

**Invitation Number CN-8240**

**ROUTE STRATEGY PLANNING STUDY ON GOLD COAST HIGHWAY  
BETWEEN REEDY CREEK CONNECTION ROAD, BURLEIGH AND BOYD  
STREET TUGUN**

**Job Number 230/11B/901**

**Functional Specification Template**

**C7521S – Route Strategy**

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## 1 General

### 1.1 Definitions/abbreviations/acronyms

The most common definitions/abbreviation/acronyms that relate to the delivery of road infrastructure projects are contained in the various relevant Department of Transport and Main Roads (the department) manuals<sup>1</sup>, such as:

- *Preconstruction Processes Manual*
- *Road Planning and Design Manual*
- *Drafting and Design Presentation Standards*
- *Road Drainage Manual*
- *Manual of Uniform Traffic Control Devices*
- *Standard Drawings*
- *Specifications Manual*
- *Environmental Processes Manual*
- *Cultural Heritage Process Manual*
- *Road Traffic Air Quality Management Manual*
- *Transport Noise Management Code of Practice*
- *Transport Infrastructure Project Delivery System, and*
- *Project Cost Estimating Manual.*

In addition, throughout the Functional Specifications the following are used:

<b>Terms, abbreviations and acronyms</b>	<b>Meaning</b>
ASD	Approach Sight Distance
BC	Business Case
BCR	Benefit Cost Ratio
CBR	California Bearing Ratio
CH	Cultural Heritage
CHMA	Cultural Heritage Management Agreement
CHMP	Cultural Heritage Management Plan
CHRA	Cultural Heritage Risk Assessment
CMP	Compliance Management Plan
Consultant	Concept and or Development phase Consultant (this contract)

<sup>1</sup> <http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications.aspx>

<b>Terms, abbreviations and acronyms</b>	<b>Meaning</b>
Contract Administrator	Department Administrator, as referred as Administrator in a typical Construct Only Contract
Contractor	Construction Contractor
DBYD	Dial Before You Dig
DCP	Dynamic Cone Penetrometer
DD	Detailed Design stage
Department	Department of Transport and Main Roads
EAR	Environmental Assessment Report
EDR	Environmental Design Report
EMP(C)	Environmental Management Plan (Construction)
EMP(P)	Environmental Management Plan (Planning)
EMP(SI)	Environmental Management Plan (Site Investigations)
EPM	Environmental Processes Manual
ESD	Entering Sight Distance
ESR	Environmental Scoping Report
GIS	Geographic Information System
HADR	Hydraulic Analysis and Design Report
IAS	Impact Assessment Study
MGSD	Minimum Gap Sight Distance
NT	Native Title
OA	Options Analysis stage (also referred as Preliminary Evaluation stage)
PD	Preliminary Design stage
Principal	The State of Queensland acting through the Department of Transport and Main Roads
Project Manager	Department Project Manager
PUP	Public Utility Plant
RDM	Road Drainage Manual
REF	Review of Environmental Factors
ROW	Right of Way
RPDM	Road Planning and Design Manual
SEO	Senior Environment Officer

Terms, abbreviations and acronyms	Meaning
SISD	Safe Intersection Sight Distance
TRACS	Traffic Responsive Adaptive Control System

### 1.2 Purpose of Route Strategy

The principal purpose of this Route Strategy for the Gold Coast Highway (Burleigh to Tugun) is to:

- Consider the strategy, needs and function of all modes of transport, including integration and interfacing requirements over a 20 year planning horizon
- Develop options that satisfy the need and functional outcomes
- Identify land requirements to protect the corridor
- Rank the developed options (Multi-Criteria Assessment)
- Recommend preferred option, and
- Develop Link Planning Layouts.

The Consultant shall ensure that the Route Strategy addresses all issues to the extent needed to allow the preferred option progress to Link Planning enabling corridor preservation.

### 1.3 Background

The Gold Coast Highway from Burleigh Connection Road to Tooiona Street is presently a four lane, median divided arterial road with parking lanes and direct property access. South Coast Region has Category C planning for a future upgrade of the corridor to 6 lanes primarily through the conversion of the existing parking lane to traffic/on road cycle lanes. At the time that the planning was completed, the Gold Coast Light Rail was not a consideration. Shaping SEQ, the GCSCATS and the Gold Coast City Transport Strategy 2031 have identified the need to extend the Light Rail from Broadbeach to Coolangatta via the Gold Coast Airport.

