Northern Pipeline Interconnector
Cooroy to Eudlo

TRAFFIC IMPACT ASSESSMENT

Prepared for: Kellogg Brown Root Pty Ltd

TRAFFIC • PARKING • ACOUSTICS

WWW.TTMGROUP.COM.AU

Reference:23831rep2

ttmbris@ttmgroup.com.au

Document Status

Rev No.	Author	Reviewer		Description	Date
		Name	Signature		
1	HT	S. Crank		Traffic Impact Assessment	Aug 07
2	SL			Added Estimated Traffic Volumes	Oct 07

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Introduction

TTM has been engaged by Kellogg Brown Root Pty Ltd to develop a preliminary Traffic Impact Assessment to be incorporated into an Environmental Impact Statement for the proposed Northern Pipeline Interconnector between Cooroy and Eudlo. The proposed route for this pipeline crosses sections of Caloundra City, Maroochy and Noosa Local Government areas. In doing so it crosses or runs along a large number of road reserves, from local streets to national highways. As such, the construction of this pipeline is likely to have significant negative impacts on traffic in and around the pipeline construction corridor.

The primary purpose of this Traffic Impact Assessment is to provide advice on the most appropriate construction and traffic management techniques to minimise the impact of the pipeline construction on traffic along the route. Where necessary, advice on altering the proposed route, purely to minimise traffic impact, has also been supplied.

TTM's scope of works on this project is limited to the pipeline interconnector from Cooroy to Eudlo.

It is important to note that the Traffic Control Plans developed by TTM only consider the impact of works on traffic. Impact on other aspects on the local environs, such as noise, other underground services and work site runoff are not considered here and need to be assessed separately and incorporated as necessary.

Section Classification

The scale of this project is obviously too large to develop a single impact assessment for each location where the pipeline interacts with a road reserve at this stage of the project. Instead, each point where the pipeline interacts with the road has been classified into a section. These sections are based on the following factors:

- Whether the pipeline crosses the road or runs along the road reserve
- Aspects of the road cross-section including pavement and verge widths
- The availability of detour routes
- The amount of traffic carried on the road
- The relative location of easements

As a result the traffic impact has been assessed for 11 classifications. Each classification represents a group of roads with similar characteristics for assessing the traffic impact.

In some instances the road characteristics or pipeline direction changed significantly along a single section of road. In these cases, the road is separated out into 2 or more classifications, with the relevant road segments appropriately identified.

The resulting classifications assessed in this report are as follows:

- Pipe crosses a major highway
- Pipe crosses road with carriageway width greater than 8.5m wide
- Pipe crosses road with carriageway width less than 8.5m wide and an alternative route is available
- Pipe crosses road with carriageway width less than 8.5m wide and no alternative route is available – Major Road
- Pipe crosses road with carriageway width less than 8.5m wide and no alternative route is available – Minor Road
- Pipe crosses road with carriageway width less than 8.5m wide and no alternative route is available – adjacent to power easement
- Pipe runs along road verge, where verge is less than 5m wide – with alternative route
- Pipe runs along road verge, where verge is between 5m and 10m wide
- Pipe runs along road verge, where verge is less than 5m wide – no alternative route

Limitations of the Impact Assessment

TTM has only considered the impact of works on traffic in and around the proposed pipeline corridor. Impact on other aspects on the local environs, such as noise, other underground services and work site runoff are not considered here and need to be assessed separately and incorporated as necessary.

The assessments are based on the preliminary route provided by Southern Regional Water Pipeline Alliance. These plans do not give detailed advice on finished levels of the pipe with respect to the road level, nor do they contain information on the intended size of the pipe. As such, detailed planning for traffic management is not yet possible.

These plans are only a guide to the most appropriate traffic management arrangements for each section. Each road section affected by the pipeline must have a detailed traffic control plan developed to be approved by the relevant Council, with appropriate permissions sought from Council, Main Roads, Police and Emergency Services to initiate the plans.

TTM is aware of several road projects along the pipeline route which will dramatically alter the impact of the pipeline on the road in the future. Given the likely timeline for this project, TTM has assessed these sections assuming that the proposed upgrades have occurred.

Finally, TTM has not undertaken detailed impact analysis of any section of road or intersection based on the proposed pipeline impact. As the pipeline corridor and traffic conditions may significantly alter by the time construction commences, detailed analysis of the current conditions is seen as irrelevant.

Glossary

Active Work Zone – portion of work zone where excavation, pipe laying or backfilling is occurring

Full Closure – this refers to the complete closure of a lane or road section to all traffic.

