6.2 Transport and Traffic

The transport and traffic updated technical report is provided in **Appendix B**, and a summary is provided below. This section should be read in conjunction with Section 7.2 of the EIS and the transport and traffic assessment report provided in Appendix F of the EIS.

6.2.1 Assessment methodology

The updated assessment methodology involved the following:

- 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
- A comparison of construction and operational impacts between the project as described in the EIS and the amended project.

The study area, including the broader study area, for the assessment of the amended project is consistent with the EIS.

Changes to the assessment methodology used to carry out the assessment of the amended project compared to that used for the project as described the EIS are discussed in the following sections.

6.2.1.1 Transport forecasting and modelling process

Assessment of the project as described in the EIS was undertaken using WestConnex Road Toll Model (WRTM) version 2.3. Updates of critical inputs and improvements to the modelling process were carried out to produce Sydney Strategic Motorway Planning Model (SMPM) version 1.0, and then version 1.1. These versions substantially improved the predictive robustness of the model for the western Sydney area. As the development of SMPM has included additional data collection, recalibration and validation, it is considered to be an enhanced version of WRTM, rather than a new model. 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 Appendix F of the EIS) runs have been used for the calculation of forecast traffic demands; changes were made within the STM including:
  - New land use (LU) 16
  - 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 main implication of the change to SMPM version 1.1 is that the traffic forecasts for western Sydney have been revised. Substantial changes in forecast land use (including a reduction in forecast land-use changes) and improvements in modelling processes, both within STM and SMPM, have resulted in corresponding changes in future traffic demands. 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.

In particular, the change to the demand growth process in SMPM has resulted in a substantial reduction in future trips to the South West Growth Area and the Western Sydney Employment Area. Forecast traffic volumes using the amended project and the surrounding network have reduced as a result. The revised SMPM version 1.1 traffic forecasts (the revised traffic forecast) for western Sydney are considered to be more robust than the WRTM version 2.3 forecasts. The revised traffic forecasts show that there is substantial growth on most roads. This growth is consistent with anticipated land use changes in the broader western Sydney area. When compared to the assessment carried out for the EIS, the majority of traffic volumes for the 2024 'do minimum' are lower, however (see **Table 6-11** and **Table 6-12**). This is due to the change in demand growth in SMPM version 1.1, which is lower than that used in the WRTM version 2.3.

The assessment included the following as part of the road network assumptions for the 2024 'do minimum' and 2024 'with construction' scenarios:

- Realignment of the western end of Elizabeth Drive
- Upgrade of the existing roundabout at The Northern Road / Elizabeth Drive to traffic signals (as part of The Northern Road upgrade).

6.2.1.2 Modelled scenarios

Traffic modelling of six scenarios has been undertaken to:

- Assess the performance of the road network, both with and without the amended project
- Identify the impacts of the amended project, both under construction and operation.

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. This was done using revised SMPM version 1.1 traffic forecasts for western Sydney.

These six modelled scenarios are consistent with the EIS and include:

- **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 WSA Co growth forecasts
- **2026 'with amended project'** – as per 2026 'do minimum' but includes operation of the amended 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 amended project (option 1 – without Elizabeth Drive connection and option 2 – with Elizabeth Drive connection).

6.2.1.3 Intersection performance

Level of service (LoS) is a measure to describe the operational conditions and efficiency of a roadway or intersection as perceived by motorists and/or passengers. LoS is rated from A to F. LoS A representing a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. LoS F describing a zone of forced flow, where the amount of traffic approaching the point under consideration exceeds that which can pass it, resulting in flow breakdown, queuing and delays.

6.2.2 Existing environment

The existing environment in relation to traffic and transport as described in Section 7.2.3 of the EIS remains a relevant baseline to assess the amended project. It is noted, however, that 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, existing traffic volumes have changed due to ongoing development in the broader study area when compared to the existing traffic volumes presented in Section 7.2.3 of the EIS, which were based on traffic counts collected in 2015.

6.2.3 Assessment of potential impacts

6.2.3.1 Construction impacts

Section 7.2.5 of the EIS identified a number of potential transport and traffic impacts that may occur during construction of the project. The following construction impacts associated with the amended project are considered to be consistent with the project as described in the EIS:

- Work site and construction ancillary facility access assumptions
- Road closures, detours and other temporary traffic management
- Construction worker parking and impacts on on-street parking
- Impacts on public transport
- Impacts on pedestrians and cyclists
- Other impacts of construction.

These impacts are considered consistent as there is either no change from the impacts as described in the EIS or the change is minor and can be managed in accordance with existing management measures already outlined in the EIS. They have therefore not been repeated in this section.

The following construction updates (see **Chapter 4**) would result in changes to the construction impacts associated with the amended project:

- Construction stages and program – see **Section 4.2.8**
- Construction footprint – see **Section 4.3** and **Section 4.2.5**
- Haulage routes and additional ancillary sites – see **Section 4.2.6** (**Table 4-6** and **Table 4-7** and shown in **Figure 4-4**).

Construction impacts associated with the amended project that are likely to change compared to the project as described in the EIS are listed below and detailed in the sub-sections that follow:

- Work site and construction ancillary facility traffic generation
- Background traffic volumes and patterns
- Intersection performance.

Work site and construction ancillary facility traffic generation

The forecast light and heavy vehicle traffic generation from each of the ancillary facilities for the amended project is provided in **Table 6-10**. Assumptions for light vehicle traffic generation during the morning peak and spoil haulage vehicles are consistent with those described in Section 7.2.5 of the EIS.

Table 6-10 Construction traffic generation for the amended project (inbound and outbound average)

Site	Average daily heavy vehicle generation	Morning peak light vehicle generation	Morning peak heavy vehicle generation	Evening peak light vehicle generation	Evening peak heavy vehicle generation
AF 1/10	200	93	20	93	20
AF 2/3	180	93	16	93	16
AF 4/12	80	93	8	93	8
AF 5	160	93	16	93	16
AF 6	160	93	16	93	16
AF 7/8	100	-	10	-	10
AF 9	120	-	12	-	12
AF 11	160	93	16	93	16
AF 13/14	160	93	16	93	16
AF 15	160	93	16	93	16
AF 16	200	93	20	93	20
AF 17	160	-	16	-	16
AF 18	120	-	12	-	12
Total	**1960**	**837**	**194**	**837**	**194**

Comparing the above with construction traffic generation in Table 7-39 of the EIS, the assessment identifies the following increases in vehicles generation 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).

Increased numbers of heavy vehicles are the result of the increased amended earthwork quantities described in **Section 4.2.1**.

Background traffic volumes and patterns

Peak construction traffic generation for the amended project would occur in 2024. This timing is consistent with the project as described in the EIS. For the amended project, a 2024 'do minimum' scenario has been developed that includes forecast traffic growth to 2024 based on the LU16 land use and demographics scenario. A summary of the forecast background traffic growth on key roads is provided in **Table 6-11** and **Table 6-12**.

Comparing the 2017 base and 2024 'do minimum' traffic volumes for the amended project (see **Table 6-11** and **Table 6-12**), there is substantial growth on most roads that is consistent with anticipated land use changes in the broader western Sydney area. When compared to the EIS, the majority of traffic volumes for the 2024 'do minimum' (see **Table 6-11** and **Table 6-12**) are lower due to the change in demand growth in SMPM version 1.1 (as described in **Section 6.2.1**).

Table 6-11 Traffic growth on key roads in the core study area in 2024 for the amended project (morning peak)

Road location	Direction	Project as per EIS Morning peak (7.30am to 8.30am)			Amended project 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	1,467	114%	685	1405	105%
	Southbound	761	1,205	58%	761	1081	42%
The Northern Road south of Elizabeth Drive	Northbound	866	679	-22%	866	803	-7%
	Southbound	522	654	25%	522	376	-28%
Elizabeth Drive west of Adams Road	Eastbound	611	948	55%	611	980	60%
	Westbound	305	857	181%	305	718	135%
Elizabeth Drive west of Devonshire Road	Eastbound	1,199	1,223	2%	1199	1143	-5%
	Westbound	516	728	41%	516	588	14%
Elizabeth Drive east of Mamre Road	Eastbound	1,407	1,306	-7%	1407	1213	-14%
	Westbound	852	1,063	25%	852	935	10%

Road location	Direction	Project as per EIS Morning peak (7.30am to 8.30am)			Amended project Morning peak (7.30am to 8.30am)		
		2017 base	2024 'do minimum'	% change	2017 base	2024 'do minimum'	% change
Elizabeth Drive east of Wallgrove Road	Eastbound	1,426	1,493	5%	1426	1217	-15%
	Westbound	1,273	1,512	19%	1273	1413	11%
Mamre Road north of Wallgrove Road	Northbound	752	1,064	41%	752	776	3%
	Southbound	502	644	28%	502	495	-1%
Wallgrove Road north of Elizabeth Drive	Northbound	1,191	1,178	-1%	1191	1093	-8%
	Southbound	299	201	-33%	299	285	-5%

Table 6-12 Traffic growth on key roads in the core study area in 2024 for the amended project (evening peak)

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

Intersection performance

2024 'do minimum' scenario (without construction)

Overall, when compared to the project described in the EIS, the majority of intersections for the 2024 'do minimum' scenario (without construction) have improved performance. This is due to the change to the demand growth in SMPM version 1.1, amended and additional ancillary facilities, and related changes to construction traffic generation.

The assessment identified that without construction traffic, the following intersections would operate at LoS D or F in 2024:

- Elizabeth Drive / Devonshire Road (morning and evening peak)
- Elizabeth Drive / Badgerys Creek Road (morning peak).

In the 2024 'do minimum' scenario, the Elizabeth Drive / Devonshire Road intersection would perform poorly at LoS F during the morning and evening peaks. This is due to high delays for vehicles turning out of Devonshire Road, which is priority-controlled. LoS 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.

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

All other intersections would perform at a satisfactory LoS.

Modelled intersection performance for the 2024 'do minimum' scenario (without construction) during the morning and evening peaks is summarised in **Table 6-13**.

