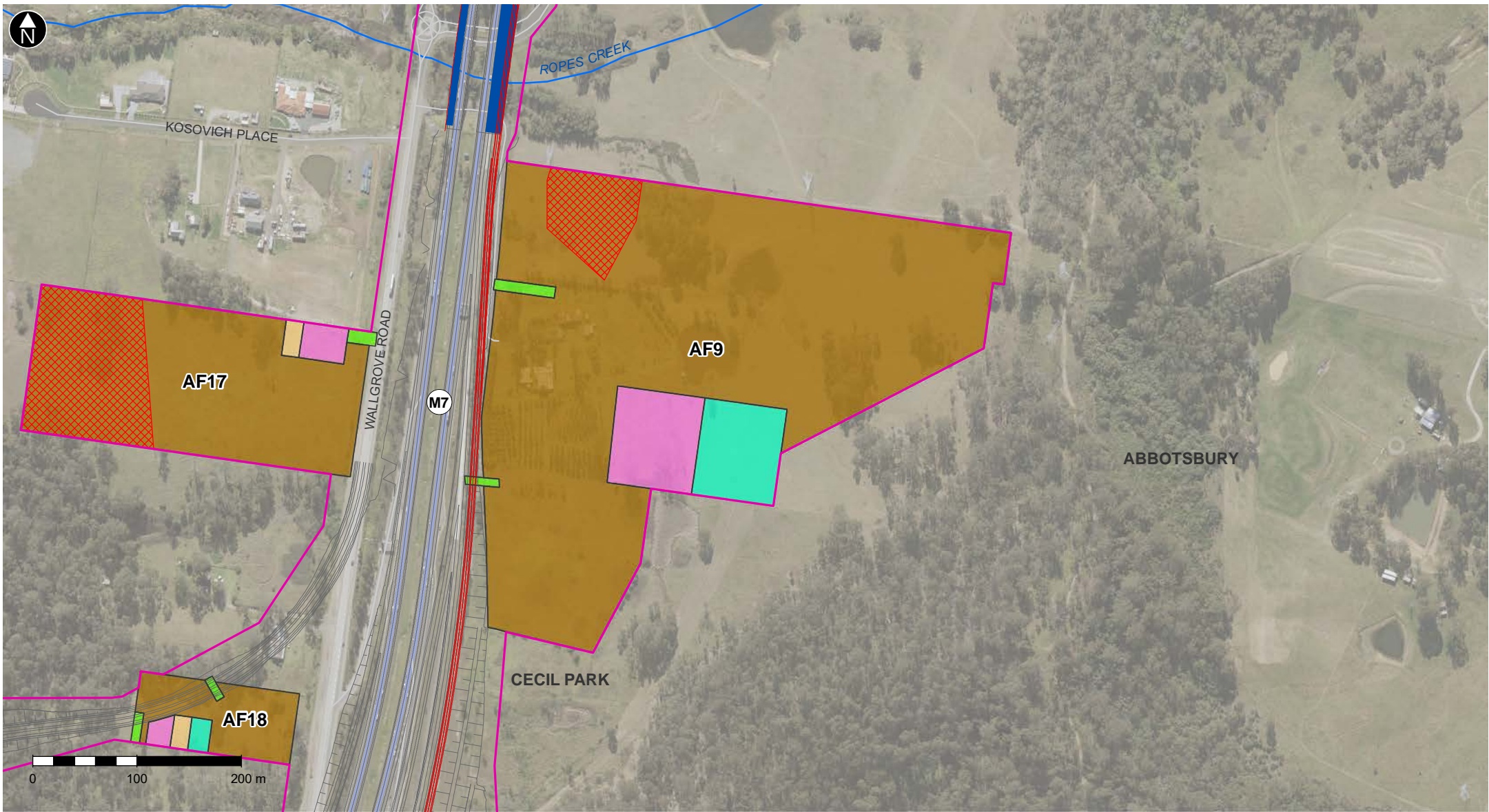
**Figure 6-3** Access points for the additional and amended construction ancillary facilities



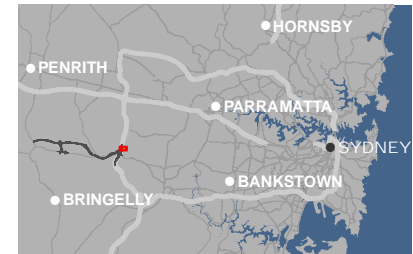


**Figure 6-3** Access points for the additional and amended construction ancillary facilities





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**Figure 6-3** Access points for the additional and amended construction ancillary facilities



### **Haulage routes**

In order to transport materials to the amended construction footprint and access the additional ancillary facilities described in **Table 6-1**, three additional haulage routes would be required. These are described in **Table 6-3** and shown in **Figure 6-4**. Other haulage arrangements at key locations as described in the EIS would not be altered as a result of the amended project.

Table 6-3 Additional haulage arrangements at key locations within the construction footprint

Key location	Haulage arrangements
Cecil Road	A short section of Cecil Road between Elizabeth Drive and the realigned Wallgrove Road would be used as haulage route to access additional compound sites in AF9
Salisbury Road	Salisbury Avenue would be used as a haulage route to access the amended construction footprint via AF 13 and AF 14
Luddenham Road	Luddenham Road between the M12 alignment and Elizabeth Drive would be used as a haulage route to access AF11

Amended haulage routes and predicted truck movements outside the construction footprint for option 1 and option 2 are presented in **Table 6-4**. Where the haulage routes site accesses and work zones and locations differ to those described in the EIS, the differences are presented in **bold** text within the table. Where the vehicle movements for option 2 differ to those for option 1, the differences are presented in shaded cells within the table.

Table 6-4 Amended key haulage routes and predicted truck movements outside the construction footprint

Project as per EIS				Amended project				
Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	
							Option 1	Option 2
M7 Motorway, Elizabeth Drive and The Northern Road	AF 1	ML-01 The Northern Road to Luddenham Road	7,856	M7 Motorway, Elizabeth Drive and The Northern Road	AF1 (and AF10)	ML-01 The Northern Road to Luddenham Road	16,671	16,671
		ML-02 Luddenham Road to South Creek bridge						
-				M7 Motorway, Elizabeth Drive, The Northern Road, and Luddenham Road	AF11	ML-02 Luddenham Road to Cosgroves Creek bridge	18,566	18,566
						LR-01 Luddenham Road's private access driveway		
M7 Motorway and Elizabeth Drive	AF2 (and AF3)	ML-03, ML-05, ML-06, ML-08 South Creek bridge to Badgerys Creek	83,065	M7 Motorway and Elizabeth Drive	AF2 (and AF3)	ML-03, ML-05, ML-06, ML-08 Cosgroves Creek bridge to Badgerys Creek	30,124	30,124
		ML-04 Airport interchange north of the M12 Motorway main line				ML-04 Airport interchange north of the M12 Motorway main line		

Project as per EIS				Amended project				
Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	
							Option 1	Option 2
		ML-07 Western Sydney International Airport access road				ML-07 Western Sydney International Airport access road		
		LR-02 Elizabeth Drive, west of the Western Sydney International Airport access road				LR-02 Elizabeth Drive, west of the Western Sydney International Airport access road		
		LR-03 Elizabeth Drive, east of the Western Sydney International Airport access road				LR-03 Elizabeth Drive, east of the Western Sydney International Airport access road		
		ML-09 Badgerys Creek to South Creek bridge				ML-09 Badgerys Creek to South Creek bridge		



Project as per EIS				Amended project				
Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	
							Option 1	Option 2
M7 Motorway, Elizabeth Drive and Clifton Avenue	AF4	ML-10 South Creek bridge to Clifton Avenue	12,893	M7 Motorway, Elizabeth Drive and Clifton Avenue	AF4 (and AF12)	ML-10 South Creek bridge to Clifton Avenue	20,095	20,095
		LR-04 Clifton Avenue north of the M12 Motorway main line				LR-04 Clifton Avenue north of the M12 Motorway main line		
		LR-05 Clifton Avenue south of the M12 Motorway main line				LR-05 Clifton Avenue south of the M12 Motorway main line		
		ML-11 Clifton Avenue to Kemps Creek		M7 Motorway, Elizabeth Drive and Salisbury Avenue	AF13 (and AF14)	ML-11 Clifton Avenue to Kemps Creek	9,293	9,293
M7 Motorway, Elizabeth Drive and Mamre Road	AF5	ML-12 Kemps Creek to Elizabeth Drive	3,805	M7 Motorway, Elizabeth Drive and Mamre Road	AF5	ML-12 Kemps Creek to Elizabeth Drive	3,811	3,811
M7 Motorway, Elizabeth Drive and Range Road	Range Road	ML-13 Elizabeth Drive to Range Road	26,498	M7 Motorway, Elizabeth Drive and Range Road	AF15	ML-13 Elizabeth Drive to Range Road	26,506	26,506

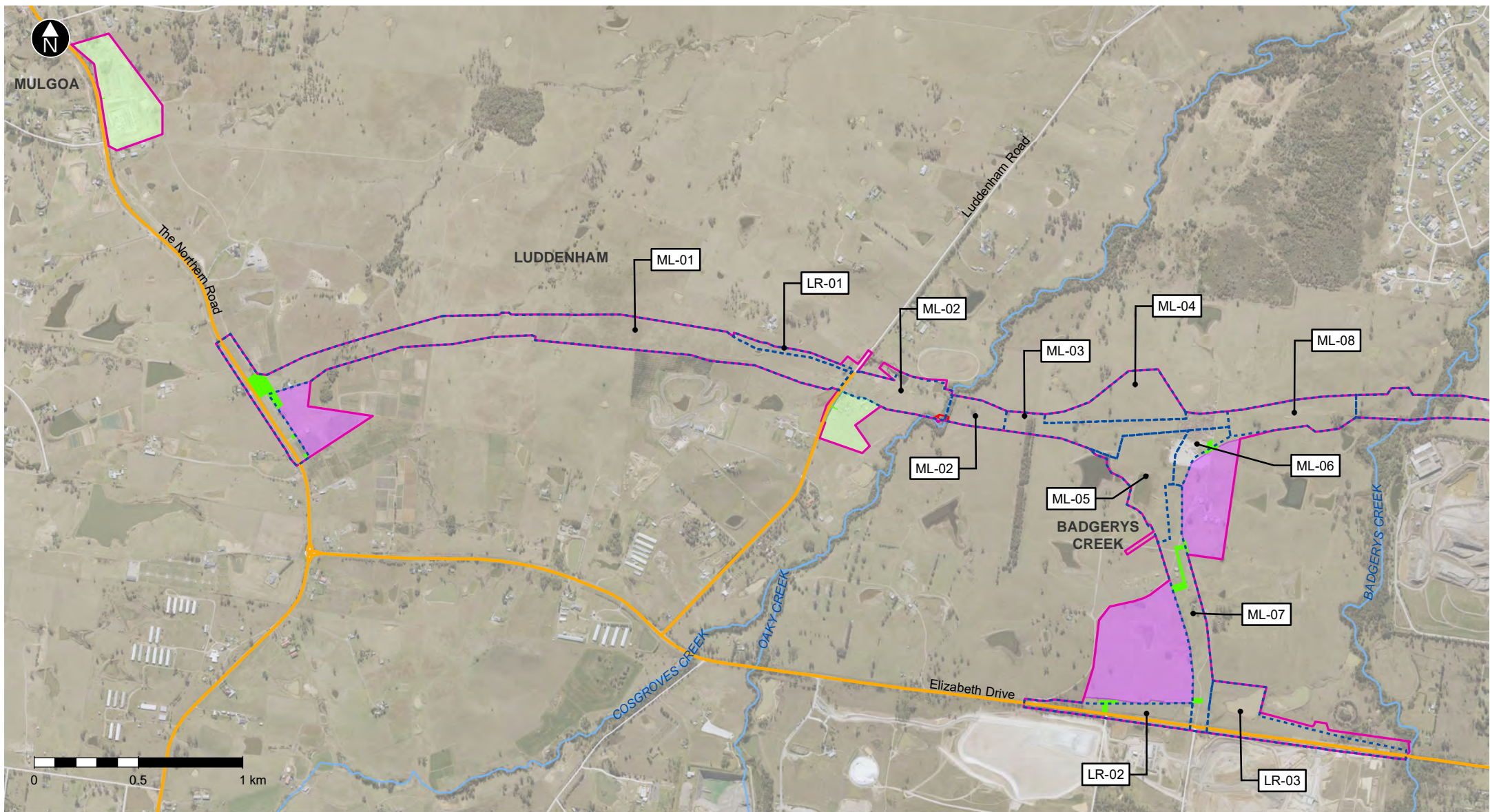
Project as per EIS				Amended project				
Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	
							Option 1	Option 2
M7 Motorway and Elizabeth Drive	AF6	ML-14 Range Road to existing utility access road	16,074	M7 Motorway, Elizabeth Drive and Range Road	AF16	ML-14 Range Road to existing utility access road	1,140	1,140
		ML-15 Existing utility access road to M7 interchange ramp bridges		M7 Motorway and Elizabeth Drive	AF6	ML-15 Existing utility access road to M7 interchange ramp bridges	6,891	5,587
		ML-19 M7 Motorway northbound exit ramp				LR-06 Western Sydney Parklands Utility access road to the north		
		ML-18 M7 Motorway southbound entry ramp				LR-07 Western Sydney Parklands Utility access road to the south		
M7 Motorway, Elizabeth Drive, Wallgrove Road and the existing M7 Motorway underpass opposite Kosovich Place	AF9	ML-17 M7 Motorway southbound exit ramp	4,567			-		

Project as per EIS				Amended project				
Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	
							Option 1	Option 2
M7 Motorway and Elizabeth Drive	Wallgrove Road	ML-16 M7 Motorway northbound entry ramp	9,244	M7 Motorway and Elizabeth Drive	AF7 (and AF8)	ML-16 M12 Motorway Westbound Entry Ramp from Elizabeth Drive bridge to the M7 Motorway Northbound Exit Ramp to Elizabeth Drive	7,038	6,353
		LR-08 Wallgrove Road						
		ML-20 Wallgrove Road G-loop ramp						
						ML-17 M7 Motorway Northbound Exit Ramp to Elizabeth Drive M7 Motorway Southbound Entry Ramp from the M12 Motorway and Elizabeth Drive		

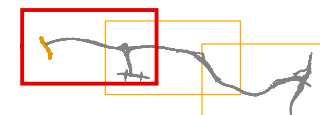


Project as per EIS				Amended project				
Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	
							Option 1	Option 2
						M7 Motorway Southbound Entry Ramp from the M12 Motorway and Elizabeth Drive		
						ML-19 M7 Motorway Northbound Exit Ramp to the M12 Motorway Westbound		
						ML-21 M7 Motorway Northbound Exit Ramp to Elizabeth Drive		
				M7 Motorway, Elizabeth Drive, Wallgrove Road and the existing M7 Motorway underpass opposite Kosovich Place	AF9	ML-23 M7 Motorway Southbound Exit Ramp to the M12 Motorway Westbound	10,299	10,299
						ML-24 M7 Motorway Interchange - M7 Motorway Southbound Exit Ramp to Elizabeth Drive		

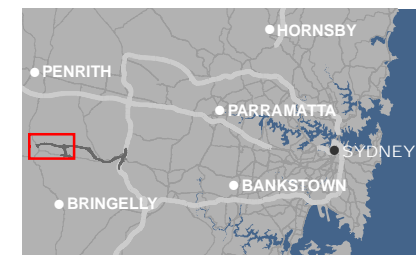
Project as per EIS				Amended project				
Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	Haulage Routes	Site access via	Work zone and location	Approximate total truck movements	
							Option 1	Option 2
				M7 Motorway, Elizabeth Drive and Wallgrove Road	AF17 (and AF18)	ML-22 M7 Motorway Northbound Entry Ramp from the M12 Motorway and Elizabeth Drive	14,645	16,657
						LR-09 Elizabeth Drive East to Bridge over M12 Motorway Eastbound Exit Ramp to Elizabeth Drive		
						LR-10 Cecil Road and roundabout at Wallgrove Road Intersection		
						LR-11 Wallgrove Road Realignment		
Total			164,002	Total			165,079	165,102



- |  |  |                |
|--|--|----------------|
| The amended project construction footprint | Haulage routes as per the EIS            | Waterways      |
| Ancillary facilities as per the EIS        | Work zones                               | Motorway       |
| Additional ancillary facilities            | Vehicular access to ancillary facilities | Existing roads |
| The amended project exclusion zones        |  |                |

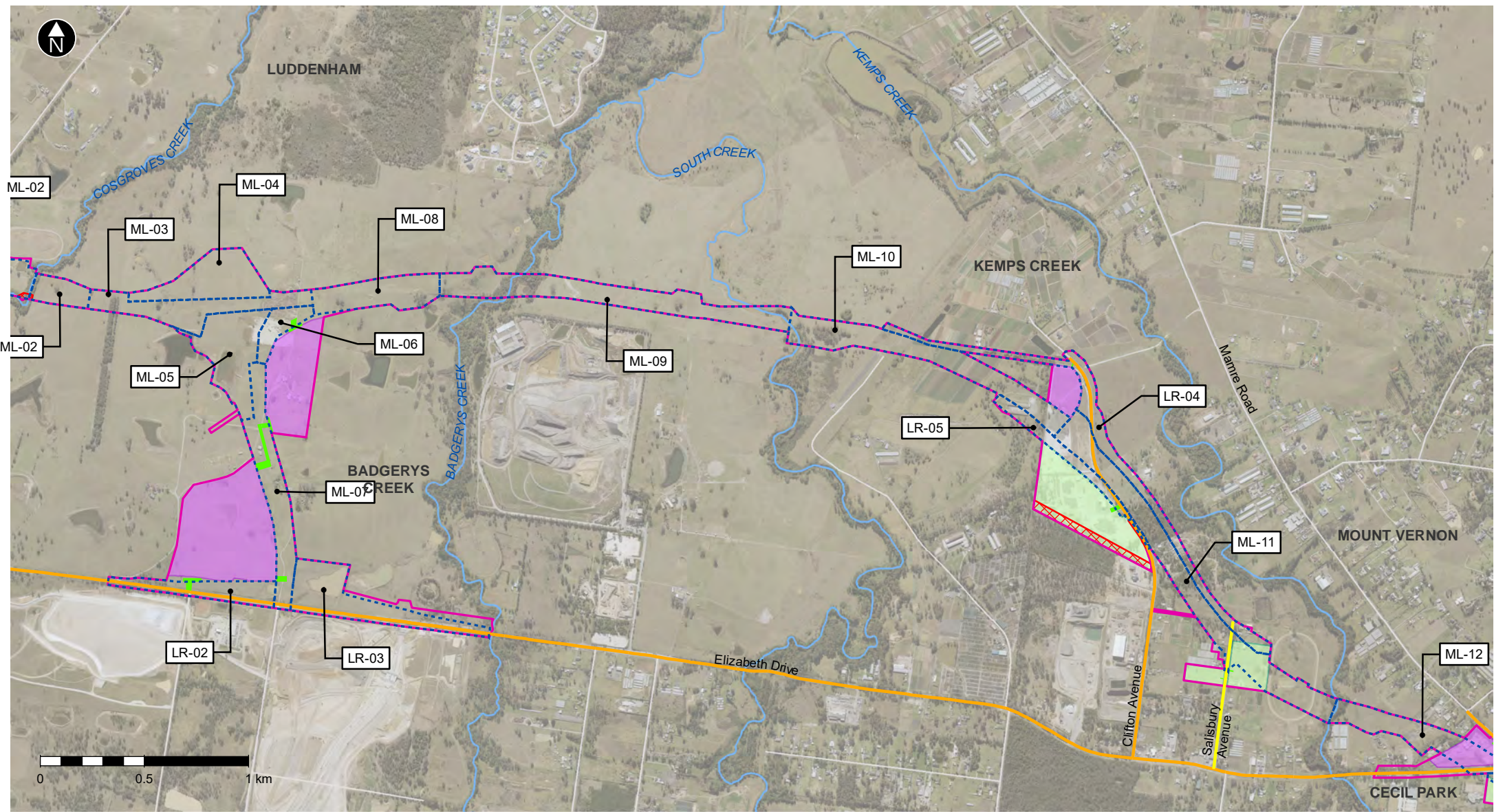


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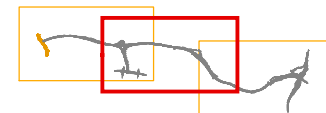
**Figure 6-4** Amended haulage arrangements



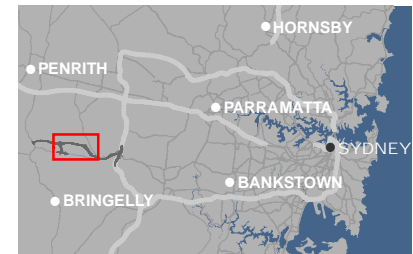


- The amended project construction footprint
- Ancillary facilities as per the EIS
- Additional ancillary facilities
- The amended project exclusion zones
- Work zones
- Vehicular access to ancillary facilities
- Haulage routes as per the EIS
- Additional haulage route

