

North-South Corridor Torrens Road to River Torrens



Project Assessment Report: Supplement



Artist's impression between Port Road and Grange Road



Australian Government

BUILDING OUR FUTURE



Government of South Australia

Department of Planning,
Transport and Infrastructure

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1 Introduction

1.1 Background and purpose of the Supplement

The Torrens Road to River Torrens Project, *Project Assessment Report* was released for public exhibition in July 2014.

This document is the *Supplement* to the *Project Assessment Report*. The Project Assessment Report and the Supplement both form part of the Environmental Impact Assessment process of the project.

The Project Assessment Report described the project in detail and summarised the environmental, social, economic and engineering assessments for the concept design. The report outlined the measures proposed to avoid or minimise, and manage, negative effects of the project.

The Project Assessment Report and its executive summary have been available for viewing online (www.infrastructure.sa.gov.au) since 4 July 2014. Submissions were invited on any issue associated with the project.

An open day was held at the project site office at 196 Torrens Road (corner of South Road) on Saturday, 26 July 2014. Local businesses, residents, stakeholder organisations and interested members of the community were invited to talk to the project team about the Project Assessment Report or any other aspect of the project.

By the closing date for submissions, Monday 11 August 2014, 71 submissions had been received from members of the public, representative bodies, local government and South Australian government agencies.

This Supplement responds to the submissions received and, where relevant, describes amendments to the project arising from this feedback and further information.

The Supplement was due for public release by the end of December 2014. The release was delayed until the competitive design and pricing component of the procurement process was completed, to determine whether submissions and pricing from the two shortlisted consortia affected the project's scope, design and impact. The major works contract has been awarded to the T2T Alliance consisting of Leighton Contractors, York Civil and Aurecon Australia, throughout this report they will be referred to as T2T Alliance (see Section 3.1).

1.2 Supplement structure

The structure and content of this Supplement is described in Table 1.1.

Table 1.1. Structure and content of the Supplement

Section	Description
Section 1 Introduction	Introduces the Supplement and gives the project context and timeline

Section	Description
Section 2 Modifications to the concept design	Describes those elements of the project that have been amended on the basis of further investigations or submissions received.
Section 3 Further information	Includes information arising from investigations undertaken since release of the Project Assessment Report and responses to public submissions. Includes a procurement update, and outlines community engagement activities since the release of the Project Assessment Report
Appendices	A Submission summaries and responses B Membership of Community Liaison Group and record of meetings

1.3 Project context

The Australian and South Australian governments have each committed \$448 million – a total of \$896 million – to construct the Torrens Road to River Torrens Project.

The project will create an estimated 480 jobs per year during its construction phase.

The major works contract was awarded in April 2015 to the T2T Alliance consisting of Leighton Contractors, York Civil and Aurecon. Construction will begin in August 2015 (with service works continuing in the adjacent side street), and the project is due for completion by the end of 2018.

Table 1.2 outlines the updated indicative time frames for the Torrens Road to River Torrens Project.

Table 1.2. Indicative time frames for the Torrens Road to River Torrens Project

Project phase	Activities	Time frame
Preliminary concept planning (Regency Road to Anzac Highway)	Development of possible road options Early stakeholder and community engagement Preliminary environmental investigations	February 2011 to March 2012 Completed
Concept planning and design (Regency Road to River Torrens)	Detailed concept planning Environmental investigations continue Funding submission to Infrastructure Australia and Department of Infrastructure and Regional Development Property acquisition started Development of preliminary concept design	March 2012 to May 2013 Completed
Concept design (Torrens Road to River Torrens)	Formal community and stakeholder engagement on concept design Finalisation of concept design Completion of concept planning and design Environmental impact assessment (including preparation and release of Project Assessment Report and Supplement)	May 2013 to mid 2015
Pre-construction	Property acquisition and demolition Procurement of design and construction contractor Detailed design Environmental and other approvals Early works – service relocations and local/arterial road and intersection upgrades on alternative/parallel routes Ongoing community and stakeholder engagement	May 2013 to December 2015
Major Construction	Construction Ongoing community and stakeholder engagement and other activities	August 2015 to end of 2018
Post-construction	Operation Maintenance	2018 onwards

2 Modifications to the concept design

The project concept design released in the Project Assessment Report (PAR) is shown in Figure 2.1. The two main changes to that concept design are:

- extension of the non-stop motorway beyond Hawker Street
- Port Road/Queen Street traffic signals.

The updated concept design includes:

- a 3 kilometre non-stop section of roadway (incorporating the lowered road section) between Torrens Road and Ashwin Parade
- a 2 kilometre section of lowered non-stop motorway from Dartmouth Street to Gawler Avenue
- parallel surface (at-grade) roads along the length of the lowered motorway to connect most local roads and arterial roads to South Road
- an overpass of the Outer Harbor rail line
- intersection upgrades at Torrens Road, Hawker Street–Hurtle Street, Port Road, Grange Road–Manton Street and Ashwin Parade–West Thebarton Road
- improved cycling and pedestrian facilities
- landscaping and detention basins
- noise barriers (where required).

The lowered non-stop motorway will provide three lanes in each direction, set approximately 8 metres below the existing surface of South Road. This concept design has taken into consideration the future transport needs of Adelaide and allows for connection to other parts of the non-stop North–South Corridor when the adjoining sections of South Road are upgraded in the future.

2.1 Extension of the lowered motorway

Both consortia highlighted from a constructability, risk, local access and motorway perspective that the ability to extend the lowered motorway north of Hawker Street was possible with the current budget. The extension also provides the most optimal location to interface with the potential extension of the lowered motorway beyond Torrens Road.

Through the outcome of the procurement process, DPTI confirms that the lowered motorway, to the north of Hawker/Hurtle Street, can be extended within the currently approved budget.

The proposed extension of the lowered motorway north of Hawker Street provides the following significant benefits:

- Travel times through the project area would be further reduced for north-south traffic by an average of 20 seconds per vehicle during peak periods (in addition to the average five and a half minute saving on the non-stop section, already generated by the base project scope).

- Reduced delays at the signalised South Road surface road intersection with Hawker/Hurtle Street, with an average travel time saving on the local roads of over 10 seconds per vehicle during peak periods.
- Disruption to the local community would be minimised with construction works required only once within the area of Hawker/Hurtle Street.
- Minimises transitional works, including enabling the motorway on and off ramps north of Port Road to become operational (under the base scope these ramps would be constructed but remain closed until the motorway is extended in the future).
- The position of the lowered motorway north of Hawker/Hurtle Street provides the most optimal location to interface with the ultimate extension of the motorway beyond Torrens Road.

2.1.1 Port Road interchange entry and exit ramps

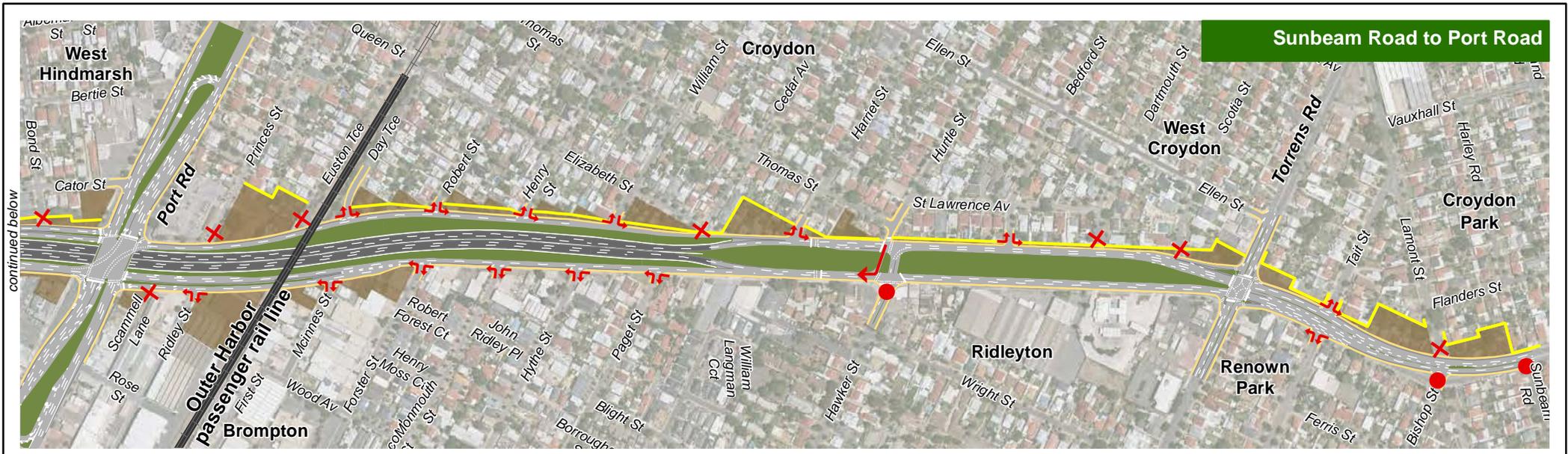
In the ultimate design for a non-stop North–South Corridor, access to and from the motorway and the rest of the arterial network is restricted to defined interchanges, as on the South Eastern Freeway, Northern Expressway and Southern Expressway. In the Torrens Road to River Torrens Project area, the only midpoint access is via entry and exit interchange ramps north of Port Road.

These interchange ramps were not described in the PAR because the lowered motorway ended a short distance to the north, south of Hawker Street. The concept design considered future incorporation of these ramps when more of the North–South Corridor is constructed.

