Chapter seven – Construction

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Staging and construction

The Gold Coast Rapid Transit route travels through some densely urbanised areas which presents some challenges for construction. It’s clear that construction of a project of this scale needs detailed planning and management in order to minimise impacts on traffic, the environment and the local community.

One of the concerns raised by key stakeholders and the community has been about the impact that construction of the Gold Coast Rapid Transit system will have on the city.

As part of the draft Concept Design and Impact Management Plan a constructability report was undertaken to look at this issue in more depth.

This report included consideration of:
- proposed staging of construction
- key risks that may impact on construction timescales
- construction hours
- construction impacts and mitigation strategies
- construction considerations for key locations
- construction safety management.

During construction the Gold Coast Rapid Transit project will require the construction contractor/s to:
- promote the highest levels of safety for all road users including pedestrians
- minimise the impact on the traffic network as far as reasonably practical whilst promoting efficient construction methods
- listen to concerns and work with the community and stakeholders to manage impacts associated with construction
- maximise access to business and residential properties
- minimise impacts to the city.
Construction period and staging

It is estimated that construction and commissioning of sections two and three will begin in 2011 and is likely to take around 30 months. It’s likely that different sections of the route will be constructed concurrently. There is an opportunity for early works, in advance of the main construction program, that may include bridge construction and service relocation.

Completion of this work early, and independently of the main Gold Coast Rapid Transit construction activity, could help minimise impacts on traffic and the community and make construction of the Gold Coast Rapid Transit infrastructure quicker and more efficient. Potential for other early works will arise during the procurement phase of the project.

Possible areas of early works:
- new bridge for Gold Coast Rapid Transit (alongside Sundale Bridge)
- elevated structure crossing Smith Street and Loders Creek
- service relocation – this work could be undertaken immediately following property resumption prior to pavement and other reconstruction work to minimise length of impact.

Constraints that could affect the construction of the Gold Coast Rapid Transit project are:
- Major events and tourism activity – the large volume of visitors and traffic around major events could hinder construction. The key challenge will be constructing the system around the annual Indy event.
- Timing of construction of other major projects such as the Gold Coast Knowledge Precinct and the widening of Smith Street.
How will the infrastructure be built?

The construction activities for the Gold Coast Rapid Transit project are similar in many ways to those that would be undertaken in upgrading a major road on the Gold Coast. There will be some construction activities that are unique to the light rail system including track laying and overhead power supply, installation of the control systems, and construction of stations. The key construction activities will be as follows:

- **preliminary works** - this includes acquisition of acquired properties, works on impacted properties and removal/relocation of street furniture.
- **public utilities services relocation** - the location of the Gold Coast Rapid Transit route primarily within road corridors causes it to intersect with a large number of public utility services, for example telecommunication cables, electricity, water and sewage pipes.

A significant number of public utilities will need to be relocated to enable access for maintenance without disruption to the Gold Coast Rapid Transit operations.

**Construction**

The typical construction sequence is likely to be as follows:

- widening of the existing road reserve with reinstatement of new footpath and travel lane on one side of corridor
- construction of the rapid transit corridor: the construction is likely to be planned so that while one half of the running way is being constructed the other half is used as access for construction vehicles
- transfer of road vehicles on completed running way and reconstruction of travel lane and footpath on other side of the road
- station installed, landscaping completed.

**Commissioning**

Commissioning (testing) activities include the following:

- commissioning of third parties assets (roads, footpath, utilities)
- commissioning of the vehicles: test run and performance testing on a part of the corridor designated as a test area
- commissioning of the Gold Coast Rapid Transit system: this includes testing the interfaces with traffic signals and optimisation of traffic operations, testing the overhead power supply, testing the track switches on the running way, testing of communications and vehicle tracking with control centre, testing of real time information.
Construction scheduling

Feedback has told us that construction should:

• be planned to take into account the different ‘types’ of area, with different strategies for construction in residential, commercial and mixed use areas
• be planned to minimise impact during busy periods, such as Christmas and major events
• minimise impact on businesses and develop specific construction management plans for key locations such as Southport and Surfers Paradise
• minimise impact on residential areas where possible.