- Waterways
- Motorway
- Existing roads

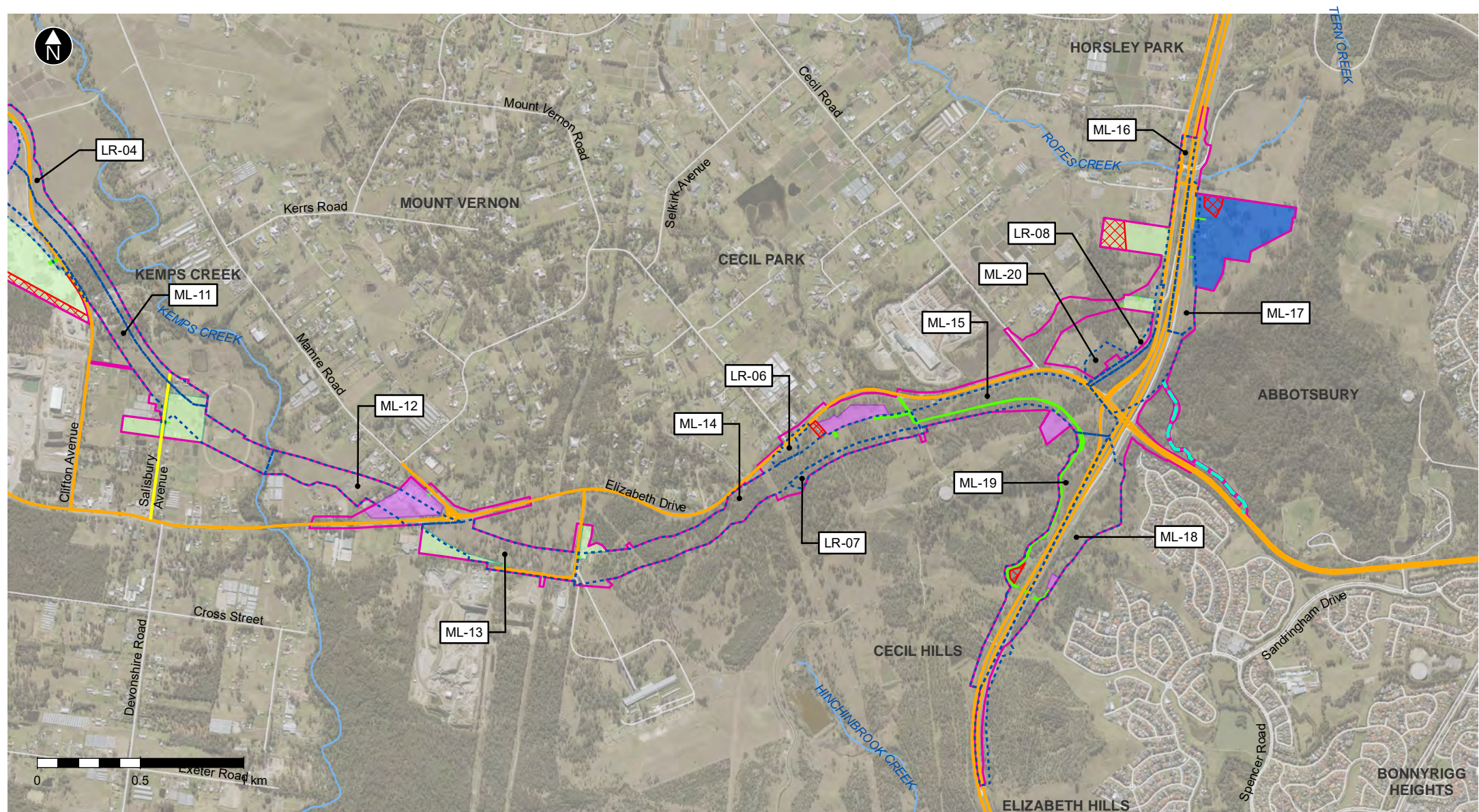


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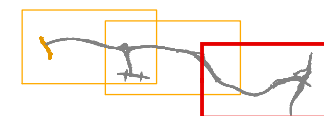


**Figure 6-4 Amended haulage arrangements**

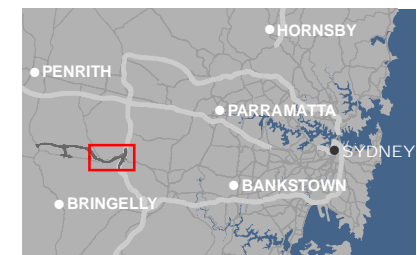




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|--|---|----------------|
| The amended project construction footprint | Haulage routes as per the EIS                   | Waterways      |
| Ancillary facilities as per the EIS        | Additional haulage route                        | Motorway       |
| Additional ancillary facilities            | Temporary haulage route for bridge construction | Existing roads |
| Amended ancillary facilities               | Work zones                                      |                |
| The amended project exclusion zones        | Vehicular access to ancillary facilities        |                |



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**Figure 6-4** Amended haulage arrangements



### ***Work site and construction ancillary facility traffic generation***

Light and heavy vehicle traffic generation from each of the work sites and construction ancillary facilities for the amended project is provided in **Table 6-5**. Traffic generation presented in **Table 6-5** only shows the AF compounds where the volumes differ to those described in Table 6-3 of the EIS TTAR.

Light vehicle traffic generation in the morning peak would not affect morning peak traffic conditions as construction workers would generally be expected to arrive at the site before the start of the morning peak traffic period. Light vehicle traffic would be generated by workers and personnel.

Construction hours would commence at 7am, with any pre-start meetings to be carried out before this time. As a result, construction workers would generally be expected to arrive at the site before 7am, which is early in the peak period of 6am to 9am.

Spoil haulage vehicles are assumed to use truck-and-dog trailer configurations (17 metres in length) and have been modelled as fully-loaded travelling to the amended project (40 tonnes) and empty leaving the amended project (24 tonnes).

Table 6-5 Construction traffic generation for amended project (inbound and outbound)

Site	Daily heavy vehicle generation	Morning peak light vehicle generation	Morning peak heavy vehicle generation	Evening peak light vehicle generation	Evening peak heavy vehicle generation
AF1/10	200	93	20	93	20
AF2/3	180	93	16	93	16
AF4/12	80	93	8	93	8
AF5	160	93	16	93	16
AF6	160	93	16	93	16
AF7/8	100	-	10	-	10
AF9	120	-	12	-	12
AF11	160	93	16	93	16
AF13/14	160	93	16	93	16
AF15	160	93	16	93	16
AF16	200	93	20	93	20
AF17	160	-	16	-	16
AF18	120	-	12	-	12
<b>Total</b>	<b>1960</b>	<b>837</b>	<b>194</b>	<b>837</b>	<b>194</b>



## Comparison of amended project to the project as described in the EIS

Comparing the construction traffic generation in Table 6-5 and construction traffic generation in Table 6-3 of the EIS TTAR shows the following increases for the amended project:

- Daily heavy vehicle generation – 400 vehicles (increase of 26 per cent)
- Morning peak light vehicle generation – five vehicles (increase of less than one per cent)
- Morning peak heavy vehicle generation – 38 vehicles (increase of 24 per cent)
- Evening peak light vehicle generation – five vehicles (increase of less than one per cent)
- Evening peak heavy vehicle generation – 38 vehicles (increase of 24 per cent).

### 6.1.2 Construction impact assessment

#### *Background traffic volumes and patterns*

As described in the EIS, peak construction traffic generation would occur in 2024. A 2024 'do minimum' scenario has been developed that includes forecast traffic growth to 2024 based on the LU16 land use and demographics scenario.

The Northern Road upgrade including realignment of the western end of Elizabeth Drive and upgrade of the existing roundabout at The Northern Road / Elizabeth Drive to traffic signals have been included as part of the road network assumptions for the 2024 'do minimum' and 2024 'with construction' scenarios.

A summary of the forecast background traffic growth on key roads is provided in **Table 6-6** and **Table 6-7**.

#### Performance of amended project

Comparing the 2017 base and 2024 'do minimum' traffic volumes in **Table 6-6** and **Table 6-7**, there is significant growth on most roads that is consistent with anticipated land use changes in the broader western Sydney area.

## Comparison of amended project to the project as described in the EIS

Comparing the 2024 'do minimum' traffic volumes of the EIS TTAR, the majority of traffic volumes in **Table 6-6** and **Table 6-7** are lower. This reflects the change to the demand growth in SMPM version 1.1 as described in **Section 3.1**.

Table 6-6 Traffic growth on key roads in the core study area in 2024 (morning peak)

Road location	Direction	Amended project Morning peak (7.30am to 8.30am)			Project as described in EIS Morning peak (7.30am to 8.30am)		
		2017 base	2024 'do minimum'	% change	2017 base	2024 'do minimum'	% change
The Northern Road north of Elizabeth Drive	Northbound	685	1405	105%	685	1,467	114%
	Southbound	761	1081	42%	761	1,205	58%
The Northern Road south of Elizabeth Drive	Northbound	866	803	-7%	866	679	-22%
	Southbound	522	376	-28%	522	654	25%
Elizabeth Drive west of Adams Road	Eastbound	611	980	60%	611	948	55%
	Westbound	305	718	135%	305	857	181%
Elizabeth Drive west of Devonshire Road	Eastbound	1199	1143	-5%	1,199	1,223	2%
	Westbound	516	588	14%	516	728	41%
Elizabeth Drive east of Mamre Road	Eastbound	1407	1213	-14%	1,407	1,306	-7%
	Westbound	852	935	10%	852	1,063	25%
Elizabeth Drive east of Wallgrove Road	Eastbound	1426	1217	-15%	1,426	1,493	5%
	Westbound	1273	1413	11%	1,273	1,512	19%
Mamre Road north of Wallgrove Road	Northbound	752	776	3%	752	1,064	41%
	Southbound	502	495	-1%	502	644	28%
Wallgrove Road north of Elizabeth Drive	Northbound	1191	1093	-8%	1,191	1,178	-1%
	Southbound	299	285	-5%	299	201	-33%

Note <sup>1</sup> Table 6-4 of the EIS TTAR

Table 6-7 Traffic growth on key roads in the core study area in 2024 (evening peak)

Road location	Direction	Amended project Evening peak (5.30pm to 6.30pm)			Project as described in EIS Evening peak (5.30pm to 6.30pm)		
		2017 base	2024 'do minimum'	% change	2017 base	2024 'do minimum'	% change
The Northern Road north of Elizabeth Drive	Northbound	801	1220	52%	801	2,111	164%
	Southbound	673	1565	133%	673	747	11%
The Northern Road south of Elizabeth Drive	Northbound	659	549	-17%	659	1,151	75%
	Southbound	933	998	7%	933	381	-59%
Elizabeth Drive west of Adams Road	Eastbound	297	704	137%	297	622	109%
	Westbound	642	813	27%	642	1,318	105%
Elizabeth Drive west of Devonshire Road	Eastbound	511	606	19%	511	626	23%
	Westbound	833	933	12%	833	1,257	51%
Elizabeth Drive east of Mamre Road	Eastbound	718	786	9%	718	895	25%
	Westbound	1153	1229	7%	1,153	1,532	33%
Elizabeth Drive east of Wallgrove Road	Eastbound	1236	1375	11%	1,236	1,962	59%
	Westbound	1180	1276	8%	1,180	1,410	19%
Mamre Road north of Wallgrove Road	Northbound	729	751	3%	729	1013	39%
	Southbound	642	752	17%	642	975	52%
Wallgrove Road north of Elizabeth Drive	Northbound	592	579	-2%	592	596	1%
	Southbound	690	739	7%	690	864	25%

Note <sup>1</sup> Table 6-4 of the EIS TTAR

### Intersection performance

Traffic modelling has been undertaken to determine the impacts of construction traffic at key intersections when compared to conditions without construction of the amended project.

#### Intersection performance without construction

Modelled intersection performance for the 2024 'do minimum' scenario (without construction) during the morning and evening peaks is summarised in **Table 6-8**.



Table 6-8 Intersection performance – 2024 ‘do minimum’ scenario

Intersection	Amended project or project as described in the EIS	2024 ‘do minimum’ morning peak (7.30am to 8.30am)		2024 ‘do minimum’ evening peak (5.30pm to 6.30pm)	
		Average delay (seconds)	Level of Service	Average delay (seconds)	Level of Service
Elizabeth Drive / M7 Motorway southbound ramps	Amended Project	31	C	37	C
	Project as per EIS <sup>1</sup>	26	B	49	D
Elizabeth Drive / M7 Motorway northbound ramps / Wallgrove Road	Amended Project	35	C	40	C
	Project as per EIS <sup>1</sup>	43	C	135	F
Elizabeth Drive / Cecil Road	Amended Project	18	B	7	A
	Project as per EIS <sup>1</sup>	9	A	9	A
Elizabeth Drive / Duff Road	Amended Project	20	B	11	A
	Project as per EIS <sup>1</sup>	20	B	13	A
Elizabeth Drive / Mamre Road	Amended Project	19	B	13	A
	Project as per EIS <sup>1</sup>	28	B	16	B
Elizabeth Drive / Range Road	Amended Project	10	A	20	B
	Project as per EIS <sup>1</sup>	8	A	13	A
Elizabeth Drive / Devonshire Road	Amended Project	311	F	113	F
	Project as per EIS <sup>1</sup>	495	F	1468	F
Elizabeth Drive / Clifton Avenue	Amended Project	14	A	5	A
	Project as per EIS <sup>1</sup>	12	A	4	A
Elizabeth Drive / Western Road	Amended Project	14	A	17	B
	Project as per EIS <sup>1</sup>	16	B	19	B
Elizabeth Drive / Martin Road	Amended Project	9	A	9	A
	Project as per EIS <sup>1</sup>	8	A	13	A
Elizabeth Drive / Lawson Road	Amended Project	9	A	6	A
	Project as per EIS <sup>1</sup>	7	A	9	A

Intersection	Amended project or project as described in the EIS	2024 'do minimum' morning peak (7.30am to 8.30am)		2024 'do minimum' evening peak (5.30pm to 6.30pm)	
		Average delay (seconds)	Level of Service	Average delay (seconds)	Level of Service
Elizabeth Drive / Badgerys Creek Road	Amended Project	55	D	13	A
	Project as per EIS <sup>1</sup>	61	E	31	C
Elizabeth Drive / Adams Road	Amended Project	11	A	10	A
	Project as per EIS <sup>1</sup>	9	A	11	A
Elizabeth Drive / Luddenham Road	Amended Project	12	A	8	A
	Project as per EIS <sup>1</sup>	15	A	29	B
Elizabeth Drive / The Northern Road	Amended Project	41	C	41	C
	Project as per EIS <sup>1</sup>	37	C	41	C

Note <sup>1</sup>Table 6-5 and Table 6-6 of the EIS TTAR

### Performance of the amended project

In the 2024 'do minimum' scenario, the Elizabeth Drive / Devonshire Road intersection would perform poorly at Level of Service F during the morning and evening peaks. This is due to high delays for vehicles turning out of Devonshire Road, which is priority-controlled. Level of Service at priority-controlled intersections is reported for the worst movement, hence the poor intersection performance reflects high delays for traffic turning out of Devonshire Road during the morning and evening peaks. All other intersections would perform at a satisfactory Level of Service. Comparison of amended project to the project as described in the EIS

Comparing the 2024 'do minimum' intersection performance in **Table 6-8** and 2024 'do minimum' intersection performance in the EIS TTAR, it can be seen that the majority of intersections have improved performance. The modelling shows a decrease in performance at the Elizabeth Drive / Badgerys Creek Road intersection, however the modelling does not reflect the recent roundabout upgrade that has been installed by WSA Co as part of the Western Sydney Internal Airport construction. This implementation will result in an improved performance for this intersection. The changes in intersection performance reflect the change to the demand growth in SMPM version 1.1 as described in **Section 3.1**; and amended and additional ancillary facilities and related changes to construction traffic generation described in **Section 6.1.1**.

### Intersection performance with construction

Modelled intersection performance for the 2024 'with construction' scenario during the morning and evening peaks is summarised in **Table 6-9**. The results for this scenario were obtained by adding light vehicle and heavy vehicle construction traffic generation at each of the work sites and construction ancillary facilities to the 2024 'do minimum' traffic volumes during the morning and evening peaks.



Table 6-9 Intersection performance – 2024 ‘with construction’ scenario

Intersection	Morning peak (7.30am to 8.30am)						Evening peak (5.30pm to 6.30pm)					
	2024 ‘do minimum’		2024 project described in EIS ‘with construction’		2024 amended project ‘with construction’		2024 ‘do minimum’		2024 project described in EIS ‘with construction’		2024 amended project ‘with construction’	
	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / M7 Motorway southbound ramps	31	C	28	B	34	C	37	C	81	F	42	C
Elizabeth Drive / M7 Motorway northbound ramps / Wallgrove Road	35	C	48	D	41	C	40	C	> 100	F	51	D
Elizabeth Drive / Cecil Road	18	B	15	A	23	B	7	A	> 100	F	14	A
Elizabeth Drive / Duff Road	20	B	29	C	24	B	11	A	77	F	20	B
Elizabeth Drive / Mamre Road	19	B	34	C	23	B	13	A	30	C	18	B
Elizabeth Drive / Range Road	10	A	13	A	35	C	20	B	33	C	45	D
Elizabeth Drive / Devonshire Road	311	F	465	F	368	F	113	F	1675	F	771	F
Elizabeth Drive / Clifton Avenue	14	A	15	B	20	B	5	A	49	D	21	B

Intersection	Morning peak (7.30am to 8.30am)						Evening peak (5.30pm to 6.30pm)					
	2024 'do minimum'		2024 project described in EIS 'with construction'		2024 amended project 'with construction'		2024 'do minimum'		2024 project described in EIS 'with construction'		2024 amended project 'with construction'	
	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / Western Road	14	A	20	B	24	B	17	B	26	B	36	C
Elizabeth Drive / Martin Road	9	A	9	A	10	A	9	A	15	A	13	A
Elizabeth Drive / Lawson Road	9	A	9	A	11	A	6	A	14	A	10	A
Elizabeth Drive / Badgerys Creek Road	55	D	63	E	124	F	13	A	55	D	19	B
Elizabeth Drive / Adams Road	11	A	9	A	13	A	10	A	23	B	24	B
Elizabeth Drive / Luddenham Road	12	A	16	B	17	B	8	A	> 100	F	17	B
Elizabeth Drive / The Northern Road	41	C	38	C	41	C	41	C	43	C	41	C

Note <sup>1</sup>Table 6-5 (AM) and Table 6-6 (PM) of the EIS TTAR

## Performance of the amended project

In the 2024 'with construction' scenario, the following intersections would perform poorly at Level of Service F:

- Elizabeth Drive / Devonshire Road – would remain at Level of Service F during the morning (368 seconds) and evening (771 seconds) peaks
- Elizabeth Drive / Badgerys Creek Road – would change from Level of Service D (55 seconds) to Level of Service F (124 seconds) during the morning peak
- It is worth noting the modelling results do not reflect the recent roundabout upgrade that has been installed by WSA Co at this intersection as part of the Western Sydney International Airport construction. The implementation of the roundabout would result in an improved performance for this intersection and it is expected it would perform at a LOS higher than F.

Increases in delay at these intersections are a result of the addition of construction-related heavy vehicle traffic. Additional delays would be experienced for vehicles waiting for a gap in traffic when turning right or left onto Elizabeth Drive. Due to their length, construction-related heavy vehicles require longer gaps in traffic to safely turn from minor roads at priority-controlled intersections.

## Comparison of amended project to the project as described in the EIS

Comparing the 2024 'with construction' intersection performance and 2024 'with construction' intersection performance in the EIS TTAR, there are improvements at the majority of the intersections. There are decreased levels of performance at Elizabeth Drive / Cecil Road and Elizabeth Drive / Range Road due to the additional compounds sites in Western Sydney Parklands. There is also a decrease in performance at Elizabeth Drive / Western Road due to changes to background traffic assumptions in SMPM version 1.1

The changes in intersection performance reflect both the change to the demand growth in SMPM version 1.1 as described in **Section 3.1**; and amended and additional ancillary facilities and related changes to construction traffic generation described in **Section 6.1.1**.

## 6.2 Operational impacts

Section 6.2 of the EIS TTAR provides an assessment of the potential transport and traffic impacts during operation of the project as described in the EIS and includes:

- Assessment of impacts without the project
  - Changes to the road network
  - Changes to the public transport network
  - Changes to the pedestrian and cycle network
  - Changes to parking and access
  - **Changes to regional road network volumes**
  - **Changes to heavy vehicle volumes**
  - **Changes to network performance**
  - Induced demand
  - **Changes to intersection performance**
  - **Changes to general traffic travel times**



- Assessment of impacts with the project
  - **Regional road network volumes**
  - **Network performance statistics**
  - **Intersection performance**
  - **General traffic travel times**
  - **Impacts on freight transport**
  - Impacts on public transport
  - Impacts on active transport
  - Impacts on road safety
  - Impacts on local roads and access
  - Impacts on parking.

Where the operational impacts have changed as a result of the amended project (shown in **bold** text above), these are discussed in the following sections. Where the operational impacts as a result of the amended project are consistent with the operational impacts documented in Section 6.2 of the EIS TTAR, these sections have not been repeated.

## 6.2.1 Assessment of impacts without the project

### *Changes to regional road network volumes*

'Do minimum' scenario traffic volume forecasts for key primary arterial roads in the study area are provided in **Table 6-10** to **Table 6-13**. Taken as groups, these locations define three major 'screen lines' that can be used to compare the changes in directional and two-way demands across the study area at a strategic level. The screen lines are shown in **Figure 6-5**.

