

22 TRAFFIC

22.1 EFFECTS OF ROAD TRAFFIC ON MAJOR PUBLIC ROADS

Issue:

Clarification was sought on BHP Billiton's management and mitigation strategies to minimise impacts of moving over-dimensional loads on the South Australian (SA) road network.

Submissions: 2 and 62

Response:

Based on traffic management plans to be put in place, and subject to a detailed study, BHP Billiton intends to construct sufficient passing bays on the Stuart Highway and Roxby Downs–Pimba Road to minimise the impacts of the proposed movement of over-dimensional loads on other road users.

Section 19.5.6 and Appendix Q9 of the Draft EIS provided a summary of the predicted number of over-dimensional load movements in each year from 2010 to 2020 for four categories of loads:

- loads greater than 8 m wide requiring a temporary road closure
- loads requiring both pilot and police escort
- loads requiring pilot escort only
- loads requiring a permit only with no escort.

The origin of over-dimensional loads would be determined as further detailed planning was undertaken and commercial contracts negotiated.

Originating from Adelaide

At this stage it is anticipated that the majority of over-dimensional loads from Adelaide would be less than 8 m wide, and these would require pilot escort or a permit only with no police escort. A small number may require both pilot and police escort. These loads would comply with the existing arrangements for such consignments on South Australia roads and would have minimal impact on traffic flows on public roads. Loads wider than 8 m would be moved from the proposed landing facility and access corridor in Upper Spencer Gulf.

Originating from the landing facility in Upper Spencer Gulf

The Traffic Impact Assessment (TIA) undertaken for the Draft EIS (provided as Appendix Q9 and summarised in Section 19.5.6) and summarised in Section 19.5.6 determined that loads up to 8 m wide would move, on average, every four to five days and loads greater than 8 m would move, on average, once every three to four days during peak construction periods. The assessment, based on a worst-case scenario of one convoy a day, considered the impact to traffic (including the travelling public) of transporting over-dimensional loads on public roads, including the maximum number of vehicles that would be delayed during a 45-minute road closure.

Detailed planning and scheduling information would be developed with the object of minimising traffic delays as further design work was completed for the proposed expansion.

All over-dimensional loads that currently travel on the SA road network and over-dimensional loads for the proposed expansion are transported according to the established SA legislation and regulations and in accordance with SA Department of Transport, Energy and Infrastructure (DTEI) policies and guidelines. On the Stuart Highway north of Port Augusta, the DTEI policy document *Transport of Oversize and Overmass Indivisible Loads and Vehicles*, dated June 2006, allows over-dimensional loads to move in convoys of two vehicles per day. Assuming that two-vehicle convoys were used, then convoys for loads up to 8 m wide would travel to Olympic Dam every eight to 10 days, and loads wider than 8 m every six to eight days. At this stage, it is anticipated that the lower end of this average range (i.e. every eight days for loads less than 8 m wide and every six days for loads wider than 8 m) would be likely.

The TIA also assessed the impact of transporting over-dimensional loads which may cause periodic delays and disruptions to road users and local residents during the construction phase. In order to reduce such delays to a maximum of 45 minutes, BHP Billiton is proposing to construct 15 passing bays – nine on the Stuart Highway and six on the Roxby Downs–Pimba Road. Currently, there are 10 bays on the Stuart Highway, including one near Pimba, and none on the Roxby Downs–Pimba Road. The exact location of proposed bays is not yet known, and would be subject to a detailed investigation to determine the required spacing and size to accommodate waiting traffic; but, as noted in Section 19.5.6 of the Draft EIS, they are likely to be about 17 km apart. Based on a worst-case scenario of one convoy a day, the travelling public (including residents of Pimba, Woomera and the Outback) may be subject to one road closure or delay for 45 minutes associated with the movement of such a load.

As part of the traffic management plan for the movement of over-dimensional loads, BHP Billiton, in consultation with DTEI, would undertake detailed planning and develop appropriate procedures for:

- the number of convoys permitted and overall make-up of such convoys for travel over a designated period
- advance and rear warnings to approaching motorists to reduce their speed as they neared a passing bay (in the case of a road closure) or as they were approaching an over-dimensional load travelling north on the Stuart Highway or Olympic Way
- emergency vehicles to transit past an over-dimensional load(s), where required
- regular community announcements and notification of the timing of over-dimensional load movements to ensure that communities were well informed of such movements and, where possible, could plan their journeys to avoid delays.

BHP Billiton continues to plan to achieve industry best practice by investigating other options to reduce the potential impact on road users and would continue discussing these options with DTEI. Options include increasing the number of convoys allowed each day, transporting loads at night (when there is less traffic), or increasing the number of vehicles/loads per convoy (to reduce the total number of road closures over the construction period).

If the project is approved and detailed project planning progresses to completion, further details on the scheduling and frequency of over-dimensional loads would be prepared and provided to SA Police and other relevant agencies.

More information on the proposed scheduling, convoy configuration, procedures regarding vehicle breakdowns, risk mitigation, community consultation and other aspects of the project's traffic requirements would be progressively developed as further detailed studies were completed. Provided in the Supplementary EIS as Appendix K1 is a Draft Offsite Transport Management Plan presented on the basis on which BHP Billiton would revise and progressively finalise project transport planning. The final Offsite Transport Management Plan would be agreed in consultation with DTEI, SA Police and other relevant agencies before project-related transport activities on public roads commenced.

Issue:

It was suggested that road delays to the travelling public be reduced from the stated 45 minutes in the Draft EIS to 30 minutes.

Submissions: 2 and 67

Response:

BHP Billiton would continue to work with DTEI, SA Police and other interested parties to develop and implement a range of initiatives to reduce the inconvenience of delays associated with the movement of over-dimensional loads on the public road network. Of the 4,197 submissions received on the Draft EIS, no submission from a member of the public raised the 45-minute delay as an issue of concern.

BHP Billiton would minimise delays and inconvenience to road users by undertaking an extensive community consultation program to warn of planned transport movements and by providing amenities, refreshments and other support services at each parking area.

All over-dimensional loads would use passing bays/points and/or other alternative means to allow vehicles to overtake safely and minimise delays to other road users.

As outlined in Appendix K2 of the Supplementary EIS, BHP Billiton identified the impact of reducing the length of delays from 45 to 30 minutes, which would require additional parking bays to be established – at least 14 on the Stuart Highway (compared with nine for a 45-minute delay) and eight on Olympic Way (compared with six for a 45-minute delay).

While the area required for each bay under the 30-minute scenario is likely to be smaller, the total required footprint of the combined area of the additional seven bays would increase by an estimated 3 ha. Compared to the total land requirements of 12 ha

for the 15 bays as presented in Chapter 5 of the Draft EIS, the increased footprint represents a 25% increase in area of land disturbance for the 22 bays to accommodate a 30-minute delay period. It is also noted that the extra seven bays would result in:

- adverse impact to traffic movements with:
 - additional construction sites on the Stuart Highway and Olympic Dam–Pimba roads
 - slower movements of over-dimensional loads as a result of more stops, thus reducing daily travel distances and extending travel times to Olympic Dam.
- increased construction costs of passing bays to BHP Billiton by almost \$1 million.

BHP Billiton is working with DTEI to implement a number of other measures that would reduce the inconvenience of delays to the travelling public. These measures, outlined in Chapter 19 of the Draft EIS and which remain subject to discussion and approval by DTEI, include:

- transporting loads outside peak traffic periods, including at night
- in certain circumstances, using increased convoy sizes (as opposed to individual truck loads outlined in the Traffic Impact Assessment).

As BHP Billiton progressed detailed project planning it would continue to consult with DTEI, SA Police and other relevant agencies to determine the exact location of passing bays. Appropriate strategies would be developed, including those mentioned above, to minimise the impact of project-related over-dimensional transport activities on public roads.

Issue:

Clarification was sought on the impact of the proposed expansion-related traffic, and the impact on the Princes Highway traffic south of Port Augusta.