Now that the lowered motorway will be extended to the north of Hawker Street, it is possible for the interchange ramps to be constructed as part of the project scope. Drivers could then use them on project completion to bypass the South Road surface road/Hawker Street/Hurtle Street intersection.

The concept plan for the interchange ramp layout (Figure 2.3) could be adjusted to a final positioning for ramps and lane layout in the design proposed by the T2T Alliance.

Source: DPTI, Imagery Feb 2014, Date: 2/04/2015, SRPS DocID: 433



Sunbeam Road to Port Road



Port Road to Ashwin Parade

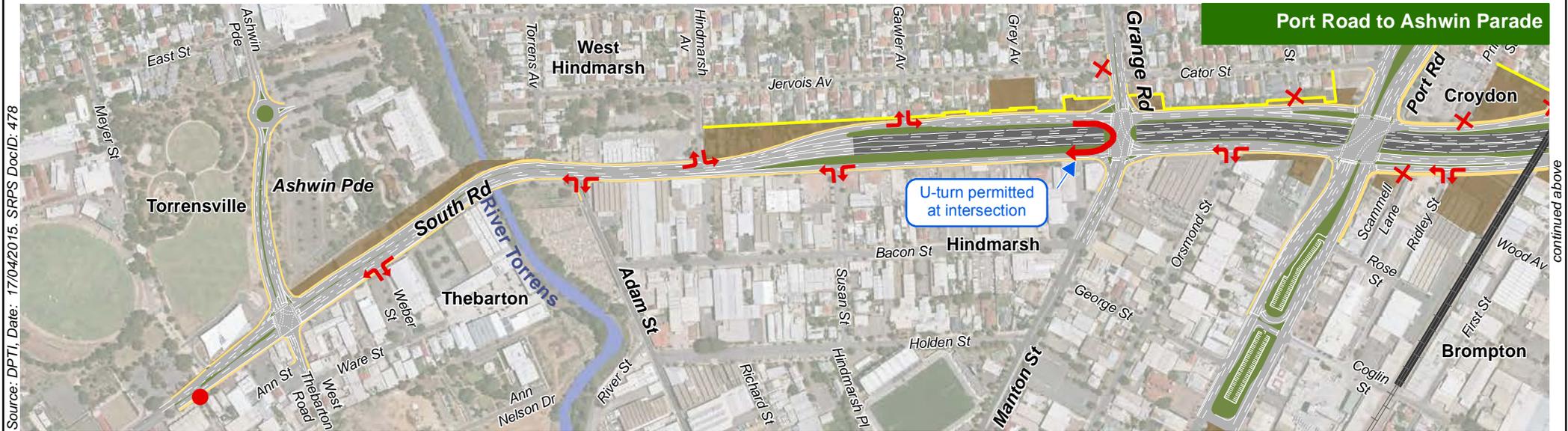
	Lowered road		Footpath
	Surface road		Indicative noise barrier location
	Train overpass		Remaining land (land use to be determined)

Local road access:

- Road closed
- Left in/left out access only
- Right out only
- All movements (left in/out; right in/out)

NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens

Figure 2.1
Concept design released in the
Project Assessment Report (June 2014)



Source: DPTI, Date: 17/04/2015, SRPS DocID: 478

<ul style="list-style-type: none"> Indicative noise barrier location Remaining land Rail overpass Footpath 	<ul style="list-style-type: none"> Median/island Lowered road Surface road (ground level) 	<p>Local road access:</p> <ul style="list-style-type: none"> X Road closed ↔ Left in/left out access only ↗ Right out only ● All movements (left in/out; right in/out)
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NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens

Figure 2.2
Concept design including extension north of Hawker Street

Source: DPTI Date: 17/04/2015. SRPS DocID: 479



North bound entry ramp operational

South bound exit ramp operational

**NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens**

-  Indicative noise barrier location
-  Remaining land (land use to be determined)
-  Rail overpass
-  Footpath
-  Median/island
-  Lowered road
-  Surface road (ground level)

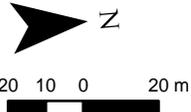


Figure 2.3
Port Road interchange entry and exit ramps

2.1.2 Pedestrian crossing south of Hawker Street

The original PAR concept design proposed a pedestrian crossing adjacent to Harriet Street and Ridleyton Shopping Centre, near the existing crossing. With the lowered motorway extending north of Hawker Street, this crossing will be replaced with a pedestrian bridge over the lowered road, located to improve east–west connectivity for pedestrians and cyclists. Other crossing points for these users are the pedestrian bridge at the Outer Harbor rail overpass to the south, and at the South Road/Hawker Street/Hurtle Street signalised intersection.

The exact positioning of the pedestrian bridge is subject to the detailed design of the T2T Alliance. Figure 2.4 indicates the general area where this crossing could be located.

2.1.3 Local road access at Cedar Avenue and William Street, Croydon

The PAR concept design showed Cedar Avenue as closed to South Road. Cedar Avenue was too close to the merge (from two lanes to one lane) on the northbound South Road surface road carriageway, near where it connected with the non-stop motorway as it returned to grade. The extension beyond Hawker Street removes this conflict. Cedar Avenue could remain open for left turn in and out access to the South Road surface road.

In the Croydon area, Cedar Avenue currently carries the highest volume of left turn traffic entering and exiting South Road. Left in-left out only access at Cedar Avenue would reduce the overall volume of traffic redirected along other roads in the local area. However, the Elizabeth Street/Cedar Avenue link would need to be closed because it is too close to the South Road surface road/Cedar Avenue connection.

Access to and from Cedar Avenue would allow William Street to be closed to left in-left out vehicle movements, as suggested by several community responses to the PAR. However, the resultant redistribution of local traffic movements would also need to be considered. Closure of William Street, and extension of the noise wall across it, would enhance the adjacent park (see Section 3.3.3) by reducing vehicle traffic, improving on-street parking provisions and reducing road noise for park users. These possible changes are shown in Figure 2.5.

Further community engagement activities will inform the decision on whether these changes are made.

2.1.4 Turn restrictions at Torrens Road

With the lowered motorway extending north of Hawker Street, northbound traffic will be able to turn right onto Torrens Road (to travel in a south-easterly direction) only from the motorway.

Traffic from the South Road surface road carriageway could only travel straight through on South Road, or turn left onto Torrens Road (to travel in a north-westerly direction). The short distance between the lowered motorway return to surface level and the Torrens Road intersection, would make it impractical for a driver from the surface road carriageway to weave across the traffic lanes to the right turn lane.

Drivers wishing to make this turn onto Torrens Road would need to modify their travel route: they could use the interchange entry ramp to access the lowered motorway or find an alternative route onto Torrens Road from the Croydon and West Croydon area.

2.2 Port Road/Queen Street traffic signals

The PAR introduced the concept of removing right turns from South Road onto Port Road at the intersection, with these movements being catered for by redirection to signalised U-turn facilities on Port Road. The reasoning for this treatment is discussed further in Section 3.6.1.

These U-turns are proposed to be controlled by traffic signals, to allow U-turning traffic to enter the Port Road traffic stream appropriately. The U-turn signals would coordinate with the Port Road/South Road intersection so Port Road traffic would not be unduly delayed.

To the west of South Road, the U-turn was located approximately 300 metres from South Road and approximately 150 metres east of the Port Road/Queen Street intersection. In the PAR, Figure 6.1b identified that traffic signals could be installed at the Queen Street intersection.

Traffic signals at Queen Street, and relocation of the U-turn, have been further investigated to address existing access issues at the Queen Street intersection, and a proposal has been developed (Figure 2.6).

Traffic signals at this intersection will also improve access for pedestrians and cyclists crossing Port Road when travelling to and from the Queen Street–Elizabeth Street precinct. In addition, the location of this pedestrian and cyclist crossing point aligns with a temporary detour proposed for the Outer Harbor Greenway (see Section 3.6.5).

During detailed design and construction, the next phase of the project, further modifications may be made to the project's design. Where relevant, key modifications will be identified on the project's website (www.infrastructure.sa.gov.au).