Table 6-10 Morning peak 'do minimum' screen line volume summary (east-west screen line)

Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
East-west screen line (southbound)								
M7 Motorway	North of Elizabeth Drive	Amended Project	2666	2624	3127	2527	3949	3513
		Project as described in EIS <sup>1</sup>	2666	2624	3092	3043	4343	4041
Wallgrove Road	North of Elizabeth Drive	Amended Project	327	333	201	171	206	201
		Project as described in EIS <sup>1</sup>	327	333	184	241	228	160
Cecil Road	North of Elizabeth Drive	Amended Project	231	236	138	125	201	87
		Project as described in EIS <sup>1</sup>	231	236	178	174	204	33
Duff Road	North of Elizabeth Drive	Amended Project	52	51	64	70	91	131
		Project as described in EIS <sup>1</sup>	52	51	65	57	72	103
Mamre Road	North of Elizabeth Drive	Amended Project	574	532	1169	1323	660	730
		Project as described in EIS <sup>1</sup>	574	532	1248	1239	513	525
Devonshire Road	North of Elizabeth Drive	Amended Project	N/A	N/A	N/A	N/A	958	981
		Project as described in EIS <sup>1</sup>	N/A	N/A	N/A	N/A	868	936

Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Luddenham Road	North of Elizabeth Drive	Amended Project	118	143	244	339	398	436
		Project as described in EIS <sup>1</sup>	118	143	263	385	518	804
The Northern Road	North of Elizabeth Drive	Amended Project	804	660	1200	1324	1577	1602
		Project as described in EIS <sup>1</sup>	804	660	1792	1708	1828	1659
Total		Amended Project	4772	4579	6143	5879	8040	7681
		Project as described in EIS <sup>1</sup>	4772	4579	6822	6847	8574	8261
East-west screen line (northbound)								
M7 Motorway	North of Elizabeth Drive	Amended Project	3291	3378	1375	975	4662	4522
		Project as described in EIS <sup>1</sup>	3291	3378	3367	3683	4556	4292
Wallgrove Road	North of Elizabeth Drive	Amended Project	645	592	980	857	782	848
		Project as described in EIS <sup>1</sup>	645	592	823	679	941	782
Cecil Road	North of Elizabeth Drive	Amended Project	113	112	12	47	35	34
		Project as described in EIS <sup>1</sup>	113	112	39	31	50	36
Duff Road	North of Elizabeth Drive	Amended Project	89	65	172	177	142	112
		Project as described in EIS <sup>1</sup>	89	65	173	175	142	153



Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Mamre Road	North of Elizabeth Drive	Amended Project	547	671	1085	1168	232	231
		Project as described in EIS <sup>1</sup>	547	671	1070	1154	303	277
Devonshire Road	North of Elizabeth Drive	Amended Project	N/A	N/A	N/A	N/A	1090	1010
		Project as described in EIS <sup>1</sup>	N/A	N/A	N/A	N/A	1084	1332
Luddenham Road	North of Elizabeth Drive	Amended Project	271	263	800	1334	976	749
		Project as described in EIS <sup>1</sup>	271	263	763	1237	842	915
The Northern Road	North of Elizabeth Drive	Amended Project	758	744	1133	1262	1384	1485
		Project as described in EIS <sup>1</sup>	758	744	1088	1271	1086	1159
Total		Amended Project	5714	5825	5557	5820	9303	8991
		Project as described in EIS <sup>1</sup>	5714	5825	7323	8230	9004	8946

Note <sup>1</sup> EIS data from Table 6-7 of the EIS TTAR

Table 6-11 Morning peak 'do minimum' screen line volume summary (north-south screen line)

Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Eastern north-south screen line (eastbound)								
M4 Western Motorway	West of Mamre Road	Amended Project	4057	3830	4430	4252	4005	3630
		Project as described in EIS <sup>1</sup>	4057	3830	4014	4368	4588	3194
Luddenham Road	West of Mamre Road	Amended Project	431	364	926	1242	1318	1086
		Project as described in EIS <sup>1</sup>	431	364	956	1229	1152	1080
Elizabeth Drive	West of Western Road	Amended Project	950	879	984	1046	636	916
		Project as described in EIS <sup>1</sup>	950	879	1088	918	1479	1637
Bringelly Road	West of Masterfield Street	Amended Project	647	572	1021	980	2429	2438
		Project as described in EIS <sup>1</sup>	647	572	1320	1381	2381	1980
Total		Amended Project	6085	5645	7361	7520	8388	8070
		Project as described in EIS <sup>1</sup>	6085	5645	7378	7896	9600	7891

Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Eastern north-south screen line (westbound)								
M4 Western Motorway	West of Mamre Road	Amended Project	2229	2752	3041	3512	2919	3523
		Project as described in EIS <sup>1</sup>	2229	2752	3223	3728	3205	3703
Luddenham Road	West of Mamre Road	Amended Project	178	232	338	447	553	465
		Project as described in EIS <sup>1</sup>	178	232	387	459	677	865
Elizabeth Drive	West of Western Road	Amended Project	555	418	1180	849	1565	1727
		Project as described in EIS <sup>1</sup>	555	418	1079	1206	2123	2152
Bringelly Road	West of Masterfield Street	Amended Project	233	294	945	1554	1225	1432
		Project as described in EIS <sup>1</sup>	233	294	956	1082	1030	1051
Total		Amended Project	3195	3696	5504	6362	6262	7147
		Project as described in EIS <sup>1</sup>	3195	3696	5645	6475	7035	7771



Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Western north-south screen line (eastbound)								
M4 Western Motorway	West of Kent Road	Amended Project	3501	3306	3750	3561	3538	3169
		Project as described in EIS <sup>1</sup>	3501	3306	3339	3566	3793	2801
Lansdowne Road	West of Kent Road	Amended Project	102	114	146	148	165	306
		Project as described in EIS <sup>1</sup>	102	114	169	429	324	533
Elizabeth Drive	West of Luddenham Road	Amended Project	697	546	1055	1509	1608	1717
		Project as described in EIS <sup>1</sup>	697	546	1452	1450	1935	1974
Adams Road	East of The Northern Road	Amended Project	70	74	213	219	153	223
		Project as described in EIS <sup>1</sup>	70	74	132	181	149	180
The Northern Road	West of Mersey Road	Amended Project	567	439	678	657	1016	878
		Project as described in EIS <sup>1</sup>	567	439	741	709	896	915
Total		Amended Project	4937	4479	5842	6094	6480	6293
		Project as described in EIS <sup>1</sup>	4937	4479	5833	6335	7097	6403

Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Western north-south screen line (westbound)								
M4 Western Motorway	West of Kent Road	Amended Project	1949	2422	2503	2899	2330	2912
		Project as described in EIS <sup>1</sup>	1949	2422	2676	3086	2687	3043
Lansdowne Road	West of Kent Road	Amended Project	37	46	64	95	116	93
		Project as described in EIS <sup>1</sup>	37	46	136	180	197	190
Elizabeth Drive	West of Luddenham Road	Amended Project	310	355	263	281	151	264
		Project as described in EIS <sup>1</sup>	310	355	224	390	347	650
Adams Road	East of The Northern Road	Amended Project	8	24	210	126	511	436
		Project as described in EIS <sup>1</sup>	8	24	191	269	535	457
The Northern Road	West of Mersey Road	Amended Project	672	485	1152	1573	1554	1813
		Project as described in EIS <sup>1</sup>	672	485	935	978	1015	961
Total		Amended Project	2976	3332	4192	4974	4662	5518
		Project as described in EIS <sup>1</sup>	2976	3332	4162	4903	4781	5301

Note <sup>1</sup> EIS data from Table 6-8 of the EIS TTAR

Table 6-12 Evening peak 'do minimum' screen line volume summary (east-west screen line)

Road		Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
East-west screen line (southbound)								
M7 Motorway	North of Elizabeth Drive	Amended Project	3078	2577	3724	3556	5059	4451
		Project as described in EIS <sup>1</sup>	3078	2577	3933	3781	4961	4398
Wallgrove Road	North of Elizabeth Drive	Amended Project	929	924	910	872	745	775
		Project as described in EIS <sup>1</sup>	929	924	845	865	843	917
Cecil Road	North of Elizabeth Drive	Amended Project	189	131	219	167	171	144
		Project as described in EIS <sup>1</sup>	189	131	21	230	17	22
Duff Road	North of Elizabeth Drive	Amended Project	33	28	29	25	118	70
		Project as described in EIS <sup>1</sup>	33	28	203	281	227	239
Mamre Road	North of Elizabeth Drive	Amended Project	869	682	1626	1714	878	1055
		Project as described in EIS <sup>1</sup>	869	682	1974	1877	1004	877
Devonshire Road	North of Elizabeth Drive	Amended Project	N/A	N/A	N/A	N/A	1106	913
		Project as described in EIS <sup>1</sup>	N/A	N/A	N/A	N/A	872	946



Road		Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Luddenham Road	North of Elizabeth Drive	Amended Project	270	299	508	492	942	925
		Project as described in EIS <sup>1</sup>	270	299	670	675	1055	1019
The Northern Road	North of Elizabeth Drive	Amended Project	791	723	1617	1530	1831	1891
		Project as described in EIS <sup>1</sup>	791	723	1052	948	1718	1767
Total		Amended Project	6159	5364	8633	8356	10,850	10,224
		Project as described in EIS <sup>1</sup>	6159	5364	8698	8657	10,697	10,185
East-west screen line (northbound)								
M7 Motorway	North of Elizabeth Drive	Amended Project	3088	2631	2992	2836	3840	3603
		Project as described in EIS <sup>1</sup>	3088	2631	2923	2496	3976	4128
Wallgrove Road	North of Elizabeth Drive	Amended Project	344	421	439	440	426	431
		Project as described in EIS <sup>1</sup>	344	421	500	676	340	323
Cecil Road	North of Elizabeth Drive	Amended Project	153	137	35	20	35	9
		Project as described in EIS <sup>1</sup>	153	137	88	92	42	1

Road		Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Duff Road	North of Elizabeth Drive	Amended Project	120	97	185	199	240	168
		Project as described in EIS <sup>1</sup>	120	97	187	119	208	193
Mamre Road	North of Elizabeth Drive	Amended Project	632	543	1001	929	274	265
		Project as described in EIS <sup>1</sup>	632	543	1091	1152	407	396
Devonshire Road	North of Elizabeth Drive	Amended Project	N/A	N/A	N/A	N/A	831	749
		Project as described in EIS <sup>1</sup>	N/A	N/A	N/A	N/A	1316	1724
Luddenham Road	North of Elizabeth Drive	Amended Project	162	184	695	738	600	576
		Project as described in EIS <sup>1</sup>	162	184	726	802	934	563
The Northern Road	North of Elizabeth Drive	Amended Project	983	829	1379	1284	1814	1746
		Project as described in EIS <sup>1</sup>	983	829	2053	2108	1992	2302
Total		Amended Project	5482	4842	6726	6446	8060	7547
		Project as described in EIS <sup>1</sup>	5482	4842	7568	7445	9215	9630

Note <sup>1</sup>EIS data from Table 6-9 of the EIS TTAR

Table 6-13 Evening peak 'do minimum' screen line volume summary (north-south screen line)

Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Eastern north-south screen line (eastbound)								
M4 Western Motorway	West of Mamre Road	Amended Project	2787	2633	3685	3567	4086	4127
		Project as described in EIS <sup>1</sup>	2787	2633	4307	4018	5217	5041
Luddenham Road	West of Mamre Road	Amended Project	201	172	889	905	889	702
		Project as described in EIS <sup>1</sup>	201	172	1077	1011	1227	625
Elizabeth Drive	West of Western Road	Amended Project	408	351	533	503	1121	1158
		Project as described in EIS <sup>1</sup>	408	351	607	480	1793	2258
Bringelly Road	West of Masterfield Street	Amended Project	373	401	968	1013	1618	1502
		Project as described in EIS <sup>1</sup>	373	401	1700	1776	1774	1893
Total		Amended Project	3769	3557	6075	5988	7714	7489
		Project as described in EIS <sup>1</sup>	3769	3557	7691	7285	10,011	9817



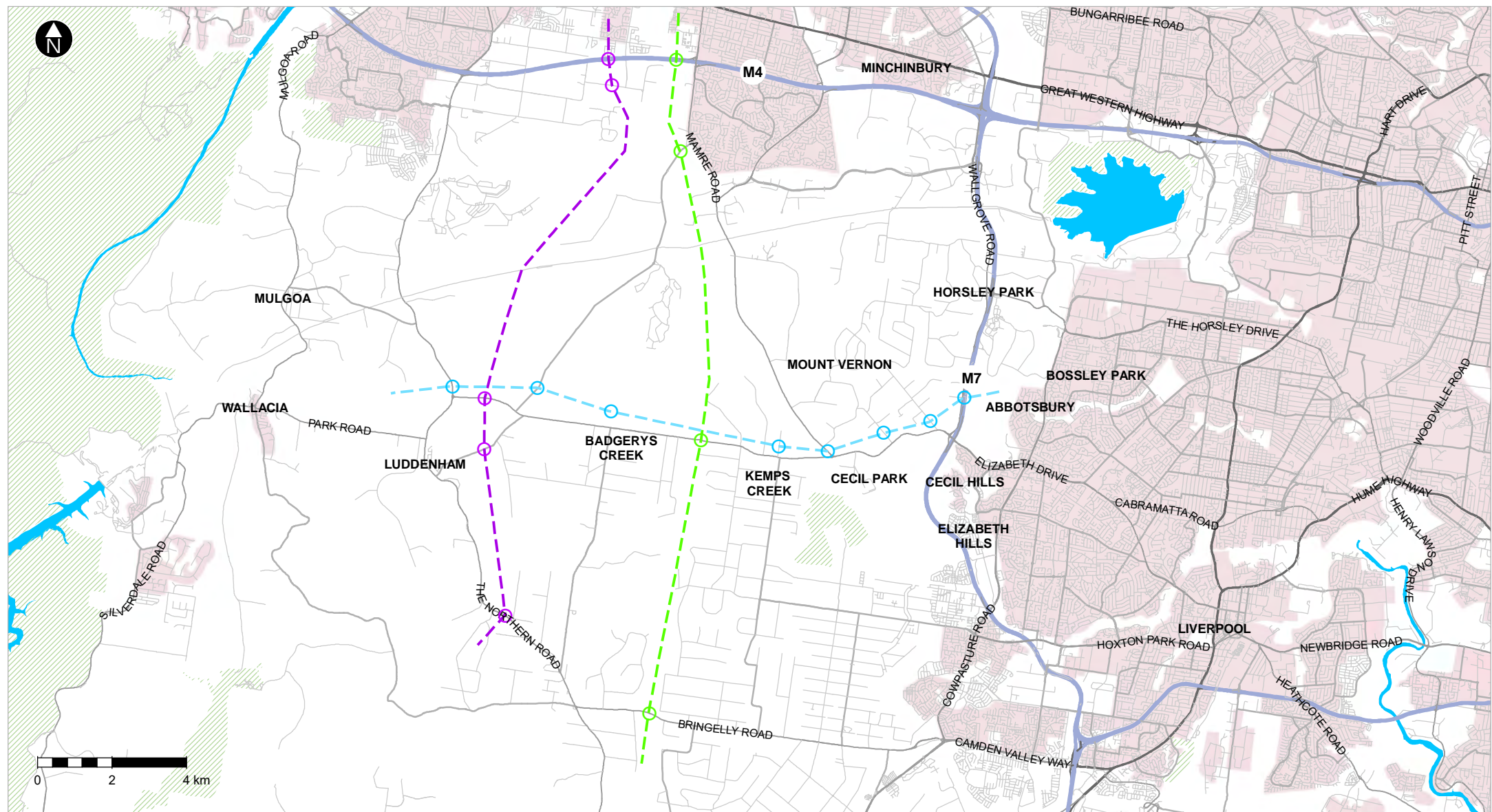
Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Eastern north-south screen line (westbound)								
M4 Western Motorway	West of Mamre Road	Amended Project	4163	4512	5004	5410	5173	5440
		Project as described in EIS <sup>1</sup>	4163	4512	5193	5593	5570	6083
Luddenham Road	West of Mamre Road	Amended Project	415	448	704	687	1105	1104
		Project as described in EIS <sup>1</sup>	415	448	940	914	1169	848
Elizabeth Drive	West of Western Road	Amended Project	931	790	967	955	1367	1519
		Project as described in EIS <sup>1</sup>	931	790	1281	1112	2286	2272
Bringelly Road	West of Masterfield Street	Amended Project	675	762	1527	1506	1923	1766
		Project as described in EIS <sup>1</sup>	675	762	1851	2,225	1409	1563
Total		Amended Project	6184	6512	8202	8558	9568	9829
		Project as described in EIS <sup>1</sup>	6184	6512	9265	9844	10,434	10,766

Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Western north-south screen line (eastbound)								
M4 Western Motorway	West of Kent Road	Amended Project	2405	2271	2721	2702	2966	2939
		Project as described in EIS <sup>1</sup>	2405	2271	3165	3113	3796	3808
Lansdowne Road	West of Kent Road	Amended Project	74	85	121	115	216	248
		Project as described in EIS <sup>1</sup>	74	85	458	408	637	631
Elizabeth Drive	West of Luddenham Road	Amended Project	235	322	442	518	650	767
		Project as described in EIS <sup>1</sup>	235	322	369	447	1096	1349
Adams Road	East of The Northern Road	Amended Project	42	26	66	44	138	172
		Project as described in EIS <sup>1</sup>	42	26	77	188	199	230
The Northern Road	West of Mersey Road	Amended Project	655	698	1375	1203	1661	1676
		Project as described in EIS <sup>1</sup>	655	698	896	829	1543	1544
Total		Amended Project	3411	3402	4725	4582	5631	5802
		Project as described in EIS <sup>1</sup>	3411	3402	4965	4985	7271	7562

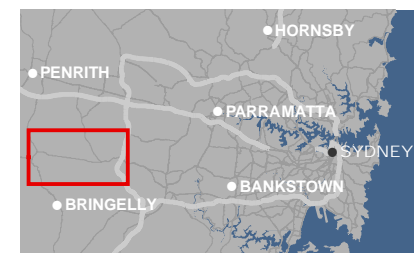
Road	Location	Amended project or project as described in the EIS	Number of vehicles					
			2017 base		2026 'do minimum'		2036 'do minimum'	
			4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Western north-south screen line (westbound)								
M4 Western Motorway	West of Kent Road	Amended Project	3686	3974	4227	4525	4349	4475
		Project as described in EIS <sup>1</sup>	3686	3974	4309	4594	4723	5080
Lansdowne Road	West of Kent Road	Amended Project	124	142	177	191	246	287
		Project as described in EIS <sup>1</sup>	124	142	196	247	275	303
Elizabeth Drive	West of Luddenham Road	Amended Project	560	535	633	625	1158	1206
		Project as described in EIS <sup>1</sup>	560	535	1012	1032	1669	1873
Adams Road	East of The Northern Road	Amended Project	59	111	64	96	485	675
		Project as described in EIS <sup>1</sup>	59	111	140	156	722	911
The Northern Road	West of Mersey Road	Amended Project	689	650	1006	1012	1039	959
		Project as described in EIS <sup>1</sup>	689	650	1543	1638	996	1145
Total		Amended Project	5118	5412	6107	6449	7277	7602
		Project as described in EIS <sup>1</sup>	5118	5412	7200	7667	8385	9312

Note <sup>1</sup>EIS data from Table 6-10 of the EIS TTAR





- East-West Screen Line
- Eastern North-South Screen Line
- Western North-South Screen Line



**Figure 6-5** M12 Motorway screen line locations

## Performance of amended project

Analysis of the 'do minimum' traffic volumes across each of the screen lines shows the following:

- Total north-south traffic volumes across the study area are forecast to increase by over 50 per cent between 2017 and 2036. The majority of this growth in north-south traffic would occur on the M7 Motorway, Mamre Road and The Northern Road, which are the primary north-south arterial roads through the study area. This reflects the substantial increase in forecast land use in and around the study area, including the Western Sydney Aerotropolis and the South West Growth Area
- The assumed widening of the M7 Motorway to three lanes by 2036 in each direction (consistent with the traffic modelling in the EIS) would substantially reduce traffic volumes on Mamre Road west of the proposed Devonshire Street connection. As a result of this realignment, the north-south traffic that currently travels between Devonshire Road and Mamre Road would travel directly north-south along the extension of Devonshire Road at a new intersection with Elizabeth Drive
- Traffic volumes along Luddenham Road would increase substantially by 2036, reflective of increased traffic from Western Sydney International Airport and also due to the realignment and connection of Luddenham Road to Adams Road and through to The Northern Road. This creates an alternative route to The Northern Road for trips travelling to the M4 Western Motorway via Mamre Road and the Great Western Highway
- Total east-west traffic volumes are forecast to increase by about 100 per cent by 2036. Most of this growth in east-west traffic would occur on the M4 Western Motorway, Luddenham Road, Elizabeth Drive and Bringelly Road
- Increased traffic volumes along Elizabeth Drive are primarily a result of the Western Sydney Aerotropolis.

## Comparison of amended project to the project as described in the EIS

Comparing the 'do minimum' traffic volumes and 'do minimum' traffic volumes from the EIS TTAR in Table 6-9 to Table 6-12 shows the majority of forecast north-south and east-west traffic volumes are lower. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower as described in Section 3.1. These lower volumes are the main reasons there is improved operational performance for the amended project compared to the project as described in the EIS.

## Changes to heavy vehicle volumes

The Western Sydney International Airport will be a significant attractor of heavy vehicle traffic, generating new freight movements between air and road freight modes. Elizabeth Drive, The Northern Road and M7 Motorway all carry high proportions of heavy vehicles, with heavy vehicles making up between 15 and 20 per cent of daily traffic volumes on these roads.

Freight volumes are likely to increase as a result of general economic growth in western Sydney and across Greater Sydney as described in the *Greater Sydney Region Plan*. A summary of forecast daily heavy vehicle volumes on key roads in the study area for the 2026 and 2036 'do minimum' scenarios is presented in **Table 6-14**. Daily volumes have been presented as heavy vehicles typically avoid travelling during commuter peak periods and are therefore more representative of heavy vehicle demand in the study area.