The current planning for 6 lanes shows property acquisitions will be required. If the planning were updated to accommodate Light Rail and a reduced requirement for 6 traffic lanes, property acquisitions would still be required, but the requirement may be different to a straight 6 lane requirement.

Planning needs to be undertaken on this section to consider both the future traffic requirements and the Light Rail extension requirements. It should also be noted that the active transport link between Burleigh and Currumbin was identified as Priority 1 need in South Coast Region in the cycle infrastructure program prioritisation process. The integration of cyclists into the strategy will be a key consideration.

Existing width constraints within the corridor may require some transport modes to be provided within adjacent corridors. Conversely, it may be considered more appropriate to obtain the necessary property acquisitions to retain all modes within the single transport corridor. A number of options are subsequently required to be investigated prior to determining the preferred corridor requirements.

This section of the Gold Coast Highway is an area where ongoing commercial development of property is occurring. Because acquisitions will be required to accommodate Light Rail through this section, it is important TMR is able to liaise with developers early so that developments do not occur in a way that jeopardises the future corridor.

The Gold Coast Highway planning that South Coast Region has that does incorporate light rail is preliminary only and would be category A under the 'Approved Planning Policy'. This means that under the State Assessment and Review Agency (SARA), TMR may not have the opportunity to work with developers to preserve the corridor for the future Light Rail.

It is therefore important and urgent that this planning be undertaken and developed to a stage where it is recognised under SARA and TMR is then able to work with developers to achieve mutually beneficial outcomes.

Shaping SEQ provides overarching guidance to the vision for the Gold Coast Highway corridor between Broadbeach and Coolangatta. The plan seeks to ensure that through good planning and design, the corridor becomes an international showcase for both transit-oriented development and subtropical, energy-efficient living options that support outdoor living all year round.

The City of Gold Coast is currently preparing a Preliminary Business Case for Stage 3A of the Gold Coast Light Rail. The Principal intends on supplying a copy of this report to the Consultant upon its completion. Because this Route Strategy interfaces with Stage 3A in the north, some aspects of this report such as objectives, assumptions and technical information will be applicable to this engagement.

#### **1.4 Scope of Route Strategy**

The following broad scope is to be provided in the Route Strategy:

- Light Rail (including station locations, Park and Ride requirements, bus stop integration requirements, pedestrian storage requirements, cycle rack requirements and system requirements)
- Bus (working with TransLink to define future inter-connecting bus connections, bus stops, bus layovers, and so on, also considering potential future construction staging implications)
- Cycle (commuter and recreational cyclists along with access requirements at Light Rail stations)
- Traffic (traffic modelling to ascertain intersection requirements, access and movement around town / village centres)
- Pedestrian (commuter and recreational pedestrians along with access requirements at Light Rail stations / bus stops)
- Land use planning (working with Council and their consultants to establish station locations and corridor options to maximise city building and character objectives).

#### **1.5 Key Milestones for delivery**

The following key milestones are required:

- Problem Identification & Route Goals and Objectives (Jan 18)
- Selection of Preferred Route Option (June 18)
- Draft Route Strategy Report (Aug 18)
- Draft Link Plans and TP Sketches (Aug 18)
- Consultation Phase
- Finalise Route Strategy Report and Link Plans (TBA)

## **2 Summary of Consultant services (Route Strategy)**

### **2.1 Liaison with the Principal (Item No. TP 01)**

This item shall be limited to the prestart conference, meetings and all liaison with the Principal and its Project Manager including issue of minutes. Each meeting shall be attended by at least the Consultant's Project Director and Project Manager.

### **2.2 Consultant's Internal Project Management (Item No. TP 02)**

This item shall be limited to the Consultant's Internal Project Management including quality control, administration, non-project deliverables (such as printing reports) and so on.



## **2.3 Environmental Management (Item No. TP 03)**

### **2.3.1 General**

Works shall be undertaken in accordance with the department's current *Environmental Processes Manual*<sup>2</sup> and *Cultural Heritage Processes Manual*.

The Consultant is advised to review all documentation relevant for the project and any previous environmental reports produced during related projects (as determined by Principal).

Following the project pre-start meeting, a separate Environmental pre-start meeting shall be held. The Environmental Leads for the consultant and the Principal's shall attend.

