Cessnock Correctional Centre Redevelopment

Review of Environmental Factors – Traffic, Transport and Access

Final

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Cessnock Correctional Centre Redevelopment

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Contents

1. Introduction

1.1 Background

New South Wales' prison population is steadily increasing and existing correctional centres are close to capacity. To address this, the NSW Department of Justice is expanding the Cessnock Correctional Centre (CCC) by building new facilities.

CCC is a minimum and maximum security prison with a current capacity of about 800 inmates. The Centre is dedicated to keeping the community safe and reducing reoffending through measures including education and vocational training. It has a large industries complex employing and training inmates in a variety of jobs including engineering and food services.

The proposed expansion works include:

- Site preparation, vegetation removal, bulk earthworks and the provision of utilities and services
- An additional 320 maximum security beds in four two-storey accommodation buildings including:
  - A building containing industries such as kitchen, education and laundry for the maximum security inmates
  - Program and education spaces
  - Playing field and walking tracks
  - Movement control and administration facilities
- An additional 280 minimum security bed facility in four two-storey accommodation buildings including:
  - A programs building and secure entry and visits building for the minimum security inmates
  - Movement control and administration facilities
  - Playing field with a double tennis court.
- A new 400 bed Rapid Build Prison (RBP) to be constructed to the south-west of the existing CCC. The RBP will be a maximum security facility that will include:
  - Four accommodation pods that can house up to 100 inmates each
  - Industries buildings containing kitchen, education and laundry
  - Secure fencing
  - A new gate house and administration building
  - Parking for 160 staff and visitor vehicles
  - New services compound for generators, substations, water tanks and other services
- Changes to existing buildings including:
  - Changes to the existing reception and visits buildings
  - Changes and upgrades to existing three storey accommodation blocks
  - Changes to fencing to integrate the new 320 and 280 bed complexes with the existing
  - Changes to existing movement control paths within the site
- Changes to site infrastructure including:
  - 500 additional staff and visitor parking spaces
  - A modified road layout to include a new main entrance that would connect Lindsay Street with the main gatehouse
  - A new administration and visitor processing building

- Landscaping
- Stormwater management
- Demolition of buildings as required.

The RBP and 320 bed complex will house sentenced maximum security offenders that will not be permitted to leave the facility. The RBP is expected to operate for up to seven years.

Construction of the 600 bed facility is expected to commence in October 2016 and will be completed in late 2018. Construction of the RBP is expected to commence in August 2016 and will be completed in either the second or third quarter of 2017.

The works would be undertaken in accordance with the *State Environmental Planning Policy (Infrastructure) 2007* and would be undertaken in stages to facilitate the continued operation of the Centre.

1.2 Site location

CCC is located in Cessnock in the Hunter Valley, 151 kilometres north-west of Sydney and 48 kilometres west of Newcastle. The entrance to the centre is located at the corner of Lindsay Street and Mavis Street. A location map is presented overleaf in **Figure 1-1**.

Figure 1-1 : Location of CCC

Source: Google Maps 2016

1.3 Scope of this report

Jacobs Group (Australia) Pty Limited was appointed by NBRS Architecture to undertake a traffic, transport and access assessment of the proposed expansion of the CCC during the construction and operational phases, to inform the Review of Environmental Factors. This report details the outcomes of the traffic, transport and access assessment.

The remainder of this report is structured as follows:

- **Section 2** details the existing transport environment and provides the local context within which the assessment has been undertaken
- **Section 3** describes the potential construction and operational impacts
- **Section 4** details safeguards and mitigation measures
- **Section 5** provides a summary and conclusion.

2. Existing environment

This chapter details the existing transport environment and provides the local context within which this assessment has been undertaken.