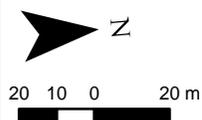
Source: DPTI Date: 17/04/2015. SRPS DocID: 481



Alternative pedestrian crossing via bridge over lowered motorway near Cedar Avenue. Exact position subject to final design

Alternative signalled pedestrian crossing

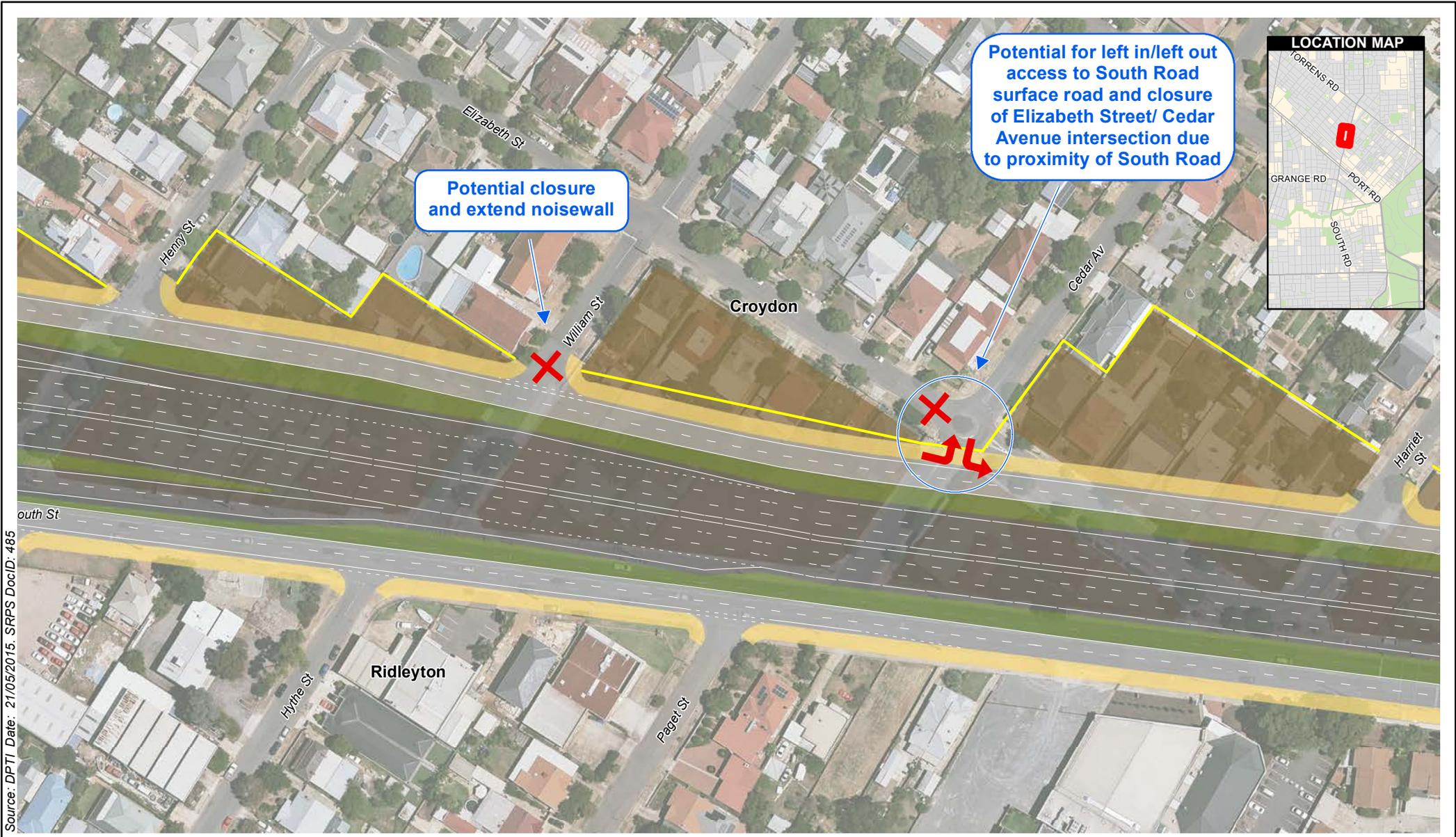
Existing South Road pedestrian crossing to be removed



- Indicative noise barrier location
- Remaining land (land use to be determined)
- Rail overpass
- Footpath
- Median/island
- Lowered road
- Surface road (ground level)

**NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens**

Figure 2.4
Pedestrian crossing south of Hawker Street



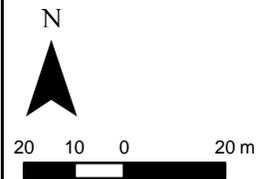
Source: DPTI Date: 21/05/2015. SRPS DocID: 485

**NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens**

- | | |
|--|---|
|  Indicative noise barrier location |  Footpath |
|  Remaining land (land use to be determined) |  Median/island |
|  Rail overpass |  Lowered road |
| |  Surface road (ground level) |

Figure 2.5
Cedar Avenue and William Street access
being investigated

Source: DPTI Date: 17/04/2015. SRPS DocID: 427



- Rail overpass
- Median/island
- Footpath
- Surface road (ground level)

**NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens**

Figure 2.6
Port Road/Queen Street traffic signals

3 Further information

3.1 Procurement update

On 14 August 2014, the formal procurement process for the major works component of the project began with release of the Expression of Interest to prequalified consortia.

There was a strong industry response to the Expression of Interest process with five consortia – comprising South Australian, Australian and international groups – taking part.

On 30 October 2014, the Australian and South Australian governments announced the two shortlisted proponents bidding for the Torrens Road to River Torrens Project major works contract:

- T2T Alliance (Leighton Contractors, York Civil and Aurecon Australia)
- Connect (McConnell Dowell, Fulton Hogan, SMEC and AECOM).

The shortlisted proponents have an existing presence in South Australia and have been involved in major projects such as Gallipoli Underpass, Northern Expressway, South Road Superway, Southern Expressway, Goodwood Junction upgrade and Seaford Rail Extension.

The competitive alliance procurement process pursued by the State Government enables packaging of works to increase opportunities for South Australian businesses, and allow increased scrutiny on subcontracting practices.

The term ‘alliance’ refers to a specific means of project delivery or procurement option where the principal and contractor work collaboratively to deliver the outcomes of a project. The alliance relationship is characterised by risk sharing and a no blame/no disputes framework.

The shortlisted consortia engaged in a Request for Proposal phase that included competitive design and pricing over a 20-week period through to March 2015.

The major works contract was awarded in April 2015 to the T2T Alliance consisting of Leighton Contractors, York Civil and Aurecon Australia. Major Construction work is expected to commence in August 2015 (with service works continuing in the adjacent side street) and be completed by the end of 2018.

3.2 Community engagement since Project Assessment Report release

3.2.1 Open day

At the open day held on 26 July 2014 at the Project Site Office approximately 200 people attended and the key areas of interest included:

- access arrangements for local roads
- pedestrian and cyclist facilities
- general information about the project staging and start of construction works
- noise barriers and their expected location.

Project team members were available to answer questions from the local community. Feedback from those who attended indicated that the open day had been useful for finding out more about the project and discussing the concept design with project staff.

3.2.2 Street corner meetings

A series of street corner meetings held across the project area gave the community a chance to raise any local issues or concerns with the project team and to discuss possible solutions to minimise the impacts of the project on the local community and road users.

Locations were chosen based on the number and types of issues that were raised through other engagement methods (one-on-one meetings, telephone and email inquiries, and feedback from local councils). In total, approximately 150 people attended the six street corner meetings.

14 October 2014, 5.00–6.30pm: St Lawrence Avenue/Dartmouth Street, Croydon

Issues raised included:

- noise barriers (with strong support for early installation of any noise attenuation measures)
- construction timing
- open spaces
- a belief that the current U-turn design on Port Road will further encourage rat running through Ellen Street/Elizabeth Street–Queen Street and Rosetta Street for traffic wanting to travel from Croydon, West Croydon or Croydon Park to Welland or Allenby Gardens
- the need to maintain pedestrian access across South Road during construction
- safety issue for traffic heading north on South Road surface road trying to cross traffic to turn right into Hawker Street
- general rat running through the local road network during construction.

21 October 2014, 5.00–6.30pm: William Street/Elizabeth Street, Croydon

Issues raised included:

- open spaces
- noise barriers and other mitigation measures
- local access
- service relocations
- pedestrian access across South Road.

28 October 2014, 5.00–6.30pm: Queen Street level crossing, Croydon

Issues raised included:

- local access

- urban design
- noise
- property values
- public transport during construction.

4 November 2014, 5.00–6.30pm: Cator Street/Bond Street, West Hindmarsh

Issues raised included:

- one way vehicle bridge across the Torrens
- local access (in and out of West Hindmarsh south of Grange Road in particular)
- urban design
- noise.

11 November 2014, 5.00–6.30pm: Gawler Ave/Jervois Ave, West Hindmarsh

At the meeting, shown in Figure 3.1, the issues raised included:

- one way vehicle bridge across the River Torrens
- proposed River Torrens pedestrian bridge
- rat running
- local access
- urban design
- noise.

18 November 2014, 5.00–6.30pm: Meyer Street car park, Torrensville

Issues raised included:

- east–west movement during and after construction
- business access arrangements during construction and operation
- dust and other environmental concerns
- project scope (and likelihood of increasing traffic congestion in Torrensville)
- overall completion of North–South Corridor and order of construction.



Figure 3.1. Gawler Avenue/Jervois Avenue street corner meeting, 11 November 2014

3.2.3 Community update

Community Update, Torrens Road to River Torrens Project – October 2014 was distributed to some 11,000 homes in the project area, emailed to the project’s mailing list, and sent to local Members of Parliament, local businesses and Council for them to distribute through their offices. It was also available on the project website:

www.infrastructure.sa.gov.au

The community update included a construction activity map, a map of the concept design and a communication survey.

Community updates will continue to be produced during the construction period and be available on the project website.

3.2.4 Construction activity maps

Construction activity maps describing current activities are distributed to the project’s mailing list or can be viewed online on the project’s website at:

www.infrastructure.sa.gov.au

Construction activity maps will be updated on a regular basis as works progress and uploaded to this location.

3.2.5 Communications survey

A communication survey sought feedback on current and previous communication methods and how people would like to be contacted in the future. The survey was included in the October 2014 Community Update and was also available on the project website.

In total 182 surveys were returned (not all respondents answered all questions) and the results are summarised below.

When asked ‘do you believe you have been well informed about the different elements of the Torrens Road to River Torrens Project during the Planning Study’ (1: not informed; 5: very well informed) the average result was 3.3 (Figure 3.2).