Submission: 2

Response:

The proposed use of rail, along with barging of over-dimensional items to Upper Spencer Gulf, would reduce heavy vehicle movements south of Port Augusta on the Princes Highway associated with the existing and expanded Olympic Dam operation. The TIA undertaken for the Draft EIS analysed the predicted traffic movements on major public roads in South Australia, including the Princes Highway south of Port Augusta, as a result of the expansion of Olympic Dam (refer Section 19.5.6 and Appendix Q9 of the Draft EIS).

It is anticipated that over-dimensional loads less than 8 m wide, the majority of which are less than 5.5 m wide, would be transported to Olympic Dam from Adelaide, most likely originating from Port Adelaide. This would include the mobilisation of the mining equipment fleet. This is discussed in further detail earlier in this chapter.

While no decision has been made on origin points, the traffic profile also included normal truck movements to transport other construction materials that may be sourced from Adelaide. This would include the majority of the construction materials required for the proposed open pit mining activity and related infrastructure, while the majority of components of the new ore processing facility and related infrastructure would be shipped or barged from Australian and/or international points of origin to the proposed landing facility in Upper Spencer Gulf.

Figure 14 in Appendix Q9 (Section 3.2.2) of the Draft EIS, reproduced in the Supplementary EIS as Figure 22.1, summarises total construction and operational heavy vehicle movements associated with the expansion of Olympic Dam from 2010 to 2020, including over-dimensional loads, on the Princes Highway (south of Port Augusta at Two Wells, near Adelaide). A summary of the origin of heavy vehicle movements associated with the expansion of Olympic Dam five and 10 years after commencement of the expansion project was also contained in Appendix D of the TIA.

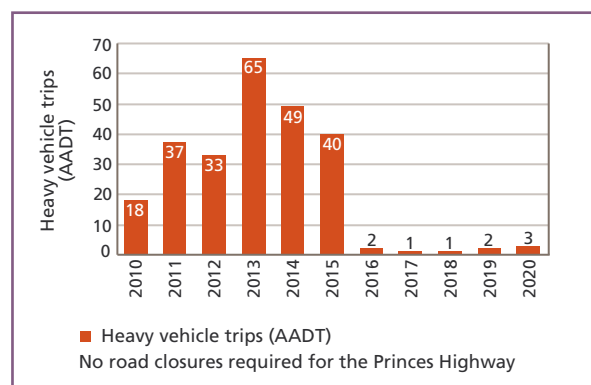


Figure 22.1 Heavy vehicle trips: Princes Highway

Calculations based on two-way traffic movements in the peak transport period, approximately five years after the expansion project began, found that the project would reduce overall vehicle traffic, including heavy vehicle movements, on the Princes Highway near Two Wells. This is the consequence of barging prefabricated material to the landing site and maximising rail transport to the Pimba intermodal facility. The study also assessed the effects of changes in traffic flows and found that the Princes Highway would continue to operate at level of service (LoS) 'A' (free-flowing) during these years.

After the release of the Draft EIS, and in response to a request from DTEI, an additional study was undertaken to assess the effect of increased traffic volumes from the Olympic Dam expansion on the LoS for other segments of the Princes Highway (between Port Augusta and Port Wakefield) in 2015 and 2020 respectively. This included assessing:

- the current LoS at six separate sections of the Princes Highway nominated by DTEI, based on peak-hour traffic volumes obtained from DTEI
- the LoS 'threshold' at each of the six locations (i.e. the peak-hour volumes that would result in a change in the LoS)
- the peak-hour volumes in 2015 and 2020 at each location, taking account of background traffic growth and traffic generated by the Olympic Dam expansion, including heavy vehicles and auxiliary traffic, and assuming all ancillary vehicles from Olympic Dam passed through all six locations
- a comparison of the LoS thresholds and the peak-hour traffic volumes in 2015 and 2020 at each location, with and without the expansion of Olympic Dam.

The study presented in Appendix K3 of the Supplementary EIS showed that the existing LoS at the six locations on the Princes Highway varies between LoS 'A' and LoS 'B' (with 'B' being defined as stable flow, but with comfort and convenience a little less than LoS 'A'). The study also found that the LoS would not be expected to change in 2015 or 2020 at any of these locations as a result of the traffic generated by the Olympic Dam expansion (see Table 22.1 of the Supplementary EIS).

It also concluded that there would still be spare capacity to maintain the respective LoS at each location, after taking account of background traffic growth and traffic generated by the expansion.

Table 22.1 Findings from the subsequent traffic study for the Princes Highway

Princes Highway section	LoS 2008	LoS threshold (peak hour volume)	2015 without Olympic Dam expansion (peak hour)	2015 with Olympic Dam expansion (peak hour) ¹	Difference in LoS threshold in 2015 ²	2020 without Olympic Dam expansion (peak hour)	2020 with Olympic Dam expansion (peak hour)	Difference in LoS threshold in 2020 ²
Section 1	A	860	689	775	85	736	799	61
Section 2	A	329	207	274	55	221	271	58
Section 3	A	341	252	322	19	270	321	20
Section 4	B	556	388	462	94	414	468	88
Section 5	A	329	213	297	32	228	290	39
Section 6	B	581	473	540	41	506	556	25

¹ Includes background traffic growth.

² Indicates spare capacity, i.e. additional traffic required to change LoS.

Issue:

It was suggested that BHP Billiton consider either duplicating the Stuart Highway or, as a minimum, upgrading the road shoulders.

Submissions: 2 and 71

Response:

BHP Billiton has committed to a number of traffic management measures for expansion-related traffic on the Stuart Highway north of Port Augusta. These include:

- an Off-site Transport Management Plan
- construction of passing bays
- limiting delays to no more than 45 minutes for road closures for over-dimensional loads
- extensive community consultation programs.

The introduction of these measures should reduce the impact to other traffic on the road network north of Port Augusta.

BHP Billiton considered various options for the movement of project-related freight, including over-dimensional loads.

The decision to select the Stuart Highway north of Port Augusta as the preferred transport option took into account existing traffic volumes, the impact on the environment and the cost of alternative options. This option was assessed in the TIA, with the findings presented in Chapter 19 and Appendix Q9 of the Draft EIS.

BHP Billiton rejected the duplication of the Stuart Highway as being the less favourable option on the grounds of:

- greater environmental and social impact – requiring substantial vegetation clearance, land acquisition for the duplicated roadway and delays to the travelling public that would result from ongoing roadworks
- the additional cost not being justified by traffic volumes – the level of service (LoS) for the Stuart Highway would remain at level 'A' (free-flowing) irrespective of the additional volumes predicted for the expansion.

BHP Billiton would cooperate with the SA Department of Transport, Energy and Infrastructure (DTEI) to establish a baseline road condition for the Stuart Highway, and agree on a process by which any adverse impact resulting from the movement of over-dimensional loads attributed to the proposed Olympic Dam expansion could be determined. With an agreed baseline in place, both parties could accurately determine and attribute deterioration of the road pavement and shoulders. With this information, the cost of maintenance could be fairly and appropriately allocated between DTEI and BHP Billiton.

Issue:

It was suggested that BHP Billiton bear the full cost of upgrading the road/rail level crossings at Hesso and Pimba.

Submission: 2

Response:

The Australian Government's \$150 million 'Boom Gates for Rail Crossings' program provided funding to the South Australian Government to install an advanced warning system at both the Pimba and Hesso 'at grade' level crossings in addition to the existing measures. The upgrades to these crossings have now been completed and the advanced warning signs are operational. From the assessment completed by BHP Billiton in the Draft EIS, these crossings conform to Australian Standard AS1742.7 and these additional measures appear adequate, based on the existing and proposed traffic expansion volumes.

The proposed expansion would introduce an additional 28 train movements a week between Adelaide and Olympic Dam and seven movements a week between Olympic Dam and the Port of Darwin. This equates to a 20% increase in rail traffic.