Table 6-13 Intersection performance – 2024 'do minimum' scenario (without construction)

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)	LoS	Average delay (seconds)	LoS
Elizabeth Drive / M7 Motorway southbound ramps	Amended Project	31	C	37	C
	Project as per EIS	26	B	49	D
Elizabeth Drive / M7 Motorway northbound ramps / Wallgrove Road	Amended Project	35	C	40	C
	Project as per EIS	43	C	135	F
Elizabeth Drive / Cecil Road	Amended Project	18	B	7	A
	Project as per EIS	9	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)	LoS	Average delay (seconds)	LoS
Elizabeth Drive / Duff Road	Amended Project	20	B	11	A
	Project as per EIS	20	B	13	A
Elizabeth Drive / Mamre Road	Amended Project	19	B	13	A
	Project as per EIS	28	B	16	B
Elizabeth Drive / Range Road	Amended Project	10	A	20	B
	Project as per EIS	8	A	13	A
Elizabeth Drive / Devonshire Road	Amended Project	311	F	113	F
	Project as per EIS	495	F	1468	F
Elizabeth Drive / Clifton Avenue	Amended Project	14	A	5	A
	Project as per EIS	12	A	4	A
Elizabeth Drive / Western Road	Amended Project	14	A	17	B
	Project as per EIS	16	B	19	B
Elizabeth Drive / Martin Road	Amended Project	9	A	9	A
	Project as per EIS	8	A	13	A
Elizabeth Drive / Lawson Road	Amended Project	9	A	6	A
	Project as per EIS	7	A	9	A
Elizabeth Drive / Badgerys Creek Road	Amended Project	55	D	13	A
	Project as per EIS	61	E	31	C

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)	LoS	Average delay (seconds)	LoS
Elizabeth Drive / Adams Road	Amended Project	11	A	10	A
	Project as per EIS	9	A	11	A
Elizabeth Drive / Luddenham Road	Amended Project	12	A	8	A
	Project as per EIS	15	A	29	B
Elizabeth Drive / The Northern Road	Amended Project	41	C	41	C
	Project as per EIS	37	C	41	C

Orange shading = LoS D or worse for the amended project, Yellow shading = Los D or worse for the project as described in the EIS

2024 'do minimum' scenario (with construction)

When compared to the project described in the EIS, there are improvements at the majority of intersections for the 2024 'do minimum' scenario (with construction) for the amended project, particularly during the evening peak.

In the 2024 'with construction' scenario, the following intersections would perform poorly at LoS F for the amended project:

- Elizabeth Drive / Devonshire Road – would remain at LoS F (morning and evening)
- Elizabeth Drive / Badgerys Creek Road – would change from LoS D (as per the EIS) to LoS F (morning peak).

As discussed above, the modelling results do not reflect the recent roundabout upgrade that has been installed by WSA Co at Elizabeth Drive / Badgerys Creek Road as part of the Western Sydney International Airport construction, which would result in an improved performance for this intersection (greater than a LoS F).

The assessment also identified a decreased level of intersection performance at Elizabeth Drive / Cecil Road and Elizabeth Drive / Range Road due to the additional compounds sites in Western Sydney Parklands. Decreases in intersection performance at Elizabeth Drive / Western Road are due to changes to background traffic assumptions in SMPM version 1.1.

Increases in delays 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. 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 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.

Modelled intersection performance for the 2024 ‘do minimum’ scenario (with construction) during the morning and evening peaks is summarised in **Table 6-14**.

6.2.3.2 Operational impact

Section 7.2.6 of the EIS identified a number of potential transport and traffic impacts that may occur during operation of the project. The following operational impacts associated with the amended project are considered to be consistent with the project as described in the EIS:

- 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
  - Induced demand
- Assessment of impacts with the project
  - Impacts on public transport
  - Impacts on active transport
  - Impacts on road safety
  - Impacts on local roads and access
  - Impacts on parking.

These impacts are considered consistent with the project as described in the EIS, as there is either no change from the impacts as described in the EIS or the change is minor and can be managed in accordance with existing management measures already outlined in the EIS. They have therefore not been repeated in this section.

Operational impacts associated with the design changes of the amended project (described in **Chapter 3**) that have changed from the EIS are listed below and detailed in the sub-sections that follow:

- Assessment of impacts without the project
  - Changes to regional road network volumes
  - Changes to heavy vehicle volumes
  - Changes to network performance
  - Changes to intersection performance
  - Changes to general traffic travel times
- Assessment of impacts with the project
  - Changes to regional road network volumes
  - Changes to network performance statistics
  - Changes to intersection performance
  - Changes to general traffic travel times
  - Impacts on freight transport.

Table 6-14 Intersection performance – 2024 ‘with construction’ scenario

Intersection	Morning peak (7.30am to 8.30am)						Evening peak (5.30pm to 6.30pm)					
	2024 ‘do minimum’ no construction		2024 project as per EIS ‘with construction’		2024 amended project ‘with construction’		2024 ‘do minimum’ no construction		2024 project as per EIS ‘with construction’		2024 amended project ‘with construction’	
	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS
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

Intersection	Morning peak (7.30am to 8.30am)						Evening peak (5.30pm to 6.30pm)					
	2024 'do minimum' no construction		2024 project as per EIS 'with construction'		2024 amended project 'with construction'		2024 'do minimum' no construction		2024 project as per EIS 'with construction'		2024 amended project 'with construction'	
	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS
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
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

Intersection	Morning peak (7.30am to 8.30am)						Evening peak (5.30pm to 6.30pm)					
	2024 'do minimum' no construction		2024 project as per EIS 'with construction'		2024 amended project 'with construction'		2024 'do minimum' no construction		2024 project as per EIS 'with construction'		2024 amended project 'with construction'	
	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS	Average delay (secs)	LoS
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

Orange shading = LoS D or worse for the amended project

Changes to regional road network volumes – without the project

The total 'Do minimum' scenario traffic volume forecasts (without the project) for key primary arterial roads in the study area are provided in **Table 6-15** and **Table 6-16**. 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 6-7**. A full breakdown of the traffic volume forecasts along each screen line is provided in Table 6-10 to Table 6-13 of **Appendix B**.

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 as part of the Western Parkland City
- 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 north 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
  - This is 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 Motorway and the Great Western Highway via Mamre Road
- 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 Motorway, Luddenham Road, Elizabeth Drive and Bringelly Road
- Increased traffic volumes along Elizabeth Drive are primarily a result of the Western Sydney International Airport.

The majority of forecast 'do minimum' north-south and east-west traffic volumes for the amended project are lower when compared to the project described in the EIS. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower. 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 – without the project

The Western Sydney International Airport will be a substantial 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 6-17**.

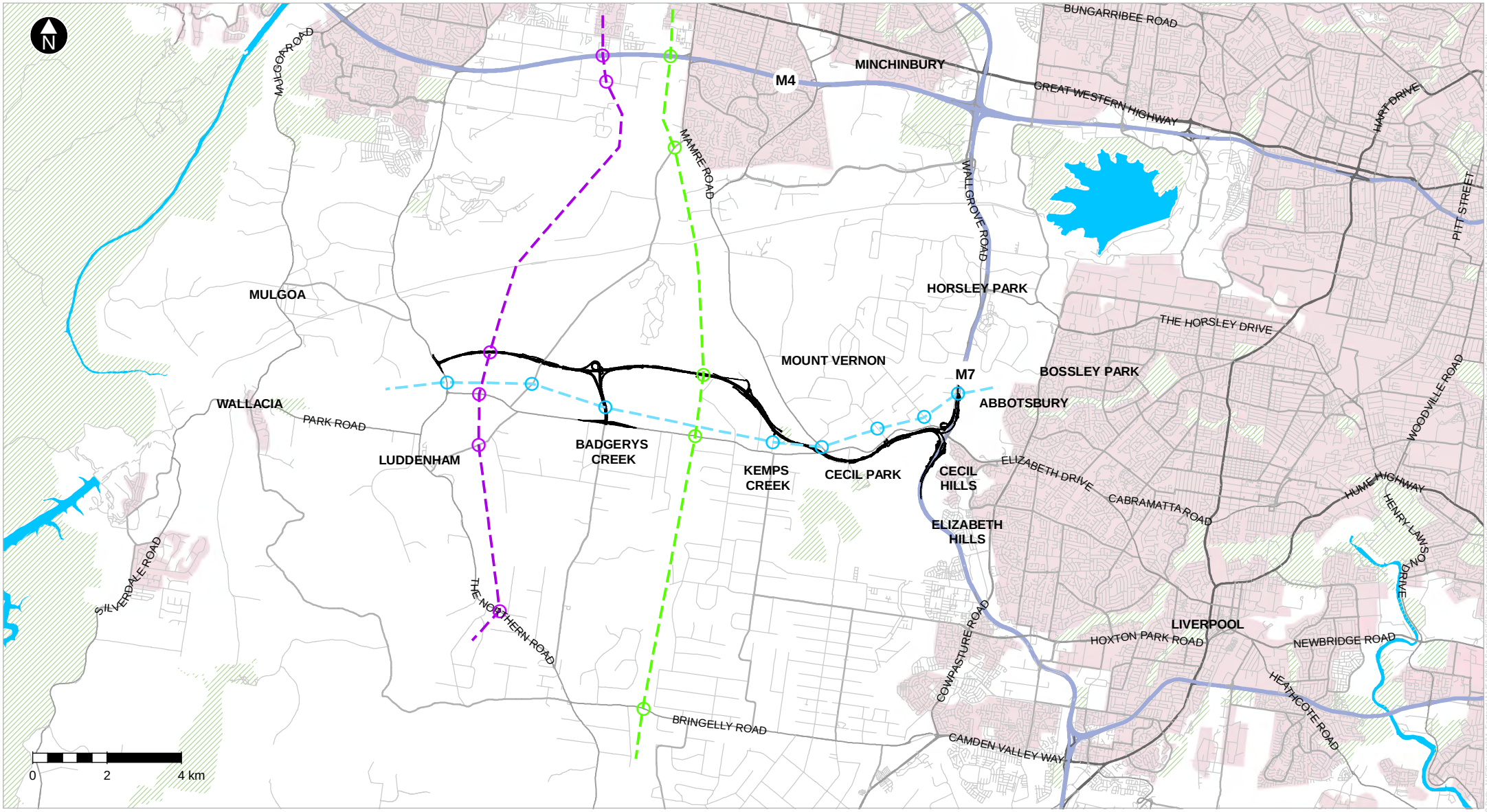

Figure 6-7 Screen lines for the amended project

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Table 6-15 Morning peak ‘do minimum’ screen line volume summary

Screen line	Amended project or project as described in the EIS	Total 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
Morning peak ‘do minimum’ (east-west screen line)							
East-west screen line (southbound)	Amended Project	4772	4579	6143	5879	8040	7681
	Project as per EIS	4772	4579	6822	6847	8574	8261
East-west screen line (northbound)	Amended Project	5714	5825	5557	5820	9303	8991
	Project as per EIS	5714	5825	7323	8230	9004	8946
Morning peak ‘do minimum’ (north-south screen line)							
Eastern north-south screen line (eastbound)	Amended Project	6085	5645	7361	7520	8388	8070
	Project as per EIS	6085	5645	7378	7896	9600	7891
Eastern north-south screen line (westbound)	Amended Project	3195	3696	5504	6362	6262	7147
	Project as per EIS	3195	3696	5645	6475	7035	7771
Western north-south screen line (eastbound)	Amended Project	4937	4479	5842	6094	6480	6293
	Project as per EIS	4937	4479	5833	6335	7097	6403
Western north-south screen line (westbound)	Amended Project	2976	3332	4192	4974	4662	5518
	Project as per EIS	2976	3332	4162	4903	4781	5301