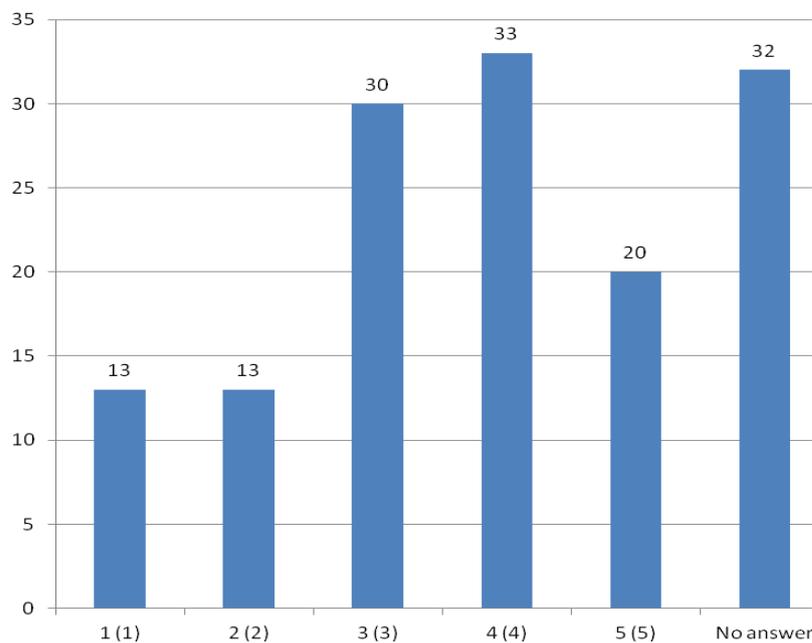


Figure 3.2. Being informed about project elements (1: not informed; 5: very well informed)

The survey results also show that, of the communication methods, respondents are most aware of, and use, the project website, along with print media, and individual and group meetings (Figure 3.3).

The most preferred communication methods were identified as website/emails and letter drops/community updates. Comments about preferred methods included:

- ‘Meeting notes from the two community reference groups. They show what is actually being talked about, what concerns have been raised.’
- ‘information in newspapers and info accompanying survey.’
- ‘The website because it showed proposals in a visually detailed way.’

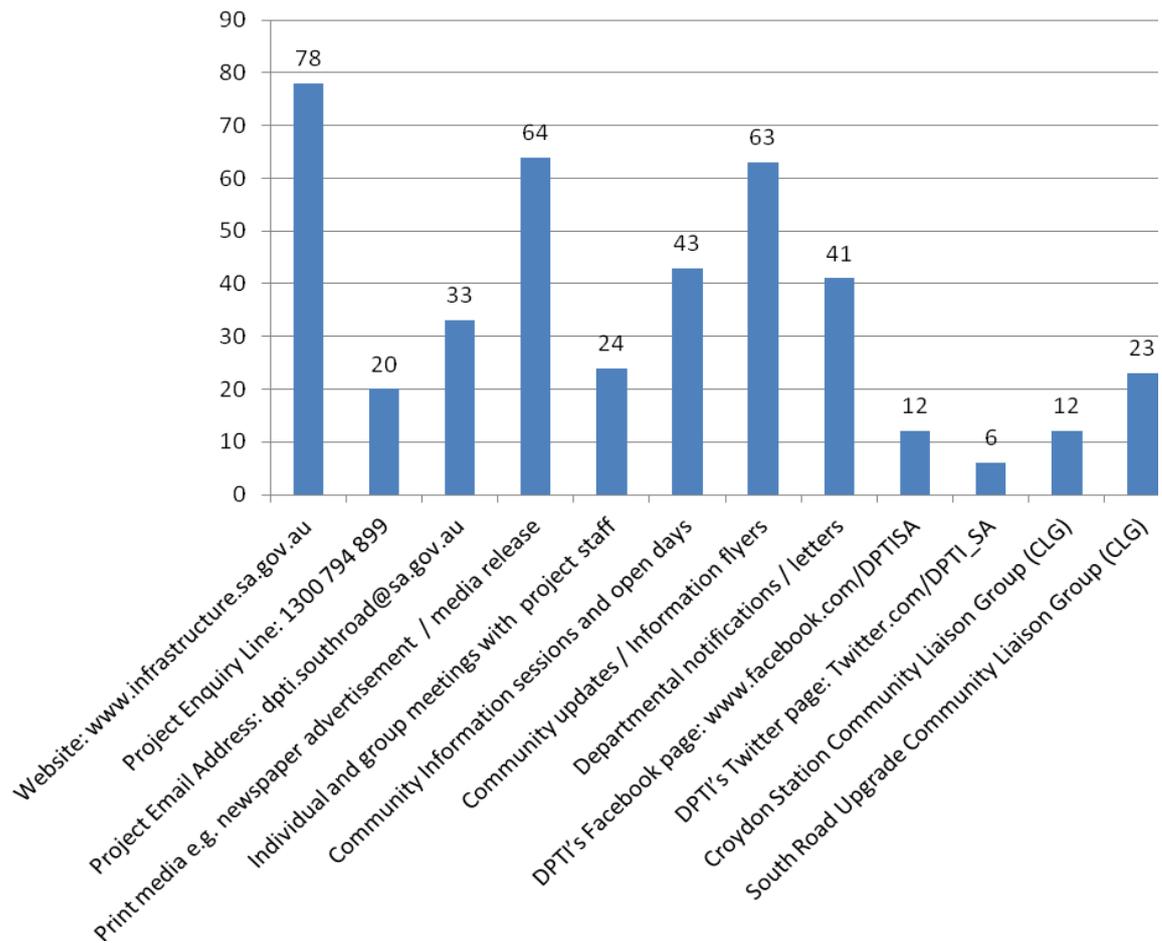


Figure 3.3. Awareness and/or use of communication methods

The least preferred methods for some were the street corner meetings, as the times did not suit, and social media, as some respondents were not users. Comments about least preferred methods included:

- 'Meetings have been difficult to get to.'
- 'Liaison groups they tend to pick on their own agenda and only talk to people that are of the same opinion as themselves.'
- 'Facebook, Twitter (not interested).'

When asked how respondents felt about the amount of information received about the project, 47% stated the amount was just right, 34% wanted more and 2% advised it was too much. Of the respondents, 40% thought the information addressed their query or concern most of the time, 13% said their query was addressed to a great extent and 26% said the information provided didn't address their issues to a great extent.

The numerous suggestions of other ways they would like to have been kept informed or consulted about the project included:

- 'More emails informing us of progress and changes as they happen.'
- 'Perhaps a static display in a car park on Port Road and similar at each key site such as Grange road, Ashley Street and Torrens Road.'

- ‘Local businesses need timelines and exact plans. Send notifications and updates to businesses along South Road affected.’

More than half the respondents (64%) had viewed the visual simulation and many stated that it was a useful overview of the project. Some respondents did state that they would like to have seen more detail.

Of the 36% of respondents who contacted the project team, 15% used email, 8% the 1300 project enquiry line, 4% the website, 4% the Community Liaison Group (CLG) and 17% other means. When asked how satisfied respondents were with the response they received (scored on a 1–5 scale), the average response was 2.8.

Almost half (45%) of respondents were not aware they could also contact the CLG with any local issues regarding the project.

Recommendations on how DPTI could further improve its method of communication and consultation with the local community affected by the project included:

- ‘Put all the info in the local paper [*Messenger Weekly Times*] which applies when people have no internet.’
- ‘More direct contact via post, with continual updates (even if minor). Large billboards or similar on roadside with reference points to look at e.g. website address. Greater advertising of upcoming corner meetings. I only stumbled across this on the website by accident. Direct mail could be distributed with the council rates notices.’
- ‘Make personal regular contact with surrounding businesses to keep informed and discuss ways to minimise interruption.’

Residents living on or near South Road between Torrens Road and the River Torrens made up 61% of respondents; 16% were residents, businesses or community groups in the local area, but not directly affected; and 6.9% were businesses on or near South Road between Torrens Road and the River Torrens.

3.2.6 Rail overpass workshop (urban design)

DPTI has actively engaged with residents from Day and Euston Terraces (from Queen–Elizabeth Street to South Road) about urban design elements of the rail overpass and the area adjacent to the overpass structure.

From the three meetings held, some design concepts for the rail overpass have now been developed based on community feedback and taking into account urban design principles for the North–South Corridor.

The information and ideas shared with the project team have been further refined to reflect the discussions, and were provided to the two short-listed consortia for inclusion in the design phase. DPTI thanks these residents for their ongoing participation in the community workshops.

Section 3.3.1 has further information on the urban design of the rail overpass.

3.2.7 Updated website

The Torrens Road to River Torrens Project website is frequently updated. It now includes a frequently asked questions page, a map of the project area, media releases, fact sheets, notification letters and current newsletters. The community engagement page also alerts the public to current engagement activities including open days or street corner meetings. The website also shows a range of artist impressions as a visual representation of the completed project.

The website will be continually updated throughout construction with the latest project information.

3.2.8 Responding to telephone and email enquiries

The project mailing list (both email and postal) has 439 registrations.

The Torrens Road to River Torrens Project inbox received approximately 60 emails in the first three months since the standalone email address was created. Issues raised include:

- seeking employment and business opportunities
- addition to the project mailing list
- local access issues and concerns
- rail overpass (urban design)
- proposed noise treatments and concerns
- other areas of South Road outside the project area (in the North–South Corridor)
- individual property issues.