2.1 Road network

It is usual to classify roads according to a hierarchy in order to determine their functional role within the road network. Roads are classified according to the role they fulfil and the volume of traffic they can appropriately convey. Changes to traffic flows on roads can then be assessed within the context of the road hierarchy. The guidelines for the functional classification of roads were developed by Roads and Maritime Services (Roads and Maritime) and have been adopted for this study. They are detailed below:

- Arterial road – typically a main road carrying over 15,000 vehicle per day and fulfilling a role as a major inter-regional link (over 1,500 vehicles per hour)
- Sub-arterial road – defined as secondary inter-regional links, typically carrying volumes between 5,000 and 20,000 vehicles per day (500 to 2,000 vehicles per hour). These roads supplement arterial roads in providing for through movement, to an individually determined limit that is sensitive to both roadway characteristics and abutting land uses
- Collector road – provides a link between local roads and regional roads, typically carrying between 2,000 and 10,000 vehicles per day (250 to 1,000 vehicles per hour). At volumes greater than 5,000 vehicles per day, residential amenity designs decline noticeably. Trunk collector and spine roads with limited property access can reasonably carry traffic flows greater than 5,000 vehicles per day
- Local road – provides access to individual allotments, carrying low volumes, typically less than 2,000 vehicles per day (250 vehicles per hour).

Key roads in the study area are described below.

- Allandale Road, shown in **Figure 2-1**, is an arterial road that forms part of the B82 corridor that links the New England Highway, Branxton, the Hunter Valley, Cessnock and the M1 Pacific Motorway near Freemans Waterhole. The road connects Wine Country Drive and Wollombi Road and has one lane in each direction with a 50 kilometres per hour signposted speed limit.

Figure 2-1 : View along Allandale Road in the northbound direction

Source: Google Maps 2016

- Maitland Road, shown in **Figure 2-2**, is an arterial road that forms part of the B68 corridor that links Cessnock, Kurri Kurri, the M15 Hunter Expressway and the M1 Pacific Motorway, Beresfield. The road connects Allandale Road and Vincent Street with Cessnock Road, and has one lane in each direction. West of Quarry Street, the road has a 60 kilometres per hour signposted speed limit, with a school zone in operation near Old Maitland Road. East of Quarry Street, the road has an 80 kilometres per hour signposted speed limit.

Figure 2-2 : View along Maitland Road in the eastbound direction

Source: Google Maps 2016

- Vincent Street, shown in **Figure 2-3**, is an arterial road that forms part of the B68 corridor between Maitland Road and Aberdare Road. The road is one lane in each direction, with parking available on both sides. A 40 kilometres per hour signposted speed limit is imposed near the shopping precinct between Maitland Road and Aberdare Road. South of Aberdare Road, a 60 kilometres per hour speed limit is imposed.

Figure 2-3 : View along Vincent Road in the northbound direction

Source: Google Maps 2016

- Mount View Road, shown in **Figure 2-4**, is a collector road running east-west that links Millfield, Mount View and Cessnock. Within the study area, the road is one lane in each direction and has a 60 kilometres per hour signposted speed limit, with a school zone operating near Mount View High School.

Figure 2-4 : View along Mount View Road in the westbound direction

Source: Google Maps,2016

- Lindsay Street, shown in **Figure 2-5**, is a local road running north-south connecting Mavis Street and Maclean Street. The road is one lane in each direction and has a 50 kilometres per hour signposted speed limit. North of Lindsay Street is the primary access point to CCC.

Figure 2-5 : View along Lindsay Street in the northbound direction

Source: Google Maps,2016

- Kerlew Street, as shown in **Figure 2-6**, is a local east-west road located to the north of CCC that intersects with Wine Country Drive. The road has a 50 kilometres per hour speed limit. Kerlew Street is proposed to be used by heavy vehicles during construction.

Figure 2-6 : View along Kerlew Street in the westbound direction

Source: Google Maps,2016

2.2 Public transport

Seven bus routes currently serve the study area including:

- Route 160 – Cessnock to Newcastle via Kurri Kurri, M15 Hunter Expressway, University of Newcastle and Mayfield. Connects with buses to John Hunter Hospital at Stockland Jesmond and NSW TrainLink services at Hamilton railway station
- Route 162 – Cessnock to Kearsley via Aberdare and Abernethy
- Route 163 – Cessnock to Morriset via Kurri Kurri and M1 Pacific Motorway
- Route 164 – Cessnock to Maitland via Kurri Kurri
- Route 165 – East and West Cessnock. East West City Hoppa. Includes West Cessnock, Vineyard Grove, Hospital Hill and East Cessnock
- Route 167 – Nulkaba and South Cessnock. North South City Hoppa. Includes Nulkaba and South Cessnock
- Route 168 – Cessnock to Millfield via Bellbird, Ellalong and Paxton

Bus routes within the study area are shown in **Figure 2-7** (routes 160 and 163), **Figure 2.8** (routes 162, 165, 167 and 168) and **Figure 2.9** (route 164). A summary of the frequency of each route is provided in **Table 2-1**.