General Closure – this refers to the closure of a lane or road section to through traffic. Traffic accessing nearby properties, emergency vehicles and other specified traffic may still have limited access to these areas.

Non-active Work Zone – portion of work zone where no work excavation, pipe laying or backfilling is occurring. May include open trench areas, preparation works, survey works or finishing works.

TCP – Traffic Control Plan

VPH – Vehicles Per Hour

VPD – Vehicles Per Day

Unavailable Work Hours – this time period is when traffic control devices may not impede into traffic lanes required during peak times.

Work Hours – In this document, the term “Work Hours” refers to the times of the day when work is being undertaken to excavate for, lay or backfill any section of trench within the road reserve. It does not refer to normal business hours.

Class 1 – Pipe Crossing Major Highway

This Classification applies to the following road sections:

- Bruce Highway, Cooroy (5000 VPD peak period)
- Bruce Highway, Yandina (5000)
- Bruce Highway, Chevallum (5000)

Road Description

These roads are classified as Major Arterial Routes in the road hierarchy. These roads are typically divided carriageways with 2 or more lanes in either direction, however may be single carriageway, dual lane. The traffic volume carried by these roads, even during off-peak periods, is too large to be successfully diverted onto alternative routes, if any alternative routes are available. As such, these routes have the potential for the greatest impact due to the construction of the pipeline.

Generally, the functionality and capacity of these roads is to be maintained near 100% during the construction of the pipeline, otherwise the impact to traffic is likely to be extremely severe.

Type of Works Proposed

For these roads it is necessary to bore the pipeline under road using trenchless technologies. This may be a combination of micro-tunnelling and directional drilling. As the cost of trenchless pipe laying is high it is expected that trenches will be utilised up to the edge of the carriageway, however must not impede on the shoulders or traffic lanes.

The work zone may have some limited impact on the traffic lanes with barriers, to be located within sealed shoulders, separating vehicle flows from work zones as it likely that trenches will be formed to the edge of the carriageway. This work zone should not impede on the traffic lanes.

Likely Traffic Impact

The use of trenchless technology will minimise impact to road uses. However it is still likely that work zones will need to be set up for works up to the shoulders. This will include reduced shoulder width and reduced speed zones.

This will cause low to moderate delays to traffic as vehicles will be forced to slow. Additionally the loss of the sealed shoulder from the workzone will cause loss of traffic capacity on the roadway, estimated to be between 10% and 20%, depending on the existing shoulder width.

Unavailable Work Hours

Day	
Weekdays	No restriction - 24hr operation
Saturdays	No restriction - 24hr operation
Sundays	No restriction - 24hr operation

Class 2 – Pipe crosses road, carriageway width >8.5m wide

This Classification applies to the following road sections:

- Lake McDonald Drive, Cooroy (200)
- Tewantin Road, Cooroy (250)
- Eumundi-Kenilworth Road, Eerwah Vale (100)
- Wilsons Lane, Eerwah Vale (Negligible)
- North Arm -Yandina Creek Road, North Arm (20)
- Bunya Road, Bridges (50)
- North Street, Yandina (45)
- Low Street, Yandina (17)
- Stevens Street, Yandina (17)
- Old Bruce Highway, Yandina (250)
- Cordwell Road, Yandina (50)
- Petrie Creek Road, Diddillibah (300)
- Eudlo Flats Road, Kiels Mountain (50)
- Maroochydore Road, Kiels Mountain (500)
- McGilchrist Road, Eudlo (Negligible)

Road Description

These roads are generally classified as Minor Arterials or Collector Roads in the road hierarchy. They are defined as either single or dual carriageways with a minimum 8.5m wide trafficable, pavement width, including sealed shoulders. The traffic volume carried by these roads is generally heavy during peak periods, with low to moderate levels during off-peak times.

Generally, the functionality and capacity of these roads is to be maintained at the maximum level possible during peak periods, with some delays allowed during off-peak periods.

Type of Works Proposed

The width of these roads allows for a 3.5m wide traffic lane to be maintained, plus 0.5m of barriers, so that pipeline construction across the carriageway can be performed in 2 stages, with a 0.5m overlap in the centre. This allows a minimum of 1 traffic lane, controlled by stop-go batons or temporary signals to give alternating priority to either direction.

The workzone can be as wide as necessary along the roadway, however it is expected that no stockpiling will occur on the roadway. Therefore, a maximum expected length of roadway to be occupied by the workzone is 19 metres.