The 1300 telephone information line averages 4–5 calls each week day, with issues such as:

- potential property acquisition for future North–South Corridor projects
- general project information
- concerns about potential or perceived construction impacts
- project timelines
- demolition enquiries/complaints
- relocation of services
- local employment opportunities
- business opportunities in the project (see Section 3.2.10).

The community engagement team is available on 1300 794 899 or dpti.t2t@sa.gov.au to address queries and provide the latest project information available. If staff cannot take your call, please leave a message and the team will get back to you as soon as possible.

3.2.9 Ongoing meetings with the City of Charles Sturt

DPTI meets with officers from the City of Charles Sturt on a fortnightly basis to discuss issues and concerns raised by residents, elected members or council staff.

The City of Charles Sturt also held a meeting at the project site office with residents of Hurtle Street to discuss their concerns about possible changes to the current concept design, at the time, which would impact on planned arrangements in this location.

The City of Charles Sturt will remain a key stakeholder throughout the life of the Torrens Road to River Torrens Project.

3.2.10 Use of local industry

Local industry

The Industry Participation Advocate, Mr Ian Nightingale, was appointed by the Premier of South Australia in February 2013 to further the aims of the Industry Participation Policy, ensuring local businesses leverage maximum opportunities from the \$3.8 billion in contracts let annually by the State Government. As part of his role, the advocate is working with DPTI to identify new ways to drive local investment and develop strong value chains from the state's portfolio of major projects such as the Torrens Road to River Torrens Project.

The benefits to government, the community and local businesses can be significant when tendering and procurement functions are delivered in a strategic and integrated manner. The advocate aims to increase awareness of how important the contribution from local companies is to the South Australian economy. Many of our companies are leaders in their field and it is the government's vision to build and maintain the skills and capabilities needed to successfully compete for government contracts.

Local business opportunities

To express interest in business opportunities that may arise during this project, local companies are encouraged to register online and list the specific products and services they can provide.

As part of this major construction work the project Alliance will be keen to maximise local industry participation. Registration is through the Industry Capability Network at <http://gateway.icn.org.au/>

The register has been made available to the T2T Alliance and will continue to be used throughout the major works contract.

3.2.11 Community Liaison Group

DPTI formed two Community Liaison Groups (CLGs) during the planning study: one focused on inputs into the design development of the rail overpass over South Road; the other helping the project team address local issues arising from the South Road upgrade plans in general.

Moving into the detailed design and construction phase, DPTI has formed a new single Construction Phase CLG as a forum for local residents and businesses to discuss and exchange information about the project. Members were sought from the local community to represent local residents, business, community and environmental groups, and local government.

The CLG works within a consultative framework rather than being a decision-making group. The project team carefully considers all input from the group, in light of overall project objectives as well as statutory requirements and government policy. Responsibility for all decisions remains with DPTI.

The Construction Phase CLG has been formed to:

- create a forum for discussion and exchange of information on the different elements of the Torrens Road to River Torrens Project
- assist the project team to identify local issues or concerns, and possible solutions to them
- provide a broad representation of local community interests and views, as opposed to individual interests, that will help shape the project
- act as a two-way communication link between the project team and community, and disseminate accurate information through existing community networks.

A call for nominations to the Construction Phase CLG in the project newsletter distributed to some 11,000 properties and businesses in the project area, and through the project website www.infrastructure.sa.gov.au did not achieve the required quota of business, community and environmental groups.

After discussion with CLG members and local councils, a targeted request for nomination was made and the Construction Phase CLG now has a full complement of members:

- 8 x local residents (combined total from Zones 1, 2, 3, 4)
- 4 x local businesses (combined total from Zones 1, 2, 3,4)
- 4 x local community/environmental groups (combined total from Zones 1, 2, 3, 4)
- 4 x local government representatives (2 City of Charles Sturt, 2 City of West Torrens)
- 2 x DPTI representatives (project team).

The four geographical zones designated for the project area are shown on the project website www.infrastructure.sa.gov.au:

- Zone 1: Overland Road to Hawker Street
- Zone 2: Hawker Street to Port Road
- Zone 3: Port Road to Gawler Avenue
- Zone 4: Gawler Avenue to Ashley Street.

Between December 2014 and June 2015, the CLG will meet every second month and, once construction begins, on a monthly basis or as needed. Meetings are kept as informal as possible to encourage, open two-way communication.

Contact the CLG at DPTI:T2T@sa.gov.au or a local representative listed at www.infrastructure.sa.gov.au

Meeting agendas and records of discussion can also be found on the website. Records of discussions and agendas from the Planning Phase CLG (active August 2013 to March 2014) can be found in Appendix B.

3.3 Landscape, visual amenity and urban design

Figures 3.4, 3.5 and 3.6 illustrate the overall landscape concept design for the Torrens Road to River Torrens Project. Figure 3.6 uses the extension of the lowered road and associated landscape treatments north of Hawker Street.

The urban and landscape design story for the project precinct, reinforces the established green streets and heritage character around Croydon, complemented by the tree-lined green corridor along the River Torrens.

Taking cues from nature, a graphic pattern will form an abstract repetitive motif for the suite of urban design elements including noise barriers, bridge panels and abutments. The scale of patterning will be complementary to the surrounding predominant residential character and the linear nature of the corridor.

The lowered non-stop road retaining wall patterning is designed for a high speed environment. Horizontal lines weave up and down with increased frequency as a landmark is approached and recede once passed. The lines are complemented by coloured panels, adding vibrancy to the pattern, reinforcing the precinct theme and helping with way finding.

3.3.1 Urban design of Outer Harbor rail overpass

Design workshops were held on 20 August, 22 September and 1 December 2014, with residents of Euston Terrace and Day Terrace between South Road and Queen Street rail crossing. These workshops were to develop an urban design concept for the Outer Harbor rail overpass (including appearance of embankment walls, pedestrian overpass and landscape/streetscape elements).

The design of the rail overpass, including construction materials and urban design, will be finalised by the T2T Alliance. The design, including the choice of materials, will be somewhat governed by engineering and safety requirements, but urban design, landscaping and integration into the local environment will be a priority.

The embankment design on the eastern side of South Road, in predominantly commercial and industrial areas of Hindmarsh, Ridleyton and Brompton, is likely to be a complementary but simplified version of the design on Day Terrace and Euston Terrace.

As the design process continues, the project team will continue to work with Council, nearby residents and the local community to develop an appropriate landscape and urban design solution that minimises the structure's impact on local amenity and environment.

Council officers and the local community will be invited to comment on different aspects of the landscape design, including species selection, planting location and maintenance requirements. Approval for tree removals associated with the project will be sought in accordance with legislative and Council requirements.

Figure 3.7 shows the landscape and urban design concept plan for the Outer Harbor rail corridor between Queen Street and South Road. Figures 3.8 and 3.9 show the landscape

and urban design concept design for the rail overpass in the Day Terrace and Euston Terrace elevations.

3.3.2 Use of surplus land for new open space areas

Figures 3.4, 3.5 and 3.6 show locations of surplus land which could be converted to public open space:

- The parcel of land on Jervois Avenue/Grey Avenue, West Hindmarsh may be retained as a stormwater detention basin and informal open space area.
- Land adjacent to the substation and bounded by Princes Street, South Road and Euston Terrace in Croydon could be developed as a detention basin and informal open space area.
- The triangular parcel of land opposite St Barnabas Anglican Church on the corner of William Street and Elizabeth Street, Croydon, could be developed as a formal park with a playground and barbeque facilities for use by the local community.

A large parcel of land opposite the Ridleyton Shopping Centre could be made available as a detention basin and public open space area. (DPTI is also investigating other development opportunities for this parcel of land).

Where space permits, a number of smaller landscaped pocket parks may also be created within the road reserve along the corridor (particularly on the western side of South Road between Outer Harbor rail line and Hythe Street). These pocket parks allow space for trees and other vegetation to be planted within the road corridor to enhance the journey experience for pedestrians, cyclists and other road users (Figure 3.10).

DPTI will continue to work with Council officers, CLG representatives and the local community to develop appropriate design solutions for surplus land and open space areas.

3.3.3 Community park, corner William Street and Elizabeth Street

The quality open space for local residents in the William Street–Elizabeth Street Park will incorporate a range of active and passive recreational activities. A playground, barbeque facilities, seating and shelter structures, surrounded by an open lawn area, will create a convenient location for community functions.

The location of Saint Barnabas Anglican Church opposite the park encourages inclusion of local community elements and artwork into the space, making it a desirable destination for the community. The surrounding streetscape will come alive with connecting shared use paths and plantings of shade trees that create a green edge to the adjacent streets.

The park will incorporate a memorial for the Croydon Church of Christ. DPTI will work with the community and the City of Charles Sturt to develop an appropriate design for this park.

Figure 3.11 shows the landscape and urban design concept plan of the William Street–Elizabeth Street community park.

3.3.4 Vegetation

In addition to the removal of vegetation to accommodate the works on South Road, some vegetation will also need to be removed from the Port Road median, Day and Euston Terrace (rail overpass) and other east / west arterial roads.

The removal of amenity vegetation generally requires replacement planting to be undertaken generally at a rate of 1:1. Where feasible, replacement plantings will occur as close as possible to where the clearance is undertaken in order to compensate for the loss of amenity in the immediate locality.