Table 6-14 Forecast 'do minimum' daily heavy vehicle volumes on key roads in the study area

Road location	Direction	2012 <sup>1</sup> base	2026 'do minimum'	% change from 2012	2036 'do minimum'	% change from 2012
The Northern Road north of Elizabeth Drive	Northbound	600	2560	327%	2940	390%
	Southbound	810	3340	312%	3240	300%
The Northern Road south of Elizabeth Drive	Northbound	620	2130	244%	2520	306%
	Southbound	890	2730	207%	2910	227%
Elizabeth Drive west of Adams Road	Eastbound	180	700	289%	390	117%
	Westbound	240	670	179%	630	163%
Elizabeth Drive west of Devonshire Road	Eastbound	590	1190	102%	990	68%
	Westbound	920	720	-22%	1020	11%
Elizabeth Drive east of Mamre Road	Eastbound	840	1620	93%	1870	123%
	Westbound	1460	1350	-8%	1500	3%
Elizabeth Drive east of Wallgrove Road	Eastbound	1040	1870	80%	2260	117%
	Westbound	1660	1020	-39%	1120	-33%
Mamre Road north of Wallgrove Road	Northbound	390	310	-21%	150	-62%
	Southbound	220	460	109%	700	218%
Wallgrove Road north of Elizabeth Drive	Northbound	430	2070	381%	1940	351%
	Southbound	740	650	-12%	450	-39%

Note <sup>1</sup>WRTM calibrated base year is 2012



### Performance of the amended project

Forecast daily heavy vehicle volumes show substantial growth by 2036 with the highest growth on The Northern Road, Elizabeth Drive and Wallgrove Road. Many of these heavy vehicles will be generated by the Western Sydney International Airport itself as well as adjacent employment areas.

### Comparison of amended project to the project as described in the EIS

Comparing the forecast 'do minimum' daily heavy vehicle volumes in

**Table 6-14** and forecast 'do minimum' daily heavy vehicle volumes in Table 6-11 of the EIS TTAR shows the following differences:

- Volumes on The Northern Road are substantially higher in 2026 and 2036
- Volumes on Elizabeth Drive and Mamre Road are substantially lower in 2036
- Volumes on Wallgrove Road are substantially higher in 2026 and 2036 in the northbound direction only.

### *Changes to network performance*

A summary of network performance statistics for the 2026 and 2036 'do minimum' scenarios is presented in **Table 6-15**.

Table 6-15 'Do minimum' network performance statistics

Network measure	Morning peak			Evening peak		
	2017 base	2026 'do minimum'	2036 'do minimum'	2017 base	2026 'do minimum'	2036 'do minimum'
<b>Network statistics for all vehicles</b>						
Total traffic demand (vehicles)	193,949	252,184	307,926	223,148	291,873	355,643
Total vehicle kilometres travelled through network	1,667,587	2,203,429	2,599,067	1,828,324	2,461,544	2,888,246
Total vehicle travel time through the network (hours)	28,699	43,142	68,597	31,893	50,655	77,562
Average network speed (km/h)	58	53	46	57	52	46
Total vehicles entering the network	196,113	248,430	295,510	227,661	285,957	333,605
<b>Unreleased traffic</b>						
Total unreleased trips	204	241	7484	807	3236	14,293
% of demand unreleased	0%	0%	3%	0%	1%	4%

Table 6-16 'Do minimum' network performance statistics comparison of the project as described in the EIS to the amended project

Network measure	Amended project or project as described in the EIS	Morning peak			Evening peak		
		2017 base	2026 'do minimum'	2036 'do minimum'	2017 base	2026 'do minimum'	2036 'do minimum'
Network statistics for all vehicles							
Total traffic demand (vehicles)	Amended Project	193,949	252,184	307,926	223,148	291,873	355,643
	Project as per EIS <sup>1</sup>	193,949	276,206	344,333	223,148	345,296	455,336
Total vehicle kilometres travelled through network	Amended Project	1,667,587	2,203,429	2,599,067	1,828,324	2,461,544	2,888,246
	Project as per EIS <sup>1</sup>	1,667,587	2,350,227	2,673,216	1,828,324	2,802,008	3,185,503
Total vehicle travel time through the network (hours)	Amended Project	28,699	43,142	68,597	31,893	50,655	77,562
	Project as per EIS <sup>1</sup>	28,699	60,008	74,249	31,893	78,157	96,743
Average network speed (km/h)	Amended Project	58	53	46	57	52	46
	Project as per EIS <sup>1</sup>	58	39	36	57	36	33
Total vehicles entering the network	Amended Project	196,113	248,430	295,510	227,661	285,957	333,605
	Project as per EIS <sup>1</sup>	196,113	268,058	305,541	227,661	332,230	376,363
Unreleased traffic							
Total unreleased trips	Amended Project	204	241	7484	807	3236	14,293
	Project as per EIS <sup>1</sup>	204	10,383	37,133	807	23,351	80,179
% of demand unreleased	Amended Project	0%	0%	3%	0%	1%	4%
	Project as per EIS <sup>1</sup>	0%	4%	11%	0%	7%	18%

Note <sup>1</sup> Table 6-12 and 6-13 of the EIS TTAR



## Performance of the amended project

Analysis of 'do minimum' network performance shows:

- Total traffic demand in the study area is forecast to increase by 59 per cent during the morning peak (from 193,949 vehicles to 307,926 vehicles) and 59 per cent during the afternoon peak (from 223,148 vehicles to 355,643 vehicles) from 2017 to 2036. This is reflective of the large increase in residential land that is planned for release as part of the Western Sydney Aerotropolis and the South West Growth Area, as well as employment land associated with Western Sydney International Airport
- Total travel distance through the study area would increase by 56 per cent during the morning peak (from 1,667,587 kilometres to 2,599,067 kilometres) and 58 per cent during the evening peak (from 1,828,324 kilometres to 2,888,246 kilometres) from 2017 to 2036
- Total travel time through the study area would increase by 139 per cent during the morning peak (from 28,699 hours to 68,597 hours) and 143 per cent during the evening peak (from 31,893 hours to 77,562 hours) from 2017 to 2036
- Average speeds through the study area would decrease by 21 per cent during the morning peak (from 58 kilometres per hour to 46 kilometres per hour) and 19 per cent during the evening peak (from 57 kilometres per hour to 46 kilometres per hour) from 2017 to 2036
- Three per cent (7484 out of 307,926 trips) of forecast demand in the morning peak and four per cent (14,293 out of 355,643 trips) of forecast demand in the evening peak would be unable to enter the network by 2036. This indicates that the future road network would be operating at or near capacity.

## Comparison of amended project to the project as described in the EIS

Comparing the 'do minimum' network performance statistics in **Table 6-15** and 'do minimum' network performance statistics in Table 6-12 and Table 6-13 of the EIS TTAR shows the following differences:

- Total traffic demand, total travel distance and total travel time are lower
- Average speeds are higher
- Total unreleased trips are lower.

These changes reflect the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower as described in **Section 3.1**.

## *Changes to intersection performance*

Modelled intersection performance for the 2026 and 2036 'do minimum' scenarios during the morning and evening peaks is summarised in **Table 6-17**.

Table 6-17 Intersection performance – 2026 and 2036 'do minimum' scenarios

Intersection	Amended project or project as described in the EIS	Morning peak (7.30am to 8.30am)						Evening peak (5.30pm to 6.30pm)					
		2017 base		2026 'do minimum'		2036 'do minimum'		2017 base		2026 'do minimum'		2036 'do minimum'	
		Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / The Northern Road	Amended Project	12	A	43	D	55	D	11	A	41	C	31	C
	Project as per EIS <sup>1</sup>	12	A	67	E	183	F	11	A	51	D	64	E
Elizabeth Drive / Luddenham Road	Amended Project	13	A	46	D	66	E	18	B	44	D	55	D
	Project as per EIS <sup>1</sup>	13	A	77	F	41	C	18	B	179	F	66	E
Elizabeth Drive / Business Park East	Amended Project	N/A	N/A	36	C	32	C	N/A	N/A	30	C	28	B
	Project as per EIS <sup>1</sup>	N/A	N/A	30	C	33	C	N/A	N/A	33	C	34	C
Elizabeth Drive / Business Park West	Amended Project	N/A	N/A	30	C	66	E	N/A	N/A	26	B	33	C
	Project as per EIS <sup>1</sup>	N/A	N/A	25	B	120	F	N/A	N/A	31	C	31	C

Intersection	Amended project or project as described in the EIS	Morning peak (7.30am to 8.30am)						Evening peak (5.30pm to 6.30pm)					
		2017 base		2026 'do minimum'		2036 'do minimum'		2017 base		2026 'do minimum'		2036 'do minimum'	
		Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / Martin Road	Amended Project	9	A	47	D	155	F	12	A	32	C	40	C
	Project as per EIS <sup>1</sup>	9	A	36	C	44	D	12	A	85	F	48	D
Elizabeth Drive / Western Road	Amended Project	14	A	38	C	171	F	9	A	32	C	36	C
	Project as per EIS <sup>1</sup>	14	A	61	E	42	C	9	A	390	F	45	D
Elizabeth Drive / Devonshire Road	Amended Project	13	A	35	C	60	E	12	A	27	B	59	E
	Project as per EIS <sup>1</sup>	13	A	126	F	80	F	12	A	166	F	73	F
Elizabeth Drive / Mamre Road	Amended Project	14	A	75	F	33	C	14	A	36	C	35	C
	Project as per EIS <sup>1</sup>	14	A	190	F	36	C	14	A	56	D	38	C



Intersection	Amended project or project as described in the EIS	Morning peak (7.30am to 8.30am)						Evening peak (5.30pm to 6.30pm)					
		2017 base		2026 'do minimum'		2036 'do minimum'		2017 base		2026 'do minimum'		2036 'do minimum'	
		Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / Duff Road	Amended Project	12	A	18	B	18	B	9	A	14	A	20	B
	Project as per EIS <sup>1</sup>	12	A	17	B	23	B	9	A	119	F	26	B
Elizabeth Drive / Wallgrove Road	Amended Project	31	C	32	C	98	F	48	D	58	E	71	F
	Project as per EIS <sup>1</sup>	31	C	45	D	74	F	48	D	117	F	110	F
Elizabeth Drive / M7 Motorway	Amended Project	20	B	257	F	339	F	17	B	294	F	283	F
	Project as per EIS <sup>1</sup>	20	B	260	F	283	F	17	B	267	F	216	F

Note <sup>1</sup> Table 6-14 and 6-15 of the EIS TTAR

## Performance of the amended project

Analysis of 'do minimum' intersection performance shows:

- In the 2026 'do minimum' scenario, the following intersections would perform poorly at Level of Service E or F:
  - Elizabeth Drive / Mamre Road – Level of Service F in the morning peak
  - Elizabeth Drive / Wallgrove Road – Level of Service E in the evening peak
  - Elizabeth Drive / M7 Motorway – Level of Service F in the morning and evening peaks.
- In the 2036 'do minimum' scenario, the following intersections would perform poorly at Level of Service E or F:
  - Elizabeth Drive / Luddenham Road – Level of Service E in the morning peak
  - Elizabeth Drive / Business Park West – Level of Service E in the morning peak
  - Elizabeth Drive / Martin Road – Level of Service F in the morning peak
  - Elizabeth Drive / Western Road – Level of Service F in the morning peak
  - Elizabeth Drive / Devonshire Road – Level of Service E in the morning and evening peaks
  - Elizabeth Drive / Wallgrove Road – Level of Service F in the morning and evening peaks
  - Elizabeth Drive / M7 Motorway – Level of Service F in the morning and evening peaks.
- The assumed widening of Elizabeth Drive to two lanes in each direction between Mamre Road and the M7 Motorway, as well as the proposed upgrade of the Elizabeth Drive / Mamre Road roundabout to traffic signals, would improve intersection performance along this section. However, capacity limitations at the M7 Motorway interchange would still result in unsatisfactory performance of intersections on the eastern end of Elizabeth Drive in the vicinity of the M7 Motorway.
- The proposed eastern and western business park accesses would have sufficient capacity to serve the forecast demand into and out of Western Sydney International Airport in 2026. However, by 2036 the western business park access would be operating at an unsatisfactory Level of Service E in the morning peak and would therefore be unable to support the level of growth forecast for Western Sydney International Airport.
- Overall intersection performance under the 'do minimum' scenario indicates that even with assumed upgrades along Elizabeth Drive, the Elizabeth Drive corridor would have insufficient capacity to carry forecast traffic demand associated with Western Sydney International Airport and related land uses.

## Comparison of amended project to the project as described in the EIS

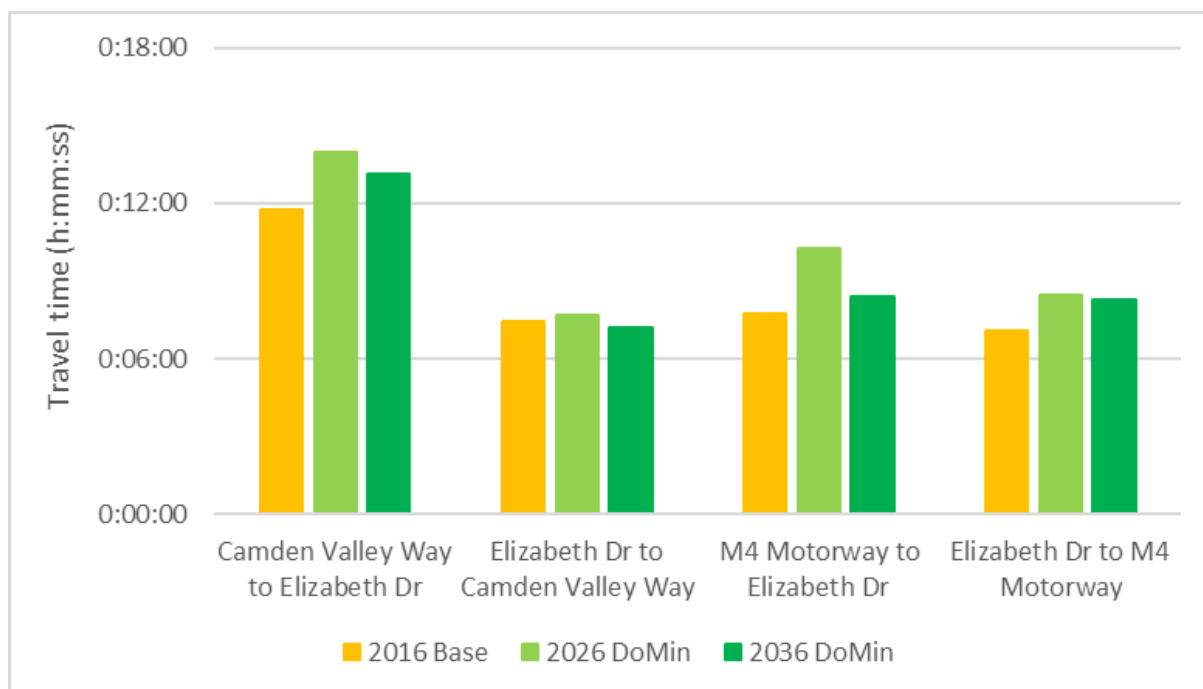
Comparing the 2026 'do minimum' intersection performance in and 2026 'do minimum' intersection performance in the EIS TTAR, the performance of the most intersections improves. There is a slight decline in performance at Elizabeth Drive / Business Park West and Elizabeth Drive / Martin Road in the morning peak.

Comparing the 2036 'do minimum' intersection performance in **Table 6-17** and 2036 'do minimum' intersection performance in the EIS, the performance of most intersections improves. There is a decline at Elizabeth Drive / Luddenham Road, Elizabeth Drive / Martin Road and Elizabeth Drive / Western Road in the morning peak.

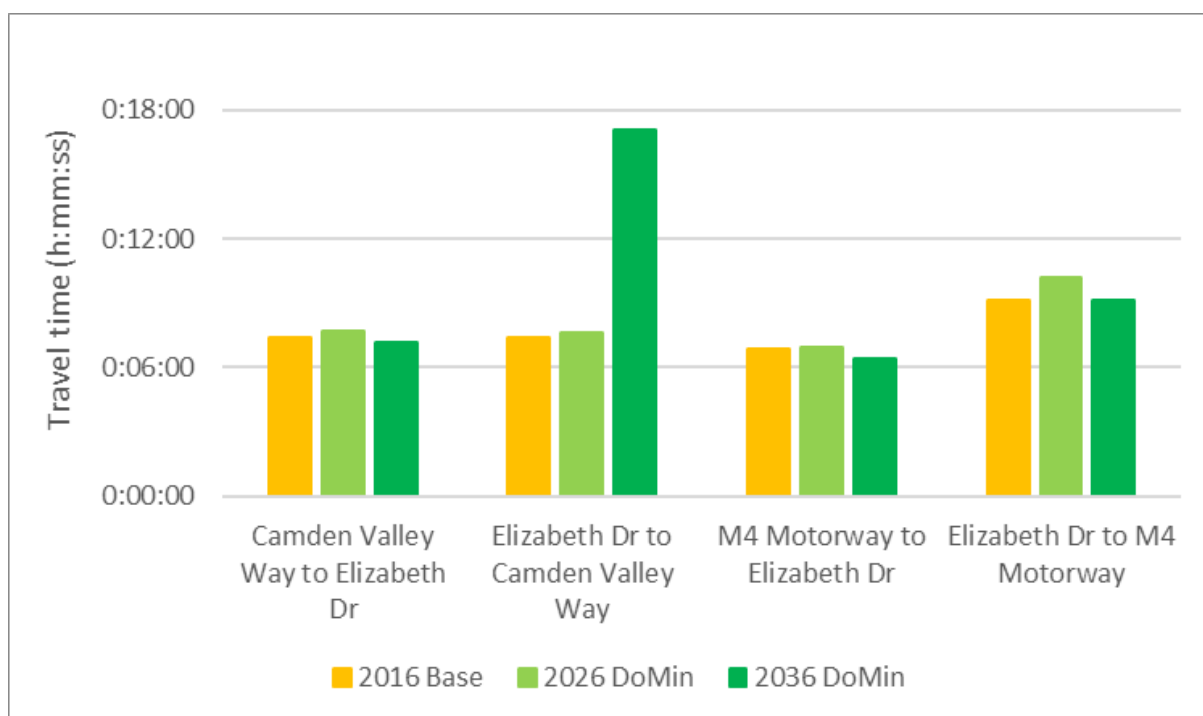
The changes in intersection performance for the 2026 and 2036 'do minimum' scenarios reflect the change to the demand growth in SMPM version 1.1 as described in **Section 3.1** and amended designs for intersections to be upgraded.

### Changes to general traffic travel times

Modelled general traffic travel times on key routes through the study area for the 2026 and 2036 'do minimum' scenarios during the morning and evening peaks are summarised in **Figure 6-6** to **Figure 6-11**.

