



## 5 Project Staging

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# 1. Staging of the Gold Coast Rapid Transit Project

## 1.1 Project Stages

World class, high capacity public transport projects are often implemented in stages to enable the efficient matching of investment in infrastructure and services with demand and/or funding. A key consideration with the development of the GCRT Project has been the development of a Concept Design which can be implemented in stages. Whilst the South East Queensland Infrastructure Plan and Program (SEQIPP) 2008-2026 does not provide a detailed breakdown of the Project, SEQIPP 2007-2026 described the GCRT in two stages:

- ▶ Stage 1 from Helensvale to Broadbeach – to be completed by 2011; and
- ▶ Stage 2 from Broadbeach to Coolangatta – to be completed by 2015.

The Business Case and Concept Design Impact Management Plan (CDIMP) process developed, tested and evaluated a number of staging options in order to better match affordability and demand whilst still delivering the identified service requirements in a timely manner.

For the purpose of staging analysis the Project was analysed in five separate sections where:

- ▶ Section 1 is from Helensvale to the new Gold Coast University Hospital/Griffith University;
- ▶ Section 2 is from the new Gold Coast University Hospital/Griffith University to Southport;
- ▶ Section 3 is from Southport to Broadbeach;
- ▶ Section 4 is from Broadbeach to Burleigh Heads; and
- ▶ Section 5 is from Burleigh Heads to Coolangatta.

Figure 5 -1 provides a diagrammatic representation of these five sections of the Project.

Figure 5 – 1 Sections of the GCRT



## 1.2 Factors determining staging

The staging analysis confirmed that the key service area (and, therefore, highest initial priority) for the GCRT is between the new Gold Coast University Hospital /Griffith University and Broadbeach. This is often referred to as the core service area.

The next highest priorities are and Section 1 and Section 4 as they have a high level of public transport needs which can be provided at a reasonable cost. Section 5 is a longer term priority as it has a lower level of public transport need and in the short term can be serviced by the Surfside Bus network.

In determining the priority of the stages of the Project, consideration was given to a number of factors including:

- ▶ Likely public transport demand;
- ▶ Affordability analysis;
- ▶ Ability to meet the overall public transport service need;
- ▶ Constructability and deliverability;
- ▶ Economies of scale necessary to effectively capitalise the system;
- ▶ Integrated transport solution outcomes;
- ▶ Depot location; and
- ▶ Ability to expand the system.

These are discussed below.

### **1.2.1 Likely public transport demand**

An evaluation of the likely demand for services on the various sections of the corridor was undertaken to understand which sections had the highest public transport needs. The evaluation concluded that the sections which focused on centres with high activity had the highest requirement for public transport services and would attract the highest patronage. This included areas such as the new GCUH/Griffith University, Southport, Surfers Paradise and Broadbeach and routes which were more densely populated (i.e. from Southport to Broadbeach). Provision of increased public transport services in these areas will also result in higher reduction in car usage.

### **1.2.2 Affordability analysis**

The implementation of any large project requiring a significant investment needs to have regard to available funding. An affordability analysis was used to identify, evaluate and confirm the preferred staging strategy which sought to best match the investment of available funding with transport and financial outcomes. Consideration was given to capital and operational cost estimates and cost recovery from fare box revenue.

### **1.2.3 Ability to meet the overall public transport service need**

When reviewing sections that could be staged, consideration was also given to the broader transport task on the Gold Coast and an analysis was undertaken to examine the feasibility of Surfside Buslines or other transport providers meeting the residual transport need in the interim period until that particular section of the GCRT was delivered.

### **1.2.4 Constructability and deliverability**

Each section has been reviewed from the point of view of constructability (ease of construction) and deliverability (ease of delivery having regard to planning, integration and environmental issues).

### **1.2.5 Economies of scale necessary to effectively capitalise the system**

In order to gain economies of scale for effective purchasing of raw materials and management of labour during construction, adequate vehicle order size and for the system to allow efficient operation and performance, the system needs to be of sufficient size.