Included in Appendix Q9 was a review of DTEI's road incident data for the Hesso and Pimba crossings, which identified a non-existent train/vehicle collision rate (0 per 1,000 km) for the investigated five-year period between January 2003 and December 2007. This outcome was attributed to the area between Hesso and Pimba being sparsely populated compared to urban areas in South Australia.

Having said that, the Auslink 2007 Adelaide–Darwin Corridor Strategy indicated that the Hesso level crossing required upgrading, and funding under the Australian Government’s \$150 million ‘Boom Gates for Rail Crossings’ program was provided to the SA Government to install an advanced warning system. The upgrade to this crossing has now been completed. The Pimba crossing already has active controls (boom gates and flashing lights) in place and as such was not identified by the Auslink 2007 study. However, as part of the same program, the SA Government also secured funding for an advanced warning system for the Pimba level crossing and this has also been installed.

As presented in Section 19.5.6 and detailed in Appendix Q9 of the Draft EIS, an assessment of the Pimba and Hesso ‘at grade’ road/rail level crossings (including crossings with active signals – those with boom gates, bells, flashing lights and advanced warning signs) was undertaken for the Draft EIS. This indicated that the active ‘at grade’ level crossings at Hesso and Pimba conform to Australian Standard AS1742.7 in relation to sight line standards for approaching road traffic and therefore no additional infrastructure would be required.

Issue:

It was requested that BHP Billiton remove statements that were presented in the Draft EIS about funding commitments made by the South Australian Government associated with proposed upgrades to the state’s road network.

Submission: 2

Response:

Appendix Q9 of the Draft EIS refers in the Traffic Impact Assessment (TIA) to future road improvements known at the time, including the Northern Connector route, Pimba Road crossing improvements and issues identified along the Adelaide–Darwin road corridor by the South Australian and Australian governments. An assumption was made that the proposed improvements would be addressed by these governments.

BHP Billiton acknowledges that neither government has made a commitment to fund these specific road issues. Both governments retain the responsibility for the overall management and funding of the state’s road network.

22.2 EFFECTS OF ROAD TRAFFIC IN AND AROUND ROXBY DOWNS

Issue:

The increased traffic generation as a result of the proposed expansion has raised a number of traffic-related issues in the immediate surrounds of Roxby Downs, in particular:

- traffic volumes associated with the new airport and heavy industrial area
- traffic disruption on Olympic Way as a result of the newly proposed roundabout
- maintenance of existing roads

Submissions: 2, 61 and 72

Response:

The proposed introduction of a roundabout on Olympic Way is unlikely to cause significant traffic issues and, once it was installed by BHP Billiton, existing road maintenance obligations would remain. Section 19.5.6 and Appendix Q9 of the Draft EIS presented the outcomes of a Transport Impact Assessment (TIA) undertaken for the proposed Olympic Dam expansion. The TIA included estimated traffic volumes associated with on-site construction activities at Olympic Dam and all off-site infrastructure (including the airport, heavy industrial estate near Roxby Downs, the Pimba intermodal facility and linear infrastructure including gas, power, water and rail). Since the publication of the Draft EIS and as outlined in Section 1.4 of the Supplementary EIS, a new second entry gate and eastern access road are now proposed to provide a dedicated access to the mine site from the proposed Hiltaba Village, thus reducing traffic on Olympic Way (see Figure 22.2, Section 1.4 and Appendix A6 of the Supplementary EIS for details).

Traffic volumes for the proposed new airport, at the peak period of construction, are estimated to be 40 two-way movements a day. Volumes for the proposed new heavy industrial area, at the peak period of construction, are estimated to be 34 two-way movements a day.

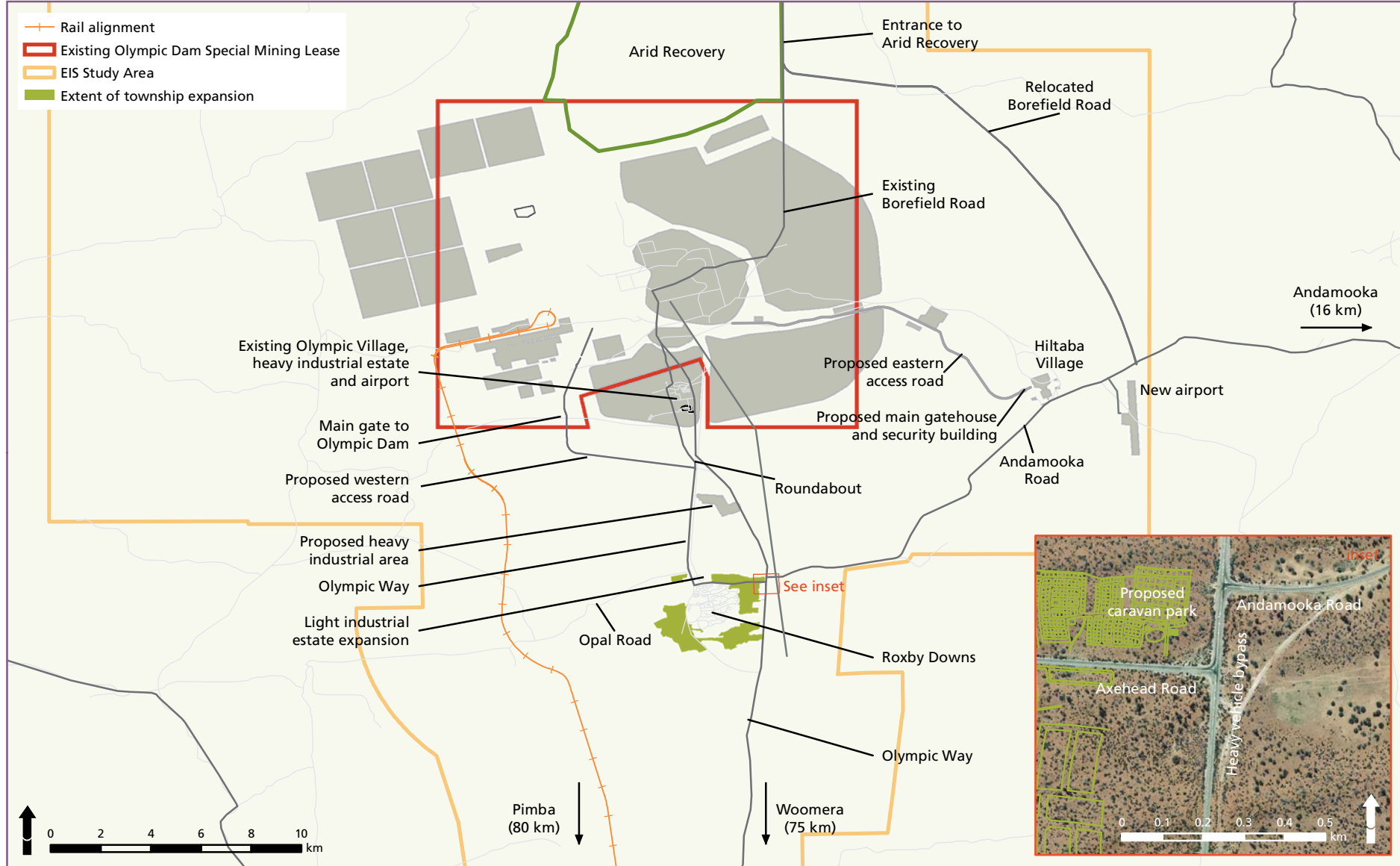


Figure 22.2 Key components of the proposed expansion at Olympic Dam for the traffic assessment

The only proposed road change on Olympic Way would be the installation of a roundabout at the intersection of the Roxby Downs–Pimba Road (Roxby Heavy Vehicle Bypass) (see Figure 22.2). The intersection would be required for the new western entry road to Olympic Dam and to enable traffic flow to continue along Olympic Way to Olympic Village, the existing industrial estate, Laverick’s roadhouse, the Olympic Dam Sports Club and the existing airport. BHP Billiton would produce a proposed design for the roundabout that complied with Australian road design standards and work with DTEI and the Roxby Downs Council to ensure the design allowed for future road network developments that may be considered.