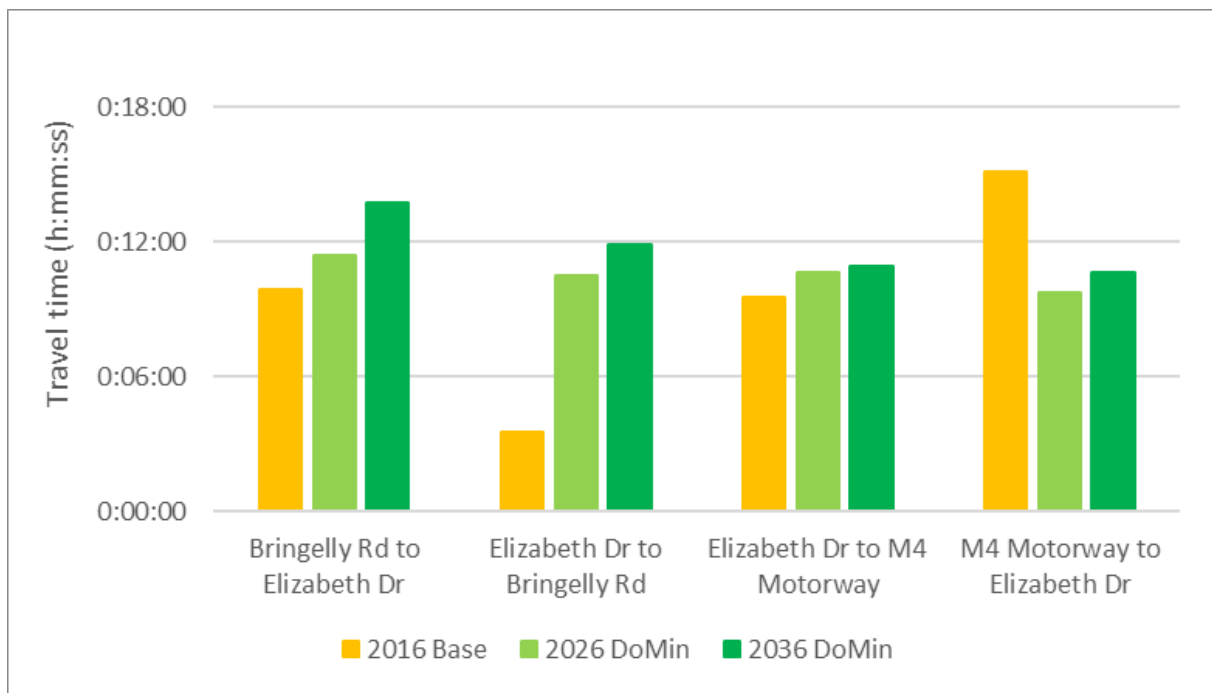


**Figure 6-6** M7 Motorway morning peak travel time (8am to 9am)

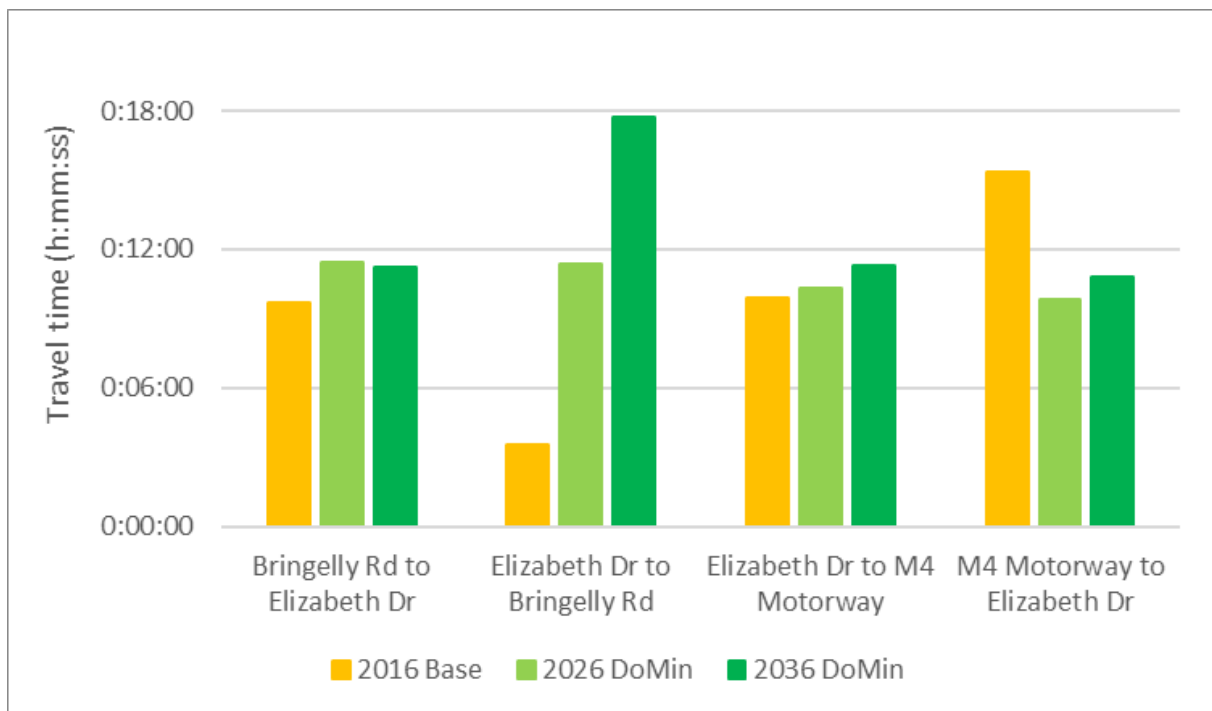


**Figure 6-7** M7 Motorway evening peak travel time (5pm to 6pm)

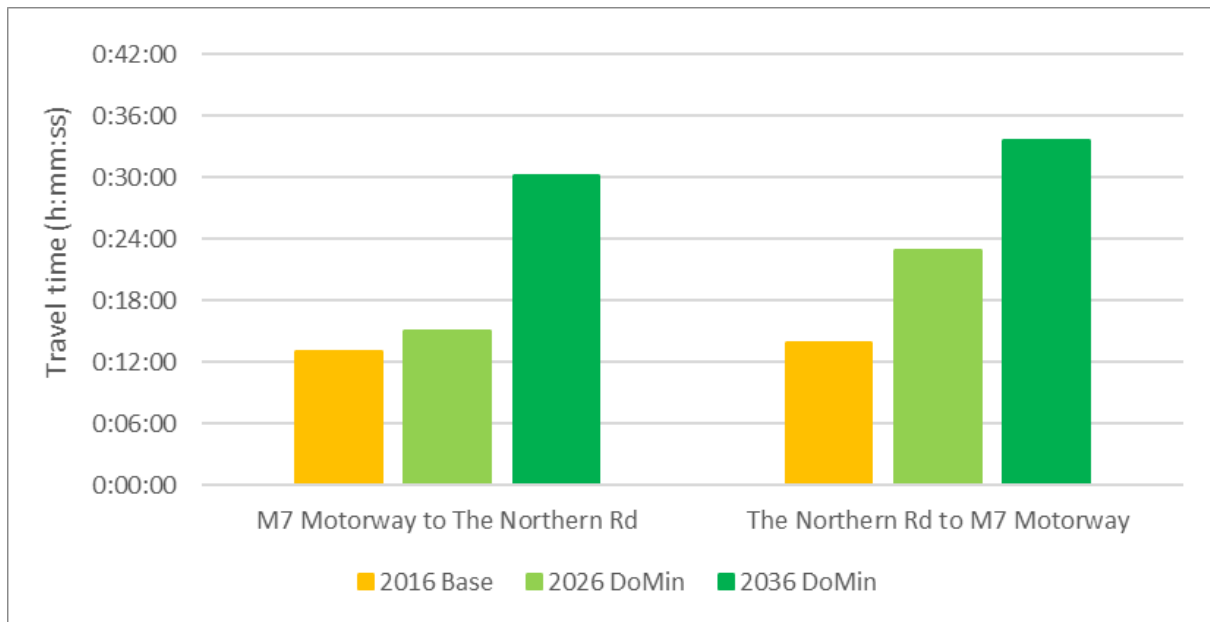




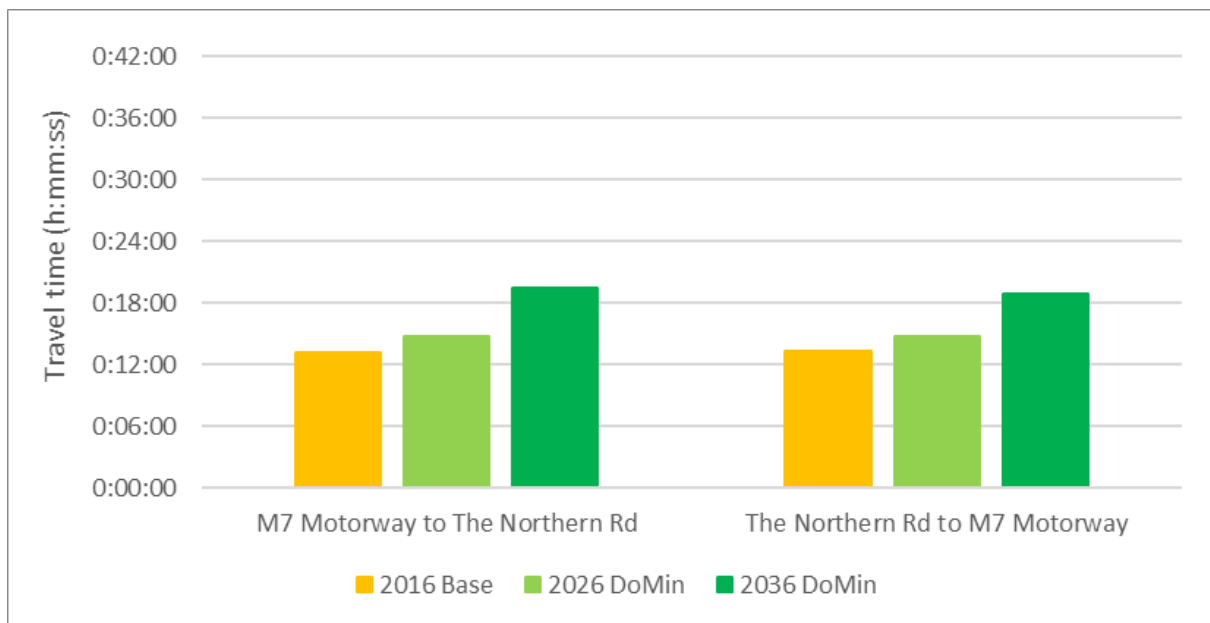
**Figure 6-8** The Northern Road morning peak travel time (8am to 9am)



**Figure 6-9** The Northern Road evening peak travel time (5pm to 6pm)



**Figure 6-10** Elizabeth Drive morning peak travel time (8am to 9am)



**Figure 6-11** Elizabeth Drive evening peak travel time (5pm to 6pm)

### Performance of the amended project

Analysis of 'do minimum' general traffic travel times shows:

- Travel times on the M7 Motorway, particularly in the vicinity of Elizabeth Drive, would increase substantially by 2026. This is a result of existing capacity issues that are currently observed on the M7 Motorway between Hoxton Park Road and Elizabeth Drive where steep grades, particularly northbound on approach to Elizabeth Drive, cause heavy vehicles to slow down. As traffic volumes increase along the M7 Motorway at these locations, increased delays are expected.

- The assumed widening of the M7 Motorway by 2036 would relieve delays associated with heavy vehicle speeds, allowing trucks to remain in the kerbside lane and provide sufficient passing capacity for general traffic. By 2036, the assumed widening of the M7 Motorway would reduce delays and facilitate travel times along this motorway that are in line with existing performance.
- Travel times on The Northern Road would increase in 2026 and 2036. However, this would largely be limited to the approaches to Elizabeth Drive, which would be the primary access route to Western Sydney International Airport from Penrith.
- Eastbound and westbound travel times on Elizabeth Drive would increase substantially, even with localised intersection upgrades in 2026 and widening to four lanes in 2036. These delays are a result of the capacity constraints at the Elizabeth Drive / M7 Motorway interchange, where there is limited scope to increase the capacity of the already constrained double-point interchange. Traffic turning right onto the M7 Motorway from Elizabeth Drive conflicts with through east-west traffic on Elizabeth Drive.

### Comparison of amended project to the project as described in the EIS

Comparing the 'do minimum' general traffic travel times in **Figure 6-6** to **Figure 6-11** and 'do minimum' general traffic travel times in Figure 6-16 to Figure 6-21 of the EIS TTAR shows the majority of travel times are similar or lower for the amended project. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower as described in **Section 3.1**.

## 6.2.2 Assessment of impacts with the project

### *Changes to regional road network volumes*

'With amended project' scenario traffic volume forecasts for key strategic roads in the study area are provided in **Table 6-18** to **Table 6-21**. Taken as groups, these locations define three major 'screen lines' that can be used to compare the changes in directional and two-way demands across the study area at a strategic level. The screen lines are shown in **Figure 6-12**.



Table 6-18 Morning peak 'with amended project' screen line volume summary (east-west screen line)

Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
East-west screen line (southbound)																	
M7 Motorway	North of Elizabeth Drive	3127	2527	3153	2881	3272	3045	3193	2963	3949	3513	4130	3811	4386	4135	4387	4161
Wallgrove Road	North of Elizabeth Drive	201	171	162	204	333	270	403	302	206	201	164	182	N/A	N/A	351	311
Cecil Road	North of Elizabeth Drive	138	125	225	271	149	159	196	216	201	87	251	327	435	516	466	510
Duff Road	North of Elizabeth Drive	64	70	92	71	41	43	72	75	91	131	120	83	17	8	26	17
Mamre Road	North of Elizabeth Drive	1169	1323	1103	1118	892	976	816	841	660	730	545	521	440	295	442	383
Devonshire Road	North of Elizabeth Drive	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	958	981	608	621	522	520	548	507
M12 Motorway	North of Elizabeth Drive	N/A	N/A	579	568	569	588	773	778	N/A	N/A	1438	1574	1585	1697	1898	1934
Luddenham Road	North of Elizabeth Drive	244	339	261	386	388	431	397	468	398	436	629	797	542	627	528	602
The Northern Road	North of Elizabeth Drive	1200	1324	1129	1083	733	834	748	725	1577	1602	1529	1625	1029	1135	1032	1099
Total		6143	5879	6704	6582	6377	6346	6598	6368	8040	7681	9414	9541	8956	8933	9678	9524

Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
East-west screen line (northbound)																	
M7 Motorway	North of Elizabeth Drive	1375	975	2722	3824	3654	3598	3640	3,702	4662	4522	4971	4473	5203	5007	5248	5326
Wallgrove Road	North of Elizabeth Drive	980	857	935	729	777	707	746	546	782	848	883	919	1002	1105	970	1023
Cecil Road	North of Elizabeth Drive	12	47	24	22	132	113	173	185	35	34	33	60	129	120	120	152
Duff Road	North of Elizabeth Drive	172	177	184	187	116	70	108	60	142	112	145	164	176	159	171	143
Mamre Road	North of Elizabeth Drive	1085	1168	1244	1232	1035	1148	967	1264	232	231	341	298	249	388	266	272
Devonshire Road	North of Elizabeth Drive	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1090	1010	1172	1340	1324	1375	1337	1486
M12 Motorway	North of Elizabeth Drive	N/A	N/A	237	326	409	423	460	468	N/A	N/A	1074	1008	984	1043	1015	1080
Luddenham Road	North of Elizabeth Drive	800	1334	1023	1214	660	969	600	826	976	749	840	982	694	810	693	777
The Northern Road	North of Elizabeth Drive	1133	1262	1179	1432	1083	1251	1166	1417	1384	1485	1170	1257	1507	1622	1836	1861
Total		5557	5820	7548	8966	7866	8279	7860	8468	9303	8991	10,629	10,501	11,268	11,629	11,656	12,120

Note <sup>1</sup> Table 6-16 of the EIS TTAR

Table 6-19 Morning peak 'with amended project' screen line volume summary (north-south screen line)

Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Eastern north-south screen line (eastbound)																	
M4 Western Motorway	West of Mamre Road	4430	4252	4487	4052	4353	4535	4555	4788	4005	3630	4189	3730	4936	4112	4846	4361
Luddenham Road	West of Mamre Road	926	1242	1035	1246	833	1066	787	940	1318	1086	1059	1059	1064	995	1069	974
M12 Motorway	West of Mamre Road	N/A	N/A	960	1356	638	823	975	1215	N/A	N/A	1881	1921	1471	1745	2043	2351
Elizabeth Drive	West of Western Road	984	1046	704	790	779	777	623	460	636	916	1339	1538	874	993	628	694
Bringelly Road	West of Masterfield Street	1021	980	1205	1182	965	938	1014	922	2429	2438	2054	1808	2357	2428	2227	2282
Total		7361	7520	8391	8626	7568	8139	7954	8325	8388	8070	10,522	10,056	10,702	10,273	10,813	10,662



Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS¹		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS¹		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Eastern north-south screen line (westbound)																	
M4 Western Motorway	West of Mamre Road	3041	3512	3147	3680	2900	3354	2783	3253	2919	3523	3354	3727	3153	3698	3096	3565
Luddenham Road	West of Mamre Road	338	447	344	448	495	516	498	569	553	465	725	812	628	659	611	643
M12 Motorway	West of Mamre Road	N/A	N/A	474	468	432	518	866	895	N/A	N/A	1092	1174	1177	1259	1779	1842
Elizabeth Drive	West of Western Road	1180	849	918	986	751	735	462	427	1565	1727	1211	1431	1085	1130	708	756
Bringelly Road	West of Masterfield Street	945	1554	929	1116	767	895	750	830	1225	1432	917	1072	1203	1137	1229	1210
Total		5504	6362	5812	6698	5345	6018	5359	5974	6262	7147	7299	8216	7246	7883	7423	8016
Western north-south screen line (eastbound)																	
M4 Western Motorway	West of Kent Road	3750	3561	3673	3437	3652	3548	3552	3548	3538	3169	3360	3123	3828	3601	3740	3659
Lansdowne Road	West of Kent Road	146	148	167	396	140	158	138	153	165	306	274	413	204	224	194	203

Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
M12 Motorway	West of Luddenham Road	N/A	N/A	1050	1345	N/A	N/A	913	1154	N/A	N/A	1696	1798	N/A	N/A	1923	2150
Elizabeth Drive	West of Luddenham Road	1055	1509	886	819	585	728	414	450	1608	1717	1472	1728	814	987	582	724
Adams Road	East of The Northern Road	213	219	188	208	157	172	164	158	153	223	184	192	380	390	373	397
The Northern Road	West of Mersey Road	678	657	678	654	617	607	628	593	1016	878	832	1009	866	784	845	823
<b>Total</b>		<b>5842</b>	<b>6094</b>	<b>6642</b>	<b>6859</b>	<b>5151</b>	<b>5213</b>	<b>5809</b>	<b>6056</b>	<b>6480</b>	<b>6293</b>	<b>7818</b>	<b>8263</b>	<b>6092</b>	<b>5986</b>	<b>7657</b>	<b>7956</b>
Western north-south screen line (westbound)																	
M4 Western Motorway	West of Kent Road	2503	2899	2609	3049	2413	2747	2284	2650	2330	2912	2791	3072	2577	3006	2515	2888
Lansdowne Road	West of Kent Road	64	95	136	182	49	89	54	86	116	93	190	217	139	153	135	155
M12 Motorway	West of Luddenham Road	N/A	N/A	196	207	N/A	N/A	447	529	N/A	N/A	497	495	N/A	N/A	739	794

Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am	7am to 8am	8am to 9am
Elizabeth Drive	West of Luddenham Road	263	281	367	333	226	285	161	230	151	264	351	373	241	290	216	250
Adams Road	East of The Northern Road	210	126	59	204	104	130	99	117	511	436	336	651	254	374	194	263
The Northern Road	West of Mersey Road	1152	1573	999	1228	1011	1082	1001	1125	1554	1813	947	1075	1660	1508	1799	1715
<b>Total</b>		<b>4192</b>	<b>4974</b>	<b>4366</b>	<b>5203</b>	<b>3803</b>	<b>4333</b>	<b>4046</b>	<b>4737</b>	<b>4662</b>	<b>5518</b>	<b>5112</b>	<b>5883</b>	<b>4871</b>	<b>5331</b>	<b>5598</b>	<b>6065</b>

Note <sup>1</sup>Table 6-19 of the EIS TTAR

Table 6-20 Evening peak 'with amended project' screen line volume summary (north-south screen line)

Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS¹		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS¹		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
East-west screen line (southbound)																	
M7 Motorway	North of Elizabeth Drive	3724	3556	3865	3842	3767	3363	3657	3459	5059	4451	4925	4372	5480	5522	5519	5283
Wallgrove Road	North of Elizabeth Drive	910	872	649	785	1087	1000	1193	1053	745	775	777	797	N/A	N/A	982	1000
Cecil Road	North of Elizabeth Drive	219	167	77	71	431	385	633	501	171	144	13	50	453	530	1192	1165
Duff Road	North of Elizabeth Drive	29	25	143	122	27	24	45	45	118	70	205	211	255	236	57	58
Mamre Road	North of Elizabeth Drive	1626	1714	1889	2015	1409	1386	1423	1401	878	1055	1042	912	952	952	703	809
Devonshire Road	North of Elizabeth Drive	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1106	913	821	861	1091	1022	1053	952
M12 Motorway	North of Elizabeth Drive	N/A	N/A	300	333	429	433	552	530	N/A	N/A	793	857	770	903	928	1012
Luddenham Road	North of Elizabeth Drive	508	492	714	730	721	677	662	713	942	925	938	905	900	845	816	799



Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
The Northern Road	North of Elizabeth Drive	1617	1530	918	849	1492	1378	1488	1488	1831	1891	1843	1809	1604	1736	1950	2018
<b>Total</b>		<b>8633</b>	<b>8356</b>	<b>8555</b>	<b>8747</b>	<b>9363</b>	<b>8646</b>	<b>9653</b>	<b>9190</b>	<b>10,850</b>	<b>10,224</b>	<b>11,357</b>	<b>10,774</b>	<b>11,505</b>	<b>11,746</b>	<b>13,200</b>	<b>13,096</b>
East-west screen line (northbound)																	
M7 Motorway	North of Elizabeth Drive	2992	2836	3460	2921	3485	3301	3511	3338	3840	3603	4697	4540	4296	4249	4358	4243
Wallgrove Road	North of Elizabeth Drive	439	440	464	455	555	424	562	417	426	431	439	540	601	499	544	490
Cecil Road	North of Elizabeth Drive	35	20	25	27	138	161	149	187	35	9	45	25	120	133	150	157
Duff Road	North of Elizabeth Drive	185	199	184	193	110	117	104	100	240	168	278	212	240	186	211	136
Mamre Road	North of Elizabeth Drive	1001	929	1239	1249	991	908	976	908	274	265	246	317	280	258	298	231
Devonshire Road	North of Elizabeth Drive	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	831	749	1222	1297	991	905	909	886
M12 Motorway	North of Elizabeth Drive	N/A	N/A	491	427	557	543	746	696	N/A	N/A	1844	1797	1410	1529	1664	1713

Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Luddenham Road	North of Elizabeth Drive	695	738	720	757	479	485	422	463	600	576	671	738	569	550	588	574
The Northern Road	North of Elizabeth Drive	1379	1284	2174	2040	1079	991	1037	1000	1814	1746	2193	1844	1326	1171	1245	1209
<b>Total</b>		<b>6726</b>	<b>6446</b>	<b>8757</b>	<b>8069</b>	<b>7394</b>	<b>6930</b>	<b>7507</b>	<b>7109</b>	<b>8060</b>	<b>7547</b>	<b>11,635</b>	<b>11,310</b>	<b>9833</b>	<b>9480</b>	<b>9967</b>	<b>9639</b>

Note <sup>1</sup>Table 6-20 of the EIS TTAR

Table 6-21 Evening peak 'with amended project' screen line volume summary (north-south screen line)