### **2.3.2 Environment and cultural heritage assessment and management**

The Principal has undertaken a Strategic Environmental Scoping Report (ESR) to assess existing environmental constraints and opportunities within the project area, potential legislative triggers and areas of further investigation. A copy will be provided to the Consultant at the Pre-Start Meeting. The findings and recommendations of this report shall be considered in options development and refinement, risk management and cost estimating

### **2.3.3 EPBC Preliminary Self-Assessment**

The ESR noted above has identified the potential for the project to impact on koala at Burleigh Heads and Currumbin. The ESR recommends further investigation (through a self-assessment under the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999. The purpose of the self-assessment is to inform the Route Strategy and ensure provisions for necessary koala mitigation such as fauna structures is allowed for.

The consultant is to undertake a preliminary EPBC self-assessment of the potential for the upgrades proposed as part of the Route Strategy to impact on koala (*Phascolarctos cinereus*) listed as a vulnerable species under EPBC Act 1999 and compile a report which states whether the proposed works trigger the need for referral to the Commonwealth Department of the Environment under the EPBC Act 1999. The preliminary EPBC self-assessment shall be undertaken for each option and will be used to inform the options analysis process.

The consultant shall undertake the preliminary self-assessment in accordance with the Department of the Environment 'EPBC Act referral guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)' and as per the scope of this brief.

The self-assessment prepared by the consultant shall not form the basis of any such referral and further EPBC assessment (including field surveys) will be done at subsequent stages. The assessment required under this brief is a preliminary self-assessment to be used by the department to ensure provisions such as funding and land requirements for necessary mitigation and management is allowed for in the concept planning phase.

More specifically, the consultant shall assess all project impacts at the following locations and associated with the following design, construction and operational aspects:

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<sup>2</sup> <http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Environmental-processes-manual.aspx>

### Burleigh Headland

- Widening of the Gold Coast Highway between George Street East, Burleigh Heads and the Tallebudgera Creek Bridge which may include (but not be limited to) 2 GCLR tracks between north-south traffic lanes, four traffic lanes, on-road cycle lanes, and verges and medians.
- Construction of a Tallebudgera Creek Station
- Construction of vertical retaining structures
- Removal of vegetation required to accommodate the works
- Construction of new batters
- Installation of new road furniture (such as guardrail, fencing and signs)
- Operational impacts associated with use of the corridor (vehicle and tram impacts).

### Currumbin Hill

- Widening of the Gold Coast Highway between Currumbin Creek Bridge and Millers Drive, Tugun which may include (but not be limited to) 2 GCLR tracks between north-south traffic lanes, four traffic lanes, on-road cycle lanes and verges and medians.
- Construction of vertical retaining structures
- Removal of vegetation required to accommodate the works
- Construction of new batters
- Installation of new road furniture (such as guardrail, fencing and signs)
- Operational impacts associated with use of the corridor (vehicle and tram impacts).

Prior to commencing the Preliminary Self-Assessment, the consultant shall prepare a Return Brief which outlines the consultant's proposal to undertake the self-assessment in accordance with the Department of the Environment *EPBC Act referral guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)* and to meet the details of this Functional Specification. The department will review the consultant's return brief for suitability and may request changes to the final brief. The self-assessment shall not be completed until the brief is finalised and agreed upon.

The self-assessment shall be undertaken utilising available desktop resources (mapping and databases) and existing field survey data which will be provided to the Consultant at the pre-start meeting. The field survey data has been compiled by the Council of the City of Gold Coast and includes koala sightings, vehicle strike records and SAT assessments. Baseline surveys for the Burleigh Heads area have been completed by CGC in 2013, 2015, and 2017. This data has been provided to the department and is subject to an information sharing agreement which will also apply to the Consultant.

#### **2.3.4 Cultural Heritage Risk Assessment (CHRA) (Not Required)**

The Principal has undertaken a Cultural Heritage Risk Assessment. A copy will be provided to the Consultant at the Pre-Start Meeting.

### 2.3.5 Environmental Management Plan (Site Investigations) (EMP(SI) (Not Required)

In the event that site investigations are required during the course of the Route Strategy such as geotechnical investigations, soil sampling, or vegetation clearing, the Consultant shall notify the Principal.

### 2.3.6 Consultation with local interest groups

Consultation with local interest groups will be undertaken under Item TP 04 Targeted Consultation.

