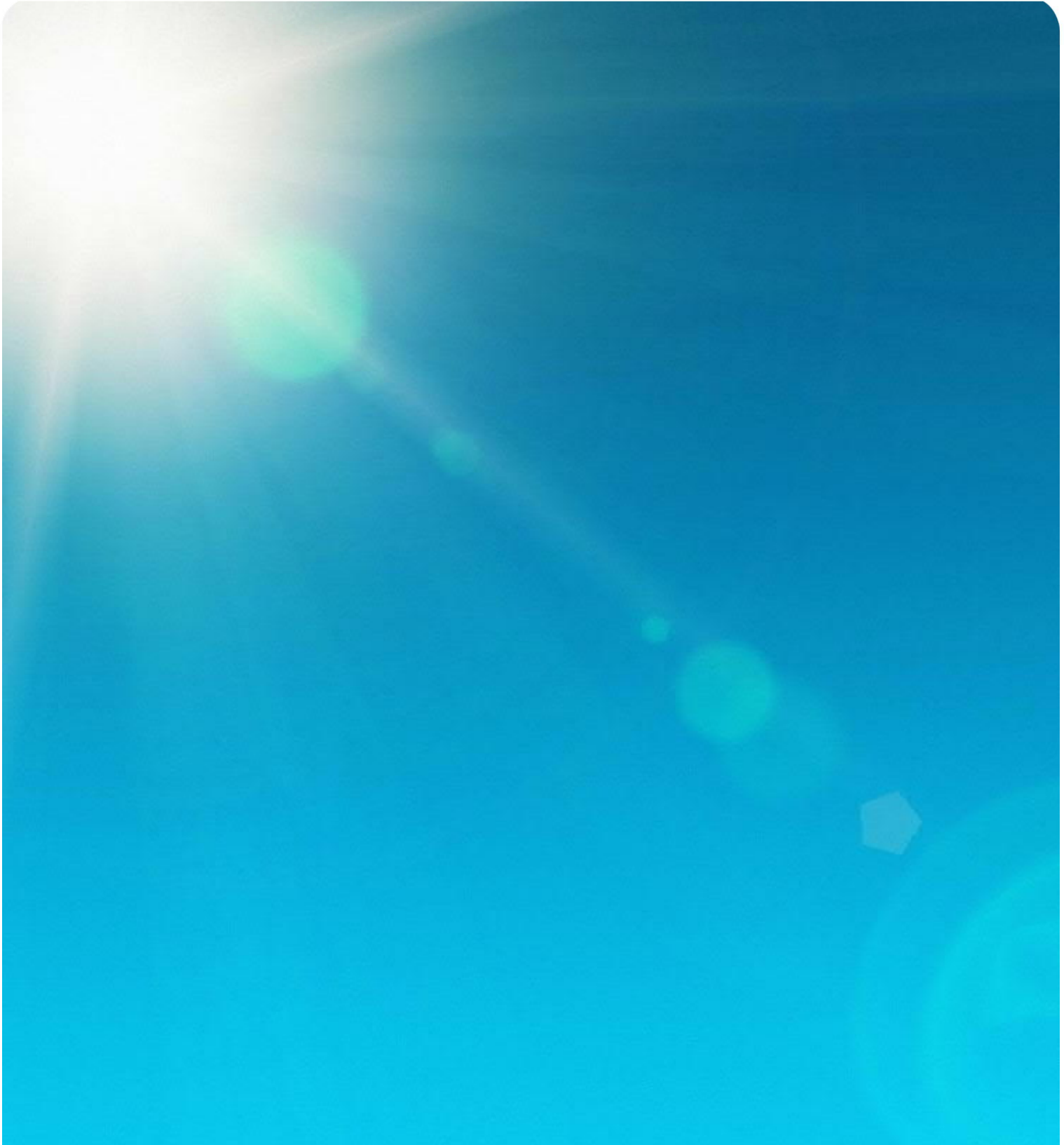


March 2022

# Appendix K – Traffic Impact Study

Australia-Asia PowerLink Environmental Impact Statement



# AA PowerLink Traffic Study

## Traffic Impact Statement

EcOz

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## Abbreviations

Abbreviation	Definition
AAPowerLink	Australia Asia Powerlink
AARC	AustralAsia Railway Corporation
DENR	Department of Environment and Natural Resources
DEPWS	Department of Environment, Parks and Water Security
DIPL	Department of Infrastructure, Planning and Logistics
EIS	Environmental impact statement
EMF	Electromagnetic fields
FD	Future Development
ha	Hectare(s)
HVAC	High voltage alternating current
HVDC	High voltage direct current
km	Kilometre
km <sup>2</sup>	Square kilometre
kV	Kilovolt
M	Metre
m <sup>2</sup>	Squared metre
MW	Megawatt
NLC	Northern Land Council
NT	Northern Territory
NTG	Northern Territory Government
OHTL	Overhead transmission line
PV	Photovoltaic
t	Tonne
TEU	Twenty foot equivalent unit
VSC	Voltage source converter

# 1 Executive Summary

## 1.1 Traffic Impact Statement

This traffic impact statement has been prepared as part of the environmental impact assessment process for Sun Cable's AAPowerLink renewable energy project. The AAPowerLink project will generate both heavy and light vehicle traffic across the NT road network during establishment, construction and operational phases with the highest traffic loads expected to be generated during the construction phase.

The purpose of this traffic impact statement is to identify the potential impacts of the project on the NT road transport network, suggest reasonable actions to address the impacts and identify the need for further detailed assessments as the project progresses through the project development lifecycle. The project is currently in the preliminary planning and approvals phase and has estimated the likely traffic generation associated with major activities and proposed a number of traffic routes that may require further assessment. Consideration has been given to opportunities to avoid, reduce or mitigate identified traffic issues.

The Project is still under development and as such, this traffic impact statement should be viewed as a preliminary assessment that considers higher order traffic issues across the road network.

## 1.2 Project Overview

Sun Cable proposes to develop the Australia-Asia PowerLink (AAPowerLink) to deliver renewable electricity to the energy markets of the Northern Territory (NT) and Singapore.

The AAPowerLink comprises the following six key components (Figure 2.1):

- Powell Creek Solar Precinct in the Barkly Region of the NT where electricity will be generated, stored, and transmitted.
- Overhead Transmission Line (OHTL) to transmit electricity from the Solar Precinct to Darwin.
- Darwin Converter Site including Voltage Source Converters (VSC), energy storage and network connection to supply electricity to the Darwin region.
- Cable Transition Facilities at Gunn Point Beach to transition power cables between land and sea.
- Subsea Cable System extending between the Cable Transition Facilities and Singapore.
- Singapore Converter Station to receive electricity and supply the Singapore electrical network.

Materials and equipment will be mobilised from around Australia and overseas, with the majority of the equipment expected to transit through Darwin Port and then throughout the NT by rail and road. There is also potential to import some equipment and materials through Port Adelaide which will also utilise the rail and Stuart Highway transport routes. Some equipment and materials may also be imported via the east coast of Australia.

## 1.3 Project Timing

Construction of the AAPowerLink will take four to five years and is proposed to start early 2024. Network connection availability for the NT is planned for 2026, with full supply to Singapore planned to be operational by the end of 2028.

The onshore construction program will run for approximately 5 years and is scheduled to commence in the first quarter of 2024. The offshore construction program will also run for approximately 5 years and is scheduled to commence in the second quarter of 2024.

During construction, works will be undertaken 24-hours a day during some stages and for some activities. Most construction works; however, will operate on a standard day shift program. In all cases, the need for night-time works will be subject to workplace health and safety assessments and will also consider risks to the public depending on the works location.

## 1.4 Proposed Routes

The Solar Precinct has been strategically located in proximity to the Adelaide to Darwin railway to facilitate the construction effort where approximately two purpose built rail sidings will be established. Once rail sidings are established, transportation of materials to the Solar Precinct will prioritise the use of the railway to reduce any potential impacts on the NT road network.

For light and heavy vehicles, the project includes five key transport nodes:

- Darwin port
- Darwin rail terminal
- East Arm industrial area facility, Darwin
- Darwin Converter Site at Murrumujuk, Gunn Point
- Powell Creek Station (Solar Precinct site) southwest of Elliott

Proposed transport routes between nodes are expected to include:

- Berrimah Road to Stuart Highway
- Berrimah Road to Tiger Brennan Drive
- Berrimah Road to Wishart Road then to Tiger Brennan Drive or Stuart Highway
- Stuart Highway to Howard Springs Road to Gunn Point Road
- Howard Springs to Elliott route - south along the Stuart Highway

Approximate route distances are:

- East Arm to Murrumujuk – 58 km
- East Arm to Elliott – 725 km
- Elliott to Solar Precinct – 70 km

Some materials and equipment may be imported via Port Adelaide. Proposed transport routes are expected to include:

- Adelaide to Elliott route - north along the Stuart Highway

Approximate route distances are:

- Adelaide to Elliott – 2,300 km

All routes proposed for heavy vehicles, road trains and oversize / overmass loads are designated road train and over size load routes.

Route selection will include a route assessment and will consider existing traffic loadings and peak hour timings.

## 1.5 Existing Traffic Volume

The Department of Infrastructure, Planning and Logistics (DIPL) has a number of traffic counting stations located throughout the road network. The latest published traffic count data is available from the Annual Traffic report 2020. Traffic count data from primary count station UDVDP017 located 500 m west of the Howard Springs intersection recorded an annual average daily traffic (AADT) in both directions of 27,016 in 2017 with an AADT of 24,474 in 2020. This represents a significant reduction of over 9% in traffic volume in 2020 compared with the peak year of 2017. Traffic count stations along all proposed routes including Stuart Highway at Katherine, Tennant Creek and Alice Springs similarly show reductions in AADT from 2017 peak to 2020.

## 1.6 Project Traffic Generation

The project will generate traffic during the establishment, construction and operational phases for each of the key project facilities:

- East Arm solar array assembly facility
- Powell Creek Solar Precinct
- HVDC overhead transmission lines (OHTL) from the Solar Precinct to Darwin
- Murrumujuk Darwin Converter Site at Murrumujuk
- Murrumujuk Cable Transition Facilities at Murrumujuk and Gunn Point Beach

At this preliminary stage of the project, Sun Cable has estimated traffic generation based on the logistics of freighting equipment and materials between the Port and each project facility and an allowance for construction personnel. The construction phase generates the highest traffic loads. Logistics estimates include the projected number of road trains, oversize and overmass loads.