The above works are generally only suitable for off-peak periods. For peak periods, as identified below, minimum roadway width of 6.5 metres will be required to allow 2-way traffic. This may be achieved in localised areas with steel plates over the trench, but only if vehicles speeds are significantly reduced, 40km/h maximum.

The proposed work zone is shown in Figure 2.1 below.

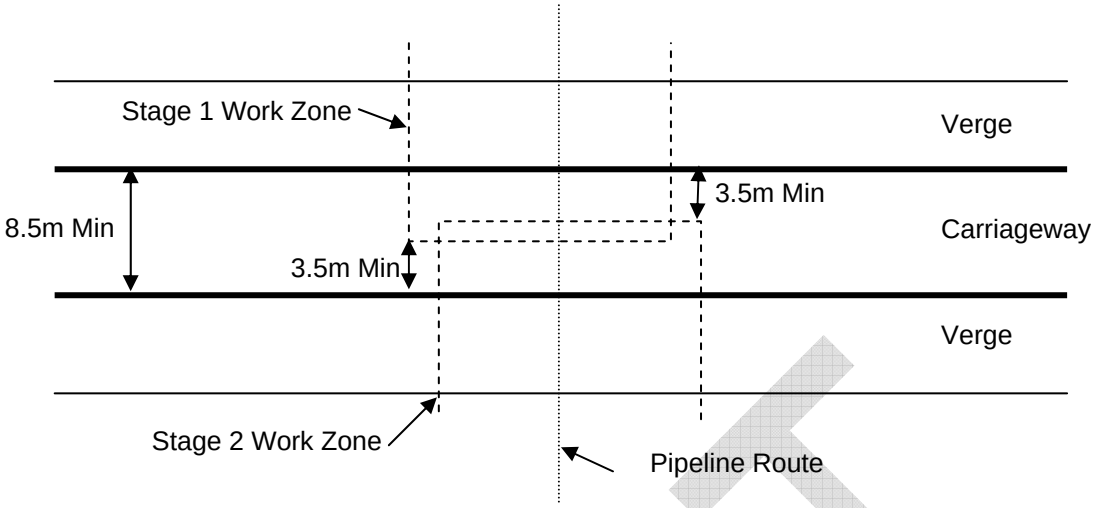

Figure 2.1: 2 stage work zone for 8.5m wide carriageway

Likely Traffic Impact

The longer the workzone, the greater the delay between alternating traffic priorities and the greater the delay to traffic. As such, minimising the work zone will reduce traffic impacts and maximise the time available for construction as peak periods approach.

Generally it is expected that this arrangement will reduce the road capacity to approximately one third of its maximum capacity (approximately 600 vehicles per hour, 2 way). Most vehicles will experience delays of up to 2 minutes when passing through the work zone.

In cases where an appropriate alternative route is available for traffic in one direction, a detour may be set up to limit the impact of the workzone. This may extend the hours work can occur, however, 2-way traffic will still be required through the workzone during the maximum peak periods.

Unavailable Work Hours

Day

Weekdays	AM Peak – 6.30am to 9.00am and PM Peak – 3.30pm* to 6.30pm
Saturdays	Daily Peak – 9.00am to 2.00pm
Sundays	No restriction - 24hr operation

*Note: weekday PM peaks may start 1 hour earlier in areas with large school traffic component.

Class 3 – Pipe crosses road, carriageway width <8.5m wide, alternative route is available

This Classification applies to the following road sections:

- Stegalls Road, Yandina (Negligible)

Road Description

These roads are generally classified as Local Streets or Collector Roads in the road hierarchy. They are usually located in neighbourhoods which allow access to both sides of the intended work zone via 2 or more routes. They consist of a single carriageway with a maximum 8.5m wide trafficable pavement width, including any sealed shoulders. The traffic volume carried by these roads, is generally low to moderate levels during off-peak times and low at another times.

An alternative route is considered to be available if the majority of vehicles do not have to extend their trip by more than 3 kilometres as a result of using the alternative route.

As these are low volume roads, with alternative routes it is considered acceptable to close the road at the work zone to complete the works.

Type of Works Proposed

The width of these roads does not allow for a traffic lane to be maintained while construction works are occurring across the carriageway. In this case, the entire carriageway would be null and void in terms of maintaining traffic thus allowing the entire width of the carriageway to be dedicated to the pipeline construction.

The work zone can be as wide as necessary along the roadway, however it is expected that no stockpiling will occur on the roadway. Therefore, a maximum expected length of roadway to be occupied by the work zone is 19 metres. The width of the work zone may be further restricted to maintain access to properties adjacent to the construction area.