Construction sites and compounds

The location and operation of construction sites and compounds is still to be confirmed. Planning for construction sites and compounds will include signage, visual screens, a tidy site policy and environmental management plans. As a minimum a reinstatement policy will apply however where possible sites will be restored in a way that improves on the original site.

Sites that could be potentially suitable for construction compounds include areas in the vicinity of:

• Parklands Drive
• Loders Creek/Gold Coast City Council depot
• Equestrian Centre, Southport
• Suter Street car park
• Broadwater Parklands
• Carey Park, Southport
• Southport Croquet Club
• Sites of acquired properties.

However, before any of these sites are confirmed a full and detailed evaluation of the suitability of these areas as construction compounds will be carried out.

Construction impacts and mitigation strategies

The construction of the Gold Coast Rapid Transit project will be a complex and challenging task and, as such, a range of impact management plans have been developed in order to mitigate any potential impacts.

Feedback told us the main areas of concern are:

• duration of construction
• working hours
• disruption to traffic
• access for businesses
• noise and access for residential properties
• safety.
Mitigation strategies to address any impact on parking during construction are discussed in Chapter 8: Traffic and parking impacts, from page 193.

<table>
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<th>Impact</th>
<th>Mitigation strategies have been recommended as follows:</th>
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| **Duration of construction** | • construction should be planned by ‘type’ or area and work scheduled accordingly, for example in business areas it may be preferable to work longer hours and at weekends in order to reduce duration  
  • secure pre-commitments from other major construction projects and utilities suppliers to ensure work is coordinated  
  • proactively manage any potential delays  
  • have a Construction Liaison Officer for each area who can manage any arising issues, liaising between the community and the contractor. |
| **Working hours**        | • working hours should be location specific. In residential areas it may be preferable to limit night and weekend works to reduce noise and disruption impacts. However in business areas longer construction hours, including weekends, may be acceptable in order to reduce the duration of construction. These strategies will be further developed in consultation with the community and key stakeholders as part of the next stage of the project. |
| **Disruption to traffic** | • establish a traffic management group to coordinate with Gold Coast City Council and the Department of Main Roads to achieve the best possible traffic arrangements  
  • coordinate road closures or diversions with major events  
  • use detailed traffic modelling to plan diversions and the timing of construction works  
  • set up a community liaison group to help communicate changes to traffic arrangements  
  • improve public transport services during construction. |
| **Impact on businesses** | • provide regular information to businesses to allow them to forward plan business activity during construction  
  • maintain loading bays and access as far as possible  
  • avoid construction impacting key trading periods such as Christmas if possible  
  • provide signage for customers, diversions and direction to car parking  
  • explore options for alternative parking for employees who currently drive into key trading areas. |
| **Impact on residential properties** | • keep residents up to date with construction work information – regularly and consistently  
  • retain access as far as possible  
  • limit night and weekend work. |
| **Safety**               | • normal pedestrian/cycle routes to be maintained if possible  
  • use ground level pedestrian information and maps to show construction area and alternate access  
  • ensure adequate signage is in place  
  • implement safety management plans for each site in accordance with relevant health and safety standards  
  • ensure reduced/controlled speed environments, reflectorised signage, temporary road markings, site lighting and barriers to clearly indicate construction sites and operations. |
Construction considerations for key locations

The two areas which could potentially be most impacted by construction are Southport and Surfers Paradise. Some specific strategies have been developed to mitigate impacts in these areas however strategies will be further developed during detailed planning for the construction stage.

Southport

The Southport area is one location where construction of the Gold Coast Rapid Transit project will be challenging due to the volume of daily activity along the route and the volume of local traffic. However, unlike Surfers Paradise, the road reserve is wide enough (approximately 30 metres in Nerang and Scarborough Street) to allow co-existing construction activities and traffic in both directions.