In order to evaluate this factor a review was undertaken of recent rapid transit projects such as:

- ▶ the Edinburgh Tram (Scotland);
- ▶ the LUAS light rail system in Dublin (Ireland);
- ▶ the light rail and rapid bus systems in Nantes (France).
- ▶ the light rail system in Croydon (UK); and
- ▶ the light rail system in Caen (France).

This review was supplemented by advice from technical and commercial consultants and feedback from market sounding processes. This analysis indicated that a minimum of at least two of the five sections of the Project should be undertaken in the first stage to achieve effective capitalisation of the investment.

### **1.2.6 Integrated transport solution outcomes**

To maximise integrated transport solutions and the overall effectiveness of the transport task, it is important to incorporate as many of the primary destinations and interchanges as possible in the initial stage of the Project as these would:

- ▶ Facilitate increased transport outcomes in terms of satisfying base transport needs; and
- ▶ Facilitate the capability of public transport users to interchange if necessary. Where possible, it was desirable to have interchanges at each terminus.

### **1.2.7 Depot location**

A key consideration for operation of a rapid transit system is the location of a depot for servicing and overnight stabling of vehicles. The only suitable depot location was found to be in Parkwood at the Gold Coast City Council Depot site. It was therefore necessary that any initial stage of the Project had to have access to this site.

### **1.2.8 Ability to expand the system**

Consideration was given to the feasibility of procuring and establishing new sections of the system once an initial system had been established. This included operational, commissioning, construction, contracting, transport integration and planning issues.

## **1.3 Indicative staging plan**

Following consideration of the above, an indicative staging plan for the implementation of the rapid transit has been developed and is shown in Table 5 – 1.

**Table 5 – 1 Indicative Staging Plan**

Category	Needed by <sup>1</sup>	Description
Highest priority	2011	Sections 2 & 3: Gold Coast University Hospital to Broadbeach South
High priority	2016 to 2026	Section 1: Helensvale to Gold Coast University Hospital Section 4: Broadbeach to Burleigh Heads
Future stages	Post 2026	Section 5, Burleigh Heads to Coolangatta Other possible future stages

This staging plan provides the following benefits:

- ▶ Cost effective delivery of those sections which best meet the areas of likely highest public transport demand and which are most likely to reduce traffic congestion;
- ▶ High levels of capital and operational efficiency which improves the affordability of the Project;
- ▶ Efficient procurement processes and capitalisation of investment;
- ▶ Initial construction impacts are able to be effectively managed;
- ▶ High levels of integrated transport outcomes. For example, the initial stage will support high quality interchanges at the new Gold Coast University Hospital/Griffith University, Southport and Broadbeach;
- ▶ Subsequent stages can be more easily delivered and commissioned with commissioning risks better able to be managed;
- ▶ Community education can be more targeted and effective;
- ▶ During subsequent stages there is increased capability to manage traffic impacts during construction as there is a viable alternative transport network (i.e. the initial stage of the GCRT);
- ▶ Timing and direction of subsequent stages can be relatively flexible and take into consideration performance of the initial stage of the RT together with current PT needs and affordability; and
- ▶ Subsequent stages are likely to enjoy very rapid ramp up in utilisation by patrons.

The indicative staging plan shown is designed to reflect delivery of the GCRT in response to increasing demand for public transport and the need to continue to support the ongoing development of the City. Actual construction dates could occur earlier or later than identified based on changes in demand and availability of funding.

<sup>1</sup> Staging timescales are indicative only.

## 2. Project Life Cycle of the Gold Coast Rapid Transit Project

Major infrastructure projects usually undergo a number of phases in their development. These processes allow for the proper analysis of issues, input from stakeholders and consultation with the public to ensure that the best possible project is developed.

These phases include:

- ▶ pre-feasibility;
- ▶ feasibility;
- ▶ procurement;
- ▶ construction;
- ▶ commissioning;
- ▶ operations; and
- ▶ future stages and on-going development.