Detour routes must be established prior to the commencement of work and all local residents and business should be well informed of the intended closures.

With alternate routes available to road users, works on this class of road can be carried out any time over the 24 hour period and for the duration required.

Likely Traffic Impact

As all traffic will be diverted from the work zone, road users may be slightly inconvenienced by taking a detour. Advanced warnings in the form of signage and notices will prepare road users of closures.

Unavailable Work Hours

Day	
Weekdays	No restriction - 24hr operation
Saturdays	No restriction - 24hr operation
Sundays	No restriction - 24hr operation

Class 4 – Pipe crosses road, carriageway width <8.5m wide, no alternative route is available – Major Road

This Classification applies to the following road sections:

- Bli Bli Road, Bli Bli (400)

Road Description

These roads are generally classified as Minor Arterials or Collector Roads in the road hierarchy. They are defined as single carriageways with a maximum 8.5m wide trafficable pavement width, including sealed shoulders. The traffic volume carried by these roads is generally heavy during peak periods, with low to moderate levels during off-peak times.

Generally, the functionality and capacity of these roads is to be maintained at the maximum level possible during peak periods, with some delays allowed during off-peak periods.

Type of Works Proposed

Traffic must be maintained on these roads at all times. As such the carriageway needs to be widened to at least 8.5m. This width will allow for a 3.5m wide traffic lane to be maintained, plus 0.5m of barriers, so that pipeline construction across the carriageway can be performed in 2 stages, with a 0.5m overlap in the centre. This allows a minimum of 1 traffic lane, controlled by stop-go batons or temporary signals to give alternating priority to either direction. To achieve this one verge on the carriageway will need to be reformed to street level to allow a wider pavement. This widened pavement will need to extend beyond the work zone in either direction. The widening should be located considering all existing services including stormwater. The reduced verge width will restrict pedestrian access, so alternative pedestrian arrangements may be required. Once construction is complete the original verge will need to be re-instated, along with any kerb and channel which may have been removed.

The work zone can be as wide as necessary along the roadway, however it is expected that no stockpiling will occur on the roadway. Therefore, a maximum expected length of roadway to be occupied by the work zone is 19 metres.

The above works are generally only suitable for off-peak periods. For peak periods, as identified below, minimum roadway width of 6.5 metres will be required to allow 2-way traffic. This may be achieved in localised areas with steel plates over the trench, but only if vehicles speeds are significantly reduced, 40km/h maximum.

Likely Traffic Impact

The longer the work zone, the greater the delay between alternating traffic priorities and the greater the delay to traffic. As such, minimising the work zone will reduce traffic impacts and maximise the time available for construction as peak periods approach.

Generally it is expected that this arrangement will reduce the road capacity to approximately one third of its maximum capacity (approximately 600 vehicles per hour, 2 way). Most vehicles will experience delays of up to 2 minutes when passing through the work zone.

Unavailable Work Hours

Day	
Weekdays	AM Peak – 6.30am to 9.00am and PM Peak – 3.30pm* to 6.30pm
Saturdays	Daily Peak – 9.00am to 2.00pm
Sundays	No restriction - 24hr operation

*Note: weekday PM peaks may start 1 hour earlier in areas with large school traffic component.

Class 5 – Pipe crosses road, carriageway width <8.5m wide, no alternative route is available – Minor Road

This Classification applies to the following road sections:

- Liane Drive, Lake McDonald (Negligible)
- Six Mile Creek (Left Branch), Lake McDonald (Negligible)
- Kensington Drive, Lake McDonald (25)
- Neeraway Road, Eerwah Vale (Negligible)
- Monak Road, Eerwah Vale (Negligible)
- Sheanans Road, Maroochy River (Negligible)
- Yandina – Bli Bli Road, Maroochy River (20)
- Thompsons Road, Maroochy River (Negligible)
- Francis Road, Bli Bli (23)
- Diddillibah Road, Diddillibah (100)
- Chevallum Road, Chevallum (30)

Road Description

These roads are generally classified as Local Streets in the road hierarchy. They are defined as single carriageways with a maximum 8.5m wide trafficable pavement, including sealed shoulders. These roads are all cul-de-sacs, hence the reason no alternative route is available. The traffic volume carried by these roads is generally low during peak periods, with very low levels during off-peak times.

Generally, the functionality and capacity of these roads is to be maintained at the maximum level possible during peak periods, with some delays allowed during off-peak periods.