Key assumptions include:

- East Arm solar array assembly facility – approximately 20 personnel
- Murrumujuk Darwin Converter Site - personnel movements by bus to and from site
- Powell Creek camp – 1000 personnel with approximately 100 contractor vehicles
- Maximising use of fly in fly out staff utilising a new site aerodrome to be constructed at Powell Creek Solar Precinct
- Establishment phase for Powell Creek separate to construction phase
- Solar precinct construction concurrent with construction of all OHTL sections with multiple work camps along route
- Maximum use of rail freight to reduce road transport requirements
- Powell Creek establishment phase duration – approximately 1 year
- Powell Creek solar precinct construction phase duration – approximately 5 years
- OHTL construction phase duration – approximately 2 years
- Murrumujuk Darwin Converter and cable transition site construction phase duration – 365 days

The project is expected to require in the order of 70,000 vehicle movements along the Stuart Highway over the construction phase of the project. The highest traffic loading is expected to occur in the road section between the East Arm and Howard Springs. During construction the typical number of peak trips per day is expected to be in the order of 272 vehicle movements. The use of fly in fly out personnel will minimise the

peak number of trips per day coinciding with monthly personnel changes. The expected peak number of vehicle movements is well within the previously recorded AADT peak in 2017. The East Arm solar array assembly facility has undergone a separate traffic impact assessment (TIA) and was determined to be unlikely to impact the surrounding road network. The use of rail freight is expected to avoid the requirement for 75,000 road trailers to be freighted along the Stuart Highway.

Light aircraft utilising the existing Elliott aerodrome during the establishment phase of the solar precinct is expected to avoid approximately 2,700 coach/bus movements from the Stuart Highway between Elliott and Darwin. The construction of a dedicated aerodrome at Powell Creek for fly in fly out personnel avoids around 12,600 coach/bus movements on the Stuart Highway during construction of the solar precinct and OHTL.

## 1.7 Oversize and Overmass Movements

Over the life of the project, a number of oversize and overmass loads will be required to move from the Port to Murrumujuk and Powell Creek. For example, the six major transformers with an individual mass of around 300 tonnes and dimensions in the order of 15 m long x 7 m high x 6 m wide. Approximately 150 oversize or overmass movements are expected along Gunn Point road to Murrumujuk and around 400 oversize or overmass movements are expected along the Stuart Highway over the duration of the construction period. Only one oversize or overmass movement is expected per day. The transport of the OHTL poles will require the use of extendable trailers with approximately 8,000 movements for overhead transmission poles.

## 1.8 Traffic Impacts

Based on current estimates of trip generation, traffic numbers associated with the project are not expected to exceed the previously recorded peak AADT for 2017 along proposed routes. As such, the project is not expected to create any worsening of traffic volumes or levels of service due to capacity issues.

The Stuart Highway is predominantly a two lane, two way carriageway. Movement planning, particularly for oversize and overmass loads will require consideration of timing to avoid peak hour traffic and overtaking opportunities for motorists to minimise driver frustration.

The project will increase road train movements through populated areas such as the main street of Katherine and potentially Tennant Creek. While AADT is expected to be below the previous 2017 peak there will be an increase in vehicle movements over current levels.

A number of level rail crossings are located along the transport routes. These rail crossing will be subject to an increase in rail movements with associated delays to traffic at levels crossings.

The nature of the oversize and overmass loads will impact general traffic movements along the designated routes. The project logistics team will work closely with all service authorities to develop specific movement plans to limit and mitigate traffic impacts as much as possible.

The project anticipates conducting a route assessment to confirm the structural capacity of existing infrastructure and any mitigation measures required for overmass loads. During preliminary discussions DIPL has flagged concerns associated with overmass loads on the Katherine high level bridge. The project team will continue to liaise with DIPL to ensure all concerns are considered appropriately.

The distance from Powell Creek to Darwin is approximately 800 km or around 8 hours driving time. Drive in drive out personnel and contractors may suffer fatigue if attempting the return trip to Darwin at the completion of shift / rotation, noting the return trip could also occur at night. Fatigue and night driving could increase the likelihood of vehicle accidents. Maximising the use of fly in fly out personnel and buses significantly reduce the likelihood.

## 1.9 Mitigation Measures

Traffic impact mitigation measures are comprised of strategies and actions to:

- Avoid
- Manage
- Mitigate

The use of rail freight is expected to avoid the requirement for around 75,000 road trailers from the freight route along the Stuart Highway.

Light aircraft utilising the existing Elliott aerodrome and a dedicated aerodrome proposed to be constructed for the project at Powell Creek to facilitate a fly in fly out workforce will reduce vehicle movements by approximately 15,000 coach movements and 13,000 light vehicle movements that would otherwise be associated with drive in drive out personnel.

The use of buses for movements between personnel accommodation and work sites will reduce the number of light vehicle movements associated with the project.

Designated road train and oversize / over mass routes will be utilised for transport movements.

A route survey and assessment will be required to determine any works required to mitigate oversize and/or over mass loads.

Oversize and/or over mass movements will require permits under the *Motor Vehicles Act* in accord with NT requirements.

Based on current traffic count data, the number of project traffic movements are not expected to increase AADT levels to above the previous 2017 peak however traffic movements should be timed to avoid peak hour traffic in built-up areas.

The Powell Creek Solar Precinct will require the construction of a new, major intersection to facilitate vehicle turning movements to the site during establishment and construction of the Solar Precinct and associated facilities. The intersection is located in a 130 km/h posted speed zone and is expected to require channelised turning lanes, deceleration and acceleration lanes and flag lighting.

The Gunn Point Road – Murrumujuk access road is also expected to require an upgrade of the intersection. The required upgrade will be dependent on confirmation of traffic movements.

A traffic movement plan will be required to consider issues associated with road train, oversize and over mass loads through the main street of Katherine and Tennant Creek.

A traffic movement plan will be required to consider issues associated with road train, oversize and over mass loads moving along the Stuart Highway to minimise impacts on other road users.

## 2 Proposed Development

### 2.1 Project Overview

Sun Cable proposes to develop the Australia-Asia PowerLink (AAPowerLink) to deliver renewable electricity to the energy markets of the Northern Territory (NT) and Singapore.

The AAPowerLink comprises the following six key components ( ):

- Powell Creek Solar Precinct in the Barkly Region of the NT where electricity will be generated, stored, and transmitted
- Overhead Transmission Line (OHTL) to transmit electricity from the Solar Precinct to Darwin
- Darwin Converter Site including Voltage Source Converters (VSC), energy storage and network connection to supply electricity to the Darwin region
- Cable Transition Facilities at Gunn Point Beach to transition power cables between land and sea
- Subsea Cable System extending between the Cable Transition Facilities and Singapore
- Singapore Converter Station to receive electricity and supply the Singapore electrical network.

Materials and equipment will be mobilised from around Australia and overseas, with the majority of the equipment transiting through Darwin Port and then throughout the NT by rail and road.



**Figure 2.1 – AAPowerLink Project (Source: Sun Cable)**

#### 2.1.1 Powell Creek Solar Precinct

Electricity will be generated by a large-field solar array located in the Barkly region on the Powell Creek Pastoral Lease (NT Por 2094) approximately 70 km southwest of Elliott, NT as shown in Figure 2.2. The Solar Precinct will occupy approximately 12,000ha comprising multiple large-scale solar and storage fields, Battery Energy Storage Systems (BESS), Voltage Source Converters, and supporting infrastructure.

Access to the site will be from the Stuart Highway via two separate access roads, sealed and unsealed. Approximately two railway sidings will be constructed at Powell Creek and connected to the Alice Springs to Darwin Railway to facilitate transport of components and equipment to the site.

### 2.1.2 Overhead Transmission Line

A new High Voltage Direct Current (HVDC) Overhead Transmission Line (OHTL) will be constructed over 788km to transmit electricity from the Solar Precinct to the Darwin Converter Site. The OHTL route is shown in Figure 2.2 and is predominantly located within the existing Railway Corridor over the first 722km from the Solar Precinct north to Livingstone. The OHTL exits the Railway Corridor at Livingstone, heads east across the Stuart Highway and north-east towards the Arnhem Highway, before heading north to intersect Gunn Point Road. The section of the OHTL from Livingstone to Gunn Point Road is approximately 66 km and follows a NTG designated future utilities corridor that traverses the eastern outskirts of Darwin's rural area. The final 19km of the OHTL corridor to the Darwin Converter Site at Murrumujuk runs parallel immediately west of the Gunn Point Road corridor.



Figure 2.2 – Project Location (Source: Sun Cable)

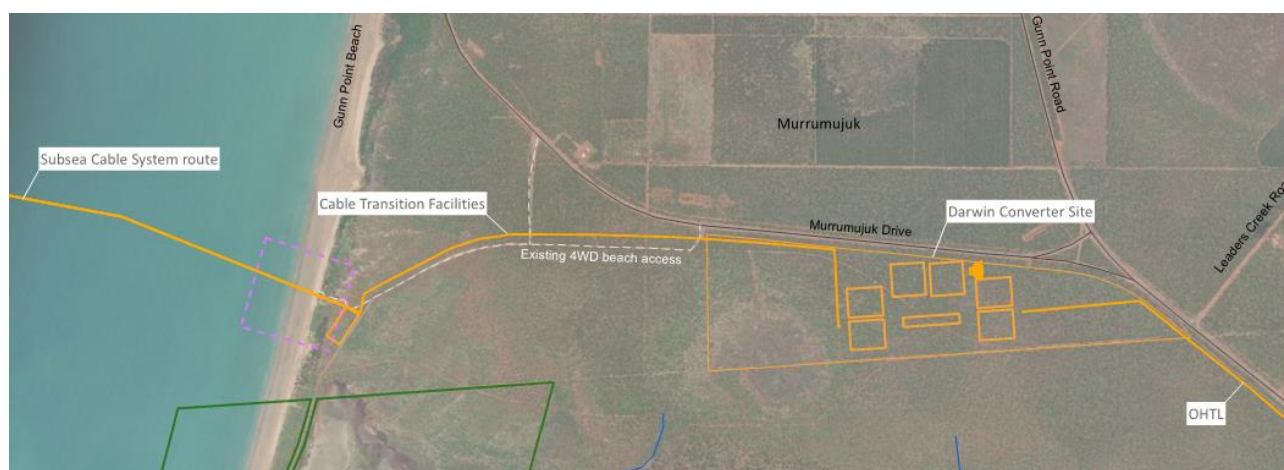
### 2.1.3 Darwin Converter Site

The Darwin Converter Site is proposed to be situated on a 124ha site located at Murrumujuk, approximately 31km north-east of Darwin (Figure 2.3). The Darwin Converter Site is the terminal location for the OHTL and will convert electricity from HVDC to High Voltage Alternating Current (HVAC) to enable connection to the Darwin electricity system before being converted back to HVDC for transmission to Singapore. The site will be accessed from Gunn Point Road and Murrumujuk Road.

### 2.1.4 Cable Transition Facilities

The Cable Transition Facilities are located at Murrumujuk and extend from the Darwin Converter Site to the Shore Crossing Site at the southern end of Gunn Point Beach (Figure 2.3). The facilities comprise three separate components to transfer power from onshore to offshore: Underground Cable Corridor, Land Sea Joint Station and Shore Crossing Site.

Power leaving the Darwin Converter Site enroute to Singapore, will be transferred by underground HVDC cables laid over 2.7km in an Underground Cable Corridor, to the Land Sea Joint Station where the onshore and offshore cables will be connected. The Shore Crossing Site is where the subsea cables will be winched from a barge located offshore across the intertidal zone and beach to the Land Sea Joint Station.