The introduction of the roundabout is not anticipated to affect traffic flow along Olympic Way, as the design would incorporate suitable slip lanes to accommodate turning traffic. With the introduction of the second new entry gate and eastern access road, expansion-related traffic would reduce along Olympic Way compared to the predicted traffic flows presented in the Draft EIS (see Appendix A6 for details). The TIA presented in the Draft EIS noted a reduction to the level of service (LoS) on the northern section of Olympic Way. The addition of the eastern access road would have the affect of reducing traffic volumes of Olympic Way and retaining the existing LoS.

Schedule for works

The schedule presented in the Draft EIS has Olympic Village, the existing airport and existing industrial estate being relocated about five years after the expansion began as the RSF expanded over this area. The proposed new industrial estate would be built near the roundabout and the entry roads to Olympic Way and the Roxby Downs–Pimba Road. Further detailed planning would be required before operational traffic estimates can be accurately assessed for the new industrial estate. At this stage, the major traffic components associated with the expansion are provided in Appendix Q of the Draft EIS and this chapter of the Supplementary EIS. It is anticipated that the volumes associated with the new industrial estate would have a minimal impact on the outcomes presented. As part of the detailed planning for the new industrial estate, BHP Billiton would design intersections to minimise the impact on traffic heading onto this road by:

- establishing turning lanes and passing lanes to retain flow for through traffic
- incorporating suitable-length slip lanes for braking or merging traffic entering and departing
- accommodating adequate queue lengths for turning vehicles in the intersection layouts.

It is anticipated that the maintenance arrangements for roads specified in the *Roxby Downs (Indenture Ratification) Act 1982* would continue to apply.

Issue:

Clarification was sought on the traffic impacts at key intersections between the townships of Andamooka and Roxby Downs. Details were also sought on the designs for the new airport, relocated Borefield Road and Hiltaba Village intersections with the Andamooka–Roxby Downs Road.

Submissions: 2 and 6

Response:

Since the publication of the Draft EIS and as outlined in Section 1.4 of the Supplementary EIS, a new second entry gate and eastern access road are now proposed to provide a dedicated access to the mine site from the proposed Hiltaba Village (see Figure 22.2). Additional traffic assessments have been undertaken to assess the effect of these changes to traffic flows on Andamooka Road and the staggered ‘T’ intersection of Andamooka Road, the heavy vehicle bypass and Axehead Road. A summary of the assessment outcomes is provided below with details presented in Appendix A6. BHP Billiton would continue to collaborate with the relevant South Australian Government agencies and the Roxby Downs Council to coordinate an appropriate strategy for the T’ intersection of Andamooka Road, the heavy vehicle bypass and Axehead Road, as well as aligning safety initiatives to cover all road users in areas potentially affected by expansion activities.

As a part of detailed planning, BHP Billiton would design intersections to minimise the impact on traffic heading to and from Andamooka Road from the newly proposed airport, the relocated Borefield Road and Hiltaba Village. This may include:

- establishing turning lanes and passing lanes to retain flow for through traffic
- incorporating suitable-length slip lanes for braking or merging traffic entering and departing
- accommodating adequate queue lengths for turning vehicles in the intersection layouts.

Borefield Road

The additional studies undertaken as part of the Supplementary EIS found that the traffic that would be re-routed onto Andamooka Road as a result of the realignment of Borefield Road represents only a small volume (between 2% and 5%) of the forecast total inflows into the Andamooka Road intersection.

These figures were based on traffic counts on Andamooka and Borefield roads, which showed a two-way average daily traffic (AADT) of 550 vehicles on Andamooka Road (near the intersection with Olympic Way) and 33 vehicles north of Olympic Dam at Arid Recovery on Borefield Road. The Arid Recovery count was used, as these traffic volumes are likely to re-route to Andamooka Road following the realignment of Borefield Road. Other traffic movements on Borefield Road in and around Olympic Dam are associated with BHP Billiton staff and related activities, and would not be re-routed onto Andamooka Road.

Heavy vehicle bypass, Andamooka Road and Axehead Road

As shown in Section 1.4 and Appendix A6 of the Supplementary EIS, the main implication of the increased traffic on Andamooka Road associated with the new second entry gate and eastern access road would be a minor reduction in the level of service and operating capacity of the staggered 'T' intersection. While the proposed traffic volumes would operate well within the design capacity of the intersection, neither the intersection nor Andamooka Road is an approved network route for the safe movement of Restricted Access Vehicles (RAVs) such as B-doubles and double and triple road trains. The heavy vehicle bypass is currently approved for the operation of these RAV types. As such, BHP Billiton would collaborate with the South Australian Department of Transport, Energy and Infrastructure (DTEI) to develop an appropriate strategy for the intersection and Andamooka Road to allow the movement of RAVs to the proposed eastern access gate.

Road safety

BHP Billiton would develop suitable traffic safety plans and procedures around key areas of safe road use, safe speeds and safe vehicles to address the interaction between expansion-related traffic movements and public road users. A draft of such a plan is included as the draft Transport Management Plan provided in Appendix K1 of the Supplementary EIS.

However, as BHP Billiton has no authority over the road network, it would work in partnership with the relevant South Australian Government agencies and the Roxby Downs Council to coordinate and align safety initiatives that can be applied to all road users.

Issue:

Clarification was sought about road volumes, upgrades and maintenance of roads north of Olympic Dam (i.e. Borefield Road).

Submission: 2

Response:

The Draft EIS discussed the impact of increased traffic volumes and changed traffic conditions as a result of the expansion of Olympic Dam, including:

- increased travel times due to the proposed relocation of Borefield Road: The relocation would increase travel times for road users by an estimated 10 to 15 minutes
- increased traffic on Andamooka Road: The new roads to the proposed Hiltaba Village and new airport would include slip lanes and passing lanes to minimise impacts on traffic movements between Andamooka and Olympic Dam.

Additional travel times

As outlined in Section 5.9.4 and Section 19.5.6 of the Draft EIS, the relocation of Borefield Road to a route outside the expanded Olympic Dam Special Mining Lease would increase travel time for traffic travelling north or south along this road (for example, to Arid Recovery and towns north of Olympic Dam, such as Marree and William Creek) by an estimated 10 to 15 minutes. This was not considered significant given the large distances between sites of interest and towns in this relatively isolated region.

Increased traffic volumes

The Traffic Impact Assessment provided as Appendix Q9 of the Draft EIS, along with additional studies for the Supplementary EIS (see Appendix A6), assessed the effects of increased traffic volumes on Andamooka Road. The assessment concluded that despite increased traffic volumes, traffic on Andamooka Road would continue to flow freely at a level of service 'A'.

Borefield Road traffic volumes

Since the publication of the Draft EIS, additional traffic surveys have been undertaken to better understand the volumes of traffic that currently use Borefield Road (including local traffic and traffic associated with the operation of the mine), and the likely impact of re-routing Borefield Road traffic onto Andamooka Road. The surveys indicate two-way average daily traffic (AADT) on Borefield Road is 98 vehicles, of which about 65 are associated with the Olympic Dam mine, and 33 vehicle movements result from local traffic to Arid Recovery or adjoining pastoral or Outback areas to the north. Most movements associated with Olympic Dam would not occur following the realignment of Borefield Road, with the lower figure of 33 vehicles likely to be re-routed to Andamooka Road.

Based on a predicted doubling of the Roxby Downs population as a result of the expansion, the volume of additional local traffic on Borefield Road could double to around 70 vehicles a day (two-way), which represents only a small volume of the overall Andamooka Road traffic volumes. This increase in Borefield Road traffic is unlikely to affect public access or traffic conditions.