Type of Works Proposed

The width of these roads does not allow for a traffic lane to be maintained while construction works are occurring across the carriageway. In this case, the entire carriageway would be null and void in terms of maintaining traffic thus allowing the entire width of the carriageway to be dedicated to the pipeline construction.

The workzone can be as wide as possible, but also to suit local conditions (nearby intersections and private property access). If the carriageway width is sufficient and surroundings are safe, steel plates can be implemented to maintain 2-way traffic during peaks as no alternate route is possible. Vehicle speeds, as a consequence will be significantly reduced, 40 km/h maximum.

The above works are strictly for off-peak periods. Notifying local businesses and residents of possible road closures and times will have to be carried out. It is recommended that any complete road closure only be accomplished in short durations (up to 6 hours).

Likely Traffic Impact

This classification of works will cut access to a limited number of properties during which the works will take place. It is therefore appropriate to inform affected businesses and properties of the closures and times so they can make suitable arrangements to avoid the workzone and thus reduce the traffic impact of the works.

Unavailable Work Hours

Day	
Weekdays	AM Peak – 6.30am to 9.00am and PM Peak – 3.30pm* to 6.30pm
Saturdays	Daily Peak – 9.00am to 2.00pm
Sundays	No restriction - 24hr operation

*Note: weekday PM peaks may start 1 hour earlier in areas with large school traffic component.

Class 6 – Pipe crosses road, carriageway width <8.5m wide, no alternative route is available – Adjacent to Power Easement

This Classification applies to the following road sections:

- Curlew Crescent, Cooroy (Negligible)
- Cooroy Mountain Road, Cooroy (10)
- Eumundi Range Road, Cooroy (20)
- Bunya Rd, Eerwah Vale (50)
- Lees Road, Bridges (Negligible)
- Brandons Road, Yandina (Negligible)
- Bamboo Road, Eudlo (Negligible)
- Slaughter Yard Road, Eudlo (5)
- Ilkey Road, Eudlo (30)
- Nobels Road, Eudlo (Negligible)

Road Description

These roads are generally classified as Local Streets in the road hierarchy. They are defined as single carriageways with a maximum 8.5m wide trafficable pavement, including sealed shoulders. These roads are all cul-de-sacs, hence the reason no alternative route is available. The traffic volume carried by these roads is generally low during peak periods, with very low levels during off-peak times. The pipeline in the vicinity of these roads runs along electricity power easements. As such, land immediately adjacent to the crossing point is part of these easements.

Generally, the functionality and capacity of these roads is to be maintained at the maximum level possible during peak periods, with some delays allowed during off-peak periods.

Type of Works Proposed

The width of these roads does not allow for a traffic lane to be maintained. In this case, the entire carriageway would be null and void in terms of maintaining traffic thus allowing the entire width of the carriageway to be dedicated to the pipeline construction.

The work zone can be as wide as possible, but also to suit local conditions (nearby intersections and private property access should be clear of the work zone). Temporary diversion of traffic through the easement, via a one lane unsealed path, provide for traffic flow. This arrangement will be controlled by stop-go batons or temporary signals to give alternating priority to either direction.

The proposed work zone is shown in Figure 6.1 below.