### 2.3.7 Landscape assessment (Not Required)

The Consultant will not be required to undertake a landscape assessment. Any key local foundation landscaping issues shall be included in the Route Strategy and Report, Item TP 12.

### 2.3.8 Payment

Item No. TP 03 Environmental Management shall include all works necessary to complete the EPBC Preliminary Self-Assessment.

### 2.4 Targeted Consultation (Item No. TP 04)

The Consultant is to appoint a suitably qualified Consultation Lead. This item will cover preparation, travelling, preparing for and attending workshops with key stakeholders with TMR including the Technical Working Group and risk management workshop(s).

When requested to undertake work under this item the estimated cost shall be determined using a schedule of hours and the rates tendered. Allowance of 100 hours.

TP 04 – Targeted Consultation (if ordered)	100 hours
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### 2.5 Develop Community Engagement Plan (Item No. TP 05)

The Consultant is to develop a Community Engagement Plan (CEP) for the selected preferred option. The CEP shall include (but not be limited to) engagement objectives, deliverables, stakeholder groups and impacts, and so on. The CEP will be implemented following selection and endorsement of the preferred option.

The CEP shall meet the needs of the project, comply with TMR community engagement standards, principles and guidelines and be industry best practice.

The CEP will aim to assist project planning by seeking input into a range of issues specific to the completed options analysis, to ensure all stakeholder interests, benefits and impacts are fully understood.

The CEP shall be prepared in the TMR template.

#### 2.5.1 Payment

Item No. TP 05 Develop Community Engagement Plan shall include all works necessary to produce the Community Engagement Plan.

## **2.6 Traffic Counting and Analysis (Item No. TP 06)**

### **2.6.1 Traffic Counting**

The Principal is currently undertaking an Origin-Destination Survey of the Study Area. The results of this Survey will be provided to the Consultant at the Pre-Start Meeting.

The Consultant is responsible to determine if any additional traffic information is required. The Principal will not unreasonably reject requests for additional traffic information.

When additional traffic counting is required, the Principal will generally supply such traffic information within four weeks. The Consultant is responsible to provide adequate and timely requests to the Principal to ensure that the Contract can be completed on time.

Where the Principal considers that additional traffic counts are unwarranted or impracticable for any reason, the Consultant shall estimate the traffic volumes.

### **2.6.2 Traffic analysis**

The Principal has engaged a Consultant under a separate commission to undertake the traffic analysis that will be used to inform the Options Analysis Stage. This will be used to assess the performance of each option.

Following the selection of the preferred option, the Consultant shall undertake traffic analysis using AIMSUN and SIDRA to confirm the configuration of each intersection along the route. The Consultant will be required to liaise with the City of the Gold Coast in the development of the Micro-simulation model.

### **2.6.3 Traffic report**

The Consultant shall produce a traffic report for the preferred option. The Traffic Analysis Report shall be appended to the Route Strategy Report.

### **2.6.4 Payment**

Any traffic count/modelling work shall be limited to examination of the information supplied by the Principal. All costs shall be included in the Route Strategy and Report, Item TP 12

## **2.7 Property Access (included in Item No TP 12)**

Property access requirements along the project route shall be taken into consideration when developing the project options.

### **2.7.1 Payment**

The costs associated with the layout development and reporting on property access shall be included in Item TP 12 Route Strategy and Report.

## **2.8 Hydraulic Analysis (Item No. TP 07)**

Drainage shall meet the requirements of the department's current *Road Drainage Manual*<sup>3</sup>.

The Consultant shall consult local government to discover all available information on flooding in the area including flow paths, dates of significant events and extent of flooding.

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<sup>3</sup> <http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Road-drainage-manual.aspx>

The Consultant shall assess drainage requirements to the extent necessary to ensure that the proposed works are feasible, and a reasonable estimate of the cost of structures can be made.

### **2.8.1 Bridge**

This project requires bridge crossings at Tallebudgera Creek and Currumbin Creek/Duringan Street. The Consultant shall undertake hydraulic investigations and calculations, sufficient to allow the bridge geometry (height, waterway area, spans, piers and so on) to be determined. Gold Coast Waterways Authority (GCWA) shall be consulted regarding their requirements for bridges across waterways.

### **2.8.2 Reporting**

The results of the hydraulic analysis shall be appended to the Route Strategy Report.