Road maintenance

It is anticipated that the maintenance arrangements for roads specified in the *Roxby Downs (Indenture Ratification) Act 1982* would continue to apply.

22.3 ROAD AND RAIL EFFECTS IN AND AROUND PORT AUGUSTA

Issue:

Clarification was sought regarding the proposed activities at the pre-assembly yard and the associated traffic impacts of over-dimensional movements on the surrounding local road network.

Submissions: 2 and 67

Response:

Proposed activities at the pre-assembly yard include storage, some assembly, and transport coordination of entry and exit traffic of imported over-dimensional loads. The findings of additional studies shown in Appendix K4 of this Supplementary EIS show that a 10-minute road closure of Shack Road, Caroon Road, Press Road and the Eyre Highway between the peak period of 6am–9pm (worst case) would delay 13, 21, 6 and 40 vehicles respectively at each road crossing.

The results of the TIA for the proposed expansion of Olympic Dam were summarised in Section 19.5.6 and presented in full in Appendix Q9 of the Draft EIS. The TIA included estimated traffic volumes associated with on-site construction activities at Olympic Dam and off-site infrastructure, including the landing facility, access corridor and pre-assembly yard.

The anticipated traffic volume for the landing facility, access corridor and pre-assembly yard at the peak period of construction is 28 two-way movements per day.

Impacts of over-dimensional movements

The TIA indicated that the movement of over-dimensional loads across local public roads in the vicinity of Port Augusta West would require temporary road closures, and may create delays in the order of five to 10 minutes per crossing (assuming loads do not travel in convoy).

Section 19.5.6 of the Draft EIS also discussed the movement of over-dimensional loads across rail lines, including lines in the vicinity of Port Augusta, and concluded that there would be no impacts, as these movements would be controlled and coordinated with the Australian Rail Track Corporation (ARTC), which owns the track.

Table 22.2 Volume and type of loads from the proposed landing facility

Year	1	2	3	4	5	6	7	8	9	10	11
Permit only	0	0	0	3	6	1	0	0	0	0	0
Pilot only	0	0	0	20	226	347	306	232	362	60	0
Pilot and police	0	0	0	34	108	82	62	57	92	15	0
Wider than 8 m	0	0	0	38	133	132	129	88	135	22	0

After the publication of the Draft EIS, additional studies of the traffic impacts around Port Augusta West were undertaken (see Appendix K4 of the Supplementary EIS).

Table 22.2 shows the volume and type of loads to be transported from the proposed landing facility and access corridor to the pre-assembly yard in Port Augusta West, then onto the Stuart Highway and northward to Olympic Dam.

In order to determine the impacts associated with the movement of over-dimensional loads (based on the above project configuration) across local roads, traffic survey data was obtained from the Port Augusta Council and DTEI. Based on this survey data, and assuming a background growth rate of 1.2% a year for the Eyre Highway (as obtained from the Bureau of Transport and Regional Economics 2006), and 3.8% background growth rate a year on Carroona, Shack and Press roads (as obtained from the Draft Port Augusta West Structure Plan 2009), an assessment was made of the maximum number of vehicles that would be delayed by temporary road closures of different durations for the movement of over-dimensional loads (see Table 22.3 of the Supplementary EIS).

The assessment was based on Year 10 (i.e. predicted to be 2019 as per the Draft EIS schedule), as this was scheduled to be the final year when loads would be expected to be transported for the expansion at Olympic Dam. Therefore the assessment represents the greatest number of local vehicles that might be affected by road closures. The key findings of a maximum 10-minute delay for vehicles on Shack Road, Carroona Road and the Eyre Highway are shown in Table 22.3. This assessment was carried out assuming the crossing occurred during the worst-case peak period of 6am to 9pm (worst-case).

It is noted that this assessment was based on a limited data set of recent traffic counts on Shack Road, sourced from the Port Augusta Council. The Draft Off-site Transport Management Plan provided in Appendix K1 of the Supplementary EIS outlines the measures that BHP Billiton would adopt to manage the movement of over-dimensional loads at all crossing points over public roads.

Pre-assembly yard activities

The activities currently proposed for the pre-assembly yard at Port Augusta West were included in Chapter 5 of the Draft EIS and include the following (it is noted that these activities are similar to those undertaken at the same location for the 1997 expansion at Olympic Dam):

- staging the movement of over-dimensional modules between the landing facility and Olympic Dam
- storing the transport and related equipment when it was not being used to transport the modules
- some off-site fabrication and construction, as occurred with the 1997 expansion at Olympic Dam, including lifting deliveries from/to truck to ground by forklift or crane
- the use of cranes in the assembly of prefabricated modules
- the use of industrial pneumatic/electric and hand-held tools to assemble modules
- the temporary storage of dangerous and hazardous materials that would be handled, separated and stored in compliance with recognised industry standards such as the Australian Dangerous Goods Code for each product and BHP Billiton's own internal procedures for such products. As a minimum, this would necessitate all relevant personnel using appropriate personal protective equipment for such materials, and appropriate bunding arrangements and spill containment measures
- abrasive and related cleaning activities associated with on-site assembly
- painting
- coordinating the transport planning required for the movement of over-dimensional modules. Relevant agencies such as SA Police, the Department of Transport, Energy and Infrastructure (DTEI) and the Australian Rail Track Corporation (ARTC) may have representatives based in the offices at the yard.

Access corridor – rail crossing and Stuart Highway entrance

As presented in Sections 5.9.4 and 15.5.6 of the Draft EIS, it is proposed that over-dimensional loads would be transported from the pre-assembly yard in Port Augusta West via an access corridor onto the Stuart Highway, north of the Port Augusta–Whyalla rail line. The proposed crossing over this line would be a private crossing and licensed as such by ARTC, the rail track owner. Arrangements would be established with ARTC to coordinate the crossing with train schedules. When not in use, the crossing would be closed and public motor vehicle access restricted.

As shown in Figure 19.18 of the Draft EIS and reproduced in the Supplementary EIS as Figure 22.3, the entrance of the proposed access corridor onto the Stuart Highway is approximately 1.5 km north of the rail line and would be designed in accordance with applicable Australian standards and require prior approval by the relevant authorities.

Table 22.3 Maximum number of vehicles delayed (6am–9pm)

Road name	Maximum number of vehicles delayed (both directions combined)				Peak hour beginning
	No convoy		Convoy		
	5 min. delay	10 min. delay	15 min. delay	20 min. delay	
Shack Road	7	13	19	26	5pm
Caroona Road	11	21	31	41	5pm
Press Road	3	6	9	11	12pm
Eyre Highway	20	40	60	79	12pm 3pm

Issue:

BHP Billiton was asked to address the impacts to local traffic and access arrangements resulting from the proposed landing facility for residents who travel along Shack Road and Caroona Road.

Submissions: 106, 211, 212, 213, 261, 263, 272, 273, 274, 310 and 355

Response:

During use of the landing facility, movements of over-dimensional items would use the dedicated access corridor between the proposed landing facility and the Stuart Highway, with traffic delays to public road users limited to crossing points. A range of management initiatives would be implemented and form part of the Offsite Transport Management Plan, a draft of which is presented in Appendix K1 of the Supplementary EIS, to minimise the impacts on the surrounding community, as described below.

Access corridor

The proposed alignment of the access corridor was shown in Figure 5.48 of the Draft EIS. As presented in Section 1.4 of the Supplementary EIS, the alignment of the access corridor has since been modified slightly in response to submissions received and the revised alignment is shown in Figure 22.3. The newly proposed alignment alters the corridor alignment between Caroona Road and the pre-assembly yard, bringing it closer to the Port Augusta airport rather than Kittel Street as originally planned. In addition, the access corridor now crosses the Eyre Highway west of the pre-assembly yard and from there runs parallel to the highway to the pre-assembly yard but on the northern side in an alignment outside the Eyre Highway road corridor.