**Figure 2.3 – Murrumujuk VSC and Cable Transition Facility, Gunn Point**

### 2.1.5 Personnel Accommodation

To facilitate construction of the Solar Precinct, workforce accommodation and administration facilities will be constructed to house approximately 1,000 people due to the remote location. The facility will be scaled down during operations, reducing to a capacity of approximately 100 people post construction. Construction workforce will operate on a roster basis and will source labour from Tennant Creek, Elliott, Katherine, Alice Springs and Darwin regions, as well as further abroad where specialist skills are required.

Construction of the OHTL will be operated out of intermediate work bases in the relevant locations and temporary site camps will be established at key access points. It is assumed that six fly camp locations will be used at intervals of approximately 100km. Where possible these will utilise existing town accommodation and services (i.e. Daly Waters, Dunmarra, Larrimah, Katherine, Adelaide River, Pine Creek etc.). In more remote sections of the OHTL, the fly camp location will be selected through consultation

with landholders and centred around existing Railway Corridor access points. Camps are expected to be in use at each location for a period of approximately six months.

## 2.2 Project Logistics

### 2.2.1 General

Materials and equipment will be mobilised from around Australia and overseas, with the majority of the equipment transiting through Darwin Port and then throughout the NT by rail and road.

### 2.2.2 Sea

It is estimated that 3,000 to 5,000 containers per month will be imported and 2,000 to 2,500 containers exported through Darwin Port throughout the construction phase. It is intended to use dedicated shipping charter vessels for freight, scheduled on a fortnightly basis into Darwin Port. Containers and Project Cargo will be cleared from the Port via road transport to the Solar Array Manufacturing Facility at East Arm, or direct to the works areas via rail or road transport.

### 2.2.3 Rail

The materials profile is characterised by high volume, in-gauge, containerised, and palletised freight, aligned to the characteristics and strengths for the movement of freight by rail transport. This, together with the location of the Solar Precinct at Powell Creek adjacent to the Darwin-Adelaide rail line, will allow the project to maximise the use of rail transport for the transport of materials to the Solar Precinct site.

To manage the trans-shipment of freight between rail and road at Powell Creek, a dedicated Intermodal Logistics Terminal will be constructed at the Powell Creek Solar Precinct to act as a centralised point for the consolidation and management of all inbound and outbound freight, materials and equipment. It is estimated that 150,000 Twenty Foot Equivalent (TEU) Container units will be transported to Powell Creek via rail transport over the construction phase. This is equivalent to 75,000 Road Transport Trailers avoiding the Stuart Highway.

It is expected that approximately 1,100 train movements, the equivalent of 5 – 6 trains per week, will operate in support of the construction phase. Most of the rail freight will originate from Darwin utilising a combination of trains dedicated to the project and utilising available space on the daily freight service operating between Darwin to Adelaide, hence the need to construct two parallel rail sidings at Powell Creek to accommodate and facilitate the safe movement of two trains concurrently. Some rail freight may originate from Adelaide as required.

Materials and Equipment planned to be transported via Rail Transport include:

- 54,720 shipping containers (TEU) of Maverick Solar Arrays
- 9,000 shipping containers (40') of Batteries and Power Storage Equipment
- 300 Flat Racks (40') of Cable Drums
- 20' Tank-tainers of bulk dry and liquid materials such as cement
- Additional 20' and 40' Flat Racks and Skids holding construction materials and electrical equipment.

## 2.2.4 Road

### 2.2.4.1 Powell Creek Solar Precinct

There will be a requirement to move materials and equipment via road. Most of the road freight will be via the Stuart Highway utilising Double and Triple Road Trains. Out-of-Gauge and Over-dimensional freight will be transported via Heavy Haulage under the NT Government permitted system for over-dimensional / oversize freight. Out-of-Gauge Project Cargo will be transported via Permitted and Escorted transport in accordance with NT Government Road Transport Regulations. It is envisaged that the larger Out-of-Gauge loads will be transported directly from Darwin Port to the works areas on their arrival at the Port.

It is estimated that over 5,000 full-trailer loads will be transported by road to Powell Creek in Double and Triple Road Train configurations, consisting of general cargo and skid-mounted equipment not suitable to be transported via rail. An estimated 1,600 extendable trailer loads, transporting overhead power poles for the on-site transmission infrastructure at Powell Creek, will be transported to site.

Out-of-Gauge loads to Site predominately consist of Transformer and Electrical Switching and Management equipment. These loads may be transported from either Darwin or Adelaide, depending on the intended international shipping route, the relevant Port capacity, and the suitable road transport envelope for each route. A Transport Route Survey will be required to identify road and bridge limits along the route and identify any constraints such as electrical overhead transmission lines, to the movement of over-dimensional loads. The result of this study will identify the maximum Transport Envelope for Out-of-Gauge equipment, the recommended route to use, and any recommended infrastructure upgrades required. Approximately 150 Out-of-Gauge and Over-dimensional road movements will be required in support of the construction phase, ranging in size and consisting of:

Heavy Plant & Construction equipment, including:

- Graders, Scrapers, Bulldozers, Rollers and Articulated Dump Trucks
- Drill Rigs, Piling Rigs and Trenching Equipment
- Mobile Cranes and Forklifts approximately 100 Tonne
- 150 Tonne Transformers: Qty x 36, each approximately 10m x 6m x 6m.
- 300 Tonne Transformers: Qty x 6, each approximately 15m x 7m x 6m.
- Switchrooms, Metering Skids and Electrical Management Equipment

Due to the volume and frequency of road transport entering and leaving the Powell Creek Solar Precinct during construction, it is envisaged that an upgrade of the intersection from the Stuart Highway to the Site access road will be required to accommodate heavy vehicles turning into the site. Heavy Vehicles approximately the length of Triple Road Trains, will be operating in support of the project. This will necessitate the construction of a new major intersection including both south-bound and north-bound turning lanes long enough to accommodate Triple Road Trains and Double Extendable Trailers.

### 2.2.4.2 Overhead Transmission Line

Logistics support and transport of materials and equipment for the construction of the OHTL will be by road transport from Darwin. It is expected that a series of Staging Areas / Laydowns will be established along the route from Darwin to Powell Creek at approximately 100km intervals, to act as laydown areas for OHTL

materials. Where the OHTL exits the Railway Corridor and enters the Utilities corridor, a construction approach that mitigates the impact to the rural residential areas will be developed accordingly, which may include a staging and laydown area proximate to Gunn Point Road.

Several construction work crews may operate concurrently along the length of the OHTL corridor. On-site plant and equipment will be minimal, consisting of graders, medium earth-moving equipment, and two 65 Tonne cranes to erect each of the transmission poles. It is envisaged that the work crews and accompanying plant and equipment will remain in the corridor for most of the time, with minimal requirement to exit the corridor and travel on public roads on a frequent basis. The Stuart Highway and Gunn Point Road will be used to transport the OHTL materials and equipment to the Staging Areas / Laydowns and to access to the lateral roads into the OHTL corridor as required.

Materials and equipment to be transported for the OHTL from Darwin include:

- 2,600 Overhead Transmission Poles
- 5,000 Cable Drums providing 7,300km of overhead transmission line
- Plant and equipment to prepare the Transmission Pole pads
- Approximately 8 x 65 Tonne Cranes (4 x works crews)

The approximate number of road transport movements along the Stuart Highway in support of the OHTL construction include:

- Extendable Trailer Movements: 8,000 for overhead transmission poles
- Full-Trailer Loads: 6,000 for Cable Drums, poles and transmission equipment.

### 2.2.5 Air

During the civil and earthworks preparation of the Powell Creek Solar Precinct, the workforce will fly-in for their roster predominantly from Darwin, where it will be more efficient and safer for them to do so due to time and distance. During the civil works phase, it is envisaged that the Elliott Airstrip will be utilised. Elliott Airstrip is a public airstrip and accessible by several charter companies operating out of Darwin.

It is estimated that approximately 16 light aircraft flights per week may be required into and out of the Elliott Airstrip during the first 20 months of the construction phase, while civil and earthworks are undertaken at the site. This period also includes the construction of the airfield at the Solar Precinct to service the main construction workforce and in support of ongoing operations.

A bus service utilising coasters and mini-buses will be used to transport personnel between Elliott airstrip and the Powell Creek Solar Precinct.

It is proposed to construct an all-weather sealed airstrip at Powell Creek capable of taking jet aircraft, such as the Embraer E170, operated by aircraft companies out of Darwin. On commissioning of the Powell Creek Airstrip, planned to coincide with the commencement of main construction activities at Powell Creek, the largely on-site workforce will consist of a Fly-in Fly-out roster. It is expected that approximately six flights per week, utilising an aircraft like the E170, will operate in and out of Powell Creek.

## 2.3 Project Timing

Construction of the AAPowerLink project will take four to five years and is proposed to start early 2024. Network connection availability for the NT is planned for 2026, with full supply to Singapore planned to be operational by the end of 2028.

The onshore construction program will run for approximately 5 years and is scheduled to commence in the first quarter of 2024. The offshore construction program will also run for approximately 5 years and is scheduled to commence in the second quarter of 2024.

During construction, works will be undertaken 24-hours a day during some stages and for some activities. Most construction works; however, will operate on a standard day shift program. In all cases, the need for night-time works will be subject to workplace health and safety assessments and will also consider risks to the public depending on the works location.

### 3 Existing Conditions

#### 3.1 Proposed Routes

##### 3.1.1 National Freight Routes

The Stuart Highway linking Darwin to Adelaide forms part of the key National freight route as shown in Figure 3.1.

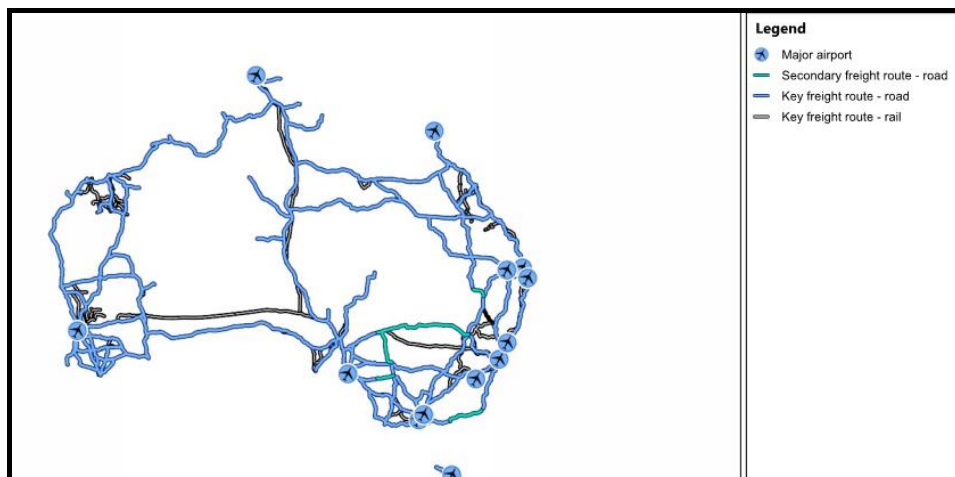


Figure 3.1 – Key National Freight Routes

##### 3.1.2 Road Train Routes

A number of designated road train / heavy vehicle routes are available for the greater Darwin region as shown in Figure 3.2 below.