Scarborough Street and Nerang Street will not be treated as one construction site: they will be divided into sections and although there will be some overlap in the sections, the bulk of the work will be sequenced and completed in one section before moving to the next.

The detailed construction program will aim to achieve completion of the bulk of the work within one calendar year.

The possibility to work extended hours in some sections will be investigated in the lead up to the construction period. Specific consultation with stakeholders and representatives of the business and residential community will take place.

Impact on traffic movements

During construction it’s likely that traffic will need to be re-routed along parallel routes such as Queen Street, Nind Street, North Street or the Gold Coast Highway with the use of early signage.

Local traffic will:

• no longer be allowed to complete a number of right turn movements during construction that will become a permanent feature once the Gold Coast Rapid Transit is operational, see page 122 for a diagram showing the future traffic network in Southport
• be limited to east bound only through Nerang Street between Davenport Street and Scarborough Street due to the location of the new Gold Coast Rapid Transit station.

Impact on parking

See Chapter 8: Traffic and parking impacts (from page 193) for full details of the impacts and mitigation strategies as a result of the Gold Coast Rapid Transit project. However during construction in Southport the Gold Coast Rapid Transit project will:

• remove on street parking (median and side) as late as practical in the construction process
• enhance signage to off-street parking through diversions that avoid the construction area
• provide a temporary car park in Carey Park.

Bus Interchange

Another specific construction issue in the area is the relocation of the existing bus interchange in Scarborough Street, see page 121 for more details. The relocation will take place prior to start of work in the northern section of Scarborough Street and buses will have their routes modified accordingly.
Impact on major intersections

There are 4 key intersections in the Southport area that will require a specific construction approach, due to the high volumes of traffic:

- Queen Street/Southport – Nerang Street
- Nerang Street/High Street
- Queen Street/Scarborough Street
- Queen Street/Ada Bell Way.

Significant reconfiguration of the intersections will be required involving complex underground and overhead utilities relocation. Lane restrictions will be necessary in the construction phasing. As these intersections are critical in the Gold Coast road network, daytime lane restrictions will be avoided where possible. Instead a combination of extended working hours (twilight and night) and weekend shut downs will be considered.

Surfers Paradise

The concept design for Surfers Paradise Boulevard proposes a change in general traffic arrangement, with the removal of the north bound traffic lane (except for a short section between Beach Road and Cavill Avenue). See pages 136 – 140 for full details.

It’s likely that Surfers Paradise Boulevard will not be treated as one construction site: it will be divided into sections and although there will be some overlap in the sections, the bulk of the work will be sequenced and completed in one section before moving to the next. Prior to the start of each section, on street parking will be removed and northbound traffic banned (except between the short section between Beach Road and Cavill Avenue).

It is anticipated that construction will temporarily halt during periods such as Indy, Schoolies and the Christmas period however construction works has been planned to take place over two consecutive years. However some sub-sections might be completed within a year.

The possibility to work extended hours, or to take a different approach in some sections, will be investigated in the lead up to the construction period. Specific consultation with stakeholders and representatives of the business and residential community will take place.

Impact on traffic movements

Through traffic on the Boulevard has significantly decreased as a result of the implementation of the Surfers Paradise Traffic Management Scheme.

Construction of the Gold Coast Rapid Transit system, and in preparation for the changes to traffic arrangements once the Gold Coast Rapid Transit is operational, will require:

- temporary closure of the south side of Cypress Avenue during construction with current traffic arrangements retained for the northern side of Cypress Avenue.
- followed by temporary closure of the northern side of Cypress Avenue and implementation of final traffic arrangements on the southern side of the avenue.
• closure of the northbound lanes on Surfers Paradise Boulevard and removal of parking from Cypress Avenue to Thornton Street to allow Surfers Paradise Boulevard to be widened where necessary
• reduction to one lane for southbound traffic on Surfers Paradise Boulevard with traffic travelling on the western side of the corridor to allow reconstruction of the ultimate southbound traffic lane on the eastern side of the corridor
• increased traffic on the Esplanade/Northcliffe Terrace and Ferny Avenue/Remembrance Drive resulting from through traffic avoiding construction on Ferny Avenue
• additional traffic controls and pedestrian fencing to facilitate safe operations during the construction period, due to the presence of high traffic volumes, multiple intersections and high pedestrian numbers.