Table 6-16 Evening peak ‘do minimum’ screen line volume summary

Screen line	Amended project or project as per EIS	Total 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
Evening peak ‘do minimum’ (east-west screen line)							
East-west screen line (southbound)	Amended Project	6159	5364	8633	8356	10,850	10,224
	Project as per EIS	6159	5364	8698	8657	10,697	10,185
East-west screen line (northbound)	Amended Project	5482	4842	6726	6446	8060	7547
	Project as per EIS	5482	4842	7568	7445	9215	9630
Evening peak ‘do minimum’ (north-south screen line)							
Eastern north-south screen line (eastbound)	Amended Project	3769	3557	6075	5988	7714	7489
	Project as per EIS	3769	3557	7691	7285	10,011	9817
Eastern north-south screen line (westbound)	Amended Project	6184	6512	8202	8558	9568	9829
	Project as per EIS	6184	6512	9265	9844	10,434	10,766
Western north-south screen line (eastbound)	Amended Project	3411	3402	4725	4582	5631	5802
	Project as per EIS	3411	3402	4965	4985	7271	7562
Western north-south screen line (westbound)	Amended Project	5118	5412	6107	6449	7277	7602
	Project as per EIS	5118	5412	7200	7667	8385	9312

Table 6-17 Forecast ‘do minimum’ daily heavy vehicle volumes on key roads in the study area

Road location	Direction	2012* base	Project as per EIS				Revised traffic forecast			
			2026 ‘do minimum’	% change from 2012	2036 ‘do minimum’	% change from 2012	2026 ‘do minimum’	% change from 2012	2036 ‘do minimum’	% change from 2012
The Northern Road north of Elizabeth Drive	Northbound	600	1430	138%	1370	128%	2560	327%	2940	390%
	Southbound	810	1600	98%	610	-25%	3340	312%	3240	300%
The Northern Road south of Elizabeth Drive	Northbound	620	1120	81%	1290	108%	2130	244%	2520	306%
	Southbound	890	1560	75%	560	-37%	2730	207%	2910	227%
Elizabeth Drive west of Adams Road	Eastbound	180	130	-28%	630	250%	700	289%	390	117%
	Westbound	240	430	79%	600	150%	670	179%	630	163%
Elizabeth Drive west of Devonshire Road	Eastbound	590	610	3%	1540	161%	1190	102%	990	68%
	Westbound	920	1110	21%	1450	58%	720	-22%	1020	11%
Elizabeth Drive east of Mamre Road	Eastbound	840	1290	54%	2390	185%	1620	93%	1870	123%
	Westbound	1460	1610	10%	2420	66%	1350	-8%	1500	3%

Road location	Direction	2012* base	Project as per EIS				Revised traffic forecast			
			2026 'do minimum'	% change from 2012	2036 'do minimum'	% change from 2012	2026 'do minimum'	% change from 2012	2036 'do minimum'	% change from 2012
Elizabeth Drive East of Wallgrove Road	Eastbound	1040	1650	59%	2770	166%	1870	80%	2260	117%
	Westbound	1660	1930	16%	2790	68%	1020	-39%	1120	-33%
Mamre Road north of Wallgrove Road	Northbound	390	1080	177%	2070	431%	310	-21%	150	-62%
	Southbound	220	1270	477%	1720	682%	460	109%	700	218%
Wallgrove Road north of Elizabeth Drive	Northbound	430	1050	144%	810	88%	2070	381%	1940	351%
	Southbound	740	1500	103%	1270	72%	650	-12%	450	-39%

**WRTM calibrated base year is 2012*

When compared to the project described in the EIS, the forecast 'do minimum' daily heavy vehicle volumes for the revised traffic forecast 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 – without the project

Analysis of 'do minimum' network performance for the revised traffic forecast shows the following:

- Total traffic demand in the study area is forecast to increase by 59 per cent during the morning peak and 59 per cent during the afternoon peak from 2017 to 2036. This is reflective of the large increase in residential land that is planned for release as part of the Western Parkland City, 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 and 58 per cent during the evening peak from 2017 to 2036
- Total travel time through the study area would increase by 139 per cent during the morning peak and 143 per cent during the evening peak from 2017 to 2036
- Average speeds through the study area would decrease by 21 per cent during the morning peak and 19 per cent during the evening peak from 2017 to 2036
- Three per cent of forecast demand in the morning peak and four per cent 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.

When compared to the project described in the EIS, the 'do minimum' network performance for the revised traffic forecast 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.

A summary of network performance statistics for the 2026 and 2036 'do minimum' scenarios, compared to the project as described in the EIS, is presented in **Table 6-18**.

Table 6-18 ‘Do minimum’ network performance statistics for the comparison of the project as described in the EIS to the amended project

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

Changes to intersection performance – without the project

Analysis of 'do minimum' intersection performance for the revised traffic forecast shows the following:

- In the 2026 'do minimum' scenario, the following intersections would perform poorly at LoS E or LoS F:
  - Elizabeth Drive / Mamre Road – LoS F (morning peak)
  - Elizabeth Drive / Wallgrove Road – LoS E (evening peak)
  - Elizabeth Drive / M7 Motorway – LoS F (morning and evening peak)
- In the 2036 'do minimum' scenario, the following intersections would perform poorly at LoS E or LoS F:
  - Elizabeth Drive / Luddenham Road – LoS E (morning peak)
  - Elizabeth Drive / Business Park West – LoS E (morning peak)
  - Elizabeth Drive / Martin Road – LoS F (morning peak)
  - Elizabeth Drive / Western Road – LoS F (morning peak)
  - Elizabeth Drive / Devonshire Road – LoS E (morning and evening peak)
  - Elizabeth Drive / Wallgrove Road – LoS F (morning and evening peak)
  - Elizabeth Drive / M7 Motorway – LoS F (morning and evening peak)
- 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 LoS 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.

When compared to the project described in the EIS, the 'do minimum' intersection performance for the Revised traffic forecast shows the following differences:

- During 2026 and 2036 scenario the performance of the most intersections improves
- During the 2026 scenario, a slight decline in performance at Elizabeth Drive / Business Park West and Elizabeth Drive / Martin Road in the morning peak
- During 2036 scenario, there is a decline at Elizabeth Drive / Luddenham Road, Elizabeth Drive /Martin Road and Elizabeth Drive / Western Road in the morning peak.

These changes reflect the change to the demand growth in SMPM version 1.1 and amended designs for intersections to be upgraded.

A summary of 'do minimum' intersection performance, compared to the project as described in the EIS, is presented in **Table 6-19**.

Table 6-19 Intersection performance – 2026 and 2036 'do minimum' scenarios

Intersection	Revised traffic forecast or project as per 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	Revised traffic forecast	12	A	43	D	55	D	11	A	41	C	31	C
	Project as per EIS	12	A	67	E	183	F	11	A	51	D	64	E
Elizabeth Drive / Luddenham Road	Revised traffic forecast	13	A	46	D	66	E	18	B	44	D	55	D
	Project as per EIS	13	A	77	F	41	C	18	B	179	F	66	E
Elizabeth Drive / Business Park East	Revised traffic forecast	N/A	N/A	36	C	32	C	N/A	N/A	30	C	28	B
	Project as per EIS	N/A	N/A	30	C	33	C	N/A	N/A	33	C	34	C
Elizabeth Drive / Business Park West	Revised traffic forecast	N/A	N/A	30	C	66	E	N/A	N/A	26	B	33	C
	Project as per EIS	N/A	N/A	25	B	120	F	N/A	N/A	31	C	31	C

Intersection	Revised traffic forecast or project as per 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	Revised traffic forecast	9	A	47	D	155	F	12	A	32	C	40	C
	Project as per EIS	9	A	36	C	44	D	12	A	85	F	48	D
Elizabeth Drive / Western Road	Revised traffic forecast	14	A	38	C	171	F	9	A	32	C	36	C
	Project as per EIS	14	A	61	E	42	C	9	A	390	F	45	D
Elizabeth Drive / Devonshire Road	Revised traffic forecast	13	A	35	C	60	E	12	A	27	B	59	E
	Project as per EIS	13	A	126	F	80	F	12	A	166	F	73	F
Elizabeth Drive / Mamre Road	Revised traffic forecast	14	A	75	F	33	C	14	A	36	C	35	C
	Project as per EIS	14	A	190	F	36	C	14	A	56	D	38	C

Intersection	Revised traffic forecast or project as per 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	Revised traffic forecast	12	A	18	B	18	B	9	A	14	A	20	B
	Project as per EIS	12	A	17	B	23	B	9	A	119	F	26	B
Elizabeth Drive / Wallgrove Road	Revised traffic forecast	31	C	32	C	98	F	48	D	58	E	71	
	Project as per EIS	31	C	45	D	74	F	48	D	117	F	110	F
Elizabeth Drive / M7 Motorway	Revised traffic forecast	20	B	257	F	339	F	17	B	294	F	283	F
	Project as per EIS	20	B	260	F	283	F	17	B	267	F	216	F

Orange shading = LoS E or worse for intersection for the revised traffic forecast
Yellow shading = LoS E or worse for intersection for the project as per EIS

Changes to general traffic travel times

Analysis of ‘do minimum’ general traffic travel times for the amended project shows the following:

- 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 upgrades in 2026 and widening of entire length 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.

The majority of ‘do minimum’ general traffic travel times for the amended project are similar or lower when compared to the project described in the EIS. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower.

‘Do minimum’ general traffic travel times have been re-established for the amended project as described in **Section 6.2.1**, and are shown in **Figure 6-8** to **Figure 6-13**.