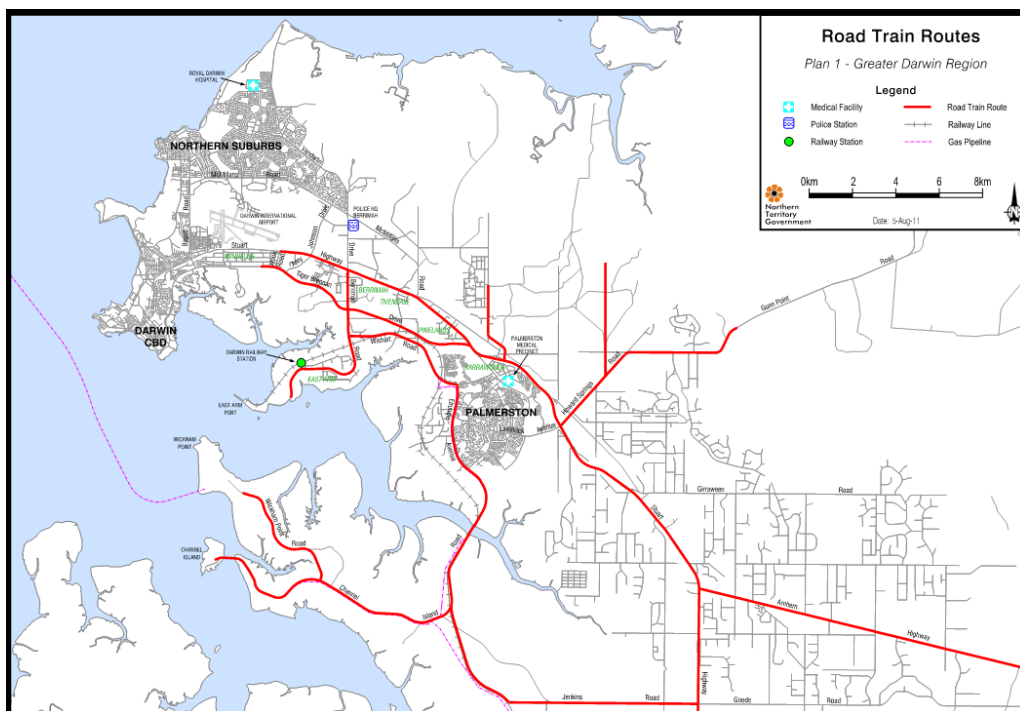


Figure 3.2 – Greater Darwin Road Train Routes

### 3.1.3 Oversize Load Routes

A number of designated oversize load vehicle routes are available for the greater Darwin region as shown in Figure 3.3 below.

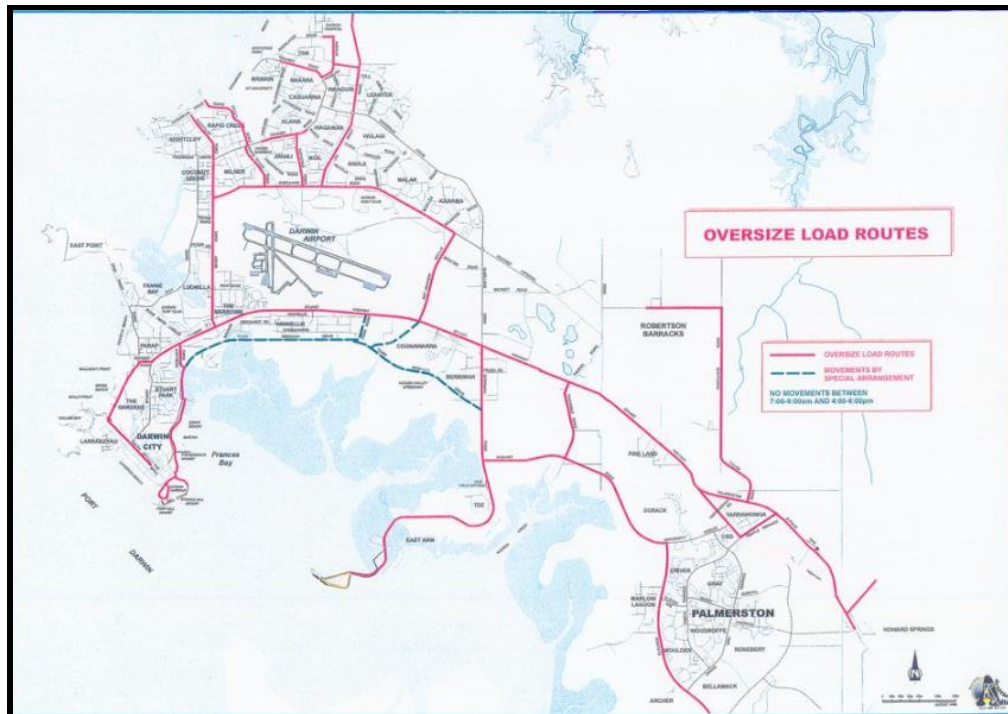


Figure 3.3 – Greater Darwin Oversize Load Routes

### 3.1.4 East Arm Port to Railhead

The project will maximise the use of rail freight to transport equipment and material to the Powell Creek Solar Precinct. Transshipping of freight from the port to rail is not yet finalised however it is not envisaged that transport on public roads will be required. The use of rail is expected to reduce the need for road transport by around 75,000 trailers during construction of the project.

### 3.1.5 Port to East Arm Facility

Material and equipment that is required to be assembled will need to be moved between the port and the East Arm Facility. The East Arm Facility will be located within the existing developed industrial area of the East Arm Business Park. Traffic movements within the East Arm area are expected to have been considered when the area was developed. The East Arm industrial area road network has generally been developed to support road train movements. A separate TIA (*SJ Traffic 2021*) has been undertaken as part of the development approval process. The TIA determined:

- The proposed car parking provision meets the requirements of the Northern Territory Planning Scheme.
- The on-site staff car parking has been designed in accordance with the Northern Territory Planning Scheme and the relevant clauses of AS 2890.1:2004 and AS2890.6
- The loading arrangements have been designed appropriately and in accordance with the Planning Scheme and AS 2890.2 requirements

- Swept path assessment confirms that the site layout has been appropriately designed, and can accommodate for the entry and exit movements of the design vehicles in a satisfactory manner
- The proposed staff car park access point and truck egress point will have sufficient sight distance, in excess of the requirements for SISD.
- The additional traffic generated by the development is not likely to result in adverse impacts in the surrounding road network.

### 3.1.6 East Arm Facility to Howard Springs

The East Arm solar array assembly facility will be located within the existing developed industrial area of the East Arm Business Park. The available routes to the Howard Springs Stuart Highway intersection include:

- Berrimah Road to Stuart Highway
- Berrimah Road to Tiger Brennan Drive
- Berrimah Road to Wishart Road then to Tiger Brennan Drive or Stuart Highway

An alternative route from East Arm to Noonamah is available via Berrimah Road – Wishart Road – Kirkland Road – Elrundie Ave – Channel Island Road – Jenkins Road.

All routes are designated road train vehicle routes as shown in Figure 3.1. A number of oversize and overmass loads will also need to be transported by road to Powell Creek. As noted previously, a number of designated oversize load vehicle routes are available for the greater Darwin region as shown in Figure 3.2.

Posted speed zones vary from 60 km/h in the industrial area to 80 km/h on Berrimah Road to 100 km/h on Tiger Brennan Drive and the Stuart Highway.

### 3.1.7 Howard Springs to Murrumujuk

Materials and equipment for the VSC and cable transition facility located at Murrumujuk will need to be transported from East Arm via Howard Springs to Murrumujuk. Howard Springs Road and Gunn Point Road are designated road train and oversize load routes.

Gunn Point Road, Stage 1 upgrade was completed in 2018 (Figure 3.4) and the NT Government undertook a planning study in 2020 to determine the most suitable future road alignments which will connect:

- Gunn Point Road (in the south) to the Stuart Highway
- Gunn Point Road (in the north) to Glyde Point

The Murrumujuk area is zoned for FD – future development and as such current traffic volumes on Gunn Point Road are relatively light. Posted speed zones vary from 80 km/h to 100 km/h.



Figure 3.4 – Gunn Point Road Stage 1 Upgrade

### 3.1.8 Howard Springs to Elliott

The Howard Springs to Elliott route is south along the Stuart Highway, a designated heavy vehicle route. The route includes transit through the main street of Katherine and Mataranka. While the route also transits through Adelaide River, Pine Creek, Larrimah, Newcastle Waters and Elliott, these communities have some separation from the direct route of the Stuart Highway as there are adjacent service roads. Posted speed zones vary from 60 km/h in built up areas to 130 km/h on the Stuart Highway.

### 3.1.9 Elliott to Powell Creek

The Elliott to Powell Creek access intersection route is south along the Stuart Highway, a designated heavy vehicle route. The Powell Creek access road will be a private road servicing the Powell Creek solar precinct.

### 3.1.10 Alice Springs to Elliott

The Alice Springs to Elliott route is north along the Stuart Highway, a designated road train route. The route includes transit through Alice Springs and the main street of Tennant Creek. While the route also transits through Ti Tree, this community has some separation from the direct route of the Stuart Highway as there are adjacent service roads.