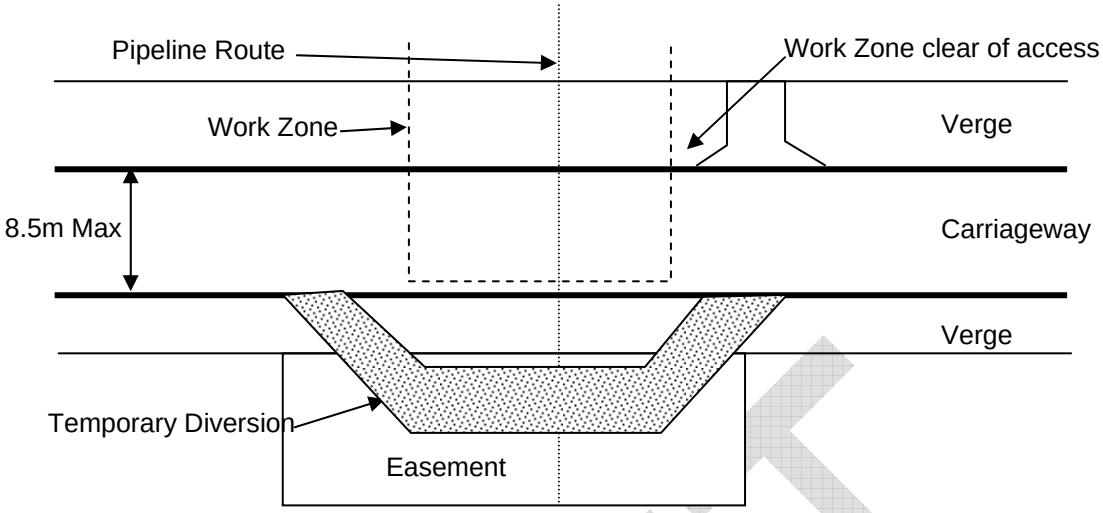

Figure 6.1 – Work Zone with adjacent Power Easement

Likely Traffic Impact

This classification of works will cut access to a limited number of properties during which the works will take place. It is therefore appropriate to inform affected businesses and properties of the closures and times so they can make suitable arrangements to avoid the work zone and thus reduce the traffic impact of the works.

Due to the low traffic volumes at these locations the single lane diversion will be suitable to cater for traffic throughout the day. Vehicles passing through the work zone will experience delays of up to 1 minute.

Unavailable Work Hours

Day	
Weekdays	No restriction - 24hr operation
Saturdays	No restriction - 24hr operation
Sundays	No restriction - 24hr operation

Class 7 – Pipe in road verge, where verge is <5m wide, with alternative route

This Classification applies to the following road sections:

- Buckle Street, Yandina (40)

Road Description

These roads may be classified as from Local Street to Arterial in the road hierarchy. They consist of a minimum 6m wide carriageway, carrying 2-way traffic, adjacent to a verge which is less than 5 metres wide. The proposed pipeline route is to be contained within the verge, running parallel to the centreline of the road. The traffic volume carried by these roads varies significantly based on the functionality of the road. However, the narrow verge width tends to coincide with lower traffic requirements.

An alternative route is considered to be available if vehicles can access the same location without having to drive more than 3 kilometres more than via the proposed work zone.

Type of Works Proposed

The restricted verge width will not allow the work zone to be contained within the verge. Therefore the active work zone will be required to cover part of the roadway. For this work to be carried out a 7 metre wide work zone (in accordance with KBR drawing T1-X-DWG-8005) is to be established. This 7 metre wide work zone will enable between 2.5 and 4 metres of the carriageway to be maintained, allowing a minimum of 1 traffic lane. Stop-go batons or temporary signals to give alternating priority to either direction can control this traffic lane.

Generally it is expected that only local traffic will pass through the active work zone, with all through traffic directed via an alternative route. It is expected that the active work zone will be a maximum of 200m in length to ensure that delays to through traffic are minimised. Outside this 200 metre active zone the non-active work zone is to be maintained. This non-active work zone should enable 2 through lanes on the roadway, with barriers separating traffic from the open trench at the edge of the pavement seal.

The above works are generally only suitable for off-peak periods. During peak periods, the combined detoured traffic and the existing traffic would cause significant congestion along the detour route. As such, for peak periods, as identified below, minimum roadway width of 6.5 metres will be required to allow 2-way traffic. This will be achieved by pushing barriers back to the edge of the pavement to separate the trench in the verge from the traffic flow, effectively creating a non-active work zone at all points adjacent to the construction area.

Property Access is to be maintained at all times, except when excavation and back filling are occurring at the access point. When a trench runs across the access point, steel plates and barriers should be in place to provide a temporary access.

The proposed work zone for peak and off-peak periods is shown in Figure 7.1 below.

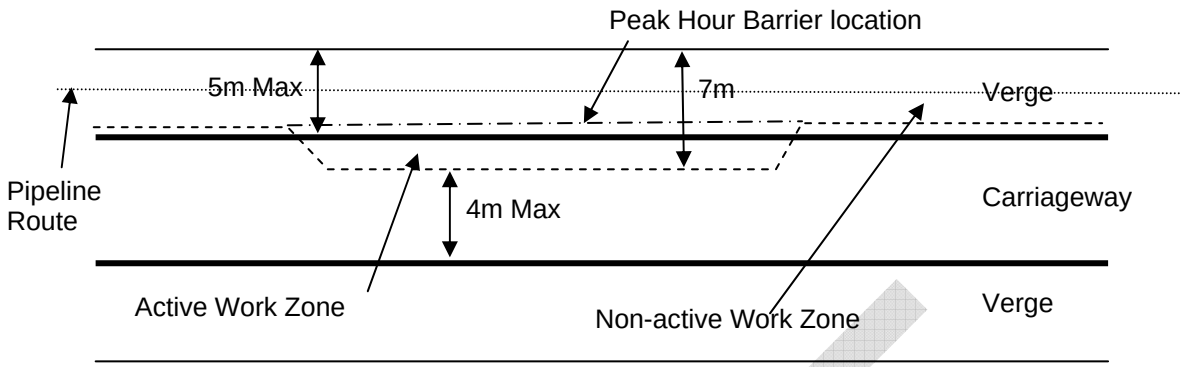

Figure 7.1: work zone for 5m wide verge (peak and off-peak)