Shack Road

The proposed alignment has been selected to minimise the impact on land use and access for landowners, and to reduce the interaction with traffic using the existing public road network. BHP Billiton would upgrade the crossing points at Shack Road, Caroona Road and the Eyre Highway because of the size and bulk of the pre-assembled modules (up to 15 m wide x 15 m high, with a gross weight of 500 tonnes, including the trailer and load). This would ensure the movement of convoys across public roads was safe and that the road surface was not damaged. It would also enable the continued safe movement of existing road traffic through the crossing locations at the designated speed limit.

The access corridor would be a separate dedicated road connecting the proposed landing facility and quarantine area with the pre-assembly yard at Port Augusta West. Pre-assembled modules only would be transported from the landing facility to the pre-assembly yard at Port Augusta West via the access corridor; these modules would not be transported on the public road network between the landing facility and the pre-assembly yard at Port Augusta West. It is predicted that, on average, vessels would arrive at the landing facility every 11 days, with unloading activities likely to take two to three days.

Crossing public roads

The proposed access corridor intersects three public roads in Port Augusta West – at Shack Road (near the landing facility), Caroona Road and the Eyre Highway. ‘At grade’ dedicated crossing points would be established at these intersections.

The delays to road users would only occur at designed crossing points, when a pre-assembled module was being transported on the access corridor across the intersection with a public road. Section 19.5.6 of the Draft EIS summarised the findings of a detailed traffic impact assessment (presented in detail in Appendix Q9 of the Draft EIS), which estimated the delay to road users at about five to 10 minutes. The peak movement of pre-assembled modules is estimated to be up to 12 a week in the 12th year after commencement of the expansion project (assuming single convoys).



Figure 22.3 Proposed alignment of access corridor, location of Port Augusta pre-assembly yard and rail crossings

Traffic management

Traffic management measures would be required to move over-dimensional loads across public roads and advance notice would be given to the local community and road users to allow prior planning and, where possible, reduce access issues or delays. BHP Billiton would also establish coordinating arrangements with local emergency services such as police, ambulance, fire and other providers (i.e. SES) if an emergency vehicle needed to pass through a crossing point. Arrangements would also be put in place so that, in the event of an emergency, community members would be able to travel safely through a crossing point that was being used by BHP Billiton.

BHP Billiton recognises the importance of Shack Road, Caroon Road and the Eyre Highway to the Upper Spencer Gulf community. When the access corridor was not in use, public and community road users would continue to use the public road network without interruption. When the corridor was in use, affecting Shack Road, Caroon Road and the Eyre Highway, BHP Billiton would aim to minimise delays and ensure the ongoing safety of the public and road users by implementing the following initiatives:

- pre-assembled modules would be moved outside morning and afternoon peak periods
- the modules would be moved safely, and at suitable speed to minimise crossing times, keeping traffic delays to about five to 10 minutes
- in conjunction with DTEI and the Port Augusta Council, suitable road signs would be erected advising of speed limits and the potential for delays, to ensure road users were prepared to reduce speed and stop safely before the crossing point
- accredited traffic management personnel and SA Police would be on hand, where appropriate, to supervise and coordinate the movement of modules through the crossing point
- contingency plans would be activated in the event of a breakdown or operational delay in the movement of a module through a crossing point to ensure delays to road users were minimised
- a comprehensive and coordinated community communication and engagement program would provide detailed information, in advance, to the general public and road users, on activities associated with the crossing points at Shack Road, Caroon Road and the Eyre Highway. This would enable the public and other local road users to plan their travel arrangements and decide whether to use alternative routes.

The above measures would be incorporated into, and form part of, the Draft Off-site Transport Management Plan as presented in Appendix K1 of this Supplementary EIS. BHP Billiton is confident that the mitigation measures proposed would minimise the inconvenience to the travelling public and road users.

Issue:

Further clarification was sought on the impact and location of the access corridor and pre-assembly facility in relation to the Eureka Estate.

Submission: 23

Response:

The access corridor is located along the eastern boundary of the Eureka Estate between the intersection of Madland Road and Press Road to Old Tarcoola Road. BHP Billiton is planning to construct a private rail crossing near the intersection of the Old Tarcoola Road and the Port Augusta–Whyalla rail line.

The proposed alignment of the access corridor was shown in the Draft EIS in Figure 5.48. As outlined in Section 1.4 of the Supplementary EIS, the alignment has been modified slightly in response to submissions received and the revised alignment is shown on Figure 22.3. The alignment is now closer to the Port Augusta airport between Caroon Road and the Eyre Highway. In relation to the Eureka Estate, the proposed alignment of the access corridor remains unchanged, remaining along the eastern boundary of the Eureka Estate from the intersection with Madland Avenue through to the intersection with Old Tarcoola Road to the southern side of the Port Augusta–Whyalla rail line.

The access corridor would be a separate dedicated road from the pre-assembly yard at Port Augusta West that connects with the Stuart Highway and the public road network to Olympic Dam north of the Port Augusta–Whyalla rail line. The corridor, including this section, would remain a private route for BHP Billiton activities only. When the corridor was not in use, its entry points would be barricaded and secured to prevent unauthorised access.

The proposed 'at grade' level crossing over the Port Augusta–Whyalla rail line would also be a private crossing and its use would be strictly controlled and coordinated with ARTC; when the crossing was not in use, barricades would prevent vehicle access.

BHP Billiton recognises the importance of access to the Eureka Estate and this access must be managed in a similar manner to the access road's crossings over public roads. When the access corridor was in use, and to minimise disruption, the coordination of movements would cover both the Eureka Estate entrance from Old Tarcoola Road as well as the Port Augusta–Whyalla rail line crossing. BHP Billiton would implement the following initiatives to minimise delays and ensure the ongoing safety of the public and Eureka Estate users:

- pre-assembled modules would be moved outside morning and afternoon peak periods
- the modules would be moved safely, and at suitable speed to minimise crossing times
- accredited traffic management personnel and SA Police would be on hand (where appropriate) to supervise and coordinate the movement of modules
- contingency plans would be activated in the event of a breakdown or operational delay in the movement of a module
- comprehensive communication and consultation with Eureka Estate would be undertaken to coordinate advance planning of activities associated with movements between the pre-assembly yard and the Stuart Highway.

BHP Billiton is confident that the mitigation measures proposed would minimise the inconvenience of proposed activities to the Eureka Estate.

Issue:

Clarification was sought about BHP Billiton's position on the use of Yorkey's Crossing for project-related traffic required to pass through Port Augusta, and predicted traffic volumes over the Port Augusta Bridge.

Submissions: 67 and 211

Response:

The increased volume of traffic entering Port Augusta due to the expansion is expected to be low. Loads less than 4m wide and under 100 tonnes are expected to use the Port Augusta Bridge. Other over-dimensional loads that could not use the route over the Port Augusta Bridge would be routed around Port Augusta via Yorkey's Crossing.

Yorkey's Crossing

BHP Billiton notes the importance of Yorkey's Crossing as an alternative route around Port Augusta, and a route that is recognised as important by both the Australian and South Australian governments. The Auslink 2007 report for the Adelaide–Perth and Adelaide–Darwin corridors (Department of Transport and Regional Services 2007) include recommendations to upgrade and seal Yorkey's Crossing to make it an all-weather route. Currently, as an unsealed route, this crossing can be closed to traffic during wet weather or if the road surface, such as corrugations, makes vehicle movement difficult.

Over-dimensional loads

Section 19.5.6 of the Draft EIS summarised the findings of the TIA undertaken for the Olympic Dam expansion (the complete assessment report was provided as Appendix Q9 of the Draft EIS). This included an analysis of the predicted traffic movements on major public roads in South Australia, including the Princes Highway at Two Wells, and movement through Port Augusta. The total traffic movements for the existing operation and expansion traffic were shown on Figure 19.19 in the Draft EIS, which is reproduced in the Supplementary EIS as Figure 22.4.