Figure 3.5 – Alice Springs Road Train Routes

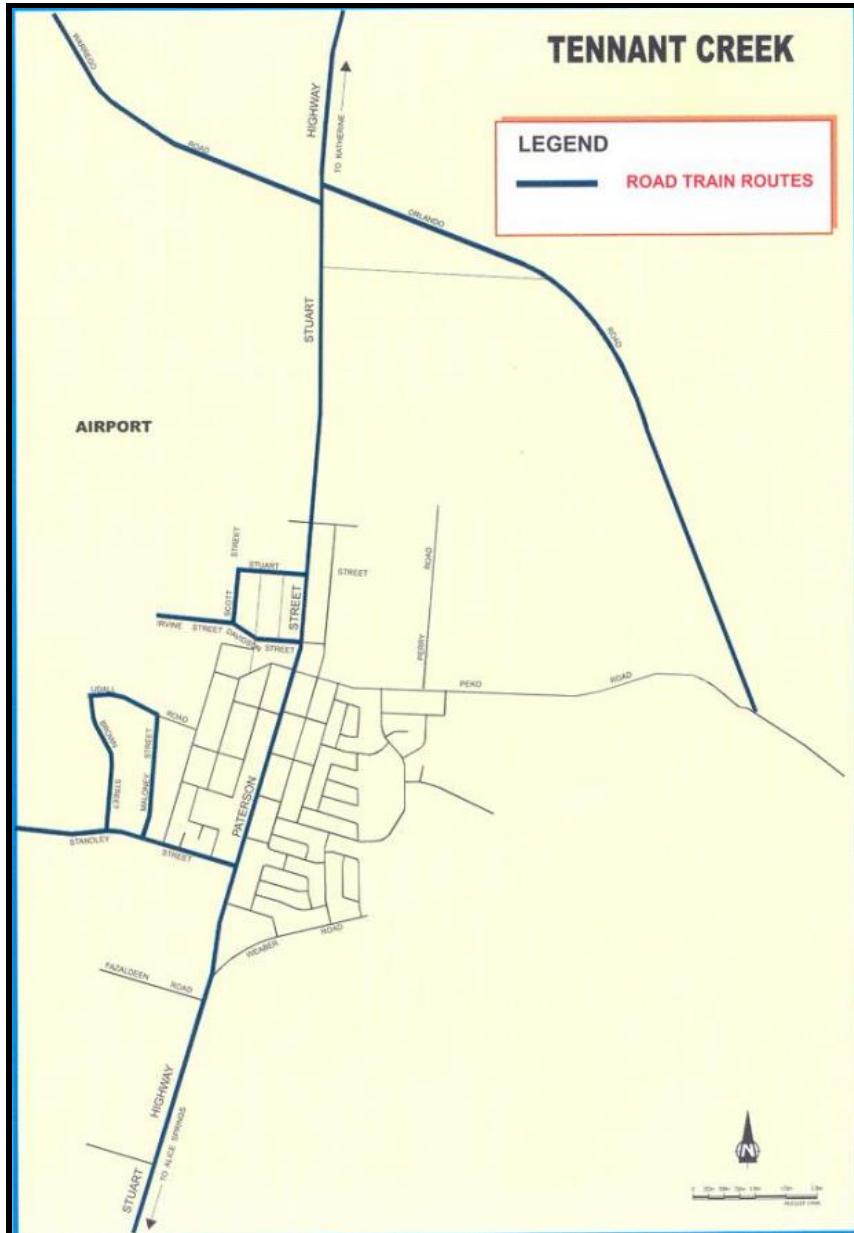


Figure 3.6 – Tennant Creek Road Train Routes

## 3.2 Existing Traffic Volumes

### 3.2.1 Traffic Count Data

DIPL has a number of traffic counting stations located throughout the road network. The latest published traffic count data is available from the Annual Traffic Report 2020 which covers the period January to December 2020.

### 3.2.2 Stuart Highway Howard Springs

Traffic count data from primary count station UDVPD017 located 500 m west of the Howard Springs intersection is shown in **Figure 3.7** below. As shown there has been a significant reduction of around 9% in traffic volume in 2020 compared with the peak year of 2017.

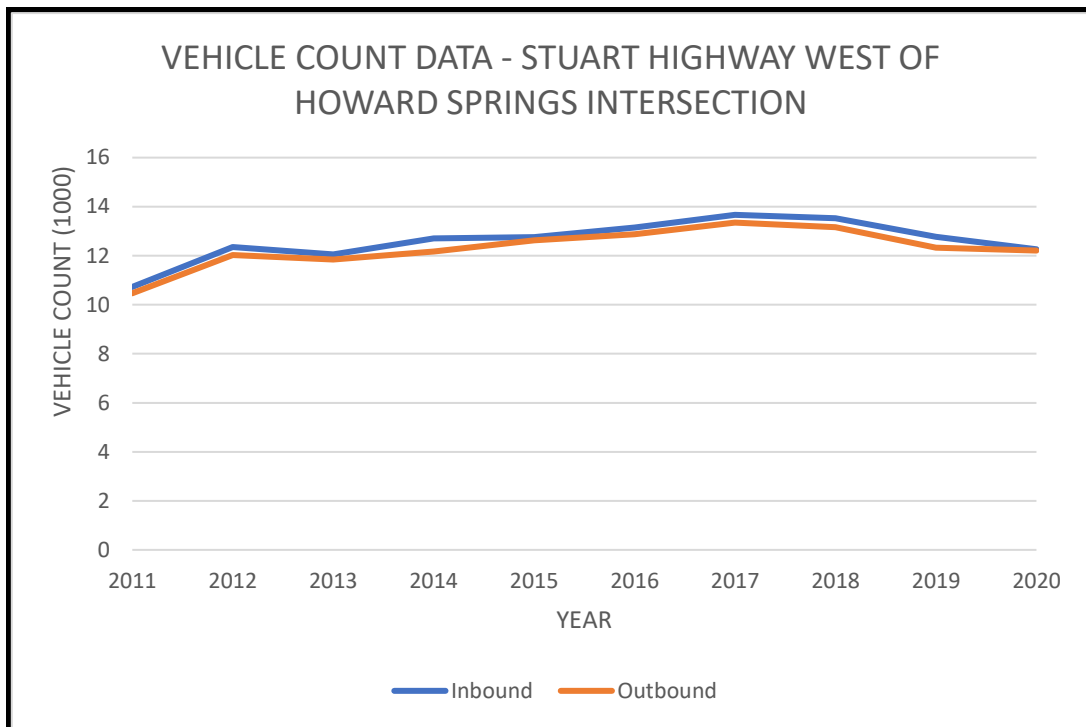


Figure 3.7 – UDVP017 Traffic Count Data

### 3.2.3 Stuart Highway Katherine

Traffic count data from primary count station UKVDP002 located 100 m south of the Victoria Highway intersection is shown in **Figure 3.8** below. As shown there has been a significant reduction of around 5% in traffic volume in 2020 compared with the peak year of 2017.

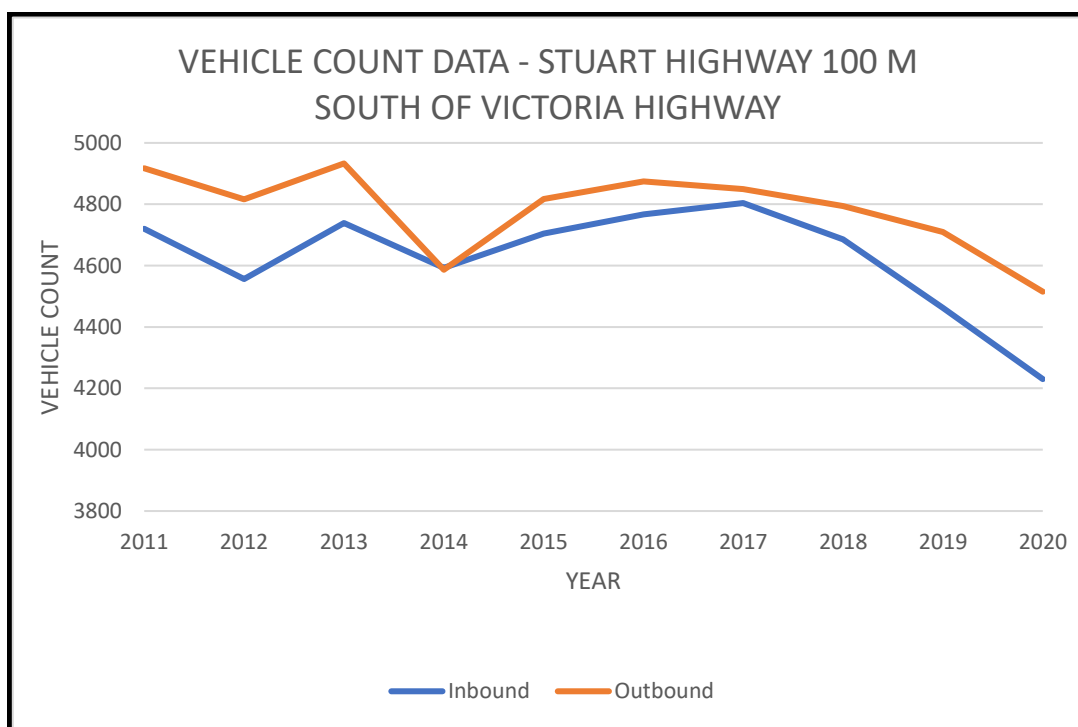


Figure 3.8 – UKVDP002 Traffic Count Data

3.2.4 Stuart Highway Tennant Creek

Traffic count data from primary count station RTVDP003 located 5 km south of the Three Ways is shown in Figure 3.9 below. As shown there has been a significant reduction of around 45% in traffic volume in 2020 compared with the peak year of 2017.

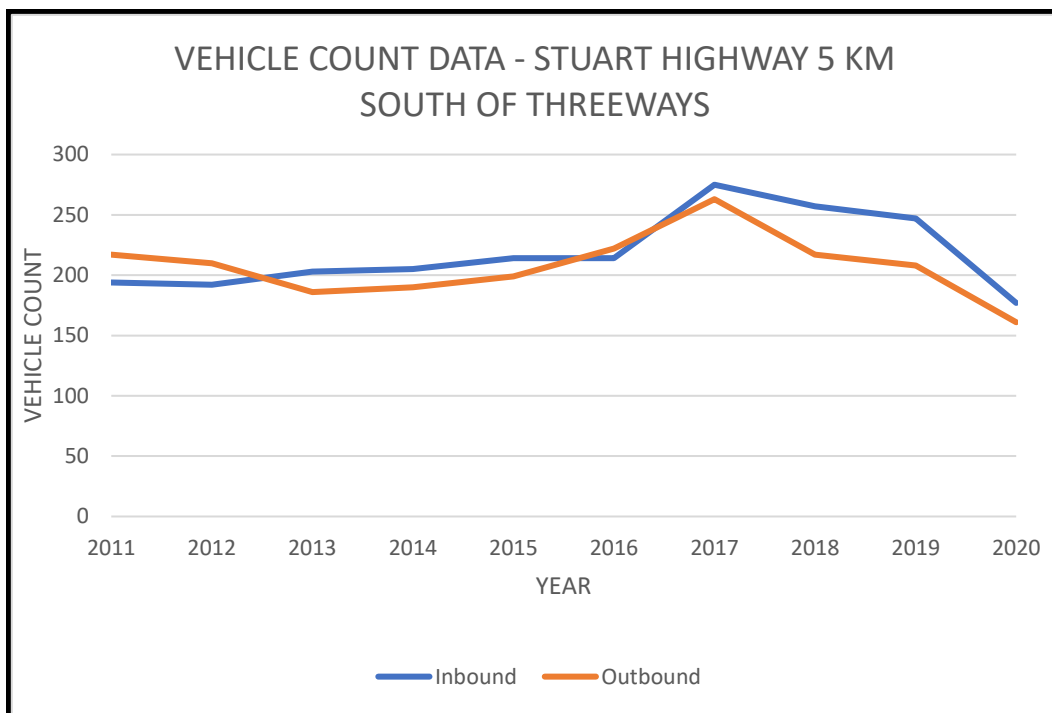


Figure 3.9 – UKVDP002 Traffic Count Data

## 4 Projected Traffic

### 4.1 Traffic

The project will generate traffic for each of the key project facilities:

- East Arm facility
- Powell Creek Solar Precinct
- OHTL from the Solar Precinct to Darwin Converter Site
- Darwin Converter Site and Cable Transition Facilities at Murrumujuk

At this preliminary stage of the project, Sun Cable has estimated traffic generation based on the logistics of freighting equipment and materials between the Port and each project facility and an allowance for construction personnel. Logistics estimates include the projected number of road trains, oversize and overmass loads.