M7 Motorway

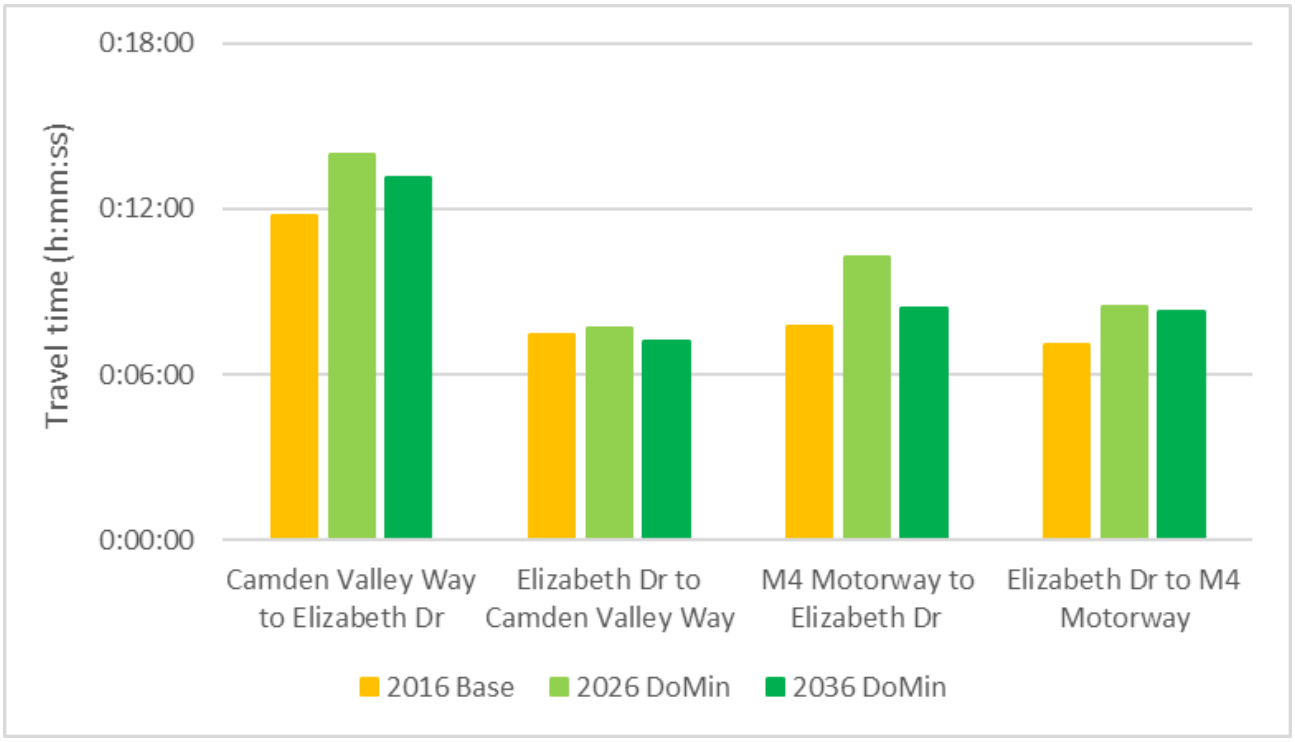

Figure 6-8 M7 Motorway morning peak travel time (8am to 9am)

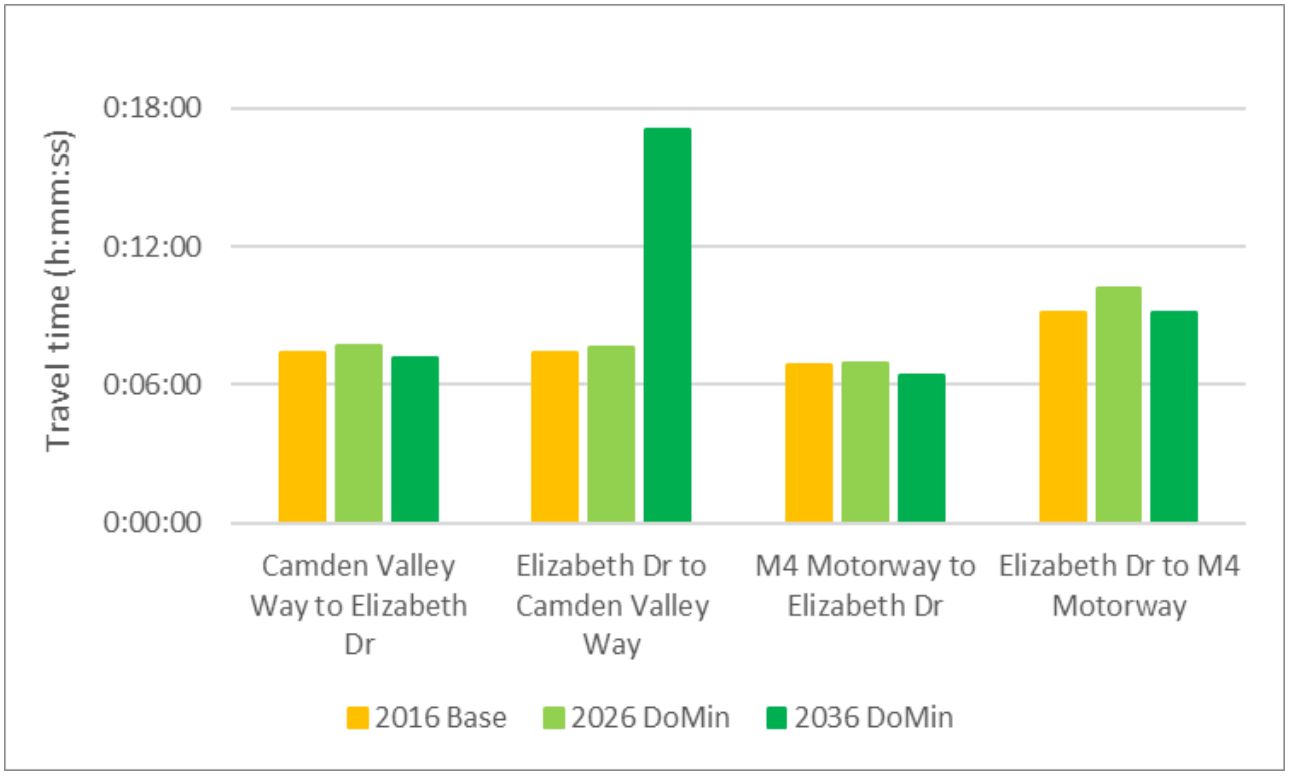

Figure 6-9 M7 Motorway evening peak travel time (5pm to 6pm)

The Northern Road

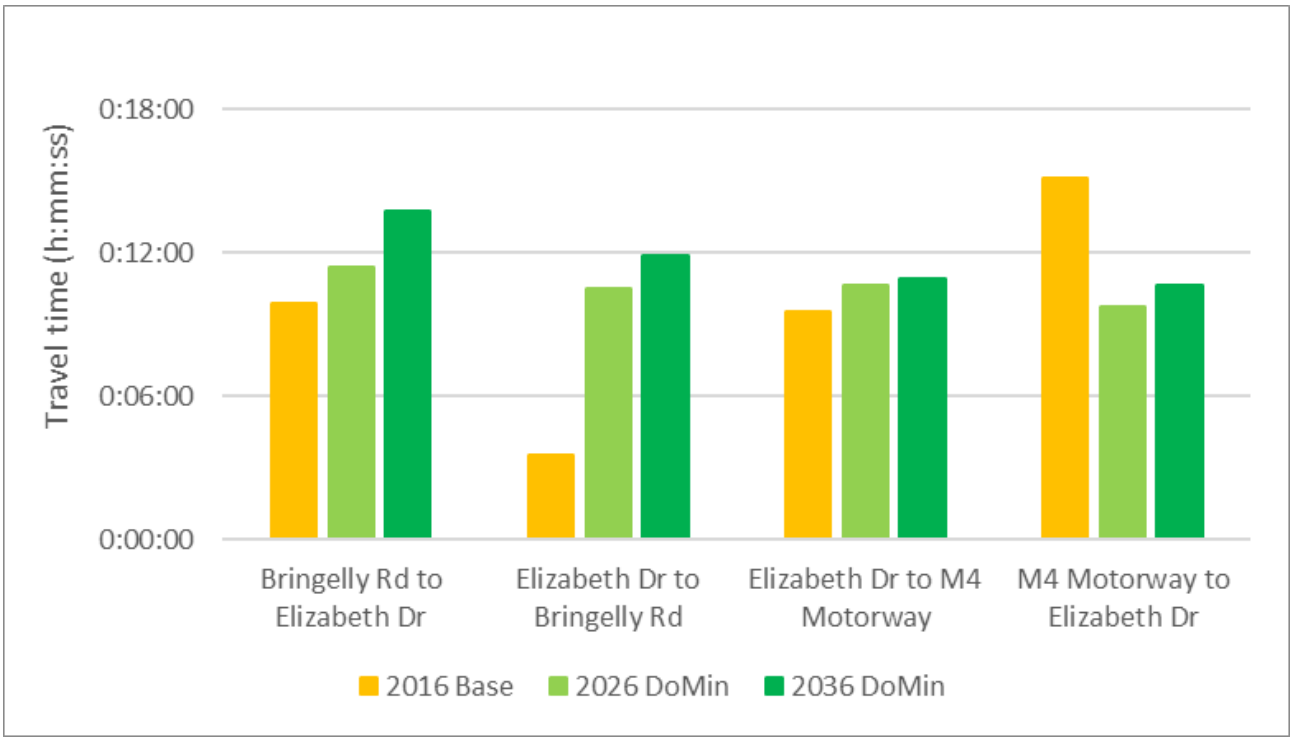

Figure 6-10 The Northern Road morning peak travel time (8am to 9am)

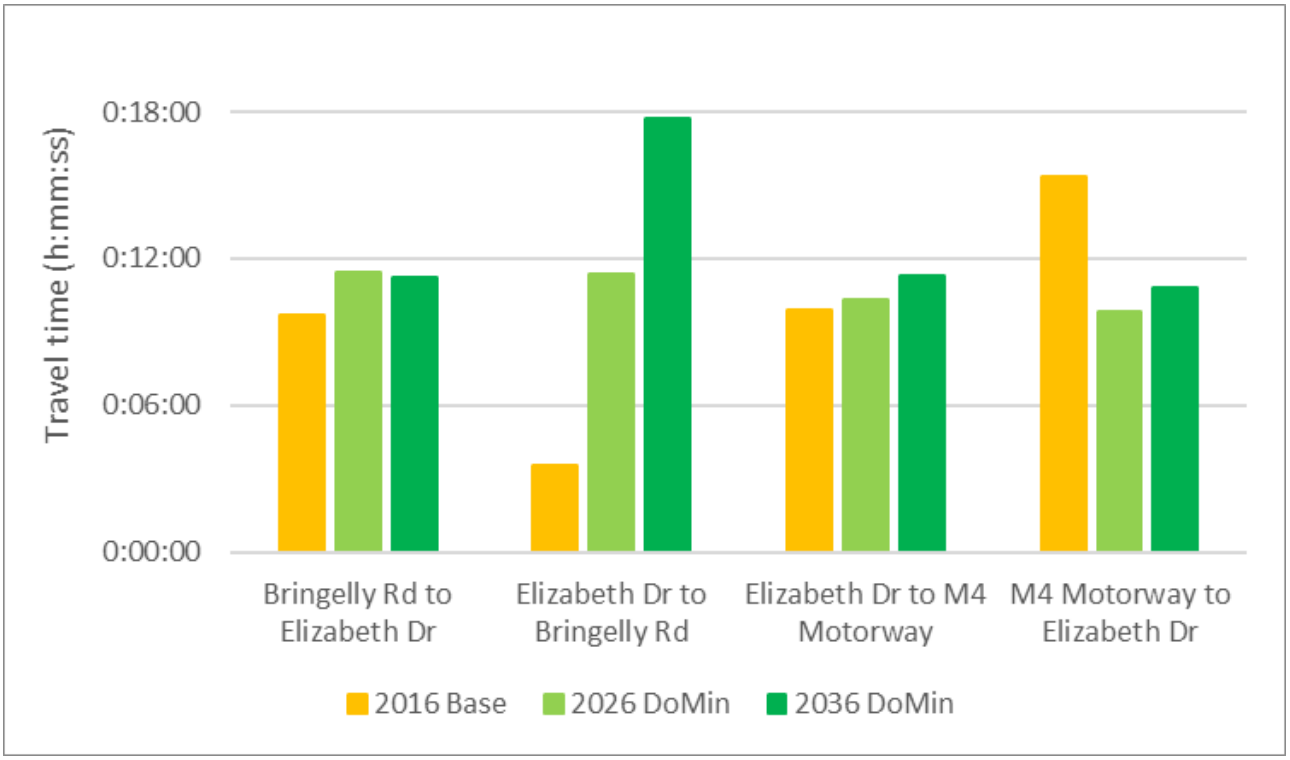

Figure 6-11 The Northern Road evening peak travel time (5pm to 6pm)