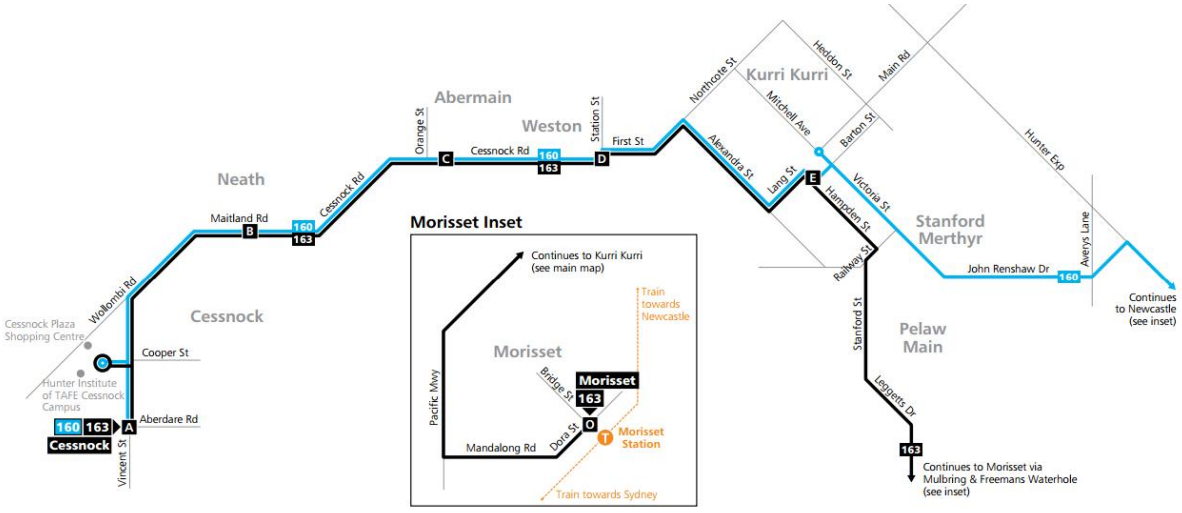

Figure 2-7 : Map for routes 160 and 163

Source: Rover Coaches, 2016

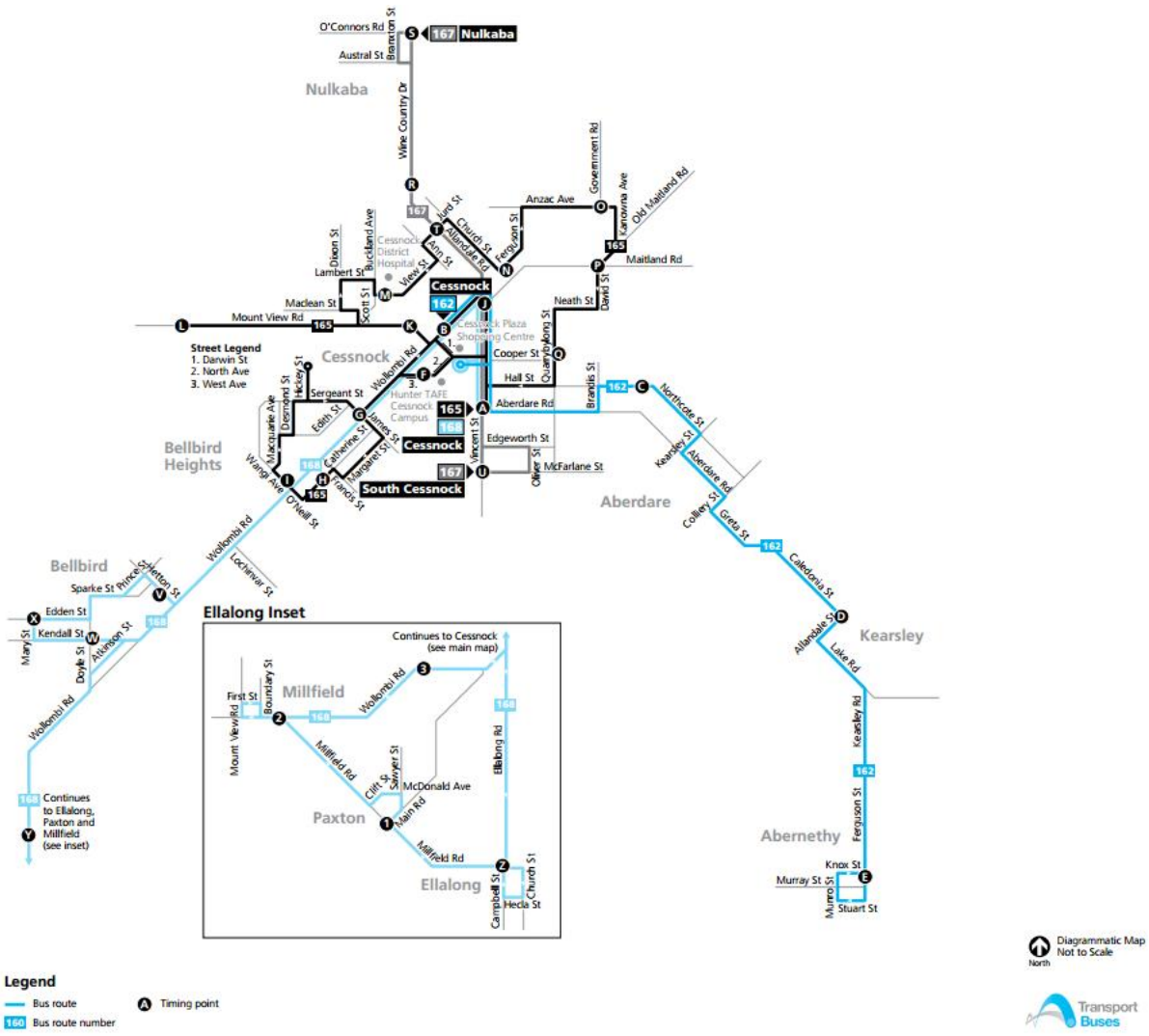

Figure 2.8 : Map for routes 162, 165, 167 and 168

Source: Rover Coaches, 2016

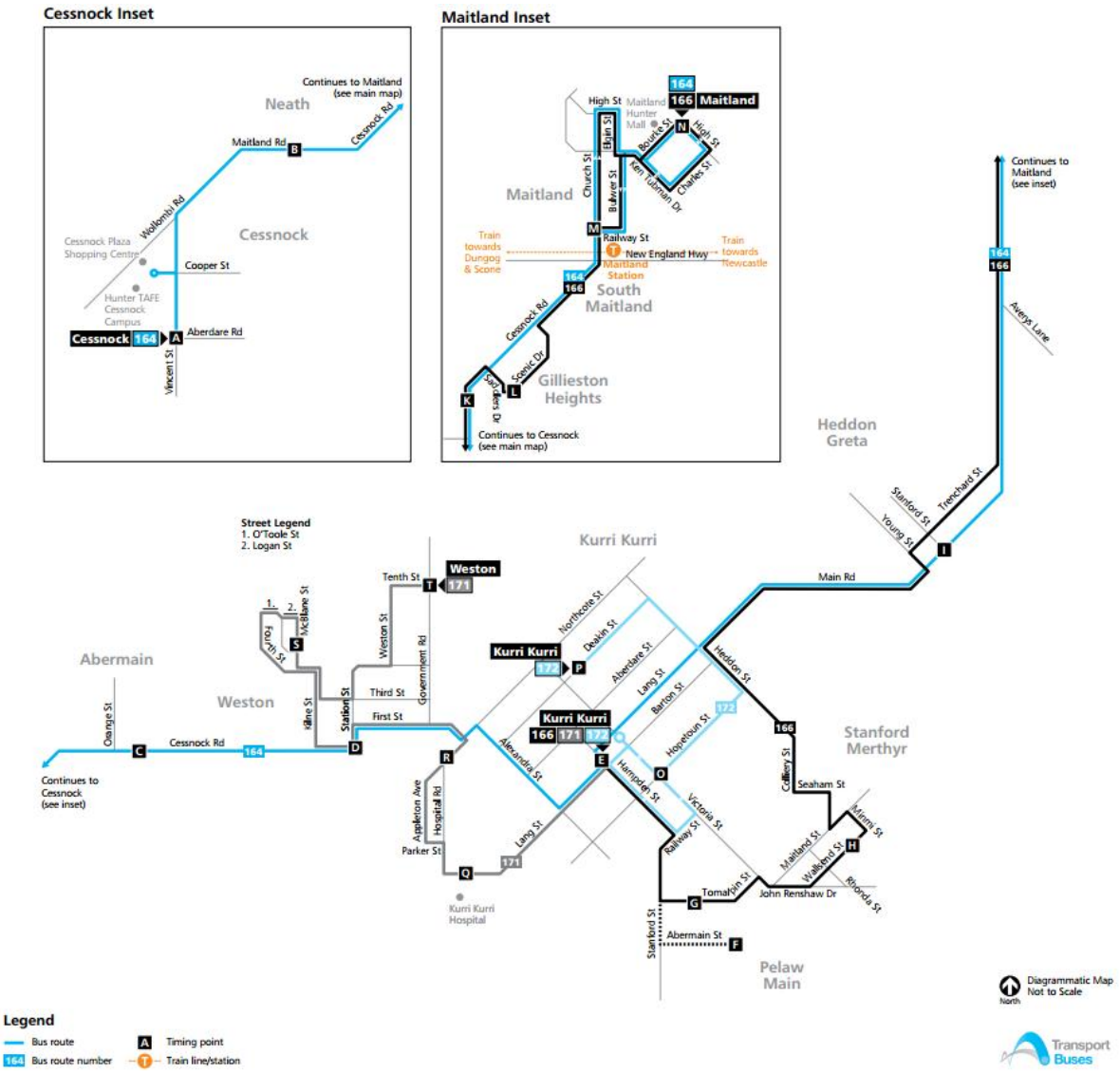

Figure 2.9 : Map for route 164

Source: Rover Coaches, 2016

Table 2-1 : Bus service frequency

Route number	Description of route	Number of weekday services (both directions)	Number of weekend services (both directions)
160	Cessnock to Newcastle	10	4 (Saturday)
162	Cessnock to Kearsley	10	6 (Saturday)
163	Cessnock to Morriset	4	4 (Saturday), 4 (Sunday)
164	Cessnock to Maitland	31	25 (Saturday), 12 (Sunday)
165	East and West Cessnock	4	Does not operate on weekends