Key assumptions include:

- East Arm facility – approximately 20 personnel
- Murrumujuk facility - personnel bused to site
- Powell Creek camp – 1000 personnel
- Solar precinct workforce – personnel bused to site with approximately 100 contractor peak light vehicle movements during peak periods
- Maximum use of fly in fly out staff utilising a new site aerodrome at Powell Creek
- Establishment phase for Powell Creek
- Project construction phase including concurrent construction of all OHTL sections and multiple work camps along route
- Maximum use of rail freight to reduce road transport requirements

### 4.2 Estimated Traffic Volumes

#### 4.2.1 Powell Creek Establishment

Based on the project logistics, estimates of total trips and daily trips by vehicle type for the Powell Creek establishment phase is shown diagrammatically in Appendix A. The Powell Creek establishment phase is expected to take in the order of 10 months. The majority of personnel will be bused from the Powell creek camp to the existing Elliott aerodrome for fly in fly out transport. Peak trips per day along the Stuart Highway between Powell Creek and Elliott are expected to coincide with personnel shift swings as shown in Table 4.1.

**Table 4.1 – Solar Precinct Establishment – Peak Vehicle Trips per Day**

Vehicle	Trips/day
Light Vehicle	100
Bus	4
Heavy Rigid	12
Over mass	0
Road train	2
<b>Total</b>	<b>118</b>

#### 4.2.2 Project Construction

Based on the project logistics, estimates of peak daily trips by vehicle type along the expected routes for each of the key facilities during the project construction phase is shown diagrammatically in Appendix B. The project construction phase is expected to take in the order of 4 - 5 years.

East Arm facility – located in the established industrial area with no traffic impacts expected on surrounding road network.

Murrumujuk VSC and shore crossing - The majority of project personnel will be bused between Darwin and site each day.

Solar Precinct - The majority of project personnel will be housed at the Powell Creek camp and bused between the camp and site. A new aerodrome constructed specifically for the project to facilitate a predominantly fly in fly out workforce will enable personnel to be bused between the camp and the aerodrome. This will minimise vehicle movements along the Stuart Highway. It is also proposed to construct two rail sidings at Powell Creek and maximise the use of rail for freight.

OHTL – it is expected that approximately six temporary work camps will be established along the OHTL route between Darwin and the solar precinct. Most personnel will be bused between the camps and the OHTL construction sites. A park and ride facility is expected to be established in Darwin to support construction of the northern section. An estimated 2 buses per day will move between each temporary camp and construction site.

Key points:

- Annual traffic count data - Stuart Highway / Howard Springs – 2017 AADT 27,016 vehicles
- Annual traffic count data - Stuart Highway / Howard Springs – 2020 AADT 24,474 vehicles
- Project during construction - Stuart Highway / Howard Springs - expected peak project trips/day 272 (additional project traffic well below the recorded 2017 peak AADT)
- Project personnel movements facilitated by aircraft and coach where possible
- Contractor light vehicles movements predominantly between camps and work site
- Freight movement facilitated by rail where possible

During the project construction phase, the number of peak vehicle trips per day along the Stuart Highway in the vicinity of the Howard Springs traffic lights for each key project facility are expected to coincide with personnel shift swings as shown in Table 4.2 to 5. The total expected peak project trips/day in the vicinity of the Howard Springs traffic lights is 272. Peak vehicle trips per day for other routes are shown diagrammatically in Appendix B.

**Table 4.2 – Solar Precinct Construction - Peak Vehicle Trips per Day**

Vehicle	Trips/day
Light Vehicle	100
Bus	0
Heavy Rigid	10
Over mass	1
Road train	11
<b>Total</b>	<b>122</b>

**Table 4.3 – OHTL Construction - Peak Vehicle Trips per Day – camp to site**

Vehicle	Trips/day
Light Vehicle	100
Bus	2
Heavy Rigid	0
Over mass	0
Road train	28
<b>Total</b>	<b>130</b>

**Table 4.4 – Murrumujuk VSC Construction - Peak Vehicle Trips per Day**

Vehicle	Trips/day
Light Vehicle	2
Bus	2
Heavy Rigid	0
Over mass	1
Road train	3
<b>Total</b>	<b>8</b>

**Table 4.5 – Shore Crossing Construction - Peak Vehicle Trips per Day**

Vehicle	Trips/day
Light Vehicle	2
Bus	2
Heavy Rigid	8
Over mass	0
Road train	2
<b>Total</b>	<b>12</b>

## 4.3 Parking

### 4.3.1 East Arm Facility

The East Arm facility will be located in the existing developed East Arm Business Park industrial area. The TIA determined that the proposed car parking provisions met the requirements of the Northern Territory Planning Scheme.

### 4.3.2 Murrumujuk

The Murrumujuk facility is a greenfield site and will be developed to provide adequate areas for laydown and contractor parking. The use of buses for personnel transport will reduce the requirement for light vehicle parking areas.

### 4.3.3 Powell Creek

The Powell Creek solar precinct is a greenfield site with the solar array covering approx approximately 12,000 hectares. The facility layout will provide adequate areas for laydown and contractor parking. The use of aircraft and buses for personnel transport will reduce the requirement for light vehicle parking areas.

## 4.4 Rail

The use of rail for the freighting of material and equipment is expected to remove the need for around 75,000 trailers to be moved down the Stuart Highway. Based on current project logistics planning, it is expected that approximately 1,100 train movements, the equivalent of 5 – 6 trains per week, will operate in support of the construction phase. The additional rail movements will have some impact on the operation of level crossings along the route as vehicle traffic will be delayed while trains move through the crossings. Route assessments to be undertaken by the project will consider this issue in more detail and minimise or mitigate issues to the extent that is practicable.

## 5 Traffic Impacts and Considerations

### 5.1 Site Access

#### 5.1.1 East Arm Facility

The East Arm facility will be a warehouse type facility in the existing developed industrial area. Development approval has been given for the facility. The development application TIA determined that:

- The loading arrangements have been designed appropriately and in accordance with the Planning Scheme and AS 2890.2 requirements
- Swept path assessment confirms that the site layout has been appropriately designed, and can accommodate for the entry and exit movements of the design vehicles in a satisfactory manner
- The proposed staff car park access point and truck egress point will have sufficient sight distance, in excess of the requirements for SISD.

#### 5.1.2 Darwin Converter Site and Cable Transition Facilities

The Darwin Converter Site is a greenfield site and will be developed to provide adequate access to the site from Murrumujuk Drive. Traffic volumes on Gunn Point Road are reasonably low however consideration will need to be given to the frequency and size of turning vehicles. An intersection upgrade may be required to provide suitable turning lanes on Gunn Point Road and a sealed road constructed to the facility from Gunn Point Road.

#### 5.1.3 OHTL

The OHTL will be constructed in a number of individual sections, each approximately 100 km long. Each OHTL construction section will require an access and egress from the Stuart Highway to the OHTL corridor. Locations of each access have not yet been determined however it is proposed to maximise the use of existing infrastructure. The project envisages that some upgrade works are likely to be required and notes that some access points are likely to be located in a 130 km/h posted speed zone.

#### 5.1.4 Powell Creek

The Powell Creek Solar Precinct will require the construction of a new, major intersection on the Stuart Highway to facilitate vehicle turning movements to the site during establishment and construction of the Solar Precinct and associated facilities. The intersection is located in a 130 km/h posted speed zone and is expected to require channelised turning lanes, deceleration and acceleration lanes and flag lighting.

### 5.2 Traffic Capacity

Project logistics estimates of total trips and daily trips by vehicle type were used to estimate trip generation and traffic numbers associated with the project. Traffic volumes are not expected to exceed the previously recorded peak AADT for 2017 along proposed routes. As such, the project is not expected to create any worsening of traffic volumes or levels of service due to capacity issues along proposed routes.

The use of rail freight where possible for the project is expected to remove 75,000 road trailer trips from the Stuart Highway.

Following confirmation of traffic volumes and expected trip scheduling, analysis of key intersections such as the Howard Springs – Stuart Highway intersection may be required.

### 5.3 Oversize and Overmass Movements

During the construction phase of the project, a number of oversize and overmass loads will be required to move from the Port to Murrumujuk and Powell Creek. For example, the six major transformers with an individual mass of around 300 tonnes and dimensions in the order of 15 m long x 7 m high x 6 m wide. The transport of the OHTL poles will also require the use of extendable trailers.

These movements are expected to utilise designated oversize / overmass routes including but not limited to Berrimah Road, Wishart Road, Tiger Brennan Drive, Gunn Point Road and the Stuart Highway. Oversize movements will require permits under the *Motor Vehicles Act* in accord with NT requirements. The NT Permit Guidelines for Oversize and Overmass Vehicles set out:

*Permits of exemption may be issued subject to consideration of the following principles:*

1. *The preservation of safety and convenience of all road users and the community;*
2. *The need to protect the road and bridge assets from structural damage;*
3. *The designed capability/suitability of the vehicle to carry the load;*
4. *Equity to all sectors and individual operators of the Transport Industry*
5. *Acceptable environmental impacts; and*
6. *The divisibility of the load.*

*The submission seeking a permit may require one or more of the following:*

1. *Detailed traffic management plan – complying with the Australian Standards (AS 1742) – designed and supervised by persons who have passed a nationally accredited course for Traffic Management (subject to Competent Authority requirements);*
2. *Route survey and assessment report; Section 1: The Permit System Permit Guidelines for Oversize and Overmass Vehicles February 2018 Version 6 Page 22*
3. *Details of contingencies in the event of equipment failure;*
4. *Details of public advertising of the move;*
5. *Details of advice to emergency services (Police, Fire, Ambulance) and coach/bus companies.*

The nature of the oversize and overmass loads will impact general traffic movements along the designated routes. The project logistics team will work closely with all service authorities to develop specific movement plans to limit and mitigate traffic impacts as much as possible.

The project anticipates conducting a route assessment to confirm the structural capacity of existing infrastructure and any mitigation measures required for overmass loads. Pavement strength may also be required to be assessed. During preliminary discussions DIPL has flagged concerns associated with overmass loads on the Katherine high level bridge. The route survey will also document infrastructure such as:

- Pavement deterioration
- Overhead power lines
- Traffic signals
- Signage

- Streetlighting
- Roadside vegetation
- Vehicle parking areas

A stakeholder communications plan will be required to ensure relevant service authorities and other parties are aware of scheduled freight movements.

## 5.4 Safety Considerations

Designated road train routes will be utilised for transport movements. As such, many of the existing signal-controlled intersections along proposed routes are currently equipped with advance warning lights.

The Stuart Highway is predominantly a two lane, two way carriageway. Movement planning, particularly for oversize and overmass loads will require consideration of timing, overtaking opportunities for motorists to minimise driver frustration. Liaison with key stakeholders such as the Department of Defence to ensure that oversize and overmass loads do not coincide with any significant military deployments utilising proposed project transport routes will also be required.

A number of level rail crossings are located along the transport routes. As not all crossings are signal controlled, consideration will need to be given to the timing and frequency of rail freight movements.

The project will increase road train movements through populated areas such as the main street of Katherine and Tennant Creek. While AADT is expected to be below the previous 2017 peak there will be some increase in vehicle movements. In particular careful planning will need to be given to the movement of oversize and overmass loads through the town centres.