Likely Traffic Impact

The longer the work zone, the greater the delay between alternating traffic priorities and the greater the delay to traffic. As such, minimising the work zone will reduce traffic impacts and maximise the time available for construction as peak periods approach. However, at the same time a longer work zone will allow for a more continuous flow of work activities, without the need to adjust barriers between active and non-active zones.

Generally it is expected that a 200 metre long active work zone will reduce the road capacity to approximately 20% of its maximum capacity (approximately 350 vehicles per hour, 2 way). Most vehicles will experience delays of up to 4 minutes when passing through the work zone.

Unavailable Work Hours

Day	
Weekdays	AM Peak – 6.30am to 9.00am and PM Peak – 3.30pm* to 6.30pm
Saturdays	Lunch Peak – 10.30am to 2.00pm
Sundays	No restriction - 24hr operation

*Note: weekday PM peaks may start 1 hour earlier in areas with large school traffic component.

Class 8 – Pipe in road verge, where verge is between 5m and 8m wide

This Classification applies to the following road sections:

- Collwood Road, Lake McDonald (20)
- Lake McDonald Drive, Lake McDonald (100)

Road Description

These roads may be classified as from Local Street to Arterial in the road hierarchy. They consist of a minimum 6.5m wide carriageway, carrying 2-way traffic, adjacent to a verge, which is greater than 5 metres, but less than 8 metres wide. The proposed pipeline route is to be contained within the verge, running parallel to the centreline of the road. The traffic volume carried by these roads varies significantly based on the functionality of the road. However, the wider verge width tends to coincide with moderate traffic requirements.

Type of Works Proposed

The restricted verge width will not allow the work zone to be fully contained within the verge. Therefore the active work zone will be required to cover part of the roadway. For this work to be carried out a 7 metre wide work zone (in accordance with KBR drawing T1-X-DWG-8005) is to be established. This 7 metre wide work zone will enable more than 4.5 metres of the carriageway width to be maintained, allowing 2 narrow traffic lanes to be maintained at all times.

Generally it is expected that all traffic will be able to pass through the active work zone. It is expected that the active work zone will be a maximum of 300m in length to ensure that restrictions to through traffic are minimised. Outside this 300 metre active zone the non-active work zone is to be maintained. This non-active work zone should enable 2 through lanes on the roadway, with barriers separating traffic from the open trench at the edge of the pavement seal. Speed zones in the active work zone would be restricted to 40km/h while speeds in the non-active work zones may be 60km/h.

As 2 lanes of traffic are to be maintained at all times, the above works are considered suitable at all times. However, it is recommended that the active work zone be minimised as much as possible during peak periods to minimise delays.

Property Access is to be maintained at all times, except when excavation and back filling are occurring at the access point. When a trench runs across the access point, steel plates and barriers should be in place to provide a temporary access.

The proposed work zone for peak and off-peak periods is shown in Figure 8.1 below.