### **2.8.3 Payment**

All costs associated with preparation of the report shall be allowed for in Item TP 07 Hydraulic Analysis.

## **2.9 Geotechnical Investigation (Item No. TP 08)**

The Consultant shall:

- Review and confirm geotechnical assessments undertaken in previous studies
- Identify geotechnical conditions for each alignment and consider the potential impact on project cost estimates
- Identify areas that require more detailed analysis in future stages.

It is expected that sufficient detail can be obtained from the Consultant undertaking a review of existing documentation and studies. No allowance has been made for undertaking testing during this phase.

### **2.9.1 Payment**

All costs associated with the geotechnical investigation shall be allowed for in Item No. TP 08 Geotechnical Investigation.

## **2.10 Preliminary Pavement Design (Item No. TP 09)**

The Consultant shall undertake Preliminary Pavement Design for each option.

The preliminary pavement design shall be a practical, economical pavement structure designed in accordance with Part 2: Pavement Structural Design of the *Austrroads Guide to Pavement Technology* (Austrroads 2012) and the department's current *Pavement Design Supplement*<sup>4</sup> to the extent necessary to ensure that the proposed works are feasible and a reasonable estimate of the cost of pavement works can be made. Opportunities for rehabilitation of the existing pavement should be considered.

### **2.10.1 Payment**

All costs associated with the Pavement Design Report including consultation with the maintenance contractor shall be allowed for in Item No. TP 09 Preliminary Pavement Design.

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<sup>4</sup> <http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Pavement-design-supplement.aspx>

### **2.11 Preliminary Bridge Foundation Design (Item No. TP 10) (Not Required)**

The Consultant will not be required to undertake Preliminary Bridge Foundation Design under the contract. Any foundation design issues shall be included in Preliminary Geotechnical Analysis, Item TP 11.

### **2.12 Preliminary Geotechnical Analysis (Item No. TP 11)**

The aim of the Preliminary Geotechnical Analysis at the Route Strategy stage is to conduct sufficient analysis so that the options being evaluated will not present unacceptable geotechnical risks (refer also Item TP 13 Risk Analysis and Record), and comparisons between options can be made.

Such issues as:

- structural option viability for bridges, major culverts and retaining walls
- indicative amount of unsuitable materials
- potential settlement areas
- batter slope requirements
- acid sulphate soils
- rippability and workability of any naturally occurring material

### **2.13 Options Analysis (Item No. TP 12)**

#### **2.13.1 Work Previously Undertaken by the Principal**

The Principal has undertaken initial planning for the Gold Coast Highway for the following sections:

- Section 1: Burleigh Heads to Tallebudgera
- Section 2: Tallebudgera to Currumbin
- Section 3: Currumbin to Tugun

Approximately 55 different high level options were developed that were evaluated against the following criteria:

- design and safety,
- traffic operations,
- constructability,
- social, stakeholder and environment,
- land use integration and
- risk criteria.

Through this process, the options were shortlisted and base options were developed.

#### **2.13.2 General**

The consultant will assist with the development of further options and sub-options as deemed appropriate and will co-ordinate the strategic assessment of options to arrive at a reduce number of options for detailed consideration for the Burleigh to Tugun corridor.

It is expected that concept level design investigations will be undertaken against each of the refined options to provide appropriate assurances that the preferred designated corridor will be sufficient to cater for future intended uses for the modes of transport demanded.

The consultant will also need to consider broader transport network implications arising from the Route Strategy recommendations and how that may affect broader planning directions and commitments.

### 2.13.3 Options Analysis

The Consultant shall develop reference design plans for each alignment option that consider:

- Horizontal and Vertical Geometry
- Lane configurations and intersection layouts
- Typical cross sections
- Detailed cross sections where corridor width is restricted
- Long sections
- Corridor requirements incorporating all transport requirements including road traffic, public transport, pedestrian and cyclist movements
- Major structures and major geotechnical works
- Public utility protection and relocation requirements
- Space proofing for PUP relocations
- Property impacts
- Traction power and earth grid requirements.
- Property access requirements

### Key Design Considerations

- **Design Approach**
  - The intent is to provide a solution that works toward a Normal Design Domain (NDD) standard. Consideration will be given to Extended Design Domain (EDD) and Design Exception (DE) where NDD is cost prohibitive (such as Bridge Structures or realignment of crest curves).
- **Light Rail**
  - Stops/Stations
    - Review station locations and options
    - Confirm number of stations and role of each station
    - Provide more than one location option for each station
    - Conceptual station arrangements considering road network, bus and active transport integration, urban design, property impacts and land use integration.
  - System Design
    - Refer to final design (as built) for GCLR Stage 1 and Stage 2 (where Stage 2 information is available)
    - Traction Power requirements including overview of electrical network connections, additional infrastructure requirements, and protection of surrounding structures from stray current leakage.