The distance from Powell Creek to Darwin is approximately 800 km or around 8 hours driving time. Drive in drive out personnel and contractors may suffer fatigue if attempting the return trip to Darwin at the completion of shift / rotation, noting the return trip could also occur at night. Driver education and safe driving practices should be implemented to avoid driver fatigue and possible vehicle accidents.

## 5.5 Significant Roadworks

The project will consider scheduled major roadwork projects such as the Tiger Brennan Drive – Berrimah Road intersection overpass. Significant roadwork projects may make some designated road train routes unserviceable for periods of time and alternate routes may be required.

## 5.6 Other Major Projects

During preliminary discussions, DIPL identified the need to consider the cumulative effect of all concurrent projects that may impact the road network. Known projects include:

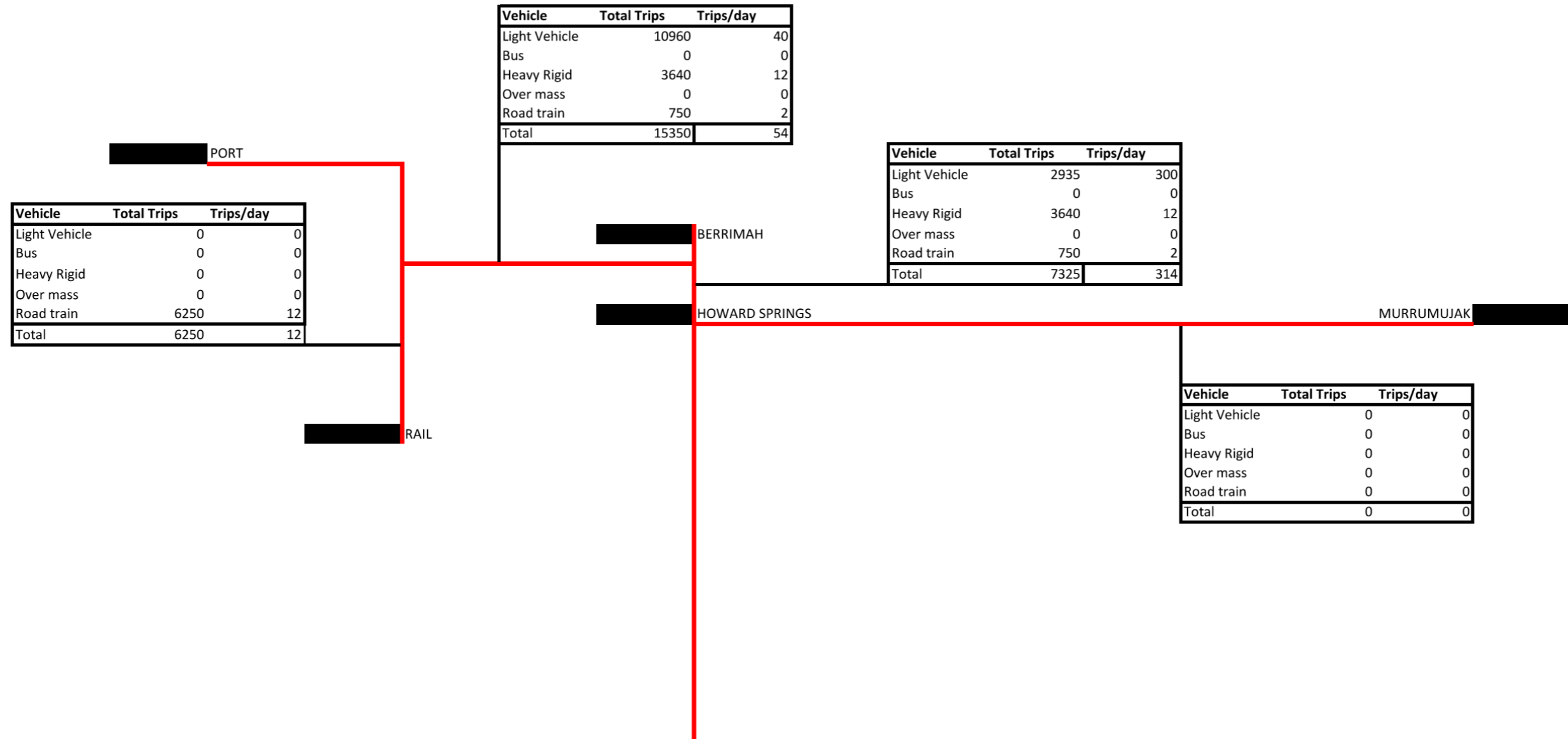
- Darwin Ship Lift Project (currently in procurement phase)
- Project Sea Dragon
- US bulk fuel storage facility
- Finnis Lithium
- Beetaloo basin gas developments
- A range of mining projects in planning phase

## 6 References

1. *Annual Traffic Report 2020*, DIPL, NT Government
2. *Austroads (2020) Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments*, Austroads Ltd.
3. *Factsheet for the Australia Asia Powerlink*, 23 Sept 2021, Sun Cable Media Release, viewed 27 Jan 2022, <https://suncable.sg/newsroom/>
4. *NT Project Summary*, viewed 27 Jan 2022, [https://icn.org.au/regions/northern-territory/project\\_summary/nt/](https://icn.org.au/regions/northern-territory/project_summary/nt/)
5. SJ Traffic (2021) *Suncable- Proposed Maverick Factory- Stage 1 Darwin Business Park, East Arm, Traffic Impact Assessment*
6. *Sun Cable progresses manufacturing facility in Darwin*, SC-2021-03-25 Manufacturing Facility DA Statement to Media.pdf, viewed 27 Jan 2022, <https://suncable.sg/newsroom/>
7. Sun Cable, viewed 27 Jan 2022, <https://suncable.sg/>

## Appendix A Powell Creek Establishment – Established Traffic Volumes

ESTABLISHMENT PHASE



Vehicle	Total Trips	Trips/day
Light Vehicle	0	0
Bus	0	0
Heavy Rigid	0	0
Over mass	0	0
Road train	6250	12
<b>Total</b>	<b>6250</b>	<b>12</b>

Vehicle	Total Trips	Trips/day
Light Vehicle	10960	40
Bus	0	0
Heavy Rigid	3640	12
Over mass	0	0
Road train	750	2
<b>Total</b>	<b>15350</b>	<b>54</b>

Vehicle	Total Trips	Trips/day
Light Vehicle	2935	300
Bus	0	0
Heavy Rigid	3640	12
Over mass	0	0
Road train	750	2
<b>Total</b>	<b>7325</b>	<b>314</b>

Vehicle	Total Trips	Trips/day
Light Vehicle	0	0
Bus	0	0
Heavy Rigid	0	0
Over mass	0	0
Road train	0	0
<b>Total</b>	<b>0</b>	<b>0</b>

Vehicle	Total Trips	Trips/day
Light Vehicle	82200	300
Bus	548	4
Heavy Rigid	3640	12
Over mass	0	0
Road train		2
<b>Total</b>	<b>86388</b>	<b>318</b>

Vehicle	Total Trips	Trips/day
Light Vehicle	2935	300
Bus	0	0
Heavy Rigid	3640	12
Over mass	0	0
Road train	750	2
<b>Total</b>	<b>7325</b>	<b>314</b>

ELLIOT

SOLAR

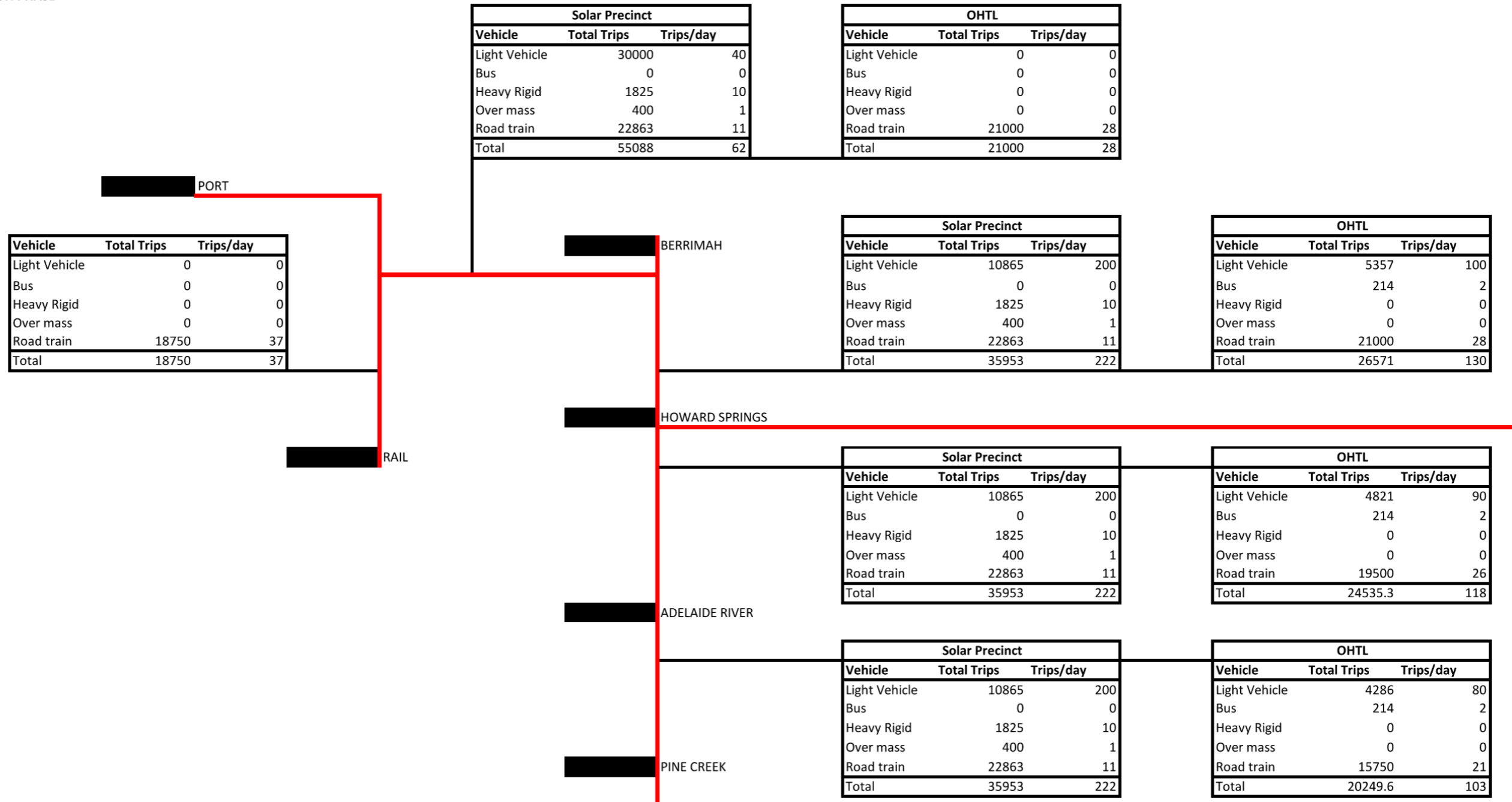
Vehicle	Total Trips	Trips/day
Light Vehicle	82200	300
Bus	548	4
Heavy Rigid	3640	12
Over mass	0	0
Road train	750	2
<b>Total</b>	<b>87138</b>	<b>318</b>