NOTE: Trees shown at maturity

- 01 Vehicular bridge widening over River Torrens
- 02 Pedestrian bridge over River Torrens
- 03 Pocket parks
- 04 Jervis Avenue Park with stormwater detention
- 05 Grange Road gateway (iconic art potential)

- 06 Existing Linear Park trail
- 07 Median Landscaping
- 08 Hindmarsh Cemetery

NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens

Figure 3.4
Landscape concept plan
River Torrens to Grange Road

Source: ASPECT Studios, DPTI, Date: 10/03/2015, SRPS DocID: 435



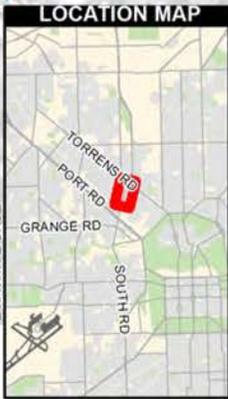
NOTE: Trees shown at maturity

- 01 Rail Bridge
- 02 Shared Use Bridge
- 03 Pocket Parks
- 04 Princes Street Park
- 05 Bikeway link to city
- 06 New shared path
- 07 Shared use ramp connection to McInness Street & South Road
- 08 Noise barriers along property boundary
- 09 Existing level crossing
- 10 Existing playground
- 11 Median landscaping
- 12 Existing power sub station

NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens

Figure 3.5
Landscape concept plan
Grange Road to Hythe Street

Source: ASPECT Studios, DPTI. Date: 10/03/2015. SRPS DocID: 436
DRAWING SK02



NOTE: Trees shown at maturity

- ① Noise barriers along property boundary
- ② Noise barriers road side
- ③ Pocket parks
- ④ Elizabeth Street park
- ⑥ Temporary landscaping within median
- ⑦ Harriet Street park (detention basin)

NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens

Figure 3.6
Landscape concept plan
Hythe Street to Torrens Road

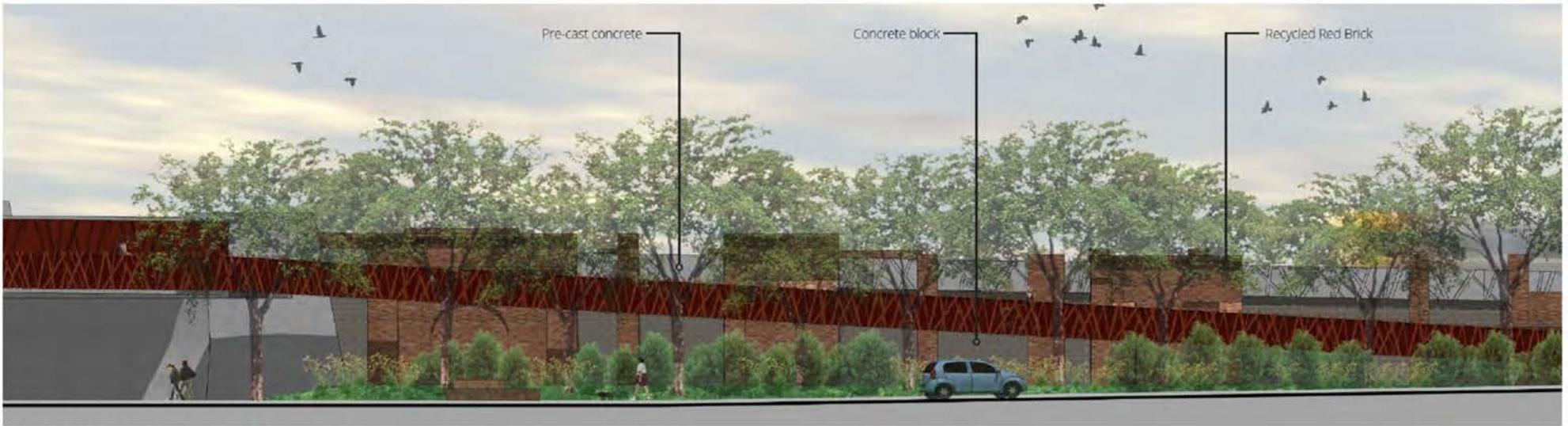


NOTE: Trees shown at maturity.
Final location for car parks to be determined.

- Ⓢ Existing level crossing
- Ⓢ New tree planting
- Ⓢ Pocket park with custom recycled red brick seating
- Ⓢ Pedestrian bridge
- Ⓢ Pedestrian ramp connection to McInness Street & South Road
- Ⓢ Retain existing street trees/ new tree planting
- Ⓢ Princes Street Park with stormwater detention

**NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens**

Figure 3.7
Rail Overpass
Landscape and urban design concept plan



DAY TERRACE EAST - ELEVATION



DAY TERRACE WEST - ELEVATION

NOTES: Trees shown at maturity.
To be further developed with local community group.

NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens

Figure 3.8
Rail Overpass
Day Terrace elevation



EUSTON TERRACE EAST - ELEVATION



EUSTON TERRACE WEST - ELEVATION

NOTES: Trees shown at maturity.
To be further developed with local community group.

NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens

Figure 3.9
Rail Overpass
Euston Terrace elevation



NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens

Figure 3.10
Artist's impression of the William Street - Elizabeth Street community park concept design

Source: ASPECT Studios. DPTI. Date: 6/03/2015. SRPS DocID: 440



PLAN



SECTION - TYPICAL

- 01 Concrete path
- 02 Gravel area
- 03 Recycled red brick seat
- 04 Tree planting with understorey shrub planting to soften wall
- 05 Lawn area
- 06 Playground
- 07 Shelter with BBQ
- 08 Noise barriers
- 09 Existing church

**NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens**

Figure 3.11
William Street - Elizabeth Street community park concept plan

3.4 Noise and vibration

The road and rail components of the Torrens Road to River Torrens Project have the potential to change noise levels to noise sensitive receivers (e.g. residential dwellings).

Minimisation of project-related construction and operational (road/rail) noise and vibration is a major consideration for the project. A project-specific Construction Noise and Vibration Management Framework will be developed and contractors will be required to adhere to the constraints stipulated while performing works, to ensure impacts are reduced and kept within acceptable levels.

Noise barriers will be installed in the road and rail corridors to offset short-term and long-term noise impacts for local noise sensitive receivers.

The operational noise assessment and mitigation process will be completed in accordance with the requirements of both DPTI's *Road traffic noise guidelines* and the Environment Protection Authority (EPA) *Guideline for the assessment of noise from rail infrastructure*.

3.4.1 Design and location of noise barriers

Noise barriers will be designed to complement the architectural and consistent urban design theme being developed for all new infrastructure elements along South Road.

The current design of the project proposes that noise barrier locations primarily follow existing property boundaries. The intention is to create a safe, aesthetic and functional environment for both passing commuters and the local community. The proposed barrier locations prevent the creation of small pockets of surplus land behind the barriers with potential access, safety and maintenance issues. The barrier locations shown on the western side of South Road in Figure 2.2 are not final and will be revised as more detailed noise modelling data and other urban design considerations are made available.

The construction materials, colour, height and urban design of noise barriers will be determined during the detailed design phase of the project. Where appropriate, heritage or community art elements may be incorporated at specific locations.

In general, noise barriers adjacent to urban areas along the North–South Corridor will incorporate the following urban design principles:

- In urban areas along the non-stop corridor, noise barriers should be designed as a feature element and not have the appearance of residential fences.
- Solid precast concrete is the preferred construction material for noise barriers within urban areas.
- Wall patterning may vary across the extent of the corridor but must be compatible with built sections and have a continuous rhythm or pattern.
- Joints between noise barrier elements should be carefully designed.
- Concrete textures should be simple and easy to maintain.
- Changes in height should be treated as a design element and appear deliberate and considered.

- Barriers should be predominantly light grey to match the colour used at the Gallipoli Underpass.
- Highlight colours should be used in moderation to provide visual interest in the context of the local environment.
- Coloured translucent panels should not be placed in a way that projects coloured light into habitable spaces or yards.
- Acrylic should be used sparingly to provide some transparency and (where appropriate) to capture views to borrowed landscapes either inside or outside the corridor.
- On elevated structures, bridges and overpasses, translucent screens should be used in strong bands of a predominant colour with other colours being gradually interspersed or used as counterpoints.
- Both faces of noise barriers should be considered and designed to suit the adjacent context.

3.4.2 Operational noise assessment

A preliminary noise assessment measured existing road and rail noise levels (collected before May 2013) at numerous locations in the project area and preliminary modelling predicted future noise levels based on the project's concept design. The assessment and modelling were used to understand the likely effects of the project and identify possible project noise attenuation treatment options.

More comprehensive operational road and rail noise assessments are currently being undertaken. The first stage is noise modelling (predictions) and ascertaining possible solutions to reduce noise levels by:

- using noise modelling of existing noise levels to predict future noise levels at project opening and at least 10 years after opening
- determining the most suitable methods to mitigate noise to the criteria defined under the DPTI and EPA guidelines for road and rail
- analysing and optimising the noise barrier heights and locations to achieve the greatest benefit based on the project's current concept design
- investigating whether additional noise mitigation treatments are likely to be required at residential houses to achieve the noise criteria.

Noise barriers will be installed as the primary noise mitigation measure but, if they do not reduce levels enough to reach targets, supplementary measures such as property specific acoustic treatments (e.g. window and/or door seals) will be considered.

Where applicable, the extent of individual house noise treatment is determined by the extent of further noise reduction required to reduce residual noise to acceptable levels.