- **Active Transport**
  - Project options that identify best practice in a safe-system approach for active transport in the corridor with the application of TMR's TN128 guidance.
  - Review active transport requirements for the corridor in consultation with the Principal to incorporate adjacent pedestrian and cycle networks including efficient connection points.
- **Public Transport Network**
  - Review of public transport network concepts identified in previous studies
  - Concept public transport network design including identifying bus routes that run within the corridor
  - Concept design of bus and light rail interchanges.
- **Road Network**
  - Review boulevard concept for application to Gold Coast Highway in consultation with the Principal and the City of Gold Coast
  - Lane configuration and intersection layouts for impacted road network
- **Car Parking**
  - Review and confirm parking impacts within corridor
  - Assessment of opportunity for parking reallocation including loading zones and other commercial zones.
- **Environmental and Cultural Heritage**
  - Fauna sensitive road design elements such as fauna crossing locations and fauna exclusion fencing.
- **Property Impacts**
  - Refer Section 2.13.4
- **PUP**
  - Refer Section 2.13.5

#### 2.13.4 Property Impacts

The Consultant shall assess the resumption requirements of each option. Consideration should be given to the access and use of the property following acquisition. Specifically, driveway accesses to basement parking should be assessed to determine if a full land take (whole property) is required.

#### 2.13.5 Public Utility Plant (PUP)

Where practicable and economical, relocation or alterations to PUP shall be avoided.

Information to identify existing utility assets (private and public) may need to be sourced from various agencies including DBYD, local authorities, previous designs, as-constructed data, the department's GIS and Corridor Management team.

As a part of the PUP investigation works, the Consultant shall:

- Identify existing active and redundant utility assets (private and public) within the limits of each option. This activity must be undertaken in the early stages of Options Analysis:
- Produce draft drawings identifying existing utility assets (active and redundant) for each option. These drawings shall superimpose all existing services information on to the PUP base plans for consultation with all PUPs
- Prepare a formal letter and a copy of draft drawings for each option that is to be sent from the department to the all PUP's notifying:



- service authorities of the Route Strategy
  - seeking confirmation their existing assets have been identified correctly (active or redundant) on the drawings, and
  - encourage all PUP's to investigate future works programs within the limits of the proposed works.
- Liaise with the responsible asset owner with regard to the impact to the existing plant, high risk assets, programmed works and discuss future network requirements to minimise damage to new road surface as a result of the options being analysed. The Consultant shall include a department representative in all decision making negotiations with service authorities. All authorities with assets within the study area shall be consulted:

Review the information obtained via investigations and discussion with asset owners, update drawings for completeness and confirm in the final report all PUP's (active and redundant) has been identified and transferred onto the drawings. These drawings shall superimpose all existing services information on to the PUP base plans and determine potential conflict locations, possible solutions and costs to resolve each conflict.

On completion of the above, the Consultant shall undertake the following tasks:

- establish a list of PUP authority contact details
- develop a conflict matrix for all PUP assets impacted by each option and solutions to resolve conflicts
- develop a risks matrix for all conflicts, including but not limited to, utilities to avoid, potential delays (lead times, materials, resourcing and so on), and constraints from service authorities
- recommendations for early works (including reasons)
- provide a report and drawings shall be provided, for each option, detailing the above PUP tasks as a deliverable item, and
- budget estimates.

Each option shall consider the following:

- land requirements for alterations to existing utility assets
- site conditions to achieve PUP alterations: including but not limited to, suitable alignments, clearing, environmental and cultural heritage impacts, unsuitable materials (i.e. rock, slopes, batters, water causes, acid sulphate soils and so on.), and
- safe access to PUP assets for future maintenance.

#### **2.13.6 Recommended option**

The Consultant shall develop and facilitate a Multi Criteria Assessment (MCA) to select the preferred option in consultation with the Principal and the Technical Working Group.