Vehicle	Total Trips	Trips/day
Light Vehicle	196	20
Bus	0	0
Heavy Rigid	0	0
Over mass	0	0
Road train	0	2
<b>Total</b>	<b>196</b>	<b>2</b>

ALICE SPRINGS

## Appendix B Project Construction – Estimated Traffic Volumes

CONSTRUCTION PHASE



Vehicle	Total Trips	Trips/day
Light Vehicle	0	0
Bus	0	0
Heavy Rigid	0	0
Over mass	0	0
Road train	18750	37
<b>Total</b>	<b>18750</b>	<b>37</b>

Solar Precinct		
Vehicle	Total Trips	Trips/day
Light Vehicle	30000	40
Bus	0	0
Heavy Rigid	1825	10
Over mass	400	1
Road train	22863	11
<b>Total</b>	<b>55088</b>	<b>62</b>

OHTL		
Vehicle	Total Trips	Trips/day
Light Vehicle	0	0
Bus	0	0
Heavy Rigid	0	0
Over mass	0	0
Road train	21000	28
<b>Total</b>	<b>21000</b>	<b>28</b>

BERRIMAH

Solar Precinct		
Vehicle	Total Trips	Trips/day
Light Vehicle	10865	200
Bus	0	0
Heavy Rigid	1825	10
Over mass	400	1
Road train	22863	11
<b>Total</b>	<b>35953</b>	<b>222</b>

OHTL		
Vehicle	Total Trips	Trips/day
Light Vehicle	5357	100
Bus	214	2
Heavy Rigid	0	0
Over mass	0	0
Road train	21000	28
<b>Total</b>	<b>26571</b>	<b>130</b>

HOWARD SPRINGS

Solar Precinct		
Vehicle	Total Trips	Trips/day
Light Vehicle	10865	200
Bus	0	0
Heavy Rigid	1825	10
Over mass	400	1
Road train	22863	11
<b>Total</b>	<b>35953</b>	<b>222</b>

OHTL		
Vehicle	Total Trips	Trips/day
Light Vehicle	4821	90
Bus	214	2
Heavy Rigid	0	0
Over mass	0	0
Road train	19500	26
<b>Total</b>	<b>24535.3</b>	<b>118</b>

ADELAIDE RIVER

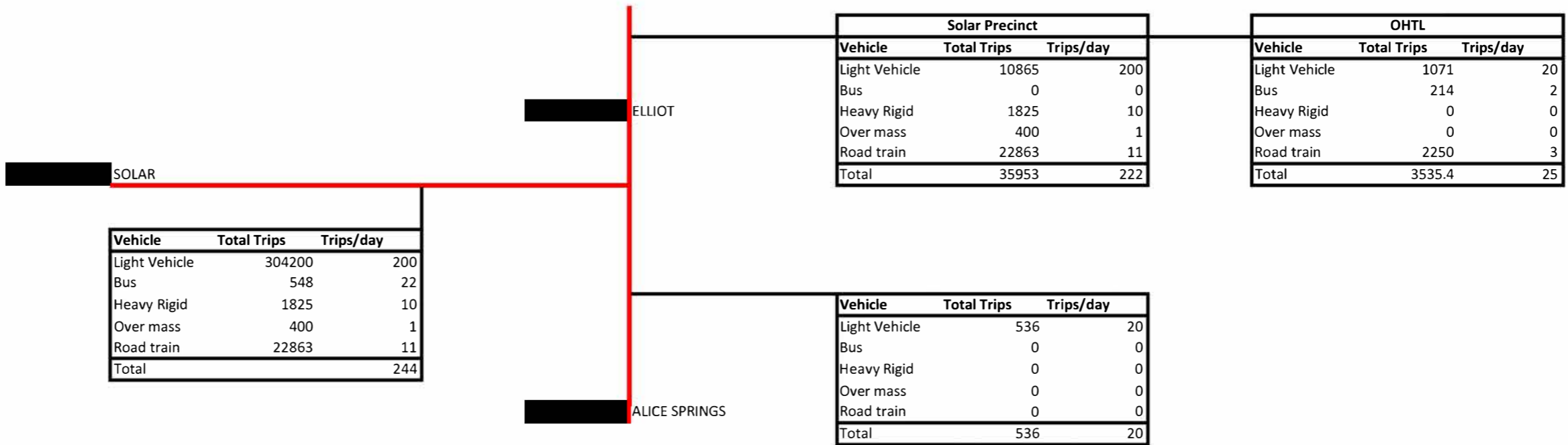
Solar Precinct		
Vehicle	Total Trips	Trips/day
Light Vehicle	10865	200
Bus	0	0
Heavy Rigid	1825	10
Over mass	400	1
Road train	22863	11
<b>Total</b>	<b>35953</b>	<b>222</b>

OHTL		
Vehicle	Total Trips	Trips/day
Light Vehicle	4286	80
Bus	214	2
Heavy Rigid	0	0
Over mass	0	0
Road train	15750	21
<b>Total</b>	<b>20249.6</b>	<b>103</b>

PINE CREEK

RAIL

		Solar Precinct			OHTL		
		Vehicle	Total Trips	Trips/day	Vehicle	Total Trips	Trips/day
KATHERINE	Light Vehicle	10865	200	Light Vehicle	3750	70	
	Bus	0	0	Bus	214	2	
	Heavy Rigid	1825	10	Heavy Rigid	0	0	
	Over mass	400	1	Over mass	0	0	
	Road train	22863	11	Road train	13500	18	
	Total	35953	222	Total	17463.9	90	
Mataranka	Light Vehicle	10865	200	Light Vehicle	3214	60	
	Bus	0	0	Bus	214	2	
	Heavy Rigid	1825	10	Heavy Rigid	0	0	
	Over mass	400	1	Over mass	0	0	
	Road train	22863	11	Road train	11250	15	
	Total	35953	222	Total	14678.2	77	
LARRIMAH	Light Vehicle	10865	200	Light Vehicle	2679	50	
	Bus	0	0	Bus	214	2	
	Heavy Rigid	1825	10	Heavy Rigid	0	0	
	Over mass	400	1	Over mass	0	0	
	Road train	22863	11	Road train	9000	12	
	Total	35953	222	Total	11892.5	64	
DALY WATERS	Light Vehicle	10865	200	Light Vehicle	2143	40	
	Bus	0	0	Bus	214	2	
	Heavy Rigid	1825	10	Heavy Rigid	0	0	
	Over mass	400	1	Over mass	0	0	
	Road train	22863	11	Road train	6750	9	
	Total	35953	222	Total	9106.8	51	
NEWCASTLE WATERS	Light Vehicle	10865	200	Light Vehicle	1607	30	
	Bus	0	0	Bus	214	2	
	Heavy Rigid	1825	10	Heavy Rigid	0	0	
	Over mass	400	1	Over mass	0	0	
	Road train	22863	11	Road train	4500	6	
	Total	35953	222	Total	6321.1	38	

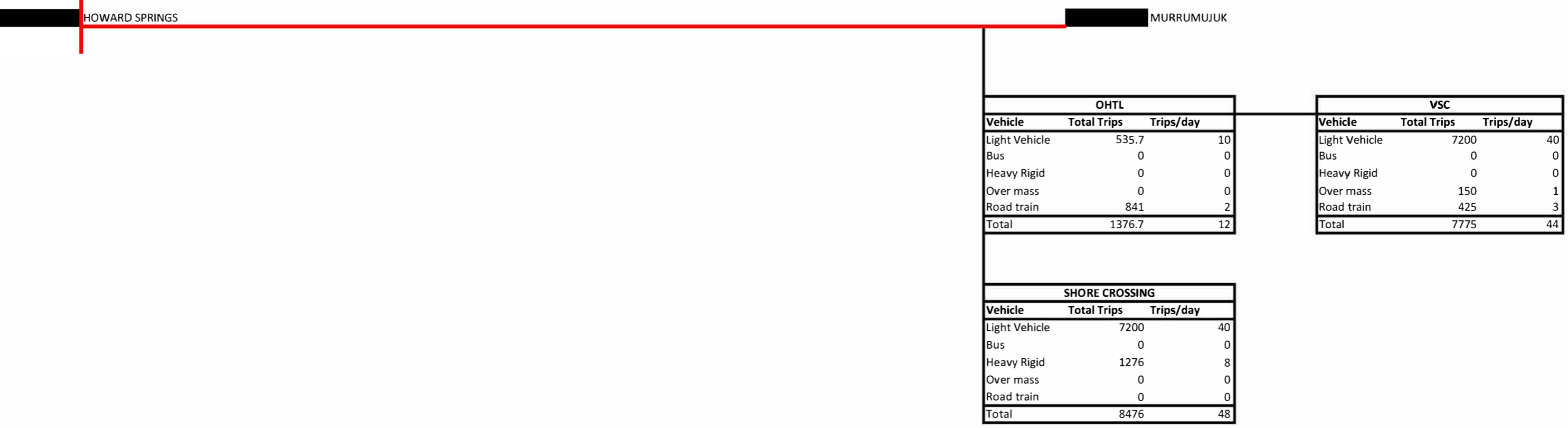


Solar Precinct		
Vehicle	Total Trips	Trips/day
Light Vehicle	10865	200
Bus	0	0
Heavy Rigid	1825	10
Over mass	400	1
Road train	22863	11
<b>Total</b>	<b>35953</b>	<b>222</b>

OHTL		
Vehicle	Total Trips	Trips/day
Light Vehicle	1071	20
Bus	214	2
Heavy Rigid	0	0
Over mass	0	0
Road train	2250	3
<b>Total</b>	<b>3535.4</b>	<b>25</b>

Vehicle	Total Trips	Trips/day
Light Vehicle	304200	200
Bus	548	22
Heavy Rigid	1825	10
Over mass	400	1
Road train	22863	11
<b>Total</b>	<b>304200</b>	<b>244</b>

Vehicle	Total Trips	Trips/day
Light Vehicle	536	20
Bus	0	0
Heavy Rigid	0	0
Over mass	0	0
Road train	0	0
<b>Total</b>	<b>536</b>	<b>20</b>



OHTL		
Vehicle	Total Trips	Trips/day
Light Vehicle	535.7	10
Bus	0	0
Heavy Rigid	0	0
Over mass	0	0
Road train	841	2
<b>Total</b>	<b>1376.7</b>	<b>12</b>

VSC		
Vehicle	Total Trips	Trips/day
Light Vehicle	7200	40
Bus	0	0
Heavy Rigid	0	0
Over mass	150	1
Road train	425	3
<b>Total</b>	<b>7775</b>	<b>44</b>

SHORE CROSSING		
Vehicle	Total Trips	Trips/day
Light Vehicle	7200	40
Bus	0	0
Heavy Rigid	1276	8
Over mass	0	0
Road train	0	0
<b>Total</b>	<b>8476</b>	<b>48</b>

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