Elizabeth Drive

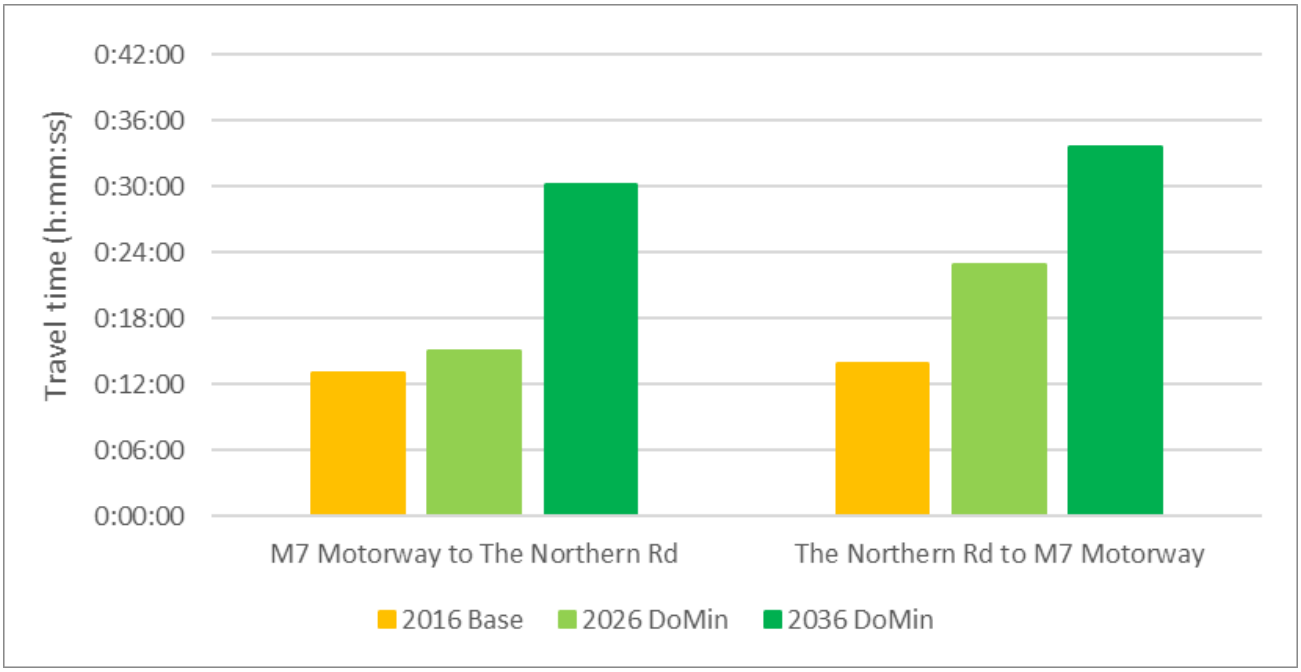

Figure 6-12 Elizabeth Drive morning peak travel time (8am to 9am)

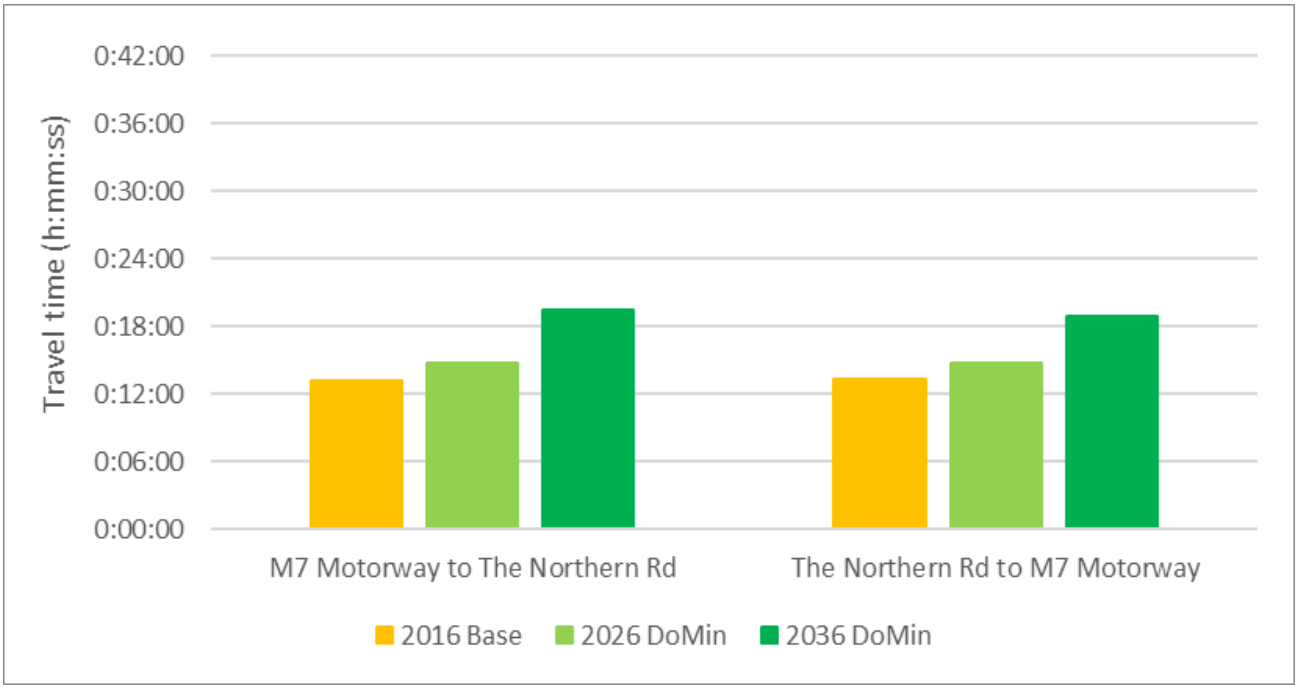

Figure 6-13 Elizabeth Drive evening peak travel time (5pm to 6pm)

Changes to regional road network volumes – with the project

The total 'with amended project' scenario traffic volume forecasts for key primary arterial roads in the study area are provided in **Table 6-20** and **Table 6-21**. A full breakdown of the traffic volume forecasts along each screen line is provided in Table 6-18 to 6-21 of **Appendix B**.

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 (see **Table 6-15** and **Table 6-16**)
  - 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 amended project 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 (see **Table 6-15** and **Table 6-16**)
  - The majority of this additional traffic would be along the amended project. Up to 60 per cent of traffic that would travel along Elizabeth Drive in the 'do minimum' scenarios would transfer to the amended project, providing additional capacity along Elizabeth Drive.
- The transfer of traffic from Elizabeth Drive to the amended project 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 (with Elizabeth Drive connections) would result in more traffic using the amended project 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.

When compared to the project described in the EIS, the forecast 'do minimum' traffic volumes for the amended project shows the following differences:

- 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 6.2.1.1**
- 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 amended project are lower for option 1 and higher for option 2
  - This reflects increased connectivity to the local road network that option 2 provides.

Table 6-20 Morning peak 'with amended project' screen line volume summary

Screen line	Number of vehicles															
	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		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
Morning peak 'with amended project' (east-west screen line)																
East-west screen line (southbound)	6143	5879	6704	6582	6377	6346	6598	6368	8040	7681	9414	9541	8956	8933	9678	9524
East-west screen line (northbound)	5557	5820	7548	8966	7866	8279	7860	8468	9303	8991	10,629	10,501	11,268	11,629	11,656	12,120
Morning peak 'with amended project' (north-south screen line)																
Eastern north-south screen line (eastbound)	7361	7520	8391	8626	7568	8139	7954	8325	8388	8070	10,522	10,056	10,702	10,273	10,813	10,662
Eastern north-south screen line (westbound)	5504	6362	5812	6698	5345	6018	5359	5974	6262	7147	7299	8216	7246	7883	7423	8016

Screen line	Number of vehicles															
	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		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
Western north-south screen line (eastbound)	5842	6094	6642	6859	5151	5213	5809	6056	6480	6293	7818	8263	6092	5986	7657	7956
Western north-south screen line (westbound)	4192	4974	4366	5203	3803	4333	4046	4737	4662	5518	5112	5883	4871	5331	5598	6065

Table 6-21 Evening peak 'with amended project' screen line volume summary

Screen line	Number of vehicles															
	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		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
Evening peak 'with amended project' (east-west screen line)																
East-west screen line (southbound)	8633	8356	8555	8747	9363	8646	9653	9190	10,850	10,224	11,357	10,774	11,505	11,746	13,200	13,096
East-west screen line (northbound)	6726	6446	8757	8069	7394	6930	7507	7109	8060	7547	11,635	11,310	9833	9480	9967	9639
Evening peak 'with amended project' (north-south screen line)																
Eastern north-south screen line (eastbound)	6075	5988	8126	7951	6216	6080	6215	6037	7714	7489	11,720	10,539	9072	8707	9112	8727
Eastern north-south screen line (westbound)	8202	8558	9708	10,295	9080	9178	9148	9161	9568	9829	11,202	11,177	10,259	10,810	10,191	11,016

Screen line	Number of vehicles															
	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		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 (eastbound)	4725	4582	5389	5260	4464	4372	4767	4708	5631	5802	8089	7740	5517	5580	6287	6237
Western north-south screen line (westbound)	6107	6449	7596	7883	5902	6093	6617	6900	7277	7602	9482	9230	7081	7425	8342	8903

Changes to network performance – with the project

Analysis of 'with amended project' network performance for the amended project shows the following:

- Network performance statistics between option 1 and option 2 are very similar, with option 2 (with Elizabeth Drive connections) 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 (for option 2) and up to eight per cent during the evening peak (for option 2) by 2036; this is due to additional travel distance along the amended project
- The amended project would result in total travel time through the study area decreasing by up to seven per cent during the morning peak (for option 2) and up to eight per cent during the evening peak (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 (option 2) and up to seven per cent during the evening peak (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.