The traffic movements (including over-dimensional loads) shown in Figure 22.4 demonstrate the very low volumes of traffic that would enter Port Augusta from the south along the Princes Highway as a result of the Olympic Dam expansion. Further work since the release of the Draft EIS, as discussed in Section 22.1 of the Supplementary EIS, confirms that the level of service at various points along the Princes Highway between Port Augusta and Two Wells would remain unaffected by the proposed expansion traffic volumes.

It is also noted that loads of up to 4 m wide, 6 m high and 100 tonnes gross can move on roads through Port Augusta and over the Port Augusta Bridge. Loads exceeding these dimensions are required to divert to the Yorkey's Crossing route. The existing Olympic Dam operation currently moves loads over the Port Augusta Bridge and occasionally via Yorkey's Crossing.

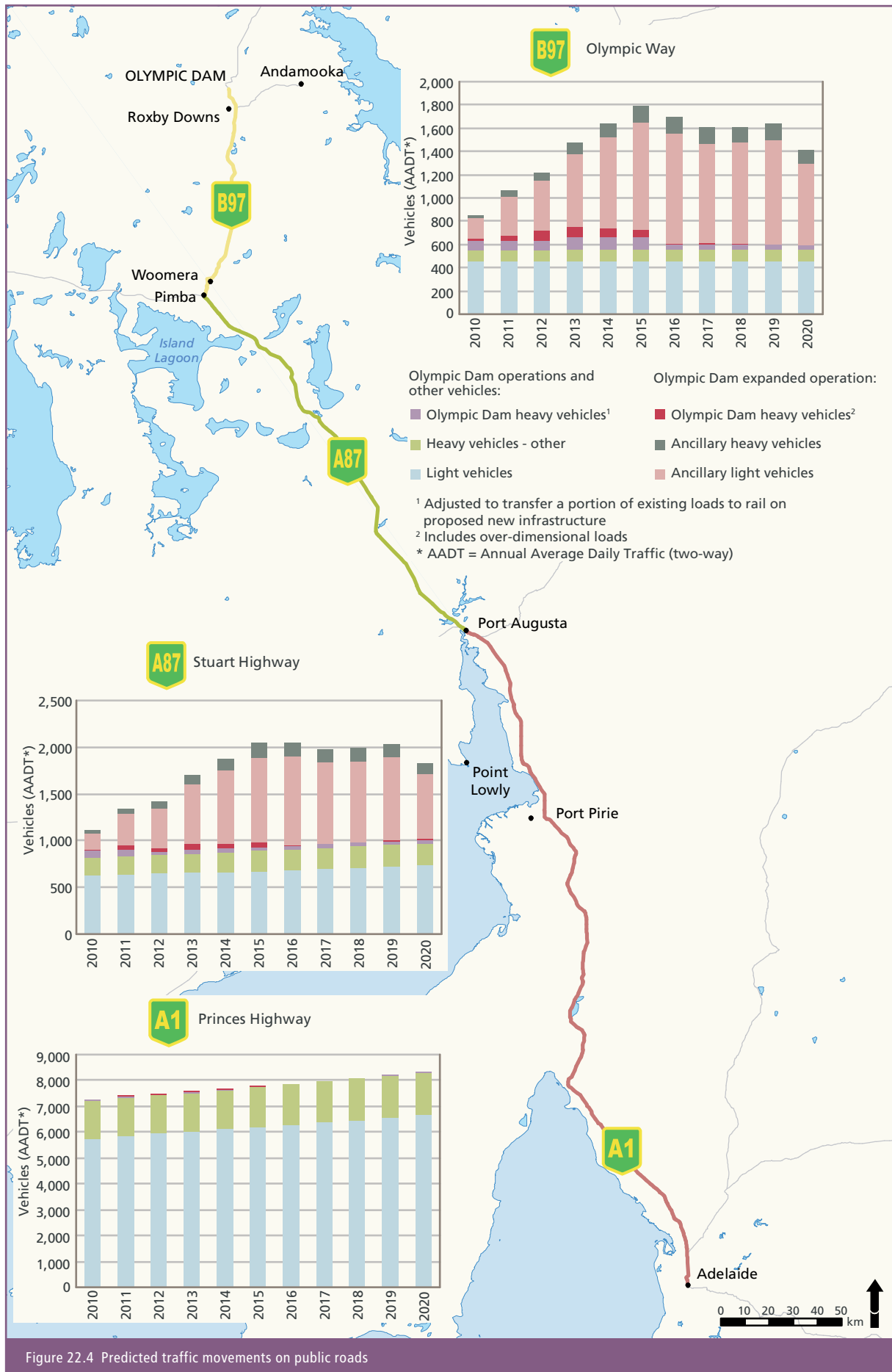


Figure 22.4 Predicted traffic movements on public roads

A majority of the over-dimensional loads travelling north along the Princes Highway to Port Augusta for the expansion would be carrying mining equipment less than 4 m wide and less than 100 tonnes for subsequent assembly at Olympic Dam. These over-dimensional loads would be small enough to travel over the Port Augusta Bridge. Given the low volumes and the acceptable size, current planning has those loads moving over the bridge with other over-dimensional loads using the route via Yorkey's Crossing. However, recognising the potential limitations of Yorkey's Crossing (i.e. road condition and wet weather closures) detailed planning and additional consultation would be undertaken throughout the development of the Olympic Dam expansion project and, if this is considered desirable by relevant stakeholders, further consideration would be given to the increased use of Yorkey's Crossing.

Issue:

Clarification was requested on the impact of the proposed rail activities on the Spencer Junction rail yards.

Submission: 67

Response:

For normal rail operations between Adelaide and Olympic Dam it is not anticipated the rail yards at Spencer Junction would be used and the proposed BHP Billiton rail services would have negligible impact on the rail yard operations at Spencer Junction.

Section 5.9.2 of the Draft EIS outlined the proposed daily service for two trains in each direction (28 movements per week) between Adelaide and Olympic Dam. This is proposed to support a single daily train carrying sulphur and diesel to Olympic Dam, then returning empty to Adelaide, and a single daily general freight train delivering production consumables to Olympic Dam and returning with finished goods, namely copper cathodes and uranium oxide concentrate.

The Spencer Junction rail yards support two main activities:

- a passing loop as part of the rail network managed by ARTC and used for scheduling train paths between Tarcoola and Adelaide
- detaching/reattaching locomotives, crew vans and freight wagons and holding rolling stock.

The rail yards and provision of related activities are managed by Pacific National (PN). Initial discussions with PN suggest there is additional capacity in the yards, which are currently used on average two to three times a day to support their clients' requirements. There are peak times during the week, linked to freight moving west to Perth or returning to the eastern states.

BHP Billiton is planning direct rail services between Adelaide and Olympic Dam for the proposed train requirements as presented in Chapter 5 of the Draft EIS, and would use the rail loop at Spencer Junction for train path scheduling requirements when required. In situations where a locomotive or rolling stock broke down, there may be a need to hold the equipment at Spencer Junction until repairs were completed. This would be the subject of ongoing discussions with PN to ensure suitable arrangements were in place. Otherwise, for normal rail operations between Adelaide and Olympic Dam it is not anticipated the Spencer Junction yards would be used, and the BHP Billiton rail services should have a negligible impact on the yards' operations.

22.4 TRAFFIC EFFECTS ON OTHER ROAD USERS

Issue:

Clarification was sought on how BHP Billiton would minimise the effects on road users of expansion traffic associated with the proposed Pimba intermodal facility.

Submissions: 2 and 62

Response:

Increased traffic as a result of the Pimba intermodal facility is expected to be minimal.

BHP Billiton would design to Australian Road Standards an entry/exit road to the facility by constructing slip lanes and passing lanes on the Roxby Downs–Pimba Road. The southern access road would be used exclusively to transport over-dimensional loads.

