

Consultants for Engineering Projects (CFEP) Manual

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1 Introduction

1.1 Definitions and scope

1.1.1 Definitions and abbreviations

If a word or phrase is defined, the word in its other grammatical forms has a corresponding meaning.

Term	Definition / Abbreviation
Alternative Offer	An offer titled 'Alternative Offer' containing an alternative proposal which satisfies all requirements of Form C7542 <i>General Conditions of Offer</i> received from an eligible Consultant.
Conditional Offer	An offer received from an eligible Consultant which does not satisfy all requirements of Form C7542 <i>General Conditions of Offer</i> .
Conforming Offer	An offer received from an eligible Consultant which conforms in all respects to the requirements of Form C7542 <i>General Conditions of Offer</i> .
Consultant	A consultancy (organisation) either prequalified for transport infrastructure projects or with the capacity / capability to provide engineering services not covered by the Department's Consultants for Engineering Projects prequalification system (Non-Prequalified). These consultancies will usually comprise an engineer, engineering consultancy or local government engineering service unit undertaking services on engineering projects.
Contractor	A road / bridge construction Contracting company.
Criterion	A criterion is a specific, measurable factor used by the Department of Transport and Main Roads to assess a consultant's capability, suitability, and overall value for undertaking a project.
Department	Queensland Department of Transport and Main Roads.
Engineering Consultant	A Consultant (organisation) with the capacity and capability to provide engineering services.
Local Benefits	As defined in the <i>Queensland Procurement Policy</i> and relates to the application of the Local Benefits non-price evaluation criteria to procurements. Local Benefits is included in both QBS and VBS selection methods. Local Benefits means economic impact benefits deriving from procurement investment supporting local suppliers and local workforces including within the supply chain. A local benefit could include the application of local knowledge and experience, and local interfaces.

Term	Definition / Abbreviation
Manual	This document, being the <i>Consultants for Engineering Projects Manual</i> .
Non-Contestable Work	Where Commonwealth or State legislation empowers only a particular PUP authority to undertake the works and make no provision for the Department to undertake works if agreement on relocation cannot be reached.
Non-Engineering Consultancies	A Consultant (organisation) with the capacity and capability to provide non-engineering services on an engineering project. Such services may include public consultation, environmental services, cultural heritage services, surveying services, data analysis and insights.
Non-Prequalified Consultant	A Consultant (organisation) with the capacity and capability to provide engineering services not covered by the Department's Consultants for Engineering Projects prequalification system.
Offeror	Person / organisation tendering for Consultant services.
PAM	Procurement Assurance Model means the Procurement Assurance Model described in Part 3 of the <i>Queensland Procurement Policy</i> .
PMD	Program Management and Delivery Branch (within the Department).
Preferred Offeror	Means the Offeror with the highest WTS in the QBS process.
Prequalified Consultant	A Consultant (organisation) approved under the System, to make competitive offers on Departmental transport infrastructure projects and Work Packages that stipulate a prequalification category / level. Note: the term 'prequalification' is used in other contexts such as a construction company who is prequalified under the National Prequalification System (NPS).
PUP	Public Utility Plant.
P50	A construction estimate with a 50% confidence of not being exceeded at project completion, whilst not being overly conservative.
P90	A construction estimate with a 90% confidence of not being exceeded at project completion, whilst not being overly conservative.
QBS	Tender assessment method known as Qualification Based Selection – used where the scope of work cannot be accurately defined.
Queensland Procurement Policy	<i>Queensland Procurement Policy</i> as updated or replaced from time to time by the Queensland Government.
Rank	Position or order of Consultant's Weighted Total Scores in an assessment for example first, second, third.
Rating	A value between 1 and 10 for each Criterion. Rating or Rated also mean the process of assigning Ratings to an Offer.

Term	Definition / Abbreviation
Recommended Offeror	Means the Offeror with the highest WTS in the VBS process.
SAP	Systems and processes (software package).
Score	Means the calculation of the Rating multiplied by the Weighting (%) for a single Criterion.
Single Invitee	Refers to one Supplier, despite availability of other Suppliers, without a competitive bidding process, for a justifiable reason (that is, only one out of multiple Suppliers selected).
Sole Supplier	Refers to only one genuine Supplier that can provide the requirements of a Contract.
Sub-Consultant	A Consultant (organisation) engaged by a primary Consultant to provide a component(s) of an engineering service covered by the Department's Consultants for Engineering Projects Prequalification System.
Supplier	Has the same meaning as 'Consultant'.
Supplier Code of Conduct	Means the Queensland Government policy titled <i>Queensland Government Supplier Code of Conduct</i> , or any policy that replaces that policy.
System	The Department's Consultants for Engineering Projects Prequalification System described in Chapter 2.
VBS	Tender assessment method known as Value Based Selection – used where the scope of work can be clearly and accurately defined.
Weighting	A percentage value allocated to an assessment Criterion.
Weighted Total Score (WTS)	Means the sum of Scores across all Criterion.
Work Packages	Has the meaning as described in Clause 1.1.2.
3PCM	Abbreviation for software referred also as Portfolio, Program, Project and Contract Management – integrated toolset supporting the Queensland Transport Infrastructure Portfolio (QTRIP), 3PCM holds the Supplier Prequalification Register.