When compared to the project described in the EIS, the 'with amended project' network performance for the amended project 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.

A summary of network performance statistics for the 2026 and 2036 'with amended project' scenarios, compared to the project as described in the EIS, is presented in Table 6-22 and **Table 6-23**.

Changes to intersection performance – with the 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 (with Elizabeth Drive connections) would result in improved performance at most intersections. Option 2 would result in more traffic using the amended project and less traffic using Elizabeth Drive compared to option 1, therefore reducing demand and delays along the Elizabeth Drive corridor.

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

Network measure	Amended project or project as per EIS	2026 ‘do minimum’	2026 ‘with project’[2]		2036 ‘do minimum’	2036 ‘with project’	
			Option 1	Option 2		Option 1	Option 2
Network statistics for all vehicles							
Total traffic demand (vehicles)	Amended Project	252,184	252,435	252,435	307,926	307,545	307,545
	Project as per EIS	276,206	269,769		344,333	338,577	
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 per EIS	2,350,227	2,414,354		2,673,216	2,845,037	
Total vehicle travel time through the network (hours)	Amended Project	43,142	42,986	44,825	68,597	67,243	63,605
	Project as per EIS	60,008	61,348		74,249	75,995	
Average network speed (km/h)	Amended Project	53	53	53	46	47	50
	Project as per EIS	39	39		36	37	

[2] The project as per the EIS did not have two options. As a result, the 2026 and 2036 ‘with project’ scenarios for the project as per EIS do not distinguish between option 1 and option 2

Network measure	Amended project or project as per EIS	2026 'do minimum'	2026 'with project'[2]		2036 'do minimum'	2036 'with project'	
			Option 1	Option 2		Option 1	Option 2
Total vehicles entering the network	Amended Project	248,430	245,297	247,762	295,510	292,703	297,408
	Project as per EIS	268,058	269,648		305,541	307,046	
Unreleased traffic							
Total unreleased trips	Amended Project	241	3287	888	7484	9567	5432
	Project as per EIS	10,383	10,207		37,133	39,182	
% of demand unreleased	Amended Project	0%	1%	<1%	3%	3%	2%
	Project as per EIS	4%	4%		11%	12%	

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

Network measure	Amended project or project as per EIS	2026 'do minimum'	2026 'with project'[3]		2036 'do minimum'	2036 'with project'	
			Option 1	Option 2		Option 1	Option 2
Network statistics for all vehicles							
Total traffic demand (vehicles)	Amended Project	291,873	292,328	292,328	355,643	355,951	355,951
	Project as per EIS	345,296	338,126		455,336	449,659	
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 per EIS	2,802,008	2,875,652		3,185,503	3,411,466	
Total vehicle travel time through the network (hours)	Amended Project	50,655	48,702	48,158	77,562	71,620	71,661
	Project as per EIS	78,157	70,063		96,743	95,691	
Average network speed (km/h)	Amended Project	52	54	54	46	48	49
	Project as per EIS	36	41		33	36	

[3] The project as per the EIS did not have two options. As a result, the 2026 and 2036 'with project' scenarios for the project as per EIS do not distinguish between option 1 and option 2

Network measure	Amended project or project as per EIS	2026 'do minimum'	2026 'with project'[3]		2036 'do minimum'	2036 'with project'	
			Option 1	Option 2		Option 1	Option 2
Total vehicles entering the network	Amended Project	285,957	286,975	286,853	333,605	339,224	340,394
	Project as per EIS	332,230	328,467		376,363	378,351	
Unreleased traffic							
Total unreleased trips	Amended Project	3236	1,588	1,679	14,293	10,568	9,588
	Project as per EIS	23,351	21,866		80,179	81,972	
% of demand unreleased	Amended Project	1%	<1%	<1%	4%	3%	3%
	Project as per EIS	7%	6%		18%	18%	

When compared to the project described in the EIS, the 'with amended project' intersection performance for the amended project shows an improvement at all intersections with the exception of The Northern Road / M12 Motorway intersection, where less traffic uses Elizabeth Drive and more traffic uses the project under option 2 (with Elizabeth Drive connections).

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.

A summary of 'with amended project' intersection performance compared to the project as described in the EIS is presented in **Table 6-24** and **Table 6-25**

Changes to general traffic travel times – with the project

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

- 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 amended project 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 (with Elizabeth Drive connections) 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 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 (without Elizabeth Drive connections) 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 (without Elizabeth Drive connections) would generally result in increased travel times as result of more traffic using Elizabeth Drive

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

Intersection	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS
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

Intersection	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS
Elizabeth Drive / Martin Road	47	D	39	C	25	B	21	B	155	F	34	C	35	C	29	C
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

Intersection	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS
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
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

Orange shading = LoS E or worse for the amended project,
Yellow shading = Los E or worse for the project as per EIS

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

Intersection	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS
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

Intersection	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS
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
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

Intersection	2026 'do minimum'		2026 'with project' as per EIS		2026 'with amended project' – option 1		2026 'with amended project' – option 2		2036 'do minimum'		2036 'with project' as per EIS		2036 'with amended project' – option 1		2036 'with amended project' – option 2	
	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS	Av.delay (secs)	LoS
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

Orange shading = LoS E or worse for the amended project,
Yellow shading = Los E or worse for the project as per EIS

- Travel times on the amended project would increase between 2026 and 2036, reflecting the forecast growth in traffic volumes associated with Western Sydney International Airport.
  - Although travel times on the amended project 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 (with Elizabeth Drive connections) would generally result in increased travel times as result of more traffic using the amended project.

The majority of 'with amended project' general traffic travel times are similar or lower when compared to the project described in the EIS. This reflects the change to the demand growth in SMPM version 1.1 that has resulted in forecast traffic volumes being lower.

'With amended project' general traffic travel times, including 2026 and 2036 'do minimum', option 1 and option 2 are shown and compared to the project as described in the EIS in **Figure 6-14** to **Figure 6-21**.

Changes to freight transport – with the project

The amended project would 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. The amended project 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.

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.

Analysis of forecast 'with amended project' daily heavy vehicle volumes compared to existing conditions 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.

As discussed previously, substantial growth in forecast daily heavy vehicle volumes for the amended project on The Northern Road, Elizabeth Drive and Wallgrove Road is largely attributed to the Western Sydney International Airport itself as well as adjacent employment areas.

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.

M7 Motorway

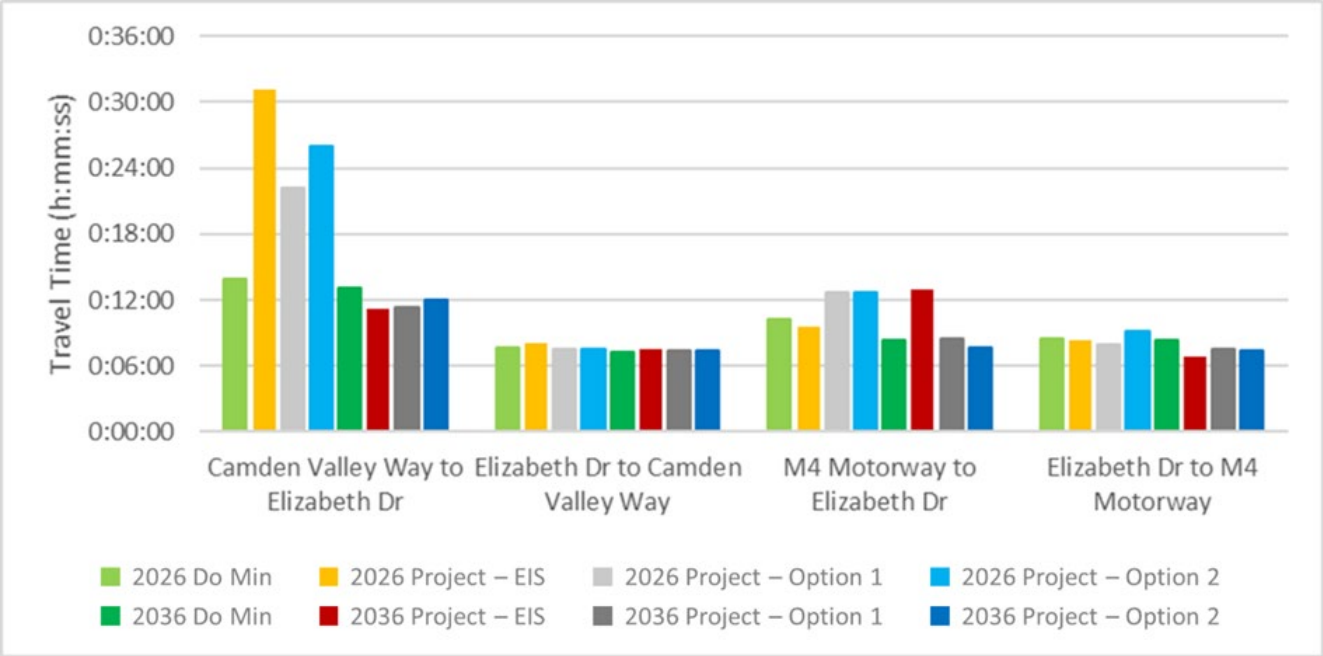

Figure 6-14 M7 Motorway morning peak travel time (8am to 9am)

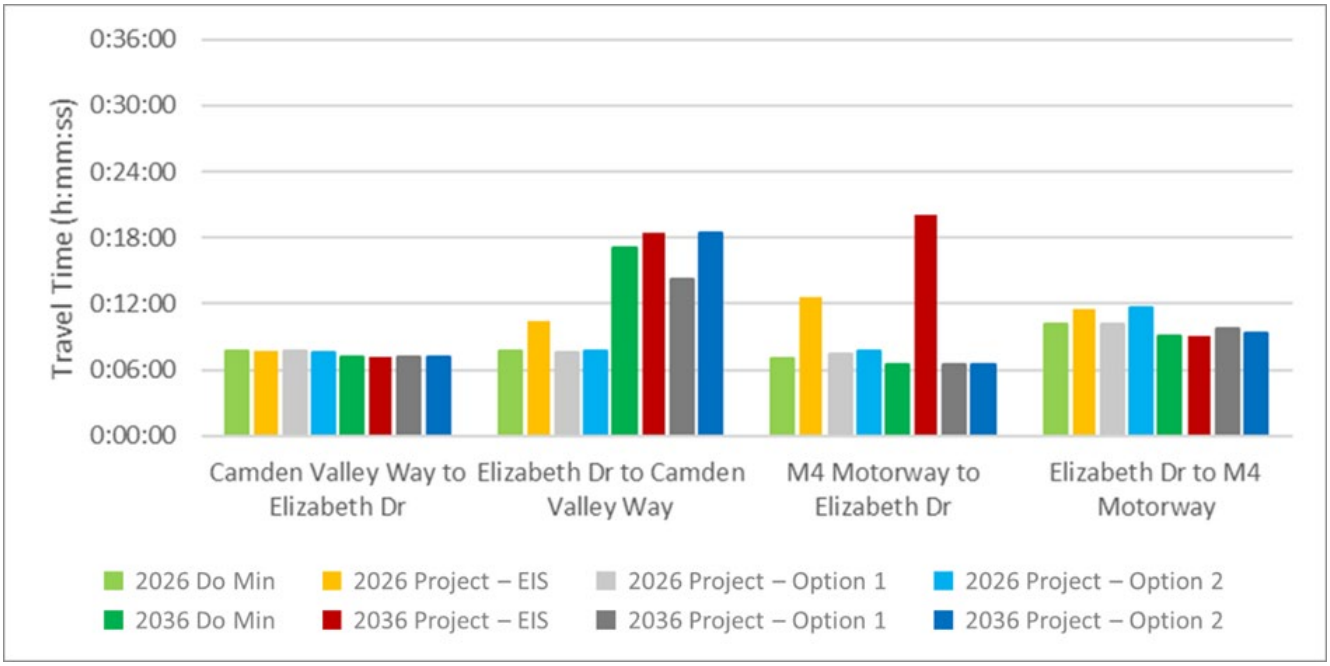

Figure 6-15 M7 Motorway evening peak travel time (5pm to 6pm)