The TIA presented in Section 19.5.6 and Appendix Q9 of the Draft EIS included estimated traffic volumes associated with on-site construction activities at Olympic Dam and off-site infrastructure, including the proposed new rail line to Olympic Dam and the Pimba intermodal facility.

As outlined in Chapter 5 of the Draft EIS, BHP Billiton is proposing to construct the intermodal facility to reduce road movements where practicable by using rail until the proposed rail spur to Olympic Dam is operational. For the intermodal facility, traffic during peak construction is estimated to be 14 two-way movements a day during construction of the facility. For the proposed rail spur, traffic volumes are estimated to be 28 two-way movements a day at the peak period of construction.

As noted in the TIA, some of the off-site facilities associated with the expansion of Olympic Dam would generate workforce trips: for example, to the intermodal facility. The TIA concluded, however, that the number of trips associated with this facility would be very small (and time-limited) and the potential effects on the road network (and road users) would be negligible.

Figure 5.44 of the Draft EIS (reproduced in the Supplementary EIS as Figure 22.5 and modified slightly to highlight the specific areas of interest) shows the indicative configuration of the intermodal facility, including the access roads, and the facility's relationship to Pimba township, the Stuart Highway and Roxby Downs Road, and to the existing interstate rail line and siding.

The southern access road would be used solely to transport over-dimensional loads into the facility. This route uses the private rail crossing that was previously established and used for the movement of large over-dimensional items, such as 15 m tanks, during the previous expansion at Olympic Dam. This crossing would not have any safety features as its use would be strictly controlled and coordinated with ARTC. When it was not in use, barricades would be in place to prevent vehicle access, as is currently the situation.

The access road to the east of the facility would be the main entrance for all other road traffic. During the detailed design stage, and in consultation with DTEI, it is envisaged that a slip lane and turning lanes would be incorporated into the design of the intersection to keep traffic flowing freely along the Roxby Downs–Pimba Road (see Figure 22.5 of the Supplementary EIS). The proposed new entrance should minimise any disruption to traffic flows, although DTEI as part of its responsibilities may wish to review the posted speed limits approaching the new entry to the Pimba terminal.

As indicated in Appendix Q9 of the Draft EIS, vehicles would turn right from the Stuart Highway onto the Olympic Dam–Roxby Downs Road near Pimba and, where appropriate, would use the existing public level crossing at Pimba, while over-dimensional loads that could not use this crossing would use the private level crossing to the west. The intersection of the Stuart Highway and the Olympic Dam–Roxby Downs Road incorporates separate merging and diverging lanes for left-turning traffic and a separate central lane for right-turning traffic.

The TIA assessed the impact on the travelling public of transporting goods and materials for the construction and expanded operations at Olympic Dam, including over-dimensional loads, heavy and light vehicles, and ancillary traffic, on public roads. The assessment took account of forecast traffic growth from the proposed expansion and weekly seasonal factors at the six locations, including on the Stuart Highway and Olympic Way.

The TIA found that, based on two-way traffic movements (both direct and indirect/ancillary) in the peak road transport year of 2015, the proposed expansion would:

- more than double overall vehicle traffic on the Stuart Highway and increase heavy vehicle movements by approximately 40%
- triple overall vehicle traffic on Olympic Way, south of Roxby Downs, and double heavy vehicle movements.

Despite the changes in traffic flow levels resulting from the expansion, the TIA found this would not affect the level of service (LoS) on either the Stuart Highway or Olympic Way (south of Roxby Downs) during construction or ongoing operations at Olympic Dam.

Issue:

Clarification was sought regarding the effects of expansion traffic for the desalination plant on Port Bonython Road.

Submission: 2

Response:

The construction and operation of the proposed desalination plant at Point Lowly would increase traffic volumes on Port Bonython Road, however the predicted traffic increases do not change the level of service for this road.

Since the publication of the Draft EIS, and as discussed in Section 1.4 of the Supplementary EIS, the outfall pipe would now be installed by tunnelling rather than the originally proposed 'cut and cover' installation method. While local beneficial reuse of the spoil removed during tunnelling would be sought, a worst-case traffic assessment has been undertaken for the Supplementary EIS whereby all of the spoil would be road transported back to Olympic Dam. The outcomes of the additional traffic assessment are summarised below, with details provided in Appendix A6.



Figure 22.5 Indicative configuration of the proposed Pimba intermodal road/rail facility

The existing Port Bonython Road is a two-way single carriageway and an approved double road train and B-double route. The most recent road traffic survey completed by DTEI in 2001 showed a two-way annual average daily traffic (AADT) range of 380 to 400 vehicles on this road, 10% of which were commercial vehicles.

Other than some increases in traffic movements associated with the CleanSeas activities at Port Bonython, it is reasonable to assume that traffic volumes have remained fairly consistent with those of the 2001 survey.

The daily traffic associated with the three phases of activities at Port Bonython for the proposed desalination plant has been estimated (i.e. plant construction, outfall launch shaft and tunnel construction, and the operational phase). The traffic estimates for each phase are:

- construction of the desalination plant is estimated to introduce approximately 28 two-way movements per day
- as advance rates for the construction of the outfall shaft and tunnel vary for a number of reasons, a range of traffic movements has been assessed and result in:
 - outfall shaft: 4–6 two-way movements per day
 - outfall tunnel: 12–23 two-way movements per day.

These traffic movements are based on a truck utilisation of 40 tonnes and anticipated to occur for up to three and six months for the outfall shaft and tunnel construction respectively.

Once operation of the desalination plant commenced, approximately 14 two-way movements per day are planned to support workforce and other related requirements (the majority of which are likely to originate from Whyalla).

For the purpose of the traffic impact assessment, the spoil removed from the outfall launch shaft and tunnel, once dewatered, would be transported by double road train to Olympic Dam via the Lincoln Highway and Eyre Highway to Port Augusta, and then on to Olympic Dam via the Stuart Highway and the Olympic Dam–Pimba Road. In comparison to existing traffic flows, at the construction peak, these volumes would increase the current AADT by 13% on Port Bonython Road and 3% on the Lincoln Highway, which has an existing traffic flow of 1,700 AADT. The impact of additional traffic on this intersection is assessed as low and the existing level of service ('B'), would be retained throughout the construction and operational phases of the desalination plant.

Once the desalination plant was operational, there would be a 3.5% and 1% increase in traffic volumes on Port Bonython Road and the Lincoln Highway respectively. The additional traffic on the Stuart Highway would increase by 1% for the movement of spoil to Olympic Dam over the proposed construction period for the outfall shaft and tunnel.

As the number of trips associated with the construction and ongoing operation of the desalination plant is expected to be very small (and time-limited) compared to existing volumes on these roads, the potential effects on the road network (and road users) is categorised as low, representing a short-term impact to a local receiver.

It is noted that traffic numbers were included in the Draft EIS by Port Bonython Fuels Pty Ltd for its proposed fuel storage and processing facility at Port Bonython (QED Pty Ltd 2009). That traffic impact assessment predicted that the project would increase traffic flows on Port Bonython Road by 34% over current levels, the majority of which would be heavy vehicles. The Port Bonython Fuels Pty Ltd project was approved in January 2010 with 23 conditions, none of which related to the proposed traffic volumes.

In the lead-up to the start of construction activities for the desalination plant and in conjunction with DTEI, BHP Billiton would review the existing and future traffic demands along Port Bonython Road. Based on the revised traffic profile along this road, BHP Billiton would identify suitable traffic management requirements that needed to be incorporated into the Draft Off-site Transport Management Plan provided as a draft in Appendix K1 of the Supplementary EIS.

In conclusion, the assessed traffic increase of a worst-case scenario where all spoil is road transported back to Olympic Dam would not change the level of service to Port Bonython Road or the intersection of this road with the Lincoln Highway. As such, no infrastructure works are proposed by BHP Billiton on Port Bonython Road or the intersection with the Lincoln Highway.