DPTI has begun the process of informing and consulting property owners/occupants of the proposed details of noise barrier design and locations. As final design progresses, DPTI will again be in close consultation with owners/occupants, in particular where noise walls are proposed on property boundaries, and where specific houses may be eligible for

individual acoustic treatment (e.g. beside sections of the road corridor and/or near openings in the noise barriers for local road access).

The second stage of the noise assessment can be undertaken during the project's detailed design phase and includes:

- further modelling and finalising of noise barrier locations, heights, construction materials, colours and finishes and urban design
- clarifying, in consultation with individual property owners, whether individual acoustic house treatments in addition to noise barriers are considered reasonable and practicable in accordance with the relevant guidelines.

Initial property/house inspections

Where properties have been identified through the first stage of the noise assessment process as potentially requiring noise treatments, property owners/occupants are being contacted by the project team to arrange an initial property and house inspection. This process began in early 2015 and should be completed in August 2015.

The purpose of the initial property inspection is to:

- consult with and further inform the property owners/occupants of the noise modelling and mitigation process
- identify the existing façade construction (e.g. glazing thickness, door type), significant pathways for noise to travel through the building façade (e.g. external vents and gaps around windows and doors) and building layout (e.g. bedroom locations) – to help the project team determine if additional noise treatment is needed and, if so, its design
- identify construction impacts or constraints to installation of the noise barriers on property boundaries (e.g. location of vegetation, sheds, pergolas and other structures, irrigation and other buried services), secure temporary fencing locations and assess mitigation and management of these impacts
- outline the typical construction process and sequence.

Inspections are undertaken by the relevant contractors (acoustic engineer, architect), accompanied by a member of the DPTI project team. Not all properties inspected for potential acoustic treatments will require treatment.

Measures to treat noise from the rail overpass, if required, will be installed on the overpass itself and therefore not require house inspections.

Property specific noise treatment design and licence agreements for installation

Once a property is established as eligible for acoustic treatment, the property owners/occupants will be contacted by the project team to arrange a time to discuss finalising of scope of works and installing noise treatment at their property.

For those properties, a preliminary scope of works will be provided and explained at this time, along with further detail on noise barrier type, location, height and installation process. The construction sequence and methodology will be clarified for any works being undertaken on the property or property boundary. A licence agreement will be established

with the property owner to authorise the project contractors to be on site. The agreement will set out terms including:

- the agreed scope of works to be undertaken
- timing of the works
- access requirements
- any works necessary to enable installation (e.g. removal of existing fence, installation of temporary secure fencing, vegetation removals or removal of window treatments)
- any clean up, reinstatement works required to remediate the properties like-for-like
- future maintenance requirements and access to the noise barrier for condition inspection, repairs and other necessary activities.

Timing of noise mitigation installation

Noise barriers will be installed as early as practicable in the project construction process. However, a number of steps need to be completed before installation can take place:

- Road design – the detailed road design (e.g. final positioning of road lanes, type of asphalt surface) must be substantially completed so that noise modelling can be finalised.
- Noise modelling and noise mitigation design – noise modelling, based on the final road design, will determine the final height, location and acoustic design of the noise barriers. The extent of treatment is based on the predicted noise level above the target and can be determined only when detailed road design is completed.
- Noise barrier structural design – noise barriers will be appropriately designed to meet Australian Standards (including footing design).
- Services – in some locations, mainly along the western side of the road corridor, services (e.g. telecommunications, water, sewer) will need to be installed underground. These areas have limited space in the road verge (i.e. between road kerb and property boundary). The design and location of noise barriers will need to consider the location of existing and new underground services. In some locations, services may need to be installed before the noise barriers.
- Construction programming – the timing of other elements of the project to be constructed may restrict access.
- Property owner/occupant agreement – individual licence agreements must be signed by property owners/occupants before any works are undertaken on the property.
- Construction access – continuous sections of noise barrier will be installed for groups of properties, rather than on an individual property by property basis. Completion of each noise barrier section will depend on resolving individual property constraints, access requirements and reaching agreement with all property owners in that section.

A delay in any of these areas could delay installation of the noise barriers.

Similarly, for houses identified as eligible for receiving noise treatment, a number of activities also have to occur, such as finalising the road design, finalising noise modelling and mitigation design, and reaching property owner agreement.

Property owners and occupants are encouraged to contact the project information line (1300 794 899), or talk to the project team during the inspections to discuss any issues or concerns relating to the noise treatment process.

3.4.3 Construction vibration management

During construction, nearby residents may feel vibration from works such as excavation, piling or soil compaction, and movement of heavy vehicles. It is not always possible to reduce vibration to unnoticeable levels.

The perception of vibration is often accompanied by concerns of structural damage to property. However, vibrations felt from construction works do not necessarily cause damage to property.

DPTI initiates measures and construction constraints that aim to prevent damage and minimise the effect of construction vibration, such as:

- operating equipment on the lowest effective vibration setting
- maintaining low speed limits for construction trucks and machinery
- managing and maintaining equipment to minimise vibration
- considering using alternative construction methodologies where necessary.

The project team will advise nearby residents when significant vibration is likely to occur.

The German Standard *DIN 4150-3, 1999, Structural Vibration – Part 3*, the internationally excepted standard: *Effects of vibration on structures* sets conservative limits for vibration that a structure can be subjected to, to ensure no structural damage. Properties identified as either being in close proximity to construction activities that will cause significant vibration, and/or are particularly sensitive to vibration, will, as a precautionary measure, be given a property condition assessment (or dilapidation survey). The need for the assessment is based on the type of construction activity (e.g. use of a vibratory roller), likely vibration levels from that activity, distance of the building from the activity, sensitivity of the building (e.g. heritage listed) and the limits in German Standard DIN 4150-3.

3.4.4 Property condition assessments

DPTI does not expect construction works to have any negative impact on the condition of properties. For properties identified as requiring a property condition assessment, DPTI will arrange for an assessment to be undertaken before significant construction activities begin.

The assessment document forms a record of the existing structural condition of the property before project construction activities begin and can be referred to in the future if required.

Property owners/occupants eligible for property condition assessments will be contacted by the project team to arrange an inspection. The inspection will:

- be at no cost to property owners or occupants
- take approx 1–2 hours
- involve a visual inspection (internal/external walls, floor, external paving/concrete, exposed footings, other structures (e.g. sheds, pools, pergolas))

- not damage the property or disrupt activities
- include written and photographic record of the condition of the property.

Property owners will be provided with a copy of the assessment report.

3.5 Socioeconomic effects

3.5.1 Property values

Where similar road infrastructure projects have been undertaken interstate and overseas, the trend has been for surrounding land values to increase over time. Strong anecdotal evidence Australia-wide links the announcement and development of major road freight infrastructure (e.g. freeways, expressways and major arterials) with rises in both residential and industrial land values, and rates of land consumption specifically related to that infrastructure investment.

Any impact on property values in the area surrounding the project can only be evaluated post construction. Noise mitigation, landscaping and some local road closures that will be put in place are expected to help to mitigate the impacts from the changed conditions to properties.

3.6 Traffic and transportation

3.6.1 South Road/Port Road – right turn movements

The PAR introduced the removal of right turns from South Road onto Port Road to reduce delays. Drivers intending to make these turns will instead be catered for by redirection to signalised U-turn facilities on Port Road (Figure 3.12).

Traffic modelling shows that, of the total estimated 80,000 vehicles per day that use this intersection, fewer than 3% currently turn right from South Road onto Port Road. This, along with the current intersection arrangement, can lead to lengthy delays for drivers making this turn. Traffic models estimate that two-thirds of the north–south traffic on South Road will use the lowered road and travel under the Port Road intersection. Even at this much reduced traffic volume on the at-grade South Road/Port Road intersection, fewer than 3% of traffic would be turning right (if permitted).

Travel times for drivers currently making these turns has been measured and compared with the travel times modelled for the same movement (via the U-turns) on project completion (Table 3.1). This comparison clearly shows that although they travel slightly further, the trip is faster around the U-turn than the current right turn.

In addition, congestion and queues formed during train movements through level crossings make current travel times highly variable. On project completion, with most north–south traffic using the non-stop section of roadway, lower and more uniform travel times are expected.

Table 3.1. Travel time comparison for Port Road U-turns

Movement	Current conditions (with right turns)		Modelled conditions on project completion (with U-turns)	
	Distance (km)	Peak hour average time (min)	Distance (km)	Peak hour average time (min)
Southbound on South Road, from Hawker Street to Port Road/Rosetta Street	2.5 km	8.5 min	3 km (Extra 0.5 km)	6 min
Northbound on South Road, from Ashwin Parade to Port Road/Chief Street	2.2 km	17 min	3 km (Extra 0.8 km)	8 min

The removal of the right turns from the intersection, along with design modifications that reduce the width of the Port Road median, will save substantial travel time for drivers. More green time in the traffic signal sequence will be allowed for other more significant movements. On completion of the project at the end of 2018, the average delay for drivers using this intersection during peak periods is expected to be approximately 20 seconds less than an intersection layout that includes these right turns. This reduction is predicted to become more than one and a half minutes by 2031.

The removal of the South Road/Port Road right turns also brings project savings with a simplified bridge design at Port Road. DPTI is continuing to work with the T2T Alliance to optimise the design of the Port Road/South Road intersection.

The proposal to bypass the electrical substation is not related to removing these right turns. The refined concept design shows that shifting the alignment to the east reduces the level of risk to the project’s delivery. It is estimated that construction time will be reduced by one year, therefore lowering local community impact.