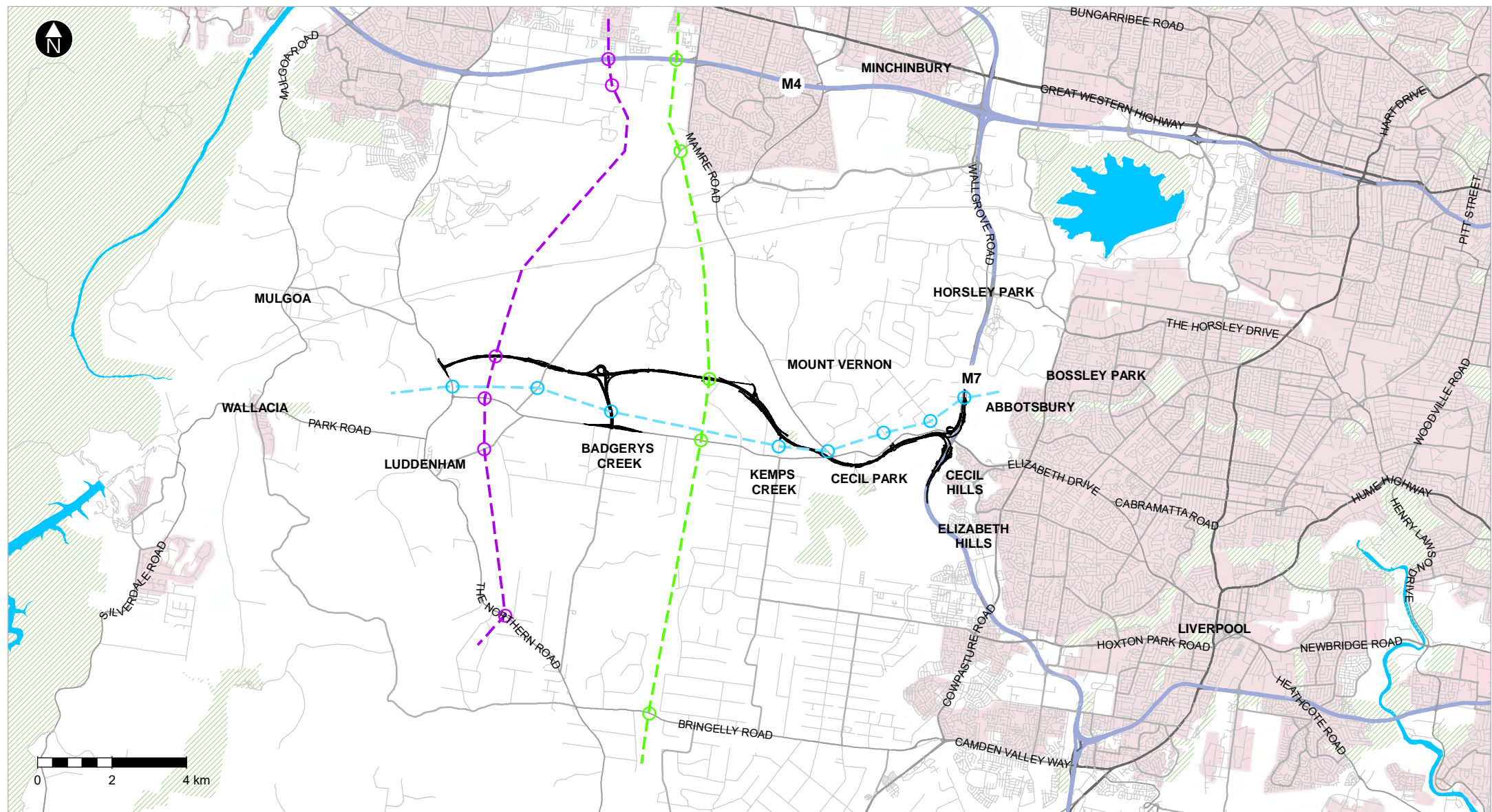
Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Eastern north-south screen line (eastbound)																	
M4 Western Motorway	West of Mamre Road	3685	3567	4054	4076	3574	3508	3572	3496	4086	4127	5178	4877	4227	4138	4227	4147
Luddenham Road	West of Mamre Road	889	905	953	942	652	611	583	580	889	702	967	760	761	662	753	691
M12 Motorway	West of Mamre Road	N/A	N/A	1014	802	449	444	743	677	N/A	N/A	2236	1997	1253	1254	1642	1562
Elizabeth Drive	West of Western Road	533	503	618	534	854	758	639	559	1121	1158	1321	1470	1125	1204	802	880
Bringelly Road	West of Masterfield Street	968	1013	1487	1597	687	759	678	725	1618	1502	2018	1435	1706	1449	1688	1447
Total		6075	5988	8126	7951	6216	6080	6215	6037	7714	7489	11,720	10,539	9072	8707	9112	8727
Eastern north-south screen line (westbound)																	
M4 Western Motorway	West of Mamre Road	5004	5410	5357	5602	5143	5342	5003	5221	5173	5440	5654	5898	5357	5646	5246	5622
Luddenham Road	West of Mamre Road	704	687	851	923	967	756	913	773	1105	1104	1016	857	982	1011	882	982
M12 Motorway	West of Mamre Road	N/A	N/A	582	751	744	782	1219	1153	N/A	N/A	1203	1322	1172	1372	1905	2073

Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Elizabeth Drive	West of Western Road	967	955	1066	1152	953	939	706	678	1367	1519	1778	1777	1087	1052	616	658
Bringelly Road	West of Masterfield Street	1527	1506	1852	1867	1273	1359	1307	1336	1923	1766	1551	1323	1661	1729	1542	1681
<b>Total</b>		<b>8202</b>	<b>8558</b>	<b>9708</b>	<b>10,295</b>	<b>9080</b>	<b>9178</b>	<b>9148</b>	<b>9161</b>	<b>9568</b>	<b>9829</b>	<b>11,202</b>	<b>11,177</b>	<b>10,259</b>	<b>10,810</b>	<b>10,191</b>	<b>11,016</b>
Western north-south screen line (eastbound)																	
M4 Western Motorway	West of Kent Road	2721	2702	3253	3219	2648	2626	2668	2617	2966	2939	3856	3581	3069	3003	3096	3004
Lansdowne Road	West of Kent Road	121	115	402	387	122	133	114	134	216	248	589	569	254	232	240	231
M12 Motorway	West of Luddenham Road	N/A	N/A	586	477	N/A	N/A	420	393	N/A	N/A	1161	1055	N/A	N/A	726	675
Elizabeth Drive	West of Luddenham Road	442	518	370	390	353	382	344	358	650	767	727	821	432	514	462	504
Adams Road	East of The Northern Road	66	44	62	71	37	23	44	23	138	172	257	201	195	176	170	155
The Northern Road	West of Mersey Road	1375	1203	716	716	1304	1208	1177	1183	1661	1676	1,499	1,513	1567	1655	1593	1668
<b>Total</b>		<b>4725</b>	<b>4582</b>	<b>5389</b>	<b>5260</b>	<b>4464</b>	<b>4372</b>	<b>4767</b>	<b>4708</b>	<b>5631</b>	<b>5802</b>	<b>8089</b>	<b>7740</b>	<b>5517</b>	<b>5580</b>	<b>6287</b>	<b>6237</b>

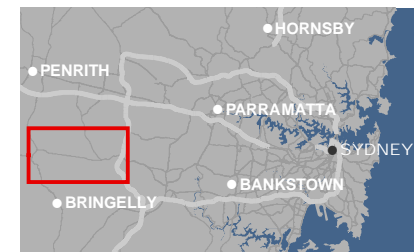


Road	Location	Number of vehicles															
		2026 'do minimum'		2026 'with project' as described in EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as described in EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
		4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm	4pm to 5pm	5pm to 6pm
Western north-south screen line (westbound)																	
M4 Western Motorway	West of Kent Road	4227	4525	4509	4602	4311	4432	4114	4344	4349	4475	4753	4922	4422	4673	4335	4600
Lansdowne Road	West of Kent Road	177	191	231	233	176	180	174	187	246	287	298	284	243	264	233	269
M12 Motorway	West of Luddenham Road	N/A	N/A	354	511	N/A	N/A	1081	1039	N/A	N/A	1243	1271	N/A	N/A	1745	1820
Elizabeth Drive	West of Luddenham Road	633	625	1095	1095	424	461	285	388	1158	1206	1463	1417	692	801	489	517
Adams Road	East of The Northern Road	64	96	80	170	151	205	132	147	485	675	553	746	719	731	545	723
The Northern Road	West of Mersey Road	1006	1012	1327	1272	840	815	831	795	1,039	959	1,172	590	1005	956	995	974
Total		6107	6449	7596	7883	5902	6093	6617	6900	7277	7602	9482	9230	7081	7425	8342	8903

Note <sup>1</sup>Table 6-21 of the EIS TTAR



- The project
- East-West Screen Line
- Eastern North-South Screen Line
- Western North-South Screen Line



**Figure 6-12 M12 Motorway screen line locations (with project)**

## Performance of the amended project

Analysis of the 'with amended project' traffic volumes across each of the screen lines shows the following:

- There would be increased north-south flows across the study area in the morning and evening peak periods due to changes in background demand as detailed in **Table 6-11** and **Table 6-13**. The new M7 Motorway / M12 Motorway interchange would allow for free-flow movement for traffic travelling to and from Western Sydney International Airport via the M12 Motorway instead of through the existing Elizabeth Drive interchange, which would reach capacity by 2026 without the project. By 2036 the amended project would allow a much greater volume of traffic to travel along the M7 Motorway, unimpeded by existing capacity constraints at Elizabeth Drive.
- There would be increased east-west flows east of Western Sydney International Airport in the morning and evening peak periods due to changes in background demand as detailed in **Table 6-10** and **Table 6-12**. The majority of this additional traffic would be along the M12 Motorway. Up to 60 per cent of traffic that would travel along Elizabeth Drive in the 'do minimum' scenarios would transfer to the M12 Motorway, providing additional capacity along Elizabeth Drive.
- The transfer of traffic from Elizabeth Drive to the M12 Motorway would reduce right-turning traffic travelling from Elizabeth Drive to the M7 Motorway at the existing interchange. This would allow more traffic to travel east-west along Elizabeth Drive at the M7 Motorway interchange from the east than would be possible without the amended project.
- Comparing option 1 and option 2, option 2 would result in more traffic using the M12 Motorway and less traffic using Elizabeth Drive. Option 2 would also result in more traffic using Cecil Road and Duff Road. This reflects increased connectivity to the local road network that option 2 provides.

## Comparison of amended project to the project as described in the EIS

Comparing the 'with amended project' traffic volumes in **Table 6-18** to **Table 6-21** and 'with project' traffic volumes in the EIS TTAR shows the following:

- Total north-south and east-west traffic volumes are lower. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower as described in **Section 3.1**
- Traffic volumes on the M7 Motorway are higher. Lower total traffic volumes on the network would allow a much greater volume of traffic to travel along the M7 Motorway, unimpeded by existing capacity constraints at Elizabeth Drive
- Traffic volumes on the M12 Motorway are lower for option 1 and higher for option 2. This reflects increased connectivity to the local road network that option 2 provides.

## Changes to network performance

A summary of network performance statistics for the 2026 and 2036 'with amended project' scenarios is presented in **Table 6-22** (morning peak) and **Table 6-23** (evening peak).

Table 6-22 'With amended project' network performance statistics – morning peak

Network measure	Amended project or project as described in the EIS	2026 'do minimum'	2026 'with amended project' – option 1	2026 'with amended project' – option 2	2036 'do minimum'	2036 'with amended project' – option 1	2036 'with amended project' – option 2
<b>Network statistics for all vehicles</b>							
Total traffic demand (vehicles)	Amended Project	252,184	252,435	252,435	307,926	307,545	307,545
	Project as described in EIS <sup>1</sup>	276,206	269,769	N/A	344,333	338,577	N/A
Total vehicle kilometres travelled through network	Amended Project	2,203,429	2,169,010	2,248,434	2,599,067	2,752,678	2,835,986
	Project as described in EIS <sup>1</sup>	2,350,227	2,414,354	N/A	2,673,216	2,845,037	N/A
Total vehicle travel time through the network (hours)	Amended Project	43,142	42,986	44,825	68,597	67,243	63,605
	Project as described in EIS <sup>1</sup>	60,008	61,348	N/A	74,249	75,995	N/A
Average network speed (km/h)	Amended Project	53	53	53	46	47	50
	Project as described in EIS <sup>1</sup>	39	39	N/A	36	37	N/A
Total vehicles entering the network	Amended Project	248,430	245,297	247,762	295,510	292,703	297,408
	Project as described in EIS <sup>1</sup>	268,058	269,648	N/A	305,541	307,046	N/A
<b>Unreleased traffic</b>							
Total unreleased trips	Amended Project	241	3287	888	7484	9567	5432
	Project as described in EIS <sup>1</sup>	10,383	10,207	N/A	37,133	39,182	N/A
% of demand unreleased	Amended Project	0%	1%	<1%	3%	3%	2%
	Project as described in EIS <sup>1</sup>	4%	4%	N/A	11%	12%	N/A

Note <sup>1</sup> Table 6-22 of the EIS TTAR



Table 6-23 'With amended project network performance statistics – evening peak

Network measure	Amended project or project as described in the EIS	2026 'do minimum'	2026 'with amended project' – option 1	2026 'with amended project' – option 2	2036 'do minimum'	2036 'with amended project' – option 1	2036 'with amended project' – option 2
<b>Network statistics for all vehicles</b>							
Total traffic demand (vehicles)	Amended Project	291,873	292,328	292,328	355,643	355,951	355,951
	Project as described in EIS <sup>1</sup>	345,296	338,126	N/A	455,336	449,659	N/A
Total vehicle kilometres travelled through network	Amended Project	2,461,544	2,537,780	2,537,565	2,888,246	3,093,034	3,110,187
	Project as described in EIS <sup>1</sup>	2,802,008	2,875,652	N/A	3,185,503	3,411,466	N/A
Total vehicle travel time through the network (hours)	Amended Project	50,655	48,702	48,158	77,562	71,620	71,661
	Project as described in EIS <sup>1</sup>	78,157	70,063	N/A	96,743	95,691	N/A
Average network speed (km/h)	Amended Project	52	54	54	46	48	49
	Project as described in EIS <sup>1</sup>	36	41	N/A	33	36	N/A
Total vehicles entering the network	Amended Project	285,957	286,975	286,853	333,605	339,224	340,394
	Project as described in EIS <sup>1</sup>	332,230	328,467	N/A	376,363	378,351	N/A
<b>Unreleased traffic</b>							
Total unreleased trips	Amended Project	3236	1,588	1,679	14,293	10,568	9,588
	Project as described in EIS <sup>1</sup>	23,351	21,866	N/A	80,179	81,972	N/A
% of demand unreleased	Amended Project	1%	<1%	<1%	4%	3%	3%
	Project as described in EIS <sup>1</sup>	7%	6%	N/A	18%	18%	N/A

Note <sup>1</sup> Table 6-23 of the EIS TTAR

## Performance of the amended project

Analysis of 'with amended project' network performance shows:

- Network performance statistics between option 1 and option 2 are very similar, with option 2 performing marginally better than option 1 in the morning peak by 2036
- The amended project would result in total travel distance through the study area increasing by up to nine per cent during the morning peak (from 2,599,067 kilometres to 2,835,986 kilometres for option 2) and up to eight per cent during the evening peak (from 2,888,246 kilometres to 3,110,187 kilometres for option 2) by 2036. This is due to additional travel distance along the M12 Motorway alignment
- The amended project would result in total travel time through the study area decreasing by up to seven per cent during the morning peak (from 68,597 hours to 63,605 hours for option 2) and up to eight per cent during the evening peak (from 77,562 hours to 71,661 hours for option 2) by 2036
- The amended project would result in average speeds through the study area increasing by up to nine per cent during the morning peak (from 46 kilometres per hour to 50 kilometres per hour for option 2) and up to seven per cent during the evening peak (from 46 kilometres per hour to 49 kilometres per hour for option 2) by 2036
- An increase in total travel distance, decrease in total travel time and increase in average speeds shows the amended project would substantially improve traffic conditions in the study area.

## Comparison of amended project to the project as described in the EIS

Comparing the 'with amended project' network performance statistics in **Table 6-22** and **Table 6-23** and 'with amended project' network performance statistics in Table 6-22 and Table 6-23 of the EIS TTAR shows the following differences:

- Total traffic demand, total travel distance and total travel time are lower
- Average speeds are higher
- Total unreleased trips are lower.

These changes reflect the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower as described in **Section 3.1**.

## Changes to intersection performance

Modelled intersection performance for the 2026 and 2036 'with amended project' scenarios during the morning and evening peaks is summarised in **Table 6-24** (morning peak) and **Table 6-25** (evening peak).

Table 6-24 Intersection performance – 2026 and 2036 ‘with amended project’ scenarios – morning peak

Intersection	2026 ‘do minimum’		2026 ‘with project’ as per EIS <sup>1</sup>		2026 ‘with amended project’ – option 1		2026 ‘with amended project’ – option 2		2036 ‘do minimum’		2036 ‘with project’ as per EIS <sup>1</sup>		2036 ‘with amended project’ – option 1		2036 ‘with amended project’ – option 2	
	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / The Northern Road	43	D	59	E	32	C	31	C	55	D	75	F	42	C	39	C
Elizabeth Drive / Luddenham Road	46	D	176	F	44	D	56	D	66	E	52	D	44	D	45	D
Elizabeth Drive / Business Park East	36	C	37	C	33	C	33	C	32	C	30	C	30	C	27	B
Elizabeth Drive / Business Park West	30	C	21	B	22	B	25	B	66	E	19	B	24	B	27	B
Elizabeth Drive / Martin Road	47	D	39	C	25	B	21	B	155	F	34	C	35	C	29	C

Intersection	2026 'do minimum'		2026 'with project' as per EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / Western Road	38	C	35	C	33	C	31	C	171	F	42	C	31	C	25	B
Elizabeth Drive / Devonshire Road	35	C	170	F	38	C	36	C	60	E	73	F	45	D	41	C
Elizabeth Drive / Mamre Road	75	F	324	F	74	F	35	C	33	C	38	C	32	C	30	C
Elizabeth Drive / Duff Road	18	B	16	B	10	A	11	A	18	B	24	B	20	B	18	B
Elizabeth Drive / Wallgrove Road	32	C	84	F	43	C	35	C	98	F	49	D	50	D	29	C
Elizabeth Drive / M7 Motorway	257	F	264	F	26	B	24	B	339	F	271	F	31	C	28	B



Intersection	2026 'do minimum'		2026 'with project' as per EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
The Northern Road / M12 Motorway	N/A	N/A	44	D	28	B	31	C	N/A	N/A	27	B	28	B	31	C

Note <sup>1</sup> Table 6-24 of the EIS TTAR

Table 6-25 Intersection performance – 2026 and 2036 ‘with amended project’ scenarios – evening peak

Intersection	2026 ‘do minimum’		2026 ‘with project’ as per EIS <sup>1</sup>		2026 ‘with amended project’ – option 1		2026 ‘with amended project’ – option 2		2036 ‘do minimum’		2036 ‘with project’ as per EIS <sup>1</sup>		2036 ‘with amended project’ – option 1		2036 ‘with amended project’ – option 2	
	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / The Northern Road	41	C	65	E	40	C	42	C	31	C	71	F	42	C	41	C
Elizabeth Drive / Luddenham Road	44	D	63	E	47	D	45	D	55	D	49	D	53	D	39	C
Elizabeth Drive / Business Park East	30	C	36	C	29	B	30	C	28	B	39	C	28	B	24	B
Elizabeth Drive / Business Park West	26	B	22	B	25	B	26	B	33	C	19	B	23	B	22	B
Elizabeth Drive / Martin Road	32	C	37	C	28	B	29	B	40	C	44	D	36	C	35	C
Elizabeth Drive / Western Road	32	C	32	C	28	B	29	C	36	C	45	D	28	B	22	B
Elizabeth Drive / Devonshire Road	27	B	26	B	23	B	20	B	59	E	88	F	45	D	40	C

Intersection	2026 'do minimum'		2026 'with project' as per EIS <sup>1</sup>		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS <sup>1</sup>		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service	Average delay (secs)	Level of Service
Elizabeth Drive / Mamre Road	36	C	109	F	54	D	33	C	35	C	43	C	40	C	29	B
Elizabeth Drive / Duff Road	14	A	49	D	11	A	10	A	20	B	26	B	20	B	17	B
Elizabeth Drive / Wallgrove Road	58	E	66	E	31	C	36	C	71	F	73	F	40	C	38	C
Elizabeth Drive / M7 Motorway	294	F	278	F	35	C	34	C	283	F	97	F	43	C	42	C
The Northern Road / M12 Motorway	N/A	N/A	46	D	39	C	36	C	N/A	N/A	34	C	41	C	46	D

Note <sup>1</sup> Table 6-25 of the EIS TTAR

## Performance of the amended project

Analysis of 'with amended project' intersection performance shows the following:

- In 2026 the amended project would result in unchanged or improved intersection performance. All intersections would perform at a satisfactory Level of Service with the exception of the Elizabeth Drive / Mamre Road intersection, which would continue to perform poorly at Level of Service F in the morning peak (option 1)
- In 2036 the amended project would result in unchanged or improved intersection performance. All intersections would perform at a satisfactory Level of Service
- The improvements in intersection performance can be attributed to the amended project reducing traffic volumes along Elizabeth Drive, which would reduce delays at intersections along Elizabeth Drive
- Comparing option 1 and option 2, option 2 would result in improved performance at most intersections. Option 2 would result in more traffic using the M12 Motorway and less traffic using Elizabeth Drive compared to option 1, therefore reducing demand and delays along the Elizabeth Drive corridor.