167	Nulkaba and South Cessnock	3	Does not operate on weekends
168	Cessnock to Millfield	15	8 (Saturday), 6 (Sunday)

Source: Rover Coaches, 2016

CCC is served directly by route 160 on Saturdays and routes 163 and 164 on Saturdays and Sundays. Details of these services are shown in **Table 2.2**.

Table 2.2 : Bus services directly servicing CCC

Route number	Day	Services to CCC	Services from CCC
160	Saturday	Depart Newcastle East 8.15 am, arrive CCC 9.45 am	Depart CCC 3.30 pm, arrive Newcastle East 5.10 pm
163	Saturday and Sunday	Depart Morisset 8.05 am, arrive CCC 9.15 am	Depart CCC 3.30 pm, arrive Morisset 6.05 pm
164	Saturday and Sunday	Depart Maitland 8.45 am, arrive CCC 9.45 am	Depart CCC 3.30 pm, arrive Maitland 4.40 pm

Source: Rover Coaches, 2016

2.3 Active transport

2.3.1 Cycle network

The cycle network in the study area consists of the following facilities:

- Mount View Road between O'Shea Crescent and Nelson Street – designated as a district off road cycle route
- Wollombi Road between Francis Street and Darwin Street – designated district on road cycle route
- West Avenue – designated district on road cycle route
- Aberdare Road between Cumberland Street and Duffie Drive – designated district on road cycle route
- Cessnock Street between Vincent Street and Mulbring Street – designated off road cycle route
- Cessnock Showground between Mount View Road and Stephen Street – designated off road cycle route.