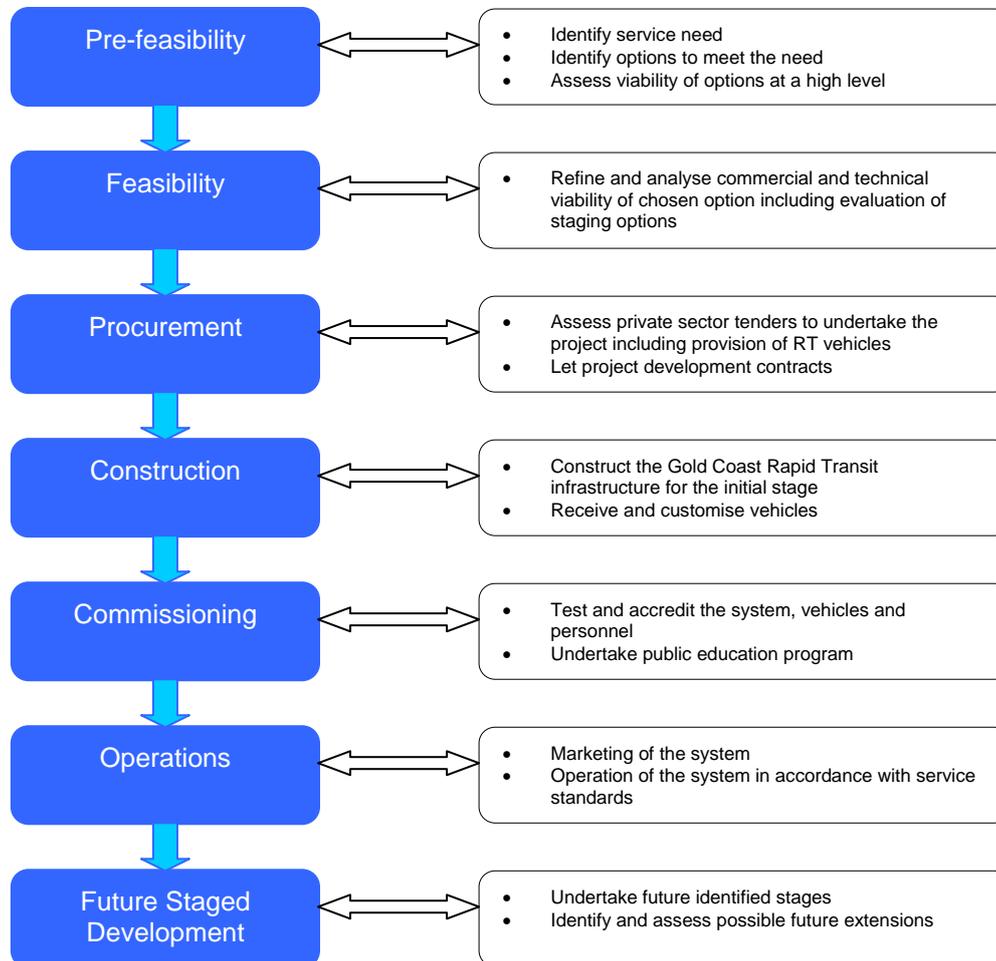
These stages are indicative of best practice process for the development of major infrastructure projects. Similar projects such as Docklands Light Rail in London and the Busway network development in Brisbane use similar processes. An overview of this process is illustrated in Figure 5 – 2.

### 2.1 Pre-feasibility phase

During this phase a number of broad ranging studies are undertaken to assess the need (often called service need) for the Project and to canvas and assess, at a high level, a number of possible solutions to satisfy these needs. Preliminary studies are undertaken for the more suitable options to better understand their feasibility, cost and ability to meet the service need. If the preliminary studies indicate that the Project will meet the service need, is considered to be of sufficient priority and is considered to be potentially affordable, it progresses to the feasibility phase.