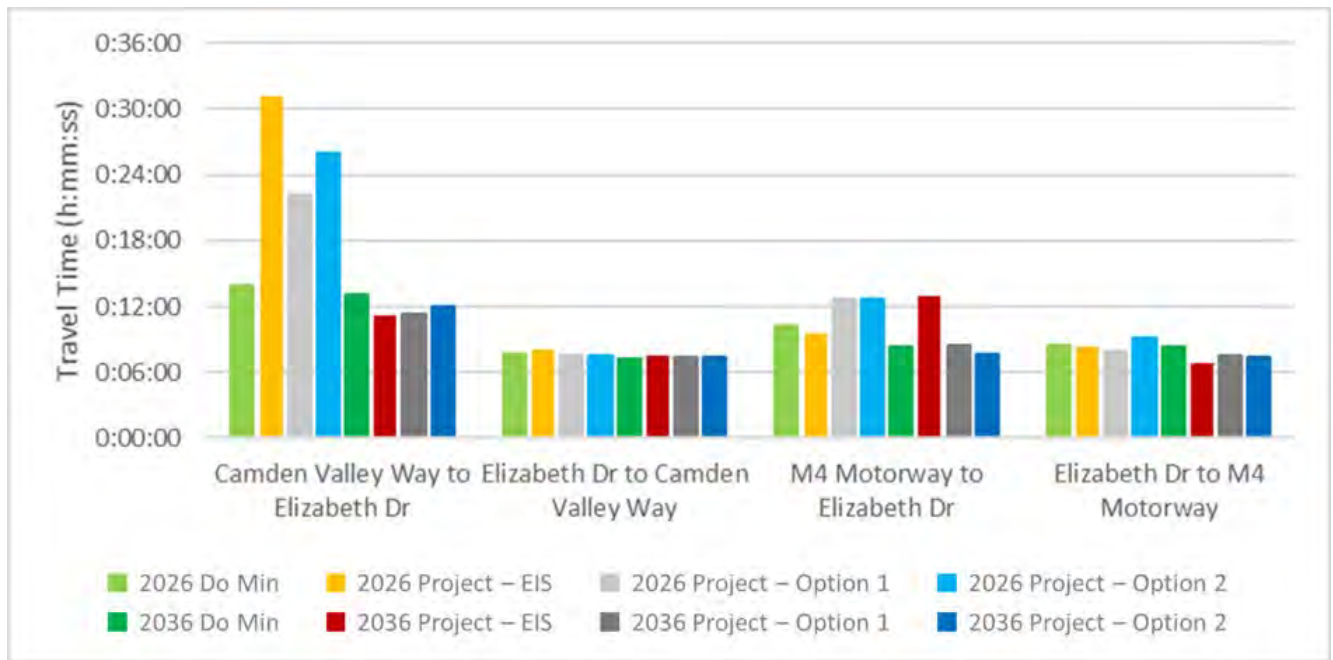
## Comparison of amended project to the project as described in the EIS

Comparing the 2026 and 2036 'with amended project' intersection performance with the EIS performance in **Table 6-24** and **Table 6-25**, all intersections improve with the exception of The Northern Road / M12 Motorway intersection for option 2, which is a result of more traffic using the M12 Motorway. The improvement in performance at other intersections reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower as described in **Section 3.1** and amended designs for intersections to be upgraded.

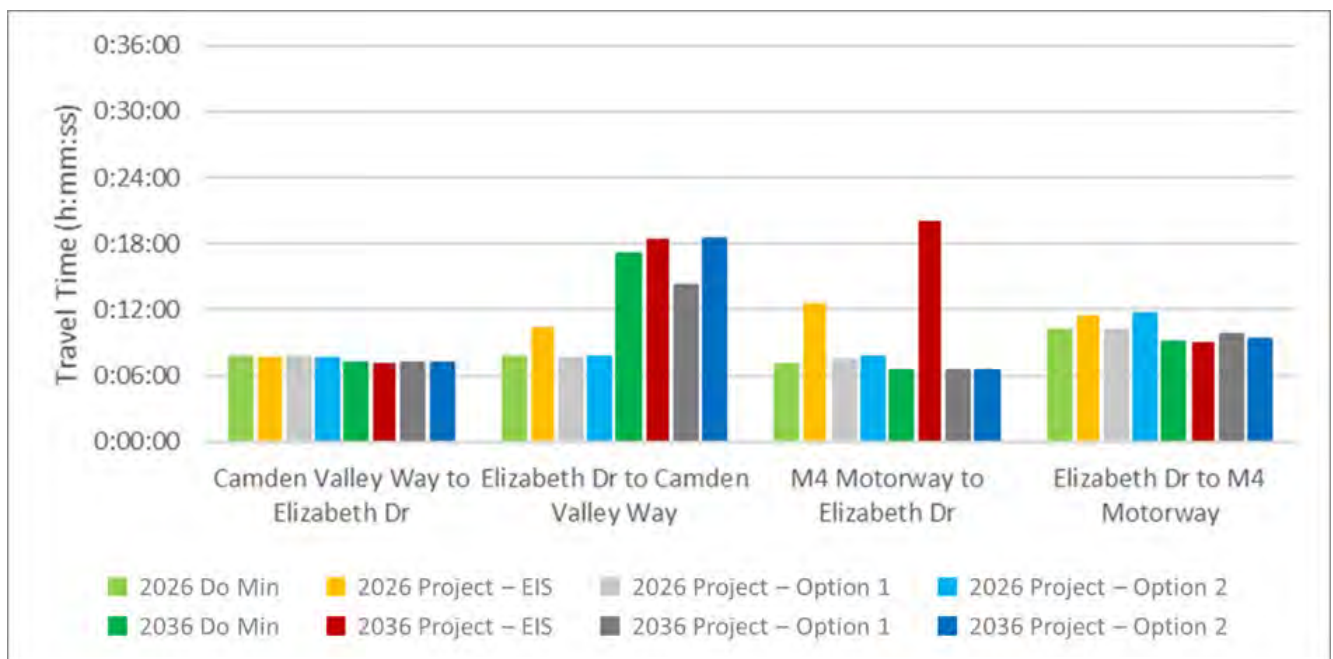
## *Changes to general traffic travel times*

Modelled general traffic travel times on key routes through the study area for the 2026 and 2036 'with project' scenarios during the morning and evening peaks are summarised in **Figure 6-13** to **Figure 6-20**.

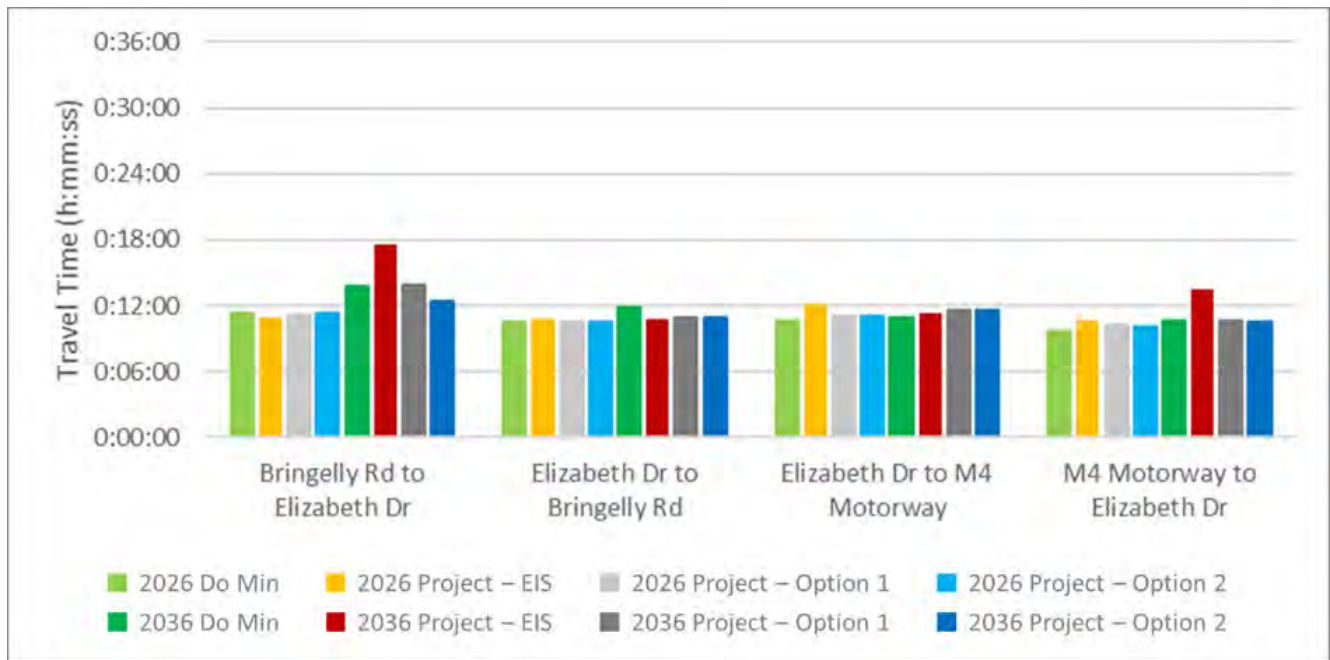




**Figure 6-13 M7 Motorway morning peak travel time (8am to 9am)**



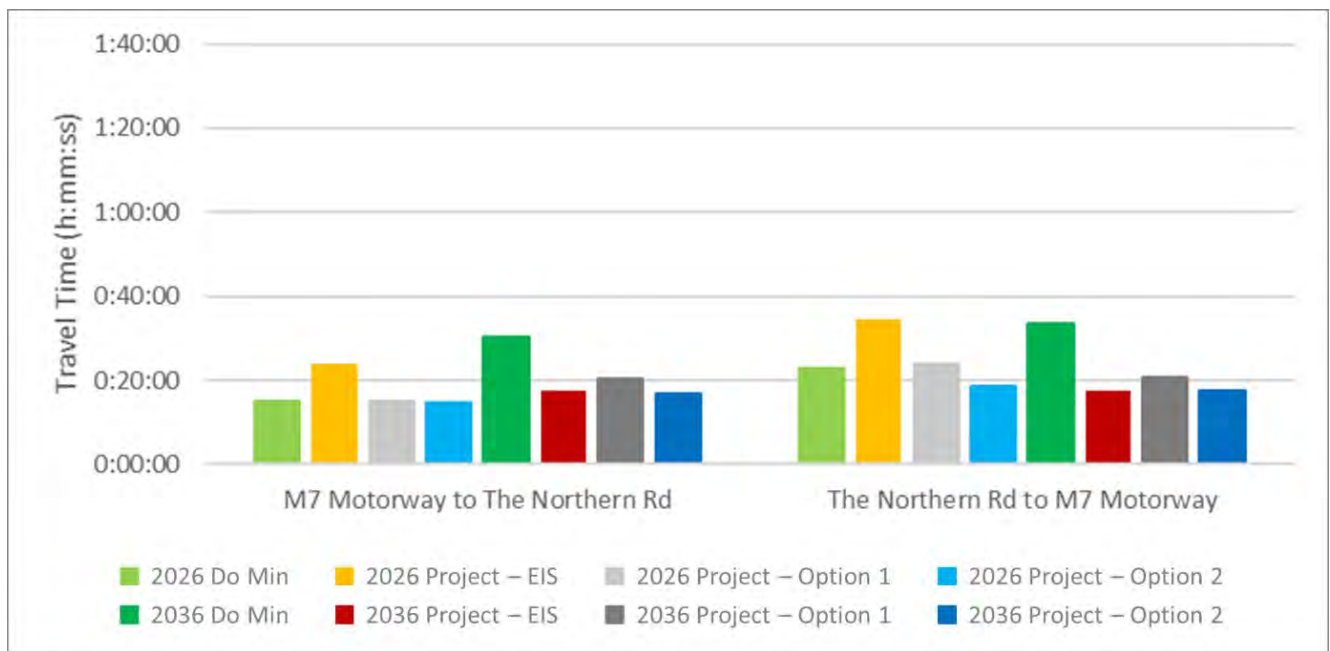
**Figure 6-14 M7 Motorway evening peak travel time (5pm to 6pm)**



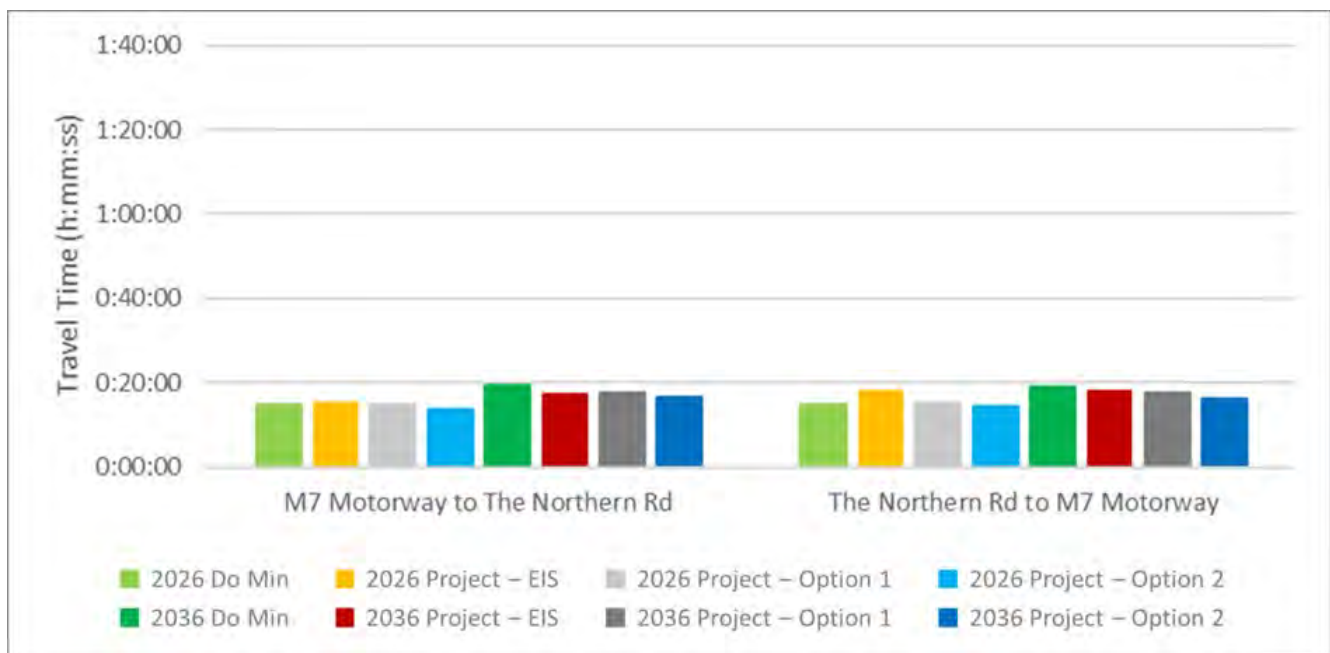
**Figure 6-15** The Northern Road morning peak travel time (8am to 9am)



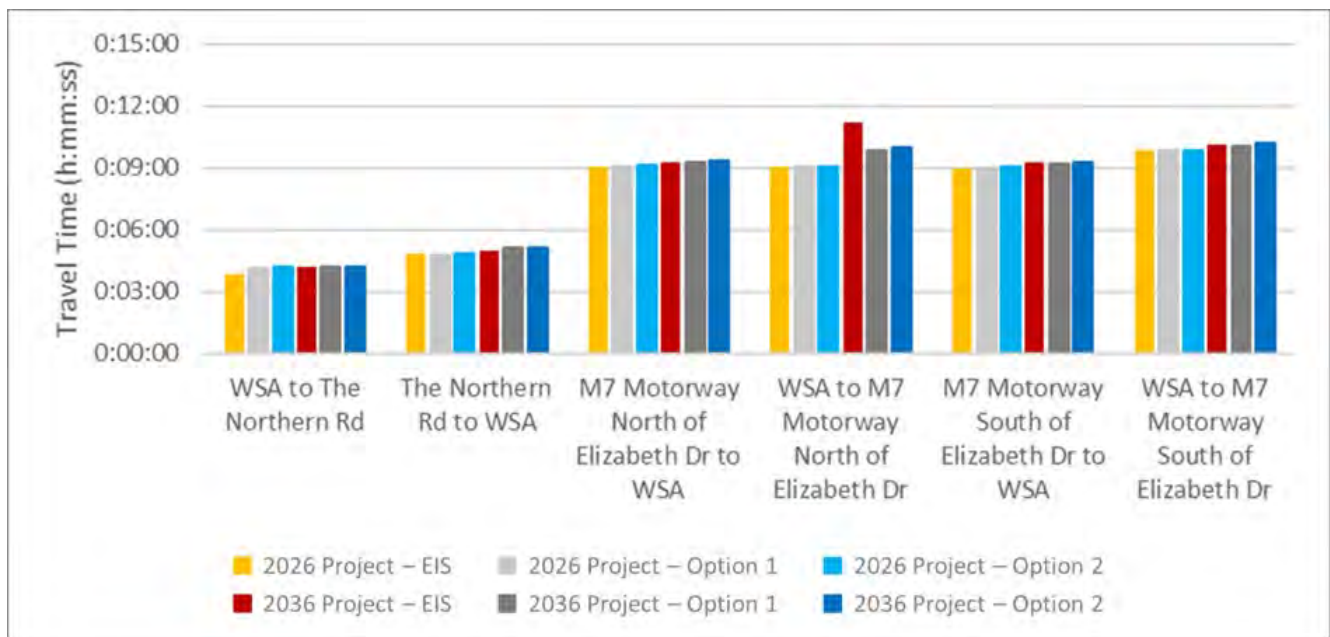
**Figure 6-16** The Northern Road evening peak travel time (5pm to 6pm)



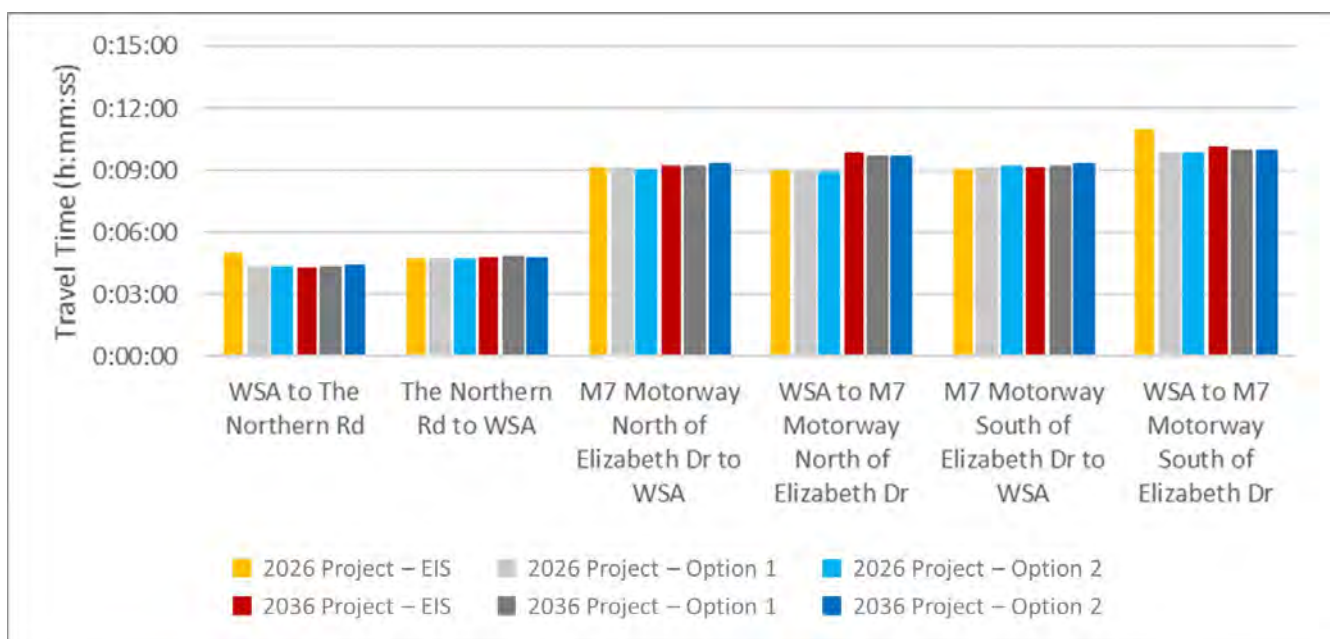
**Figure 6-17** Elizabeth Drive morning peak travel time (8am to 9am)



**Figure 6-18** Elizabeth Drive evening peak travel time (5pm to 6pm)



**Figure 6-19** M12 Motorway morning peak travel times (8am to 9am)



**Figure 6-20** M12 Motorway evening peak travel times (5pm to 6pm)



## Performance of the amended project

Analysis of 'with amended project' general traffic travel times shows:

- Travel times on the M7 Motorway would generally increase with the amended project in the morning and evening peaks. These increases in travel time are a result of increased traffic volumes on the M7 Motorway, leading to additional merging of traffic where the M12 Motorway interfaces with the M7 Motorway. This merging would generate additional delay in both directions. However, most of these delays would be reduced following the assumed widening of the M7 Motorway by 2036, which would reduce the conflict between merging traffic and traffic in through lanes. Comparing travel times between option 1 and option 2, option 2 would generally result in increased travel times as result of more traffic using the M7 Motorway
- Travel times on The Northern Road between Bringelly Road and Elizabeth Drive in both directions, and between Elizabeth Drive and the M4 Western Motorway in the northbound direction, would increase with the amended project in 2026 and 2036 due to the changes in access to Western Sydney International Airport. Without the amended project, some traffic from Western Sydney International Airport would travel south via Western Road and Devonshire Road and north via Luddenham Road. These routes are more direct and generally free-flowing, while The Northern Road would have several signalised intersections along its length once the various upgrade stages are complete. With the amended project, access to The Northern Road via the M12 Motorway would make The Northern Road a more attractive alternative to Western Road, Devonshire Road and Luddenham Road. Comparing travel times between option 1 and option 2, option 1 would generally result in increased travel times as result of more traffic accessing Elizabeth Drive via The Northern Road
- Travel times on Elizabeth Drive between The Northern Road and the M7 Motorway would decrease with the amended project, except for option 1 in the eastbound direction in the 2026 morning peak. The minor increase in travel times along Elizabeth Drive in the 2026 morning peak is due to delays at the Elizabeth Drive / Mamre Road intersection. Upgrade of this intersection to traffic signals would eliminate the increase in travel times by 2036. Comparing travel times between option 1 and option 2, option 1 would generally result in increased travel times as result of more traffic using Elizabeth Drive
- Travel times on the M12 Motorway would increase between 2026 and 2036, reflecting the forecast growth in traffic volumes associated with Western Sydney International Airport. Although travel times on the M12 Motorway would increase over time as traffic demand grows, the change is small (less than five minutes along the length of the M12 Motorway) and demonstrates that the amended project has sufficient capacity to perform acceptably with forecast 2036 traffic volumes. Comparing travel times between option 1 and option 2, option 2 would generally result in increased travel times as result of more traffic using the M12 Motorway.