The cycle network in the study area is shown in **Figure 2-10**.

Figure 2-10 : Cycle network in the study area

Source: Cessnock City Council, 2016

2.3.2 Pedestrian network

The pedestrian network in the study area consists of the following facilities:

- Signalised pedestrian crossings on the eastern, southern and western legs of the Maitland Road / Millfield Street intersection
- Signalised pedestrian crossings on the eastern and southern legs of the Maitland Road / Vincent Street intersection
- Signalised pedestrian crossings on the northern, eastern and western legs of the Wollombi Road / Maitland Road / Allandale Road intersection
- Signalised pedestrian crossings on the northern, eastern and western legs of the Wollombi Road / Alexander Street
- Signalised pedestrian crossings on the northern, eastern, southern and western legs of the Vincent Street / Cooper Street intersection
- Signalised pedestrian crossings on the northern, eastern, southern and western legs of the Vincent Street / Hall Street intersection
- Signalised pedestrian crossings on the northern, eastern and western legs of the Vincent Street / Aberdare Road / Snape Street intersection
- Zebra crossing spanning Allandale Road north of McGrane Street
- Zebra crossing spanning Allandale Road south of Jurd Street
- Zebra crossings along Vincent Street near Edward Street, between Edward Street and Cooper Street, between Cooper Street and Hall Street, between Hall Street and Aberdare Road and near Cessnock Street.
- Paved footpath on both sides of Vincent Street
- Paved footpath on both sides of Maitland Road
- Paved footpath on both sides of Wollombi Road
- Paved footpath on both sides of Allandale Road
- Paved footpath on both sides of Aberdare Road
- Paved footpath on the northern side of Mount View Road

Paved footpaths are not provided on the majority of residential streets within the study area.

2.3.3 Property access

The closest private property accesses are located on Kerlew Street, which is about 200 metres north of the centre, and at the intersection of Lindsay Street and Mavis Street, which is about 650 metres south of the centre.

3. Potential impacts

This section describes the potential impacts of the proposal during the construction and operational phases.

3.1 Construction

3.1.1 Impacts on the road network

Construction of the RBP will be undertaken in four stages as follows:

- Stage 1 – site establishment including utility services
- Stage 2 – civil and in-ground works
- Stage 3 – structure, façade and roof works
- Stage 4 – fit out works.

Construction of the RBP is expected to commence in August 2016 and will be completed in the second or third quarter of 2017. The estimated number of daily heavy vehicle movements during each stage is shown in **Table 3.1**.

Table 3.1 : Daily heavy vehicle movements – RBP

Construction stage	Vehicle type	Estimated number of daily movements
Stage 1	Flatbed trucks, semi-trailers	20
Stage 2	Truck and dog, flatbed trucks, cement agitators	60-100
Stage 3	Flatbed trucks, semi-trailers	60-100
Stage 4	Pantech trucks, flatbed trucks, semi-trailers	50

The estimated number of construction vehicle movements during each stage in the morning and evening peak hours is detailed in **Table 3.2**.

Table 3.2 : Peak hour construction vehicle movements – RBP

Construction stage	Morning peak hour				Evening peak hour			
	Light vehicles		Heavy vehicles		Light vehicles		Heavy vehicles	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
Stage 1	20	0	2	2	0	20	2	2
Stages 2 and 3	135	0	6-10	6-10	0	135	6-10	6-10
Stage 4	50	0	5	5	0	50	5	5
Total	205	0	13-17	13-17	0	205	13-17	13-17

Construction of the 600 bed facility will also be undertaken in six stages as follows:

- Stage 1 – bulk earthworks and utility services
- Stage 2 – commence construction of 320 bed maximum security facility, complete earthworks on 280 bed minimum security facility and complete utility services
- Stage 3 – commence construction on 280 bed minimum security facility and external building, and complete construction of 320 bed maximum security facility

- Stage 4 – complete construction of 280 bed minimum security facility, complete construction of internal roads and car parks, and commission 320 bed maximum security facility
- Stage 5 – commission 280 bed minimum security facility and commence internal refurbishment works
- Stage 6 – finish internal refurbishment works.