1.1.2 Scope

The Department has published this Manual for the purposes of guidance only and does not bind the Department. The Consultant acknowledges that the Offer documents and Contract documents take precedence over this Manual to the extent of any inconsistency. The Department may update and amend this Manual at any time by publishing a new version. It is the responsibility of the Consultant to familiarise themselves with this Manual and to check for updates to the Manual. No agreement for the delivery of a transport infrastructure engineering project will form between the Department and an Offeror unless and until a Letter of Acceptance has been issued by the Department and sent to the Offeror. The Letter of Acceptance will confirm the documents forming the Contract documents.

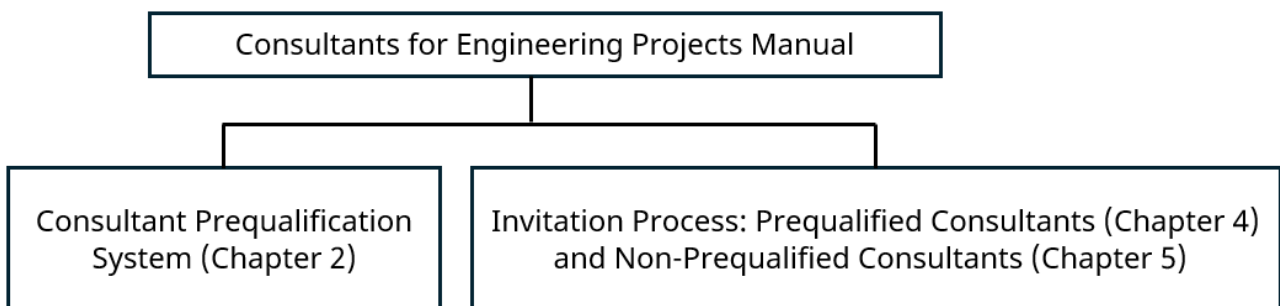
This Manual addresses the specific requirements for the engagement of Consultants on transport infrastructure engineering projects for the Department for the delivery of:

- **Transport infrastructure planning and/or design projects** – rail, road and bridge works, marine works, passenger transport (for example, bus stations, bus shelters).
- Work Packages, including:
 - **Engineering Survey** – electronic collection of data and information in a way that allows accurate electronic reproduction.
 - **Public Consultation and Engagement** – consultation, reporting, including issues and recommendations.
 - **Environmental Investigation** – investigations, studies and reporting, including issues and recommendations.
 - **Cultural Heritage** – investigations, consultations and reporting, including issues and recommendations.
 - **Native Title** – investigations, consultations and reporting, including issues and recommendations.
 - **Economic Studies** – analyses (transport economic, cost-benefit, public policy), economic modelling, including issues and recommendations.
 - **Financial / Commercial Analyses** – (financial, market conditions, project risk), assessments (funding, staging), including issues and recommendations.
 - **Public Utility Plants** – investigations, survey and data collection, consultations, interpretations and reporting, including issues and recommendations.
 - **Geotechnical Investigations** – investigations, collecting samples, interpretations and reporting, including issues and recommendations.
 - **Hydraulic Studies** – investigations, data collection, consultations, interpretations and reporting, including issues and recommendations.

- **Traffic Studies** – investigations, data collection, consultations, interpretations and reporting, including issues and recommendations.
- **Transport Planning** – investigations, data collection, data analysis, transport or land use modelling or analysis, consultations, interpretations and reporting, including issues and recommendations.
- **Transport and Land Use Modelling** – research, data collection, data analysis, transport or land use model development or application, interpretation and reporting, including issues and recommendations.
- **Data Analysis and Insights** – research, data collection, data analysis, data analytics development or application, interpretation and reporting, including issues and recommendations.
- **Pavement Designs** – materials investigations, material sources, testing and reporting, including issues and recommendations.
- **Road Traffic Noise** – investigations, data collection, interpretations and reporting, including issues and recommendations.
- **Design Reviews prior to construction** – reviews of existing designs, constructability reviews, redesigns to bring to latest standards.
- **Construction Tender Enquiries** – assistance during tender period to Departmental Project Managers on request.
- **Provision of Design Support during Construction** – assistance during construction to the Departmental Project Managers, Contract Administrators and Contractors on request; spray sealing and spread rates; As Constructed Drawings.

Figure 1.1.2 describes the system, which includes both Prequalified Consultants and Non-Prequalified Consultants. Refer to Chapter 2 of this Manual for details about the prequalification component of the System.

Figure 1.1.2 – Consultants for Engineering Projects (CFEP) usage map



For insurance purposes, it is important to understand that the design development process is a continuum that starts with the preferred option and ends with the detailed design, ideally without rework.

At any point in the planning / design process, Work Packages may be commissioned to supply design inputs in the form of data, information, considerations and requirements. It is important for Consultants supplying Work Packages to recognise that design inputs may have a strong bearing on the quality of work performed by a planning / design Consultant. The results of poor inputs may not be apparent for several years after the transport infrastructure has been completed.

The requirements of this System apply to the delivery of planning and design projects for the Department's transport infrastructure, including the supply of all associated Work Packages comprising investigations, studies, consultation (for example, economic, financial / commercial, geotechnical, environmental, native title, public consultation, engineering surveys, and so on).

The System has not been designed for application to Consultants carrying out engineering design with respect to small developer projects with low risk within the road reserve or the services of a Consultant on a labour Contract (for example, Contract employee).

The System applies