For the GCRT Project, a number of pre-feasibility studies were undertaken. Together these studies determined that there is a significant identifiable need for increased public transport services on the Gold Coast. They determined that additional buses alone would not be able to meet this service need and that a full Busway (such as the South East Busway in Brisbane) or monorail solution would have too many impacts and would not be cost effective. They concluded that a BRT or LRT solution would best meet the service need and that the Project should progress to a feasibility phase and that a Business Case and CDIMP be undertaken to confirm the viability and affordability of the Project and to confirm the most suitable technical solution (including mode) and delivery method (i.e. contract form).

**Figure 5 – 2 Project Life Cycle Phases**



## 2.2 Feasibility phase

During this phase a project is investigated in detail to identify the best possible technical solution and to confirm the service need, priority, cost and affordability of the Project.

For the GCRT Project three major processes are being undertaken as part of the feasibility phase:

- ▶ This CDIMP was developed to assist with the development of the technical solution, to assess the impacts of the Project and to develop impact management plans which form the basis for mitigation of potential impacts;
- ▶ A public consultation and communication process: The CDIMP process works closely with and supports the public consultation and communication process to assist in the refinement of the Concept Design); and

- ▶ An analytical process which examines capital and operating costs, revenues, risks, opportunities, legal and contractual issues.

The above processes underpin the development of the Business Case which informs the Queensland Government about the financial viability, budget implications and delivery options of the Project which enables Government to decide whether and how the Project should proceed to the procurement phase.

### **2.3 Procurement phase**

During the procurement phase the Government will undertake a two stage process with the first stage seeking expressions of interest from the private sector to design, construct and maintain relevant infrastructure, supply and maintain vehicles, commission, operate and potentially finance the Project. Following evaluation of responses, tenders will be sought from shortlisted proponents.

During this phase continued consultation will be undertaken with the community to keep the community informed of the progress of the Project.

By the end of the procurement phase, the Government will have selected the best private sector proponents to partner with for the development of the Project and will enter into a series of contractual arrangements with those parties.

### **2.4 Construction phase**

During this phase the successful private sector proponent will undertake detailed design of the Project, obtain environmental and town planning approvals, clear and establish construction sites, establish construction teams and undertake construction activities. The proponent would also procure the supply of rapid transit vehicles.

This phase will also include the establishment of the operating entity including the hiring and training of vehicle operators, establishment of maintenance facilities and a depot, hiring and training of maintenance staff, receipt and customisation of vehicles, establishment of an operations and service centre and hiring and training of operations and customer service staff.

For further information on construction activities refer to Volume 2, Chapter 6 titled Construction Issues.

### **2.5 Commissioning phase**

Activities undertaken during the commissioning period include:

- ▶ final testing and certification of vehicles to ensure they meet all safety and operating requirements;
- ▶ final certification of vehicle operators, maintenance, operations and customer service personnel;
- ▶ final testing and certification of systems including traffic signalling, CCTV, safety and emergency, operating, electrical, lighting and ticketing systems;
- ▶ checking that all environmental, construction and operating approvals have been met;

- ▶ ensuring that there is appropriate integration with other public transport services; and
- ▶ undertaking a public education and integration program to assist the public to understand how to use and interact with the system.

For further information on commissioning activities refer to Volume 2, Chapter 6 titled Construction Issues.

## 2.6 Operations phase

To ensure the operation of a modern and highly valued public transport system over the life of the Project, activities undertaken during the operations phase include:

- ▶ marketing of the system;
- ▶ meeting service, operating, maintenance and safety standards;
- ▶ constantly reviewing these standards to ensure the highest quality of service, safety and reliability;
- ▶ integrating new technologies, best practice standards and implementing continuous improvement programs; and
- ▶ planning for and undertaking long term maintenance and modernisation programs.

For more information on commissioning activities refer to Volume 2, Chapter 7 titled Operations.

## 2.7 Future Staged Development

After commissioning of the initial stage, further identified stages of the GCRT will be undertaken in accordance with demand and funding availability. Evaluation of potential future extensions beyond the initial Project scope will be undertaken to assess need and affordability within the context of a comprehensive public transport network for the Gold Coast.