The report should recommend an option for further refinement during the Business Case stage. It must detail reasons for recommending the option. **Hold Point.**

### 2.13.7 Payment

All costs associated with the preparation of the Route Strategy and Report shall be allowed for in Item No. TP 12 Route Strategy and Report.

### 2.14 Risk Analysis and Record (Item No. TP 13)

Risk management shall be carried out in accordance with ISO 31000:2009.

The Consultant shall:

- Manage and protect the Principal's interest during the Route Strategy with regard to:
  - Issues likely to be raised by the stakeholders/public.
  - Environmental management including compliance with the relevant sections of the *Environmental Protection Act*.
  - Local issues that could lead to delay.
  - PUP issues that could lead to delay.
  - Safety conditions on the project site so far as the Route Strategy is concerned, including compliance with the provisions of the relevant sections of the *Queensland Workplace Health and Safety Act*.
  - Conduct ongoing risk assessment analysis paying specific attention to the constructability of the ultimate design. Risk analysis shall seek to minimise risk associated with construction safety, traffic, claims escalation due to latent conditions, variations, delay, public disquiet, sources of materials and so on.
  - Conduct ongoing risk assessment analysis paying specific attention to the road corridor user safety aspects of the ultimate design. Risk analysis shall seek to minimise risk associated with pedestrians, traffic, design life of the various elements that make up the ultimate product and so on.
  - Make adequate allowance in the project comparative costings, and
  - Identify, analyse and respond to risk factors throughout the life of the Options Analysis to ensure that the project objectives are achieved.

#### 2.14.1 Reporting

The Consultant shall prepare a report on the issues mentioned above including the Department's OnQ Risk template available at <http://www.tmr.qld.gov.au/business-industry/OnQ-Project-Management-Framework/OnQ-tools-and-techniques/OnQ-project-management-proformas-and-worksheets.aspx> (refer Risk Management Plan, Risk Register, and Risk Grid templates). This report shall be a living document and issues will be discussed and updated at progress meetings when necessary. The final risk assessment will be appended to the Route Strategy Report and will form the basis for risk management in the future phases of the project lifecycle.

#### 2.14.2 Payment

All costs associated with risk management and analysis shall be allowed for in Item No. TP 13 Risk Analysis and Record.

### **2.15 Comparative Cost Estimates (Item No. TP 14)**

The Consultant shall prepare comparative cost estimates for the options using estimated quantities and historical rates, in accordance with the department's current *Project Cost Estimating Manual*<sup>5</sup>.

It is expected that enough estimating will be carried out to produce schedules sufficient to provide a sound base for comparisons to be made.

The estimates may need to consider:

- Preconstruction Cost Concept stage
  - Business Case stage
  - Design Development stage, and
  - Detailed Design stage
- Construction stage costs,
- Principals Materials, and
- Contingency.

### **2.16 Road Safety Audit (Item No. TP 15) (Not required)**

Not Required.

### **2.17 Link Planning Layouts (Item No. TP 16)**

Following section of the preferred option by the Technical Working Group and endorsement by the Steering Committee, the consultant shall produce Link Planning Layouts for the preferred option. The drawings shall comply with the department's current Drafting and Drawing Presentation Standards and shall be certified by suitably qualified RPEQ/s. The following drawings are required:

- Locality Plan And Drawing List
- Typical Cross Sections
- General Arrangement Drawings (including PUP, road furniture etc.)
- Property Impact Plans
- Other Drawings as required (e.g. Concept Structural Designs)

#### **2.17.1 Payment**

All costs associated with the Link Planning Layouts shall be allowed for in Item No. TP 16 Link Planning Layouts.

### **2.18 TP Sketches (Item No. TP 17)**

The Consultant shall produce TP Sketches detailing the land requirements for the Preferred Option following its endorsement by the Principal. The TP Sketches shall be in accordance with the Departments current Drafting and Drawing Presentation Standards.

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<sup>5</sup> <http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Project-cost-estimating-manual.aspx>

### **2.18.1 Payment**

All costs associated with the TP Sketches shall be allowed for in Item No. TP 17 TP Sketches.

### **2.19 Design Report (Item No. TP 18)**

The Consultant shall produce a Design Report that documents the Technical Basis of the Route Strategy investigations and findings. This report shall be produced using the Consultants standard reporting template and shall be fit for purpose. The Design Report shall be appended to the Route Strategy Report.