Construction of the 600 bed facility is expected to commence in October 2016 and will be completed in late 2018. The estimated number of daily heavy vehicle movements during each stage is shown in **Table 3.5**.

Table 3.3 : Daily heavy vehicle movements – 600 bed facility

Construction stage	Vehicle type	Estimated number of daily movements
Stage 1	Flatbed trucks, semi-trailers	30
Stage 2	Truck and dog, flatbed trucks, cement agitators	90-150
Stages 3 and 4	Flatbed trucks, semi-trailers	100-200
Stages 5 and 6	Pantech trucks, flatbed trucks, semi-trailers	75

The estimated number of construction vehicle movements during each stage in the morning and evening peak hours is detailed in **Table 3.4**.

Table 3.4 : Construction vehicle movements – 600 bed facility

Construction stage	Morning peak hour				Evening peak hour			
	Light vehicles		Heavy vehicles		Light vehicles		Heavy vehicles	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
Stage 1	20	0	3	3	0	20	3	3
Stage 2	180	0	9-15	9-15	0	180	9-15	9-15
Stages 3 and 4	180	0	10-20	10-20	0	180	10-20	10-20
Stages 5 and 6	50	0	7	7	0	50	7	7
Total	250	0	29-45	29-45	0	250	29-45	29-45

The construction phase would result in a maximum of 315 light vehicle movements (135 light vehicles related to construction of the RBP and 180 light vehicles related to construction of the 600 bed facility) and 60 heavy vehicle movements (20 heavy vehicles related to construction of the RBP and 40 heavy vehicles related to construction of the 600 bed facility) each in the morning and evening peak hours when construction of the RBP and 600 bed facilities is being undertaken simultaneously (between October 2016 and the second or third quarter of 2017). This equates to about six vehicles per minute. A maximum of 300 heavy vehicle movements per day are expected, with the peak occurring in 2017 when construction of the RBP and 600 bed facility is occurring simultaneously. Given the existing low traffic volumes throughout the study area, these increases in vehicle movements are not expected to impact on the operation of the adjacent road network.

In order to avoid construction vehicle movements through residential areas (light and heavy vehicles), it is proposed to construct a temporary road (shown by the yellow dotted line in **Figure 3.1**) that would connect the site to Kerlew Street to the north. The proposed temporary road to Kerlew Street would be subject to normal Cessnock City Council process for construction traffic access.

Parking for construction staff would be provided on site, resulting in no impact on the provision of on-street car parking.

Figure 3.1 : Proposed temporary road to facilitate heavy vehicle access (shown as yellow dashed line)

3.1.2 Impacts on public transport

The minimal increases in traffic activity during construction of the RBP and 600 bed facilities are not anticipated to result in any significant impacts on the operation of bus services or bus stops.

3.1.3 Impacts on active transport

The minimal increases in traffic activity during construction of the RBP and 600 bed facilities are not anticipated to result in any significant impacts on the pedestrians and cyclists.

3.1.4 Impacts on property access

Access to all properties would be maintained throughout construction.

3.2 Operation

3.2.1 Impacts on the road network

The expected staffing profiles for the RBP and 600 bed facility are presented in **Table 3.5** and **Table 3.6** respectively.

Table 3.5 : Expected staffing profile – RBP

Typical shift times	Number of staff
6.00 am to 4.00 pm	88
2.00 pm to 10.00 pm	32
10.00 pm to 6.00 am	32

Table 3.6 : Expected staffing profile – 600 bed facility

Typical shift times	Existing number of staff	Total number of staff
6.00 am to 4.00 pm	245	413
2.00 pm to 10.00 pm	39	66
10.00 pm to 6.00 am	20	33

The majority of the shift start and end times occur outside the morning and evening peak periods. Staff working the 6.00 am to 4.00 pm shift (501 in total) would be expected to depart from CCC between 4.00 pm to 5.00 pm, which would coincide with the evening peak period. Given the existing low traffic volumes throughout the study area, the increase in vehicle movements (an additional 256 staff vehicles compared to existing) is not expected to impact on the operation of the adjacent road network.

