

Our Ref: 12S1285000

21st May 2012

BP Australia – Asset Management
132 McCredie Road
GUILDFORD NSW 2113

Attention: Joanne Harvey (Network Development Manager – NSW/VIC)

Dear Joanne,

PROPOSAL FOR SERVICES

BP, CELEBRATION DRIVE, BELLA VISTA – NORTH WEST RAIL TRAFFIC ADVICE

As requested, we have reviewed the North West Rail Line Environmental Impact Statement (EIS) in relation to the BP station, Bella Vista. In particular, we have reviewed the EIS in terms of:

- Access to the site during the early works and construction period
- future access/ operation of the subject site. In particular, the access from Homemaker Centre as it may be removed.

Existing Conditions

The BP Bella Vista station is located at the northeast corner of the Old Windsor Road and Celebration Drive intersection.

Windsor Road is a four lane arterial road that carries approximately 49,000 vehicles per day.

Celebration Drive is a collector road with a two lanes that carries approximately 14,500 vehicles per day.

Access Arrangement

Entry to the BP station is currently via Windsor Road (cars only), Celebration Drive and the Totally Home shopping centre (via the Lexington Drive roundabout).

Vehicles exit the BP station onto Celebration Drive and through the Totally Home Centre towards the Lexington Drive roundabout.

The location of the BP station and the configuration of the accesses are shown below in Figure 1.

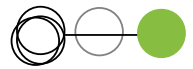


Figure 1: Configuration of Accesses into BP site



Implications of the Proposed North West Rail Line

We have reviewed the EIS and the implications the rail line would have on the BP Station, Bella Vista. We have three primary concerns for BP, which are the following:

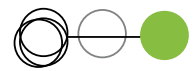
- The BP Station access arrangement during and after construction of the proposed North West Rail Line
- Proposed construction traffic volumes
- Future traffic volumes.

We have a several secondary concerns and these are:

- Size of Heavy Construction Trucks
- Construction Programme
- Construction Hours
- Construction Noise
- Construction Vibrations.

These are all discussed in more detail below.





BP Station access arrangement during and after construction of the proposed North West Rail Line

Proposed Bella Vista Station – Construction Vehicle Access

Construction vehicles will access the Bella Vista site off Celebration Drive to the east of the Lexington Drive intersection. During the night time and low traffic periods, construction vehicles will access the Bella Vista site from the Lexington Drive roundabout.

BP Station Access

The EIS does not discuss how the accesses to BP will be affected during and after construction of the Bella Vista Station. In particular, it is unknown whether or not the access road between the Totally Home Centre and the Lexington Drive roundabout will remain open. The access road is not shown on the proposed construction layout for Bella Vista station; therefore it tends to indicate that the traffic signals at this location will provide access only to the construction compound.

Furthermore, the EIS does not discuss alternative access arrangements for BP and McDonald's.

Celebration Drive and Lexington Drive Roundabout

The intersection of Celebration Drive and Lexington Drive has been modelled (using SIDRA) with the existing traffic and the forecasted Bella Vista station construction traffic. The modelling showed that with the Bella Vista construction traffic the intersection would:

- require extra capacity during the AM peak period – Level of Service F
- operate at capacity with excessive delays during the PM peak period – Level of Service E.

Subsequently, the EIS states that there would be 'some widening' of Celebration Drive in the eastbound direction and that the intersection of Celebration Drive and Lexington Drive will be converted from a roundabout to traffic signals during and after the construction of Bella Vista Station.

From BP's view point, closing the northern leg of the Lexington Drive Roundabout and converting the Lexington roundabout to traffic signals is not a desirable outcome.

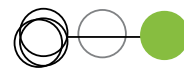
Closing the northern leg of the roundabout and converting the intersection to traffic signals restricts the route of vehicles exiting the station as they would not be able to do a U-turn at the roundabout. Vehicles would either continue travelling eastbound along Celebration Drive or turn right into Lexington Drive. This would result in an increase in travel time for vehicles returning to Old Windsor Road.

In addition, many vehicles divert from Lexington Drive through the Homemaker centre to reach the BP station to buy fuel. Such vehicles then leave the BP site, do a U-turn at the roundabout and re-enter Old Windsor Road with only a small diversion. The removal of the north arm of the intersection would result in fewer drivers frequenting the BP station. A survey will be required to establish how much trade will be lost.

Possible Alternative Access Arrangements

During and after construction of the Bella Vista station we believe there are two possible options that should be investigated further, they are:





- Converting the roundabout to signals and keeping the northern leg open for BP and McDonalds patrons (although this will still result in a reduced level of service due to the inconvenience of the in-out movement).
- Closing the northern leg of the intersection but do not provide traffic signals – provide capacity increases by means of improvement of the existing roundabout.

Both options are discussed in more detail below:

Traffic Signals

There may be scope for providing an access road between the BP Station and the northern leg of the proposed Lexington Drive traffic signals during and after construction of the Bella Vista Station. The road would be above the tunnel section of the rail line and run parallel with Celebration Drive with a sharp turn towards the northern leg of the Lexington Drive traffic signals.

Roundabout

If the capacity of the Lexington roundabout were increased, vehicles leaving the BP station would be able to undertake a 'U Turn' movement at the roundabout and return to Windsor Road. If the capacity of the roundabout were increased sufficiently there may be only a small increase in travel time. However without the retention of the northern arm of this roundabout, the BP site would lose an important ingress movement from traffic travelling north to west.

Both options would need to be investigated further before making an informed decision as to the preferred option for BP.

Proposed Construction Traffic Volumes

EIS Forecasted Construction Traffic Volumes

The forecasted daily construction traffic for the Bella Vista station is estimated to be 250 Heavy Vehicle Movements and 1400 Light Vehicle Movements from both Celebration Drive and Balmoral Road.

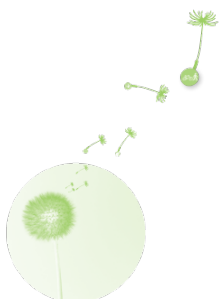
The EIS states the Bella Vista Station site will be used as a remote parking site for the eastern (tunnel) sections works site. The EIS forecasts that 60% of light vehicles will access the site from Celebration Drive and 40% from Balmoral Road.

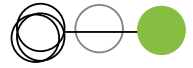
The Peak Hour Vehicle Movements Table in Appendix B of the Construction Traffic and Transport forecasts 190 vehicle movements In and Out during both the AM and PM Peak period at the Celebration Drive access point.

Construction Traffic Volumes Assessment

We have reviewed the forecasted construction traffic volumes for the Celebration Drive access point within the EIS and believe they could be underestimated for the reasons outlined below:

- i All traffic movements are allowed at the intersection of Old Windsor Road and Celebration Drive whereas at the intersection of Old Windsor Road and Balmoral Road vehicles are only able to turn left from Old Windsor Road into Balmoral Road and left from Balmoral Road into Old Windsor Road. Therefore, we believe there would be a higher percentage of light vehicles accessing the Bella Vista Station from Celebration Drive.





- ii The Peak Hour Vehicles Movements Table forecasts 190 vehicle movements In and out during both the AM and PM Peak Period. That is, the vehicle movements are split 50% in and 50% out during both peak periods. Construction traffic is often more directional during the peak periods (e.g. 80% in/ 20% out). It should be noted that higher proportions for vehicles entering sites during the morning peak have been proposed for the other sites but not the Celebration Drive/ Balmoral Road site.
- iii The last column of Peak Hour Vehicles Movement Table lists 100 staff for the Celebration site. It is unclear whether or not these are solely staff numbers or vehicle movements as there are no 'In and Out' movement columns.

Our initial assessment indicates that the forecasted construction traffic movements along Celebration Drive may therefore be underestimated. Subsequently, additional capacity improvements at the intersection of Celebration Drive and Lexington Drive may be required.

Furthermore, it should be mentioned that the intersections of Celebration Drive with Old Windsor Road and Lexington Drive have been modelled in isolation using the SIDRA intersection analysis program. The problem with modelling intersections in isolation is that it does not take congestion downstream of the intersection into consideration. That is, if a traffic queue is formed on the Celebration Drive east approach to Old Windsor Road it is not considered when modelling the intersection of Celebration Drive and Lexington Drive. Due to the proximity of these two intersections and the significant increase in traffic travelling along Celebration Drive we recommend that these two intersections be modelled using a micro simulation package such as Paramics or Linsig.

Finally, it is usual for EIS assessment to consider all potential construction sites whereas when construction takes place, the number of construction sites is generally significantly less than proposed in the EIS. The effect of this might be that the volume of traffic at the construction sites that are eventually chosen is likely to be greater than that estimated in the EIS as they have to accommodate traffic that would have originated from one of the sites that was not taken forward. If this is the case, it is important that this is reassessed.

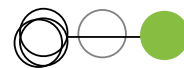
Future Traffic Volumes

The EIS states that in the future approximately 800 park and ride spaces will be available at Bella Vista station. There will also be provision for buses, taxis and kiss and ride facilities. Therefore, there will be a significant increase in traffic travelling along Celebration Drive during both the AM and PM peak periods. The EIS has not assessed the future operating performance of the Celebration Drive intersection with Old Windsor Road and Lexington Drive. The future performance of these two intersections should be modelled using a micro simulation package and take into account the proposed 800 Park and Ride car park and any proposed future developments in close proximity of the Bella Vista station.

Size of Heavy Construction Vehicles

The EIS does not stipulate what size of heavy vehicles will be used to transport the spoil from the Tunnel. The size of the truck, whether they are a 12.5m Heavy Rigid, Truck and Dog or a B Train haulage truck, will affect the level of congestion along Celebration Drive. That is, a larger heavy construction truck is likely to result in an increase in travel time and longer queues along Celebration Drive due to the length of time that it takes a truck to accelerate from a stopped position to the posted speed limit. The size of the heavy construction trucks should be known and then included within the





micro simulation model of the two intersections to give a more accurate assessment of their performance.

Construction Programme

The EIS states the construction of the Bella Vista Station may take:

- 10 Months for the Bella Vista Station/ Shaft
- 12 Months for the Tunnel Excavation
- 10 Months for the Surface/ Station Activities.

The EIS states that in ideal conditions a Tunnel Boring Machine can cut up to 120m a week. On this basis, the initial 'drive' of 4km between Bella Vista station and Hills Centre would equate to 76m of tunneling per week.

Construction Hours

The EIS states that above ground construction work will take place between the hours of 7am - 6pm Monday to Friday and between 8am and 1pm on Saturday.

However, below ground construction work (tunneling) and construction traffic for material supply to and spoil removal from tunneling will be 24 hours a day seven days a week.

Whilst the enormity of the project is appreciated, construction traffic will be operating 24 hours a day seven days a week. It is anticipated therefore that there will be a driver protocol/construction traffic management plan in place with an emphasis of reducing construction vehicle trips during the peak traffic periods AM (7am - 9am) and PM 4pm - 6pm).

Construction Noise

The Bella Vista site is an exposed site and the Tunnel Boring Machine (TBM) will initially be operating at a shallow depth at the Bella Vista Station. The EIS states that there will be an acoustic shed over the TBM operations and there will also be a 3m high noise attenuation walls east of Bella Vista. The EIS states that some spoil handling will occur outside of the acoustic shed during the daytime hours only.

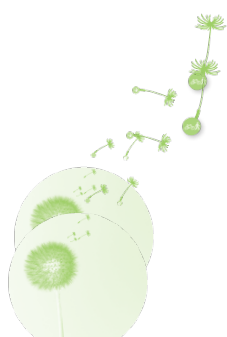
Whilst, not noise or air quality experts, we consider that:

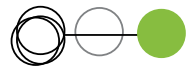
- The level of construction noise and at what time of the day should be monitored to ensure that it does not affect the BP staff and patrons frequenting the BP station.
- Because the Bella Vista Station is an exposed site, the air quality should be monitored to ensure that no toxic chemicals are being released from the Tunnel.
- Since the Tunnel Boring Machine will initiate at the Bella Vista station. The BP service centre and fuel storage tanks may need to be protected and/or strengthened to ensure that their structural integrity is not affected.

Public Consultation Meeting

At the public consultation on the night of Thursday 26th April at the Epping Club, additional information about the North West Rail link was obtained.

Discussions with the relevant transport expert suggested that TNSW would not be averse to discussions about how the BP (and McDonald site) access might be maintained. The transport expert indicated that it might be possible, subject to additional investigation/ negotiation, to amend the proposed boundaries of the construction site to allow continued access to BP and McDonalds from Lexington





Drive across Celebration Drive (i.e. from a retained fourth arm of the intersection). I believe that it is still important that this intersection is retained as a roundabout so that vehicles leaving BP onto Celebration Drive can turn around and re-enter Old Windsor Road. I did get the impression that the proposed upgrade of the roundabout to traffic signals was still open to negotiation. As described above, we believe that it would be possible to undertake some capacity improvements to the roundabout without converting the intersection to a traffic signal.

After you have read the contents of this letter, perhaps we should discuss the way forward.

Yours sincerely

GTA CONSULTANTS

Ken Hollyoak
Associate Director