The Northern Road

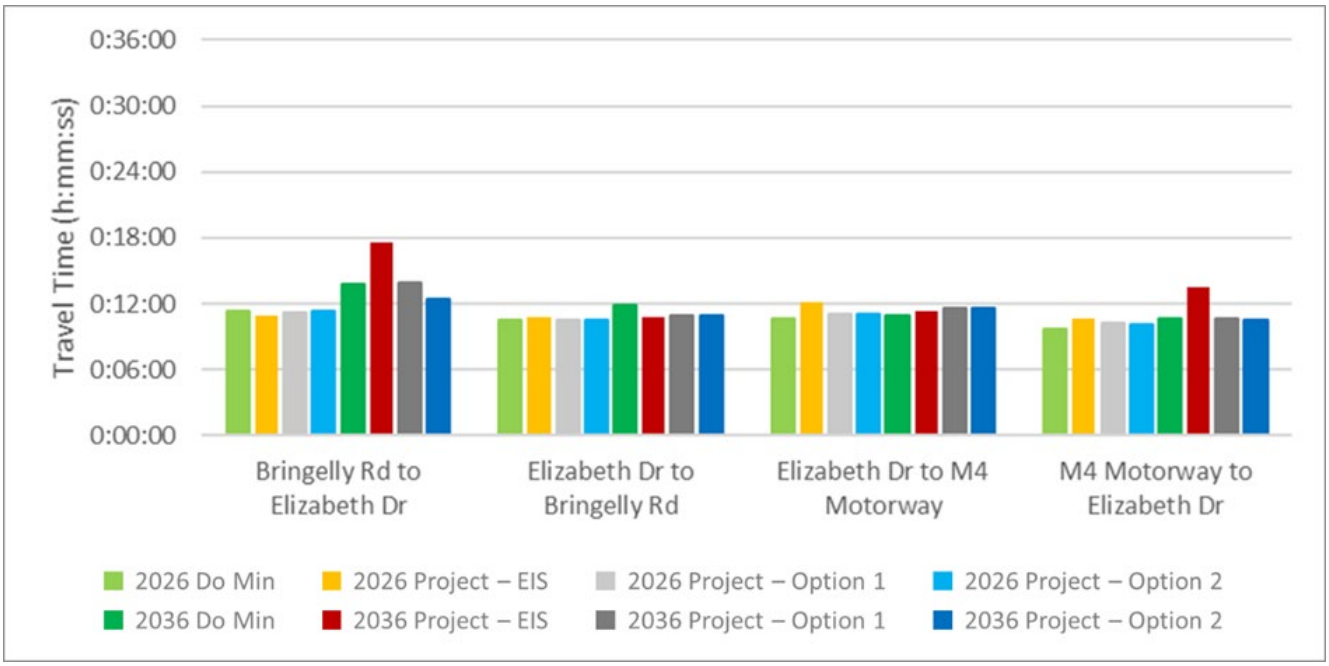

Figure 6-16 The Northern Road morning peak travel time (8am to 9am)

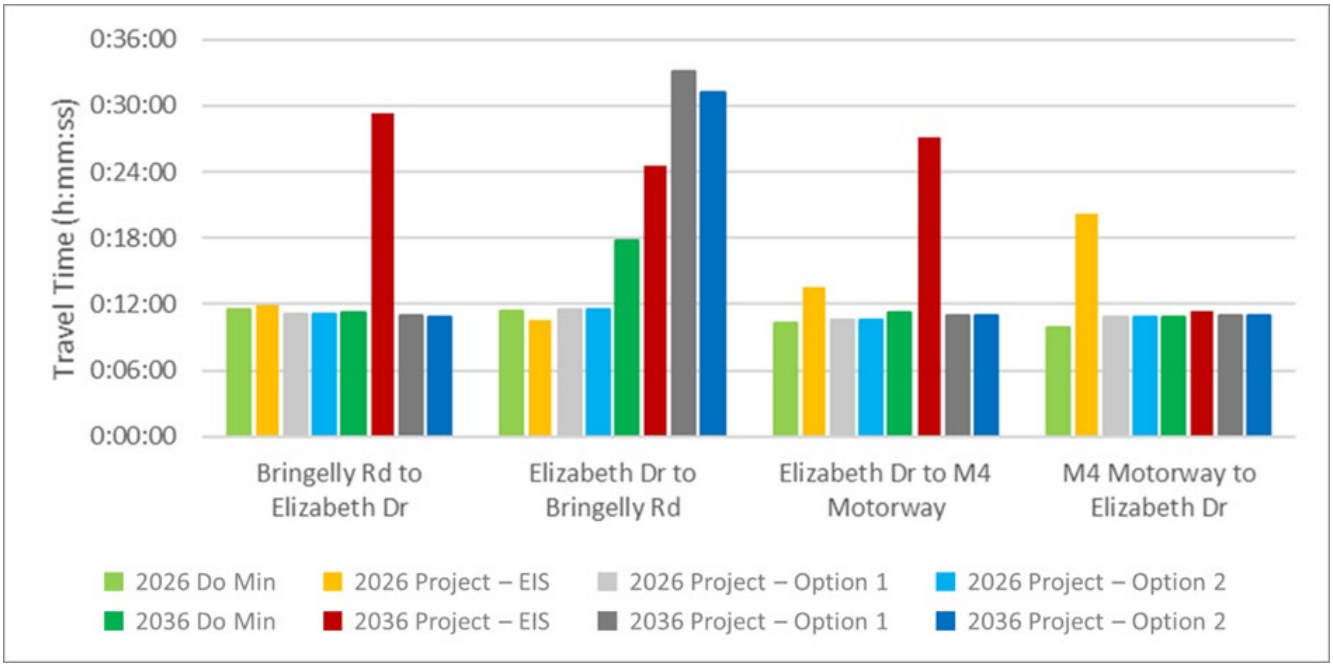

Figure 6-17 The Northern Road evening peak travel time (5pm to 6pm)

Elizabeth Drive

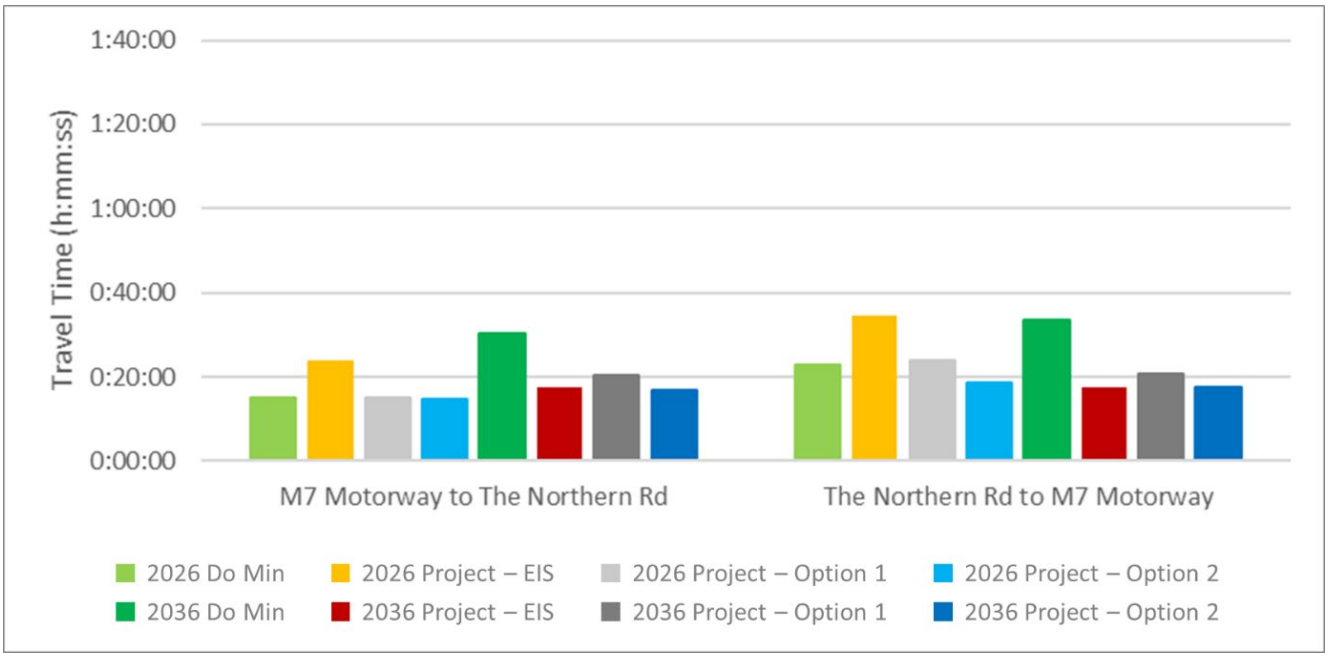

Figure 6-18 Elizabeth Drive morning peak travel time (8am to 9am)