Visitors are able to attend CCC on Saturday and Sunday with three sessions each day – morning, midday and afternoon. The expected visitor volumes are presented in **Table 3.7**.

Table 3.7 : Expected visitor profile

Facility	Number of visitors
320 bed facility	85 per session
280 bed facility	45 per session
RBP	30 per session
Existing facility	50 per session

Visitors that include lawyers would also attend CCC on an infrequent basis on weekdays.

In addition to the staff and visitor movements, the following trips would be generated (based on existing movements undertaken in August 2016):

- Modular Transport Services trucks enter CCC on a needs basis to deliver modules and collect refurbished modules to deliver to schools
- Six Corrective Services NSW court escort security vehicles – daily
- Three CSI vehicles (truck and dog trailers) to the cross docking facility – daily
- 20 vehicles (including two semi-trailers) to CIC industries – daily
- Six trucks to demountable services with deliveries – daily

- One Toll van to administration – daily
- Five trucks and three vans to complex stores / warehouse – daily

Given the existing low traffic volumes throughout the study area, the vehicle movements described above are not expected to impact on the operation of the adjacent road network.

3.2.2 Impacts on public transport

The minimal increases in traffic activity during operation of the RBP and 600 bed facilities are not anticipated to result in any significant impacts on the operation of bus services or bus stops.

3.2.3 Impacts on active transport

The minimal increases in traffic activity during operation of the RBP and 600 bed facilities are not anticipated to result in any significant impacts on the pedestrians and cyclists.

3.2.4 Impacts on property access

There would be no changes or impacts to property access during operation of the RBP and 600 bed facilities.

3.2.5 Parking provision

The RBP will have provision for 160 car parking spaces and the 600 bed facility will have provision for 500 car parking spaces. Based on the estimated staff and visitor numbers, the parking provision at the RBP and the 600 bed facility is considered sufficient to meet demand at cumulative peak times.

4. Safeguards and mitigation measures

Safeguards and mitigation measures are described in **Table 4.1**.

Table 4.1 : Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Traffic	A traffic management plan would be prepared in accordance with Cessnock City Council's requirements prior to construction. It would outline the construction methodology, detail approved haulage routes and include measures to minimise impacts on traffic and access throughout construction.	Contractor	Pre-construction
Traffic	Traffic control plans, where required, would be prepared in accordance with the Roads and Traffic Authority *Traffic Control at Work Sites Manual* prior to construction	Contractor	Pre-construction
Traffic	Residents and property owners would be notified of construction vehicle routes	Contractor	Pre-construction
Traffic	All staff parking would be provided on site	Contractor	Pre-construction, construction and operation
Traffic	All construction vehicles (light vehicles and heavy vehicles) would be required to access the site via Kerlew Street to minimise impacts through residential areas	Contractor	Construction
Access	Access to adjacent properties would be maintained at all times	Contractor	Construction and operation
Bus operations	Bus operations are not expected to be impacted during the construction stage. However, in the unlikely event that any changes are required, commuters and the bus operator would be notified in advance.	Contractor	Pre-construction and construction
Pedestrians and cyclists	• Pedestrians and cyclists are not expected to be impacted during the construction stage. However, in the unlikely event that any changes are required, a pedestrian and cyclist management plan would be prepared prior to construction to outline the construction methodology, signage and detours for pedestrians and cyclists throughout all construction stages, The plan would be prepared in consultation with Cessnock City Council. • The plan would be implemented and updated throughout construction as required	Contractor Contractor	Pre-construction Construction

5. Summary and conclusion

The main findings of this assessment are as follows:

- Given the existing low traffic volumes throughout the study area, increases in vehicle movements during the construction and operational phases are not expected to impact on the operation of the adjacent road network
- The minimal increases in traffic activity during the construction and operational phases are not anticipated to result in any significant impacts on the operation of bus services or bus stops
- The minimal increases in traffic activity during the construction and operational phases are not anticipated to result in any significant impacts on pedestrians and cyclists
- Access to all properties would be maintained throughout construction and operation
- Safeguards and measures to mitigate any potential impacts have been proposed.