## Comparison of amended project to the project as described in the EIS

Comparing the 'with amended project' general traffic travel times in **Figure 6-13** to **Figure 6-20** and 'with amended project' general traffic travel times in the EIS TTAR shows the majority of travel times are similar or lower. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower as described in **Section 3.1**.

## Changes to freight transport

A summary of forecast daily heavy vehicle volumes on key roads in the study area for the 2026 and 2036 'with amended project' scenarios is presented in **Table 6-26**.

Table 6-26 Forecast 'with amended project' 2026 daily heavy vehicle volumes on key roads in the study area

Road location	Direction	2026 'do minimum'	2026 'with amended project'	% change from 2026 'do minimum'	2026 'with project' as described in EIS <sup>1</sup>	% change from '2026 do minimum' to 'with project' as described in EIS <sup>1</sup>
The Northern Road north of Elizabeth Drive	Northbound	2560	2740	7%	880	-38%
	Southbound	3340	3880	16%	1400	-13%
The Northern Road south of Elizabeth Drive	Northbound	2130	2130	0%	650	-42%
	Southbound	2730	2690	-1%	1360	-13%
Elizabeth Drive west of Adams Road	Eastbound	700	590	-16%	120	-8%
	Westbound	670	400	-40%	320	-26%
Elizabeth Drive west of Devonshire Road	Eastbound	1190	830	-30%	670	10%
	Westbound	720	320	-56%	1160	5%
Elizabeth Drive east of Mamre Road	Eastbound	1620	1340	-17%	1410	9%
	Westbound	1350	1060	-21%	1730	7%
Elizabeth Drive east of Wallgrove Road	Eastbound	1870	1780	-5%	1840	12%
	Westbound	1020	1110	9%	2040	6%
Mamre Road north of Wallgrove Road	Northbound	310	330	6%	990	-8%
	Southbound	460	460	0%	1210	-5%
Wallgrove Road north of Elizabeth Drive	Northbound	2070	2030	-2%	1280	22%
	Southbound	650	600	-8%	1530	2%
M12 Motorway Western Sydney International Airport Access Road	Northbound	N/A	490	N/A	180	N/A
	Southbound	N/A	300	N/A	110	N/A
M12 Motorway west of Western Sydney International Airport	Eastbound	N/A	720	N/A	1340	N/A
	Westbound	N/A	1340	N/A	1690	N/A
M12 Motorway east of Western Sydney International Airport	Eastbound	N/A	1200	N/A	1520	N/A
	Westbound	N/A	1630	N/A	1790	N/A

Note <sup>1</sup> Table 6-26 of the EIS TTAR

Table 6-27 Forecast 'with amended project' 2036 daily heavy vehicle volumes on key roads in the study area

Road location	Direction	2026 'do minimum'	2026 'with amended project'	% change from 2026 'do minimum'	2026 'with project' as described in EIS <sup>1</sup>	% change from '2026 do minimum' to 'with project' as described in EIS <sup>1</sup>
The Northern Road north of Elizabeth Drive	Northbound	2940	3850	31%	1400	2%
	Southbound	3240	4380	35%	750	23%
The Northern Road south of Elizabeth Drive	Northbound	2520	2550	1%	1150	-11%
	Southbound	2910	2930	1%	610	9%
Elizabeth Drive west of Adams Road	Eastbound	390	430	10%	360	-43%
	Westbound	630	970	54%	440	-27%
Elizabeth Drive west of Devonshire Road	Eastbound	990	1030	4%	1310	-15%
	Westbound	1020	870	-15%	1270	-12%
Elizabeth Drive east of Mamre Road	Eastbound	1870	1770	-5%	2590	8%
	Westbound	1500	1290	-14%	2000	-17%
Elizabeth Drive east of Wallgrove Road	Eastbound	2260	2350	4%	3240	17%
	Westbound	1120	1160	4%	2420	-13%
Mamre Road north of Wallgrove Road	Northbound	150	190	27%	1660	-20%
	Southbound	700	730	4%	1890	10%
Wallgrove Road north of Elizabeth Drive	Northbound	1940	2010	4%	1240	53%
	Southbound	450	480	7%	1360	7%
M12 Motorway Western Sydney International Airport Access Road	Northbound	N/A	370	N/A	60	N/A
	Southbound	N/A	270	N/A	50	N/A
M12 Motorway west of Western Sydney International Airport	Eastbound	N/A	1900	N/A	2310	N/A
	Westbound	N/A	2090	N/A	2360	N/A
M12 Motorway east of Western Sydney International Airport	Eastbound	N/A	2260	N/A	2360	N/A
	Westbound	N/A	2350	N/A	2410	N/A

Note Table 6-26 of the EIS TTAR

Improvements to general traffic travel times and travel time reliability would also benefit freight traffic that would be travelling to and from Western Sydney International Airport. Additional traffic capacity and motorway-standard access to Western Sydney International Airport would minimise travel times and reduce wear and tear on trucks.

### Performance of the amended project

The amended project would also reduce travel time and improve reliability and speed for trucks travelling between The Northern Road and the M7 Motorway. Trucks currently use Elizabeth Drive, which has a single lane in each direction and is capacity-constrained at its intersections with the M7 Motorway. With the upgrade of The Northern Road to a primary north-south freight route from the emerging South West Growth Area and other growth areas within the Western Parkland City, freight traffic travelling between The Northern Road and the M7 Motorway is expected to increase. The M12 Motorway would provide a safe and reliable route between The Northern Road and the M7 Motorway and Western Sydney International Airport. This would improve the reliability of freight shipments transferring between air and road modes.

Analysis of forecast 'with amended project' daily heavy vehicle volumes shows the following:

- Increase of up to 35 per cent on The Northern Road north of Elizabeth Drive in both directions by 2036
- Overall volumes on Elizabeth Drive would remain unchanged by 2036. However, there would be localised increases and decreases at the following locations:
  - Elizabeth Drive west of Adams Road (increase of 54 per cent in the westbound direction)
  - Elizabeth Drive west of Devonshire Road (decrease of 15 per cent in the westbound direction)
  - Elizabeth Drive east of Mamre Road (increase of 14 per cent in the westbound direction. However, this is from a relatively low base)
- Increase of 27 per cent on Mamre Road in the northbound direction by 2036
- Volume changes on other roads would be 10 per cent or less by 2036.

The changes in daily heavy vehicle volumes reflect the update of the freight movement model as part of SMPM version 1.1 as described in **Section 3.1**.

### Comparison of amended project to the project as described in the EIS

Comparing the forecast 'with amended project' daily heavy vehicle volumes in **Table 6-26** and **Table 6-27** and forecast 'with project' daily heavy vehicle volumes in Table 6-26 of the EIS TTAR shows the following differences:

- Overall volumes on The Northern Road are 167 per cent higher in 2026 and 251 per cent higher in 2036
- Overall volumes on Elizabeth Drive are 20 per cent lower in 2026 and 28 per cent lower in 2036
- Volumes on Mamre Road are 64 per cent lower in 2026 and 74 per cent lower in 2036
- Volumes on Wallgrove Road are six per cent lower in 2026 and four per cent lower in 2036
- Volumes on the M12 Motorway Western Sydney International Airport Access Road are 172 per cent higher in 2026 and 482 per cent higher in 2036
- Overall volumes on the M12 Motorway are 23 per cent lower in 2026 and nine per cent lower in 2036.

The changes in daily heavy vehicle volumes reflect the update of the freight movement model as part of SMPM version 1.1 as described in **Section 3.1**.



## 7. Cumulative impacts

Section 7 of the EIS TTAR provides an assessment of the potential cumulative transport and traffic impacts during construction and operation of the project as described in the EIS and includes:

- Western Sydney International Airport
- Sydney Metro – Western Sydney Airport
- The Northern Road Upgrade
- Other road network upgrades
- Growth areas.

The assessment of potential cumulative transport and traffic impacts during construction and operation described in the EIS TTAR is still applicable to the amended project. There are still substantial but difficult to quantify cumulative transport and traffic impacts associated with construction traffic generation, changes to road network conditions and driver construction fatigue, especially where the construction schedules of those projects overlaps with that of the project.

The cumulative transport and traffic impacts associated with operation of the project and the other ongoing and planned developments in the area have been assessed as part of this report.

## 8. Revised environmental management measures

This section provides a summary of the environmental management measures that would be required to minimise, avoid or mitigate the impacts of the amended project on transport and traffic in the study area. Due to the nature of the project, the majority of operational impacts associated with design constraints, maintaining access and integration with the existing transport network have been addressed in the design.

The environmental management measures that will be implemented to minimise the transport and traffic impacts of the project, along with the responsibility and timing for those measures, are described in Section 7.2.8 of the EIS.

The amended project does not require any changes to the transport and traffic environmental management measures as described in the EIS. These measures are consistent between the two options.

## 9. Summary and conclusions

### 9.1 Overview

This transport and traffic updated technical report has been prepared to support the amendment report. The purpose of this technical report is to present an assessment of the construction and operational activities for the amended project that have the potential to impact transport and traffic. To achieve this, the report has provided details on the following:

- Revised assessment of construction impacts based on amended and additional ancillary facilities to support construction of the amended project
- Revised assessment of future operational performance of the road network without the amended project
- Revised assessment of future operational impacts with the amended project in operation
- Comparison of impacts between the project as described in the EIS and the amended project.

### 9.2 Key findings

#### 9.2.1 Construction impacts

To support the construction of the amended project, including the change to procurement strategies, nine additional construction ancillary facilities would be required. In addition, changes would be made to four ancillary facilities described in the EIS.

During construction of the amended project, the following intersections would perform poorly at Level of Service F:

- Elizabeth Drive / Devonshire Road – would remain at Level of Service F during the morning (368 seconds) and evening (771 seconds) peaks
- Elizabeth Drive / Badgerys Creek Road – would change from Level of Service D (55 seconds) to Level of Service F (124 seconds) during the morning peak.

Comparing the intersection performance results at Elizabeth Drive / Devonshire Road during construction of the amended project and the 2024 'do minimum scenario', delays would be fairly minor during morning peak (increase by 57 seconds). Delays would be more substantial during the evening peak, however (increase by 598 seconds).

Comparing the intersection performance results at Elizabeth Drive / Badgerys Creek Road during construction of the amended project and the 2024 'do minimum scenario', delays associated with construction works would be fairly minor during both the morning peak (increase by 69 seconds) and evening peak (an increase of six seconds).

Increases in delay at these intersections are a result of the addition of construction-related heavy vehicle traffic. Additional delays would be experienced for vehicles waiting for a gap in traffic when turning right or left out of Elizabeth Drive. Due to their length, construction-related heavy vehicles require longer gaps in traffic to safely turn from minor roads at priority-controlled intersections.

Development of the Construction Transport and Traffic Management Plan (CTTMP) would include a review of the Devonshire Road / Elizabeth Drive / Salisbury Avenue intersection to determine if feasible additional traffic control measures would be required to be implemented to safely manage construction movements and reduce delays at the intersection.

Comparing the intersection performance results during construction of the amended project and the project as described in the EIS, most intersections would perform better during construction of the amended project. The improvements in intersection performance reflect the change to the demand growth in SMPM version 1.1 and changes to construction traffic generation associated with amended and additional ancillary facilities.

As explained in **Section 6.1.2**, the modelling results do not reflect the recent roundabout upgrade that has been installed by WSA Co at the Elizabeth Drive / Badgerys Creek Road intersection as part of the Western Sydney International Airport construction. The recent roundabout upgrade would result in an improved performance for this intersection and it is expected it would perform at a LoS higher than LoS F.

## 9.2.2 Operational impacts

### *Changes to regional road network volumes*

#### Performance of the amended project

Analysis of traffic volumes for the amended project shows the following:

- The amended project would result in increased north-south flows across the study area in the morning and evening peak periods. The new M7 Motorway / M12 Motorway interchange would allow for free-flow movement for traffic travelling to and from Western Sydney International Airport via the M12 Motorway instead of through the existing Elizabeth Drive interchange, which would reach capacity by 2026 without the amended project. By 2036 the amended project would allow a much greater volume of traffic to travel along the M7 Motorway, unimpeded by existing capacity constraints at Elizabeth Drive
- The amended project would result in increased east-west flows east of Western Sydney International Airport in the morning and evening peak periods. The majority of this additional traffic would be along the M12 Motorway. Up to 60 per cent of traffic that would travel along Elizabeth Drive in the 'do minimum' scenarios would transfer to the M12 Motorway, providing additional capacity along Elizabeth Drive
- The transfer of traffic from Elizabeth Drive to the M12 Motorway would reduce right-turning traffic travelling from Elizabeth Drive to the M7 Motorway at the existing interchange. This would allow more traffic to travel east-west along Elizabeth Drive at the M7 Motorway interchange from the east than would be possible without the amended project
- Comparing option 1 and option 2, option 2 would result in more traffic using the M12 Motorway and less traffic using Elizabeth Drive. Option 2 would also result in more traffic using Cecil Road and Duff Road. This reflects increased connectivity to the local road network that option 2 provides.



## Comparison of amended project to the project as described in the EIS

Comparing traffic volumes for the amended project and traffic volumes presented in the EIS TTAR shows the following for the amended project:

- Total north-south and east-west traffic volumes are lower. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower as described in **Section 3.1**
- Traffic volumes on the M7 Motorway are higher. Lower total traffic volumes on the network would allow a much greater volume of traffic to travel along the M7 Motorway, unimpeded by existing capacity constraints at Elizabeth Drive
- Traffic volumes on the M12 Motorway are lower for option 1 and higher for option 2. This reflects increased connectivity to the local road network that option 2 provides.

## Changes to network performance

### Performance of the amended project

Analysis of network performance for the amended project shows:

- Network performance statistics between option 1 and option 2 are very similar with option 2 performing marginally better than option 1 in the AM peak by 2036
- The amended project would result in total travel time through the study area decreasing by up to seven per cent during the morning peak (from 68,597 hours to 63,605 hours for option 2) and up to eight per cent during the evening peak (from 77,562 hours to 71,661 hours for option 2) by 2036
- The amended project would result in average speeds through the study area increasing by up to nine per cent during the morning peak (from 46 kilometres per hour to 50 kilometres per hour for option 2) and up to seven per cent during the evening peak (from 46 kilometres per hour to 49 kilometres per hour for option 2) by 2036
- The amended project would result in total travel distance through the study area increasing by up to nine per cent during the morning peak (from 2,599,067 kilometres to 2,835,986 kilometres for option 2) and up to eight per cent during the evening peak (from 2,888,246 kilometres to 3,110,187 kilometres for option 2) by 2036. This is due to additional travel distance along the M12 Motorway alignment
- An increase in total travel distance, decrease in total travel time and increase in average speeds shows the amended project would substantially improve traffic conditions in the study area.

## Comparison of amended project to the project as described in the EIS

Comparing network performance statistics for the amended project and network performance statistics presented in the EIS TTAR shows the following for the amended project:

- Total traffic demand, total travel distance and total travel time are lower
- Average speeds are higher
- Total unreleased trips are lower.

These changes reflect the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower.

## ***Changes to intersection performance***

### **Performance of the amended project**

Analysis of intersection performance for the amended project shows:

- In 2026 the amended project would result in unchanged or improved intersection performance. All intersections would perform at a satisfactory Level of Service with the exception of the Elizabeth Drive / Mamre Road intersection, which would continue to perform poorly at Level of Service F in the morning peak (option 1)
- In 2036 the amended project would result in unchanged or improved intersection performance. All intersections would perform at a satisfactory Level of Service
- The improvements in intersection performance can be attributed to the amended project reducing traffic volumes along Elizabeth Drive, which would reduce delays at intersections along Elizabeth Drive
- Comparing option 1 and option 2, option 2 would result in improved performance at most intersections. Option 2 would result in more traffic using the M12 Motorway and less traffic using Elizabeth Drive compared to option 1, therefore reducing demand and delays along the Elizabeth Drive corridor.

### **Comparison of amended project to the project as described in the EIS**

Comparing intersection performance for the amended project and intersection performance presented in the EIS TTAR, the performance of all intersections for the amended project improves with the exception of The Northern Road / M12 Motorway intersection for option 2. This is a result of more traffic using the M12 Motorway. The improvement in performance at other intersections reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower and amended designs for intersections to be upgraded.

## ***Changes to general traffic travel times***

### **Performance of the amended project**

Analysis of general traffic travel times for the amended project shows:

- Travel times on the M7 Motorway would generally increase with the amended project in the morning and evening peaks. These increases in travel time are a result of increased traffic volumes on the M7 Motorway, leading to additional merging of traffic where the M12 Motorway interfaces with the M7 Motorway. This merging would generate additional delay in both directions. However, most of these delays would be reduced following the assumed widening of the M7 Motorway by 2036, which would reduce the conflict between merging traffic and traffic in through lanes. Comparing travel times between option 1 and option 2, option 2 would generally result in increased travel times as result of more traffic using the M7 Motorway
- Travel times on The Northern Road between Bringelly Road and Elizabeth Drive in both directions, and between Elizabeth Drive and the M4 Western Motorway in the northbound direction, would increase with the amended project in 2026 and 2036 due to the changes in access to Western Sydney International Airport. Without the amended project, some traffic from Western Sydney International Airport would travel south via Western Road and Devonshire Road and north via Luddenham Road. These routes are more direct and generally free-flowing, while The Northern Road would have several signalised intersections along its length once the various upgrade stages are complete.

With the amended project, access to The Northern Road via the M12 Motorway would make The Northern Road a more attractive alternative to Western Road, Devonshire Road and Luddenham Road. Comparing travel times between option 1 and option 2, option 1 would generally result in increased travel times as result of more traffic accessing Elizabeth Drive via The Northern Road

- Travel times on Elizabeth Drive between The Northern Road and the M7 Motorway would decrease with the amended project, except for option 1 in the eastbound direction in the 2026 morning peak. The minor increase in travel times along Elizabeth Drive in the 2026 morning peak is due to delays at the Elizabeth Drive / Mamre Road intersection. Comparing travel times between option 1 and option 2, option 1 would generally result in increased travel times as result of more traffic using Elizabeth Drive
- Travel times on the M12 Motorway would increase between 2026 and 2036, reflecting the forecast growth in traffic volumes associated with Western Sydney International Airport. Although travel times on the M12 Motorway would increase over time as traffic demand grows, the change is small (less than five minutes along the length of the M12 Motorway) and demonstrates that the amended project has sufficient capacity to perform acceptably with forecast 2036 traffic volumes. Comparing travel times between option 1 and option 2, option 2 would generally result in increased travel times as result of more traffic using the M12 Motorway.

### Comparison of amended project to the project as described in the EIS

Comparing the general traffic travel times for the amended project and general traffic travel times as presented in the EIS TTAR shows the majority of travel times for the amended project are similar or lower. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower.

### *Changes to freight transport*

#### Performance of the amended project

Analysis of forecast daily heavy vehicle volumes for the amended project shows the following:

- Increase of up to 35 per cent on The Northern Road north of Elizabeth Drive in both directions by 2036
- Overall volumes on Elizabeth Drive would remain unchanged by 2036. However, there would be localised increases and decreases at the following locations:
  - Elizabeth Drive west of Adams Road (increase of 54 per cent in the westbound direction)
  - Elizabeth Drive west of Devonshire Road (decrease of 15 per cent in the westbound direction)
  - Elizabeth Drive east of Mamre Road (increase of 14 per cent in the westbound direction. However, this is from a relatively low base)
- Increase of 27 per cent on Mamre Road in the northbound direction by 2036
- Volume changes on other roads would be 10 per cent or less by 2036.

The changes in daily heavy vehicle volumes reflect the update of the freight movement model as part of SMPM version 1.1 as described in **Section 3.1**.

## Comparison of amended project to the project as described in the EIS

Comparing the forecast daily heavy vehicle volumes for the amended project and forecast daily heavy vehicle volumes presented in the EIS TTAR shows the following differences:

- Overall volumes on The Northern Road are 167 per cent higher in 2026 and 251 per cent higher in 2036
- Overall volumes on Elizabeth Drive are 20 per cent lower in 2026 and 28 per cent lower in 2036
- Volumes on Mamre Road are 64 per cent lower in 2026 and 74 per cent lower in 2036
- Volumes on Wallgrove Road are six per cent lower in 2026 and four per cent lower in 2036
- Volumes on the M12 Motorway Access Road are 172 per cent higher in 2026 and 482 per cent higher in 2036
- Overall volumes on the M12 Motorway are 23 per cent lower in 2026 and nine per cent lower in 2036.

The changes in daily heavy vehicle volumes reflect the update of the freight movement model as part of SMPM version 1.1.

## 9.3 Recommendations

Transport and traffic impacts associated with construction of the amended project would need to be mitigated through environmental management measures. These measures would include the development and implementation of Construction Traffic Management Plans prepared as part of the Construction Environment Management Plan. These plans would be prepared by the construction contractor and would be required to outline the guidelines, general requirements and specific procedures to be used for any works that may have an impact on traffic operation.

## 9.4 Conclusions

Analysis of road network performance for the 2026 and 2036 'with amended project' scenarios shows that the M12 Motorway is required to allow forecast traffic volumes to access Western Sydney International Airport. The M12 Motorway would improve access to Western Sydney International Airport by providing a motorway-standard access directly from the existing motorway network. It would also reduce travel times and delays on Elizabeth Drive by providing a high-speed alternative to Elizabeth Drive between The Northern Road and the M7 Motorway. The amended project shows improved levels of performance compared to the project as described in the EIS, mostly due to the reduction in overall network demands as result of updating to using SMPM Version 1.1. The increased connection of option 2 provides improved network performance in the allowing more traffic to use the high-speed motorway.



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