A number of responses to the PAR from members of the public did specifically comment on removal of the right turns. The Royal Automobile Association (RAA) of South Australia, the principal advocate for road users in South Australia on a broad range of motoring-related issues, supported the proposal. The RAA acknowledged that the removal of the right turns would be counter-intuitive to many, but would provide a positive safety benefit and reduce delays.

Drivers will still be able to turn right from Port Road onto South Road.

Restricting right turn movements in this way, when viable alternatives exist or can be created, is being considered for other signalised intersections across the Adelaide metropolitan network. This is an effective way to keep traffic moving in Adelaide and help to drive the South Australian economy, by making the best use of existing road infrastructure within the constraints of limited funding available in the current climate.

3.6.2 Local road modifications

With changes to the existing local access arrangements described in the PAR, traffic will have some redistribution in the local road network. Members of the public have expressed concerns about the potential for increased volumes of traffic rat-running through the local streets during construction.

The State Government is working collaboratively with the City of Charles Sturt to identify existing local traffic issues in the immediate project area, estimate the impact that modified access arrangements will have on current traffic volumes and determine preferred local road improvements to mitigate these impacts. Possible local area traffic management measures may include:

- roundabouts
- 40 km/h speed zones
- local traffic only signage
- slow points and speed cushions
- threshold treatments at intersections to encourage traffic calming.

A Local Area Traffic Management Report that summarises these impacts and proposed measures is currently being prepared and is expected to be released in October 2015.

3.6.3 West Hindmarsh access

Since funding was first committed to the Torrens Road to River Torrens Project in May 2013, engagement with the local West Hindmarsh community has identified existing issues for drivers wanting to exit the suburb, primarily in a southerly direction, but also onto Grange Road.

The Planning Phase CLG made a recommendation for a one-way road bridge across the River Torrens near Barpowell Street, Welland and a number of submissions also related to construction of this bridge. DPTI made a commitment to the CLG to investigate the proposal.

A road bridge across the River Torrens was not supported by the City of Charles Sturt, nor the City of West Torrens. Residents in the immediate area raised objections about the potential for increased traffic, particularly unintended rat running from Grange Road to Ashwin Parade.

Other factors taken into consideration were:

- cost
- connection to a privately leased road on the southern side of the river
- environmental impacts.

DPTI has no plans to build a road bridge across the River Torrens.

For southbound movements out of West Hindmarsh, a signalised U-turn facility will be installed at the South Road intersection with Grange Road–Manton Street, as part of the Torrens Road to River Torrens Project.

Investigations are also underway into options for improving right turn access from West Hindmarsh onto Grange Road before major construction works begin.

A proposed shared-use pedestrian/cyclist bridge across the River Torrens near McDonnell Avenue would link with existing cycle paths and provide access to public transport, and retail, community and recreational facilities.

This bridge would improve links between recreational and commercial facilities on the southern side of the river and recreational facilities on the northern side, including River Torrens Linear Park and cycling and walking paths through the project area.

3.6.4 Port Road median car parking

The PAR concept design impacted on existing car parking in the Port Road median on both the eastern and western sides of South Road, accessed from the Rose Street and Queen Street median crossovers respectively.

The current concept plan for the Port Road median (Figure 3.13) highlights the changes to traffic control and parking modifications within the median.

On the eastern side of South Road a total of 130 car parks are accessible from the Rose Street and Coglin Street median crossovers. The design will seek to offset the impact to the central median parking, such that there is no net loss of parking in this area. The parking area accessible off Coglin Street will need to be extended, which impacts on the current location of the canon. The building in the median between Coglin Street and Ann Street is unaffected. To improve safety benefits, the Coglin Street and Ann Street median crossovers are proposed to be one way only.

On the western side of South Road, the concept shows the U-turn relocated to a signalised Port Road/Queen Street intersection. This modified layout accommodates the U-turn facility, addressing existing access at Queen Street, which was identified in discussions with the City of Charles Sturt and members of the community. The large parking area off the Queen Street median crossover is informal: it is not line marked, and is partially sealed and partially unsealed. The parking shown on the concept here accommodates approximately 65 parks (Figure 3.13).

3.6.5 Outer Harbor Greenway

The Outer Harbor Greenway is a dedicated walking and cycling route that generally follows local streets fronting the Outer Harbor railway line. As part of the Torrens Road to River Torrens Project, the greenway will be carried across South Road over the new rail overpass.

On the eastern side of South Road, the PAR proposed that the greenway connect back to ground level along a ramp at the South Road/McInnes Street intersection. A number of public responses suggested that the greenway continue towards the city for commuter cyclists, in a more direct way within the rail corridor between South Road and Coglin Street. This has been investigated and has now been incorporated into the concept design, in addition to the ramp that connects back at the South Road/McInnes Street intersection (Figure 3.14).

The greenway is nearing completion between River Torrens Linear Park in the Adelaide Parklands and Port Adelaide. A crossing point has not been installed at the South Road/Day Terrace intersection, as it would need to be closed when construction begins for the Torrens Road to River Torrens Project.

Potential temporary detour routes through the South Road construction site for cyclists using the greenway have been investigated, and the proposed route is shown in Figure 3.14.

Works to facilitate the temporary detour will include installing signage, linemarking and a bicycle facility on Port Road at Queen Street. This crossing aligns with where the proposed traffic signals will be installed (Section 2.2).

Westbound cyclists will exit the greenway at Gibson Street, Bowden, and use First Street and Station Place to access the existing pedestrian actuated crossing at the Adelaide Entertainment Centre tram stop on Port Road. This allows cyclists to safely cross Port Road and continue in a westbound direction on Port Road using the existing cycling facilities. Cyclists are then able to re-enter the greenway via Queen Street, Croydon by crossing Port Road using the new bicycle facility.

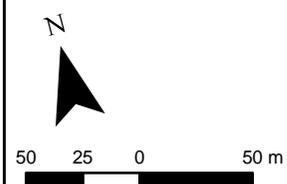
Eastbound (city bound) cyclists will be detoured onto Port Road from Queen Street, where existing cycling facilities can be used to cross South Road. Cyclists can then continue east on Port Road, turn left onto Coglein Street and continue onto the greenway, which currently follows First Street. Cyclists can also utilise the existing facilities at Hawker Street to cross South Road.



Source: DPTI Date: 17/04/2015. SRPS DocID: 424

**NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens**

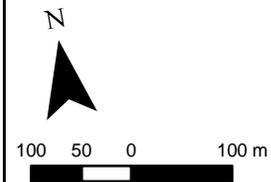
Figure 3.13
Proposed parking in Port Road median



- Indicative noise barrier location
- Remaining land (land use to be determined)
- Rail overpass
- Footpath
- Median/island
- Lowered road
- Surface road (ground level)



Source: DPTI Date: 10/03/2015. SRPS DocID: 425



- Existing greenway
- Eastbound detour
- Westbound detour

**NORTH-SOUTH CORRIDOR
Torrens Road to River Torrens**

Figure 3.14
Outer Harbor Greenway
temporary detour routes

3.6.6 Hindmarsh access

Improved U-turn facilities are required on Port Road to accommodate the redirected right turn movements from South Road. On the eastern side of Port Road, the U-turn facility will be integrated into the Port Road/Coglin Street junction so that it is located beyond the right turn lanes for traffic leaving the city on Port Road.

The right turn movement from Coglin Street will also be redirected through a left turn on Port Road then a U-turn at an upgraded facility at the Port Road/Anne Street junction. The advantages of this arrangement are that it:

- removes uncontrolled right turn movement from Coglin Street across three lanes of traffic, reducing the potential for right angle crashes on the inbound carriageway of Port Road
- provides a right turn lane on Port Road for vehicles entering Coglin Street, increasing available storage and improving the efficiency for outbound Port Road traffic by limiting interaction between through and turning vehicles
- reduces the potential for short stacking across the Port Road median (the latest turning count at this location observed several cases of the drivers of articulated vehicles exiting Coglin Street crossing during the South Road traffic phase, misjudging the available storage in the median and blocking the median traffic lane on Port Road)
- reduces the number of conflict points at the Port Road/Coglin Street junction.

The north-eastern corner of the Port Road/South Road intersection has been identified as a Prime Industrial Area. This area contains a number of significant industrial operations that have a heavy reliance on vehicle access from Port Road via Coglin Street in particular. The existing industrial right turn traffic from Coglin Street is likely to head outbound on Port Road or turn in either direction along South Road. With the changed access arrangements on South Road and at the Port Road/Coglin Street junction, there is limited benefit for traffic heading back through the local road network to access South Road. Traffic is still able to exit at Coglin Street onto Port Road and then U-turn at Anne Street to access the Port Road/South Road intersection, where all turning movement options are available

3.7 Air quality

3.7.1 Dust management

Local residents should expect some dust impacts associated with the construction of the project. The main sources of dust from construction are likely to be:

- excavation and loading of excavated material into trucks
- heavy vehicle movement on unsealed haul roads
- wind erosion on exposed surfaces.

Measures to minimise the effect of construction dust on the community and environment will be developed and included in the Construction Environmental Management Plan, to be developed by the T2T Alliance. They will include:

- watering of the work areas and temporary paving of haul roads to suppress dust

- limiting on-site vehicle speeds
- removing excess dirt and mud from construction equipment before it leaves the site
- covering loads carried by trucks
- frequently inspecting public access routes for any spilt material and promptly cleaning them as required.

Dust will be monitored throughout the construction phase to identify significant dust issues and construction methodology will be altered where practical.