#### **2.19.1 Payment**

All costs associated with the design Report shall be allowed for in Item No. TP 18 Design Report.

### **2.20 Route Strategy Report (Item No. TP 19)**

The Consultant shall produce a comprehensive Route Strategy Report using the supplied TMR Report Template that details the Route Strategy findings. As a guide, the Table of Contents shall consist of the following:

#### **Executive summary**

- Route function
- Major Performance Issues
- Route Objectives
- Strategic Priorities
- Investment Requirements

#### **1. Introduction**

- 1.1 Purpose and scope of this report
- 1.2 Project extents and planning areas
- 1.3 Structure of this document

#### **2. Planning context**

- 2.1 Strategic planning framework
- 2.2 Project rationale
  - 2.2.1 Strategic alignment
  - 2.2.2 Regional planning and transport strategies
  - 2.2.3 Local planning and transport strategies context
  - 2.2.4 TMR Transport Infrastructure Portfolio
- 2.3 Related projects
  - 2.3.1 Relevant planning studies
  - 2.3.2 Recent construction

#### **3. Current situation**

- 3.1 Existing route function
  - 3.1.1 Gold Coast Highway corridor
  - 3.1.2 Public transport
  - 3.1.3 Active transport
- 3.2 Existing land use
  - 3.2.1 Existing features
  - 3.2.2 Development activity
- 3.3 Existing road condition
  - 3.3.1 Corridor width and typical cross-sections

- 3.3.2 Pavement type
- 3.3.3 Geometric deficiencies
- 3.3.4 Flood immunity
- 3.3.5 Condition of structures
- 3.4 Existing traffic performance
  - 3.4.1 Safety
  - 3.4.2 Road traffic patterns
  - 3.4.3 Public transport patterns
- 3.5 Summary of current route performance issues
- 4. Route planning pressures
  - 4.1 Factors influencing road transport demand
    - 4.1.1 Demographics
    - 4.1.2 Land use and development
    - 4.1.3 Changes in freight
  - 4.2 Future road transport demand
    - 4.2.1 General traffic
    - 4.2.2 Freight
  - 4.3 Multi-modal considerations
    - 4.3.1 Public transport
    - 4.3.2 Park 'n' ride
    - 4.3.3 Active transport
  - 4.4 Traffic operations
    - 4.4.1 Levels of service
    - 4.4.2 Managed motorways
  - 4.5 Land management issues
    - 4.5.1 Access
    - 4.5.2 Water quality
    - 4.5.3 Soil and land management
    - 4.5.4 Flora and fauna
    - 4.5.5 Cultural heritage
    - 4.5.6 Noise and public amenity
    - 4.5.7 Stakeholder concerns
  - 4.6 Major performance issues (next 20 years)
- 5. Route objectives**
  - 5.1 Route vision
  - 5.2 Service requirements and priority needs
  - 5.3 Functional objectives
- 6. Strategic priorities**
  - 6.1 Infrastructure priorities
  - 6.2 Non-infrastructure priorities
- 7. Investment requirements**
  - 7.1 Staged delivery
  - 7.2 Investment requirements
  - 7.3 Priorities for the next 10 years

### 2.20.1 Payment

All costs associated with the production of the Route Strategy Report shall be allowed for in Item No. TP 19 Route Strategy Report.

### 2.21 Additional Requirements (Item No. TP 20) (if ordered)

This item is to provide for issues that are nominated throughout the Functional Specification to be paid as a variation plus other possible changes in scope which may or may not occur throughout the project.

The Consultant shall not undertake works under this item without the written approval of the department's Project Manager.

The Consultant shall allow the number of hours of work detailed in the table below and include the estimated cost of these hours in the Fee Schedule.

TP 20 – Additional Options Analysis Requirements (if ordered)	100 hours
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The Consultant shall determine an appropriate split of the hours between its staff and shall nominate such allocation in its offer.

## 3 Deliverables

The Consultant shall produce the following deliverables (as applicable) to complete the Route Strategy:

- Route Strategy Report
- Design Report
- Link Planning Layouts
- TP Sketches
- Community Engagement Plan
- Preliminary EPBC Self-Assessment

One original and two copies of all information, reports, plans and so on, is required.