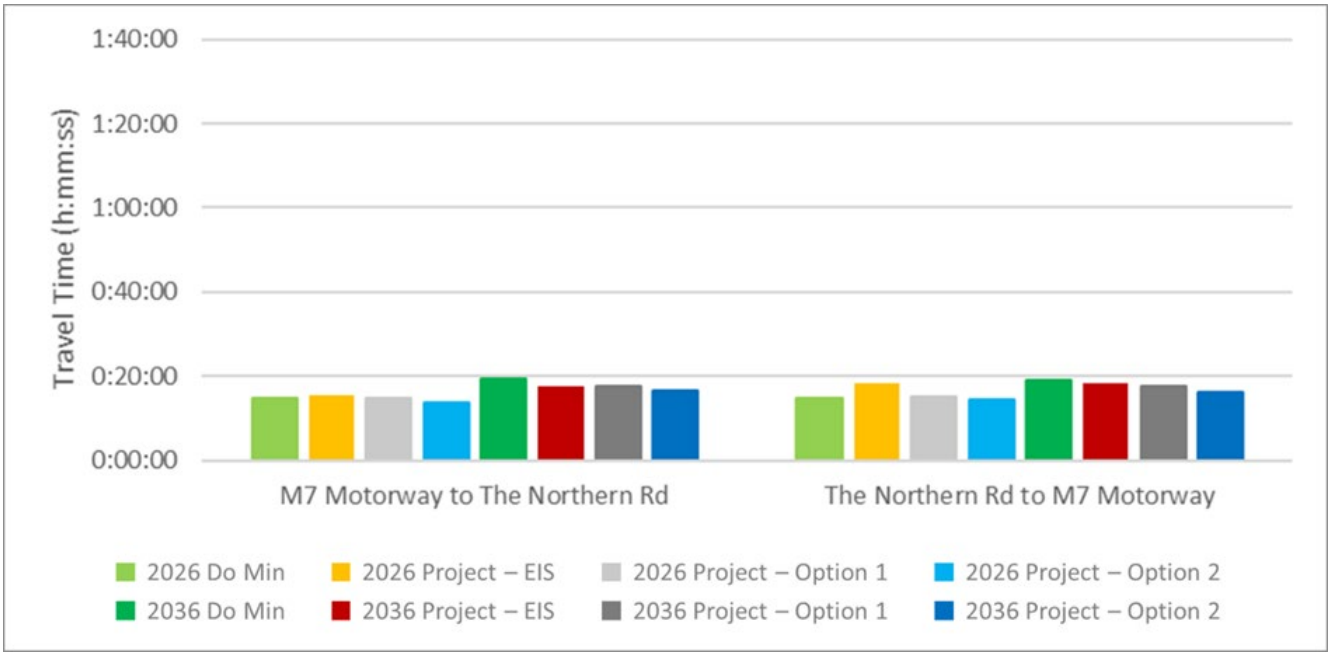

Figure 6-19 Elizabeth Drive evening peak travel time (5pm to 6pm)

M12 Motorway

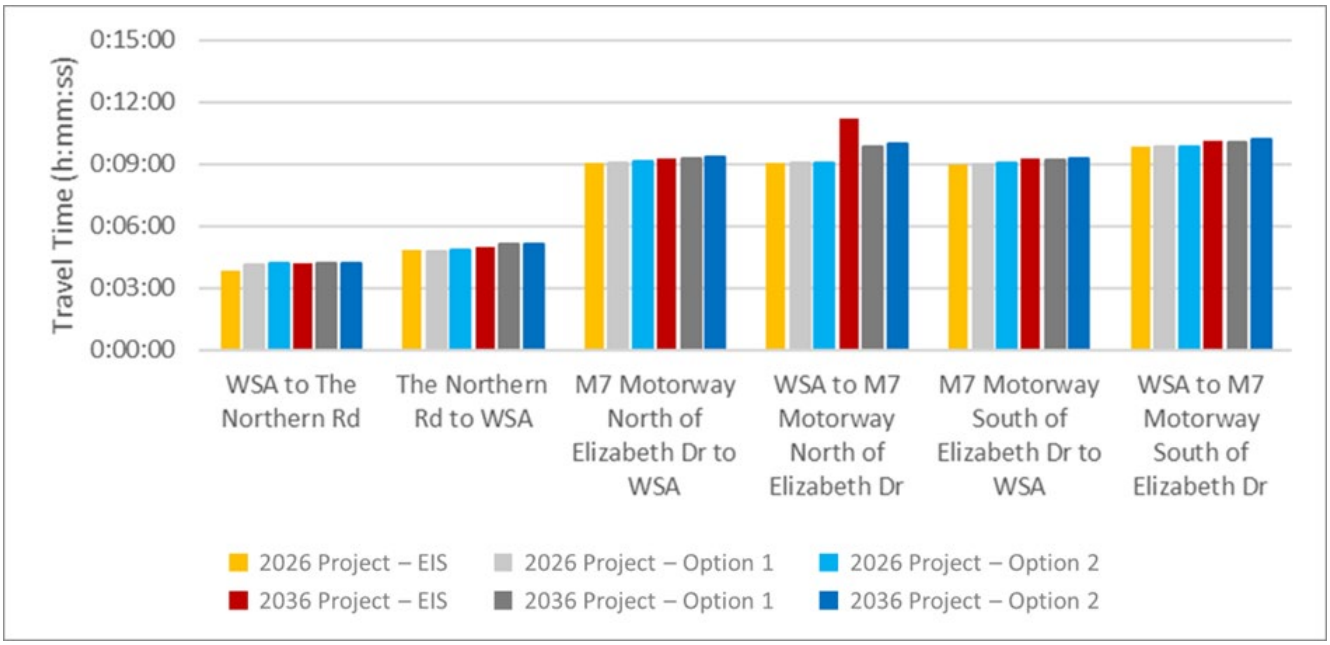

Figure 6-20 M12 Motorway morning peak travel times (8am to 9am)

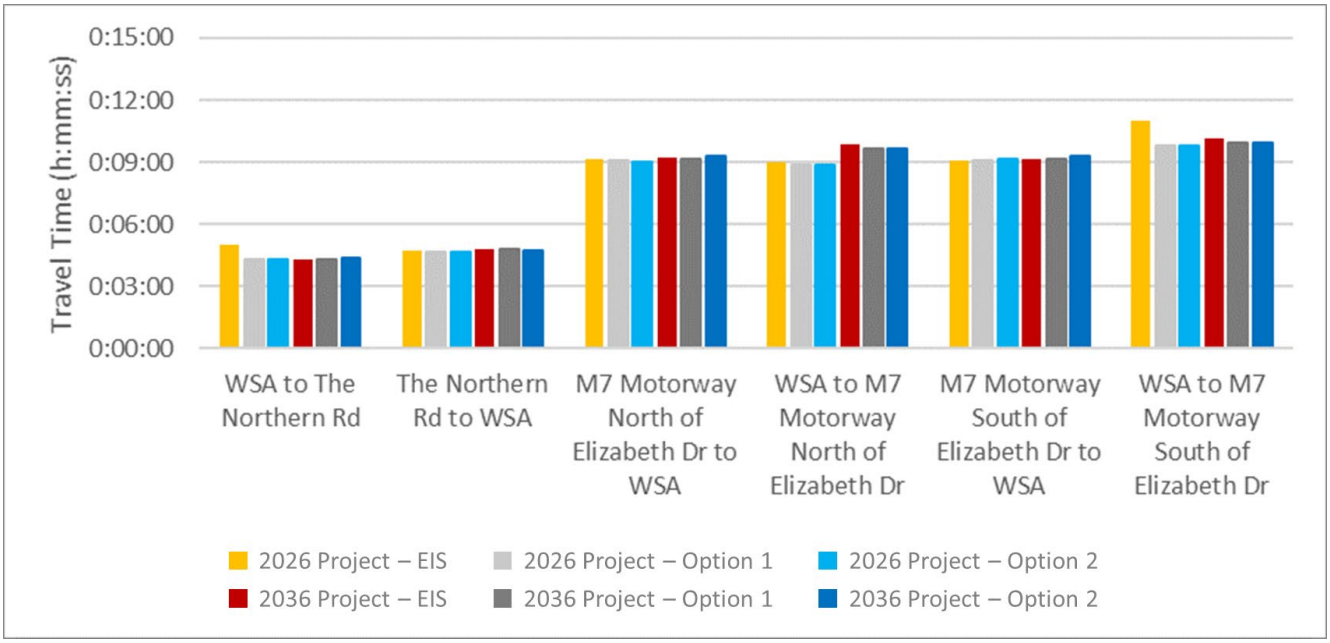

Figure 6-21 M12 Motorway evening peak travel times (5pm to 6pm)

When compared to the project described in the EIS, the forecast 'with amended project' daily heavy vehicle volumes for the amended project shows the following differences:

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

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** and **Table 6-27**.

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 project' as per EIS	2026 'with amended project'	% change from 2026 'do minimum'	% change from '2026 do minimum' to 'with project' as per EIS
The Northern Road north of Elizabeth Drive	Northbound	2560	880	2740	7%	-38%
	Southbound	3340	1400	3880	16%	-13%
The Northern Road south of Elizabeth Drive	Northbound	2130	650	2130	0%	-42%
	Southbound	2730	1360	2690	-1%	-13%
Elizabeth Drive west of Adams Road	Eastbound	700	120	590	-16%	-8%
	Westbound	670	320	400	-40%	-26%
Elizabeth Drive west of Devonshire Road	Eastbound	1190	670	830	-30%	10%
	Westbound	720	1160	320	-56%	5%
Elizabeth Drive east of Mamre Road	Eastbound	1620	1410	1340	-17%	9%
	Westbound	1350	1730	1060	-21%	7%

Road location	Direction	2026 'do minimum'	2026 'with project' as per EIS	2026 'with amended project'	% change from 2026 'do minimum'	% change from '2026 do minimum' to 'with project' as per EIS
Elizabeth Drive east of Wallgrove Road	Eastbound	1870	1840	1780	-5%	12%
	Westbound	1020	2040	1110	9%	6%
Mamre Road north of Wallgrove Road	Northbound	310	990	330	6%	-8%
	Southbound	460	1210	460	0%	-5%
Wallgrove Road north of Elizabeth Drive	Northbound	2070	1280	2030	-2%	22%
	Southbound	650	1530	600	-8%	2%
M12 Motorway Western Sydney International Airport Access Road	Northbound	N/A	180	490	N/A	N/A
	Southbound	N/A	110	300	N/A	N/A
M12 Motorway west of Western Sydney International Airport	Eastbound	N/A	1340	720	N/A	N/A
	Westbound	N/A	1690	1340	N/A	N/A
M12 Motorway east of Western Sydney International Airport	Eastbound	N/A	1520	1200	N/A	N/A
	Westbound	N/A	1790	1630	N/A	N/A

[1] *EIS data from Table 6-26 of Appendix F of the EIS*

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

6.2.4 Cumulative impact

The EIS identified that the project would have a minor cumulative transport and traffic impacts associated with the construction of other transport projects in south-western Sydney, where the construction schedules of those projects overlaps with that of the 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 the amended project would be likely to remain consistent with the assessment carried out as per Section 7.2.7 of the EIS.

6.2.5 Environmental management measures

The amended project shows improved levels of performance compared to the project as described in the EIS. This is mostly due to the reduction in overall network demands as result of updating to using SMPM Version 1.1. As a result, the environmental management measures identified for the project as described in the EIS (see Section 7.2.8 of the EIS) are therefore considered appropriate to manage the transport and traffic impacts associated with the amended project. These measures are consistent between the two options.