Impact on parking
See Chapter 8: Traffic and parking impacts, from page 193, for full details of the impacts and mitigation strategies as a result of the Gold Coast Rapid Transit project. Parking in Surfers Paradise is ample, see page 205, and will not be adversely impacted by the construction of the Gold Coast Rapid Transit project apart from:
• on-street parking from Cypress Avenue to Thornton Street will be removed to allow Surfers Paradise Boulevard to be widened where necessary, loading bays, taxi and disabled spaces will be retained where possible or relocated in the vicinity.

Impact on intersections
There will be some impact on intersections in the vicinity of Surfers Paradise Boulevard due to construction. These include:
• Restricted access from side streets on the eastern side of Surfers Paradise Boulevard while work is conducted across existing intersections.
• Restricted access to Surfers Paradise Boulevard when traffic is switched to the final alignment on the eastern side of the corridor. (There will be major restrictions to side street access on the western side requiring closure of some streets during intersection construction).

Specific consultation with stakeholders and representatives of the business and residential community will take place to determine whether it may be possible to complete this work during night time periods to minimise the impact on motorists.

The right turn movement into Thomas Drive from Surfers Paradise Boulevard is an important access point to Chevron Island and will be maintained at all times during construction.
Construction safety management

Ensuring the safety of the public and construction personnel has been a key consideration during planning for construction of the Gold Coast Rapid Transit system.

A construction workplace safety management plan will be required as part of the construction contract. The safety management plan will comply with all relevant Australian safety standards and practices relating to traffic management. Safety standards will be monitored throughout the construction period in accordance with this plan.

The major safety issues that will be covered in the safety management plan are:

- traffic
- pedestrians
- cyclists
- construction personnel.

Traffic

To ensure the safety of traffic during construction the Gold Coast Rapid Transit project will:

- introduce reduced/controlled speed environments
- ensure a minimum 3 metre traffic lane width
- install reflectorised signage
- use site lighting for night works
- install temporary line marking with reflectorised markers to clearly delineate traffic lanes
- erect barriers and clear zones to suit speed environment and site conditions.

Pedestrian Safety

To ensure the safety of pedestrians during construction the Gold Coast Rapid Transit project will:

- provide designated pedestrian traffic controllers where alternative routes are required or safety issues exist
- construct safe temporary footpaths if diversions from the normal route are required
- construct temporary barrier fencing to prevent pedestrian access to construction sites
- erect signage and fencing to designate footpaths and direct pedestrians
- provide temporary signals, if necessary, for road crossings
- erect barriers and clear zones to protect pedestrians from general traffic
- use site lighting for night works operations.
**Cyclist Safety**
To ensure the safety of cyclists during construction, the Gold Coast Rapid Transit project will:
- maintain a clean road surface
- erect signage to make vehicle traffic aware of cyclists
- instigate controlled speed environments
- erect barriers and clear zones to protect cyclists from general traffic
- use site lighting for night works operations.

**Worker Safety**
To ensure the safety of construction personnel during construction, the Gold Coast Rapid Transit project will:
- reinforce safety procedures at daily work site meetings
- use relevant Personal Protective Equipment
- ensure all site personnel are licensed
- provide safety barriers and clear zones to protect work zone from traffic
- provide sufficient lighting for night works operations.

For more information refer to the following chapter in the draft Concept Design and Impact Management Plan:
- Volume 2, Chapter 6: Construction Issues.

See page 24 for details of how to access the full draft Concept Design and Impact Management Plan report.