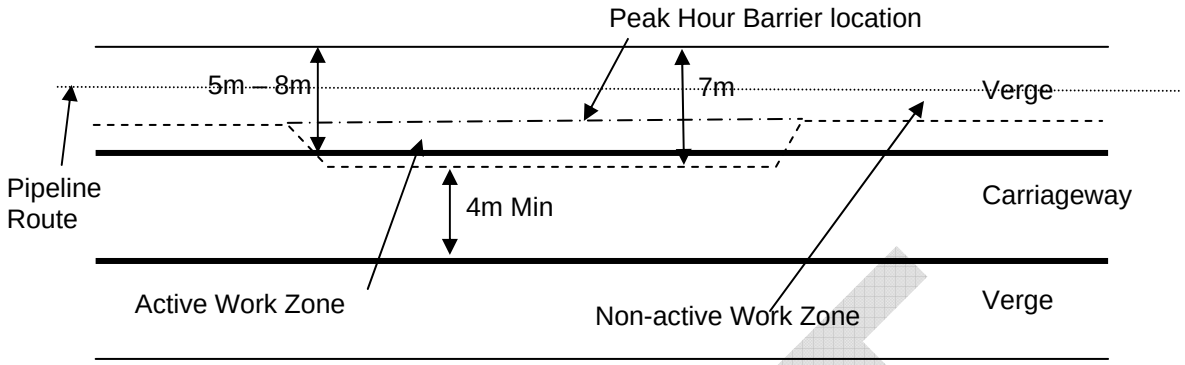

Figure 8.1: work zone for 5m to 8m wide verge

Likely Traffic Impact

The longer the work zone, the greater the delay to through traffic due to reduced speeds. As such, minimising the work zone will reduce traffic impacts. However, at the same time a longer work zone will allow for a more continuous flow of work activities, without the need to adjust barriers between active and non-active zones.

Generally it is expected that a 300 metre long active work zone will reduce the road capacity of the road by approximately 10%. Most vehicles will experience delays of up to 1 minute when passing through the work zone.

Unavailable Work Hours

Day	
Weekdays	No restriction - 24hr operation
Saturdays	No restriction - 24hr operation
Sundays	No restriction - 24hr operation

*Note: weekday PM peaks may start 1 hour earlier in areas with large school traffic component.

Class 9 – Pipe in road verge, where verge is <5m wide, no alternative route

This Classification applies to the following road sections:

- Strong Lane, Eerwah Vale (10)
- Bruce Highway Service Road, Eerwah Vale (Negligible)
- Balsam Road, Eerwah Vale (Negligible)
- Lacey Lane, Yandina (Negligible)

Road Description

These roads may be classified as from Local Street to Sub-arterial in the road hierarchy. They consist of a minimum 6m wide carriageway, carrying 2-way traffic, adjacent to a verge which is less than 5 metres wide. The proposed pipeline route is to be contained within the verge, running parallel to the centreline of the road. The traffic volume carried by these roads varies significantly based on the functionality of the road. However, the lack of alternative route either indicates it is very low volume cul-de-sac or a sub-arterial with no parallel alternative.

Type of Works Proposed

The restricted verge width will not allow the work zone to be contained within the verge. Therefore the active work zone will be required to cover part of the roadway. For this work to be carried out a 7 metre wide work zone (in accordance with KBR drawing T1-X-DWG-8005) is to be established. This 7 metre wide work zone will enable a maximum 4 metres of the carriageway to be maintained, allowing a minimum of 1 traffic lane. Stop-go batons or temporary signals to give alternating priority to either direction can control this traffic lane.

All traffic will be expected to pass through the active work zone. It is expected that the active work zone will be a maximum of 150m on major roads and 400m on minor roads. These lengths are to ensure that delays to through traffic are minimised. Outside this active zone the non-active work zone is to be maintained. This non-active work zone should enable 2 through lanes on the roadway, with barriers separating traffic from the open trench at the edge of the pavement seal.

The above works are generally only suitable for low traffic periods, such as nights and weekends. During other periods, regular traffic movements will require regular movement through the work zone. As such, for peak periods, as identified below, minimum roadway width of 6.5 metres will be required to allow 2-way traffic. This will be achieved by pushing barriers back to the edge of the pavement to separate the trench in the verge from the traffic flow, effectively creating a non-active work zone at all points adjacent to the construction area.

Property Access is to be maintained at all times, except when excavation and back filling are occurring at the access point. When a trench runs across the access point, steel plates and barriers should be in place to provide a temporary access.

The proposed work zone for peak and off-peak periods is shown in Figure 7.1 in Class 7.

Likely Traffic Impact

The longer the work zone, the greater the delay between alternating traffic priorities and the greater the delay to traffic. As such, minimising the work zone will reduce traffic impacts and maximise the time available for construction as peak periods approach. However, at the same time a longer work zone will allow for a more continuous flow of work activities, without the need to adjust barriers between active and non-active zones.

Generally it is expected that a 150 metre long active work zone will reduce the road capacity to approximately 25% of its maximum capacity (approximately 450 vehicles per hour, 2 way), While the a 400 metre long active work zone will reduce the road capacity to approximately 10% of its maximum capacity (approximately 200 vehicles per hour, 2 way).. Most vehicles will experience delays of up to 3 minutes when passing through the work zone.

Unavailable Work Hours

Day	
Weekdays	AM Peak – 7.00am to 9.00am and PM Peak – 4.00pm* to 6.00pm
Saturdays	Lunch Peak – 10.30am to 2.00pm
Sundays	No restriction - 24hr operation

*Note: weekday PM peaks may start 1.5 hours earlier in areas with large school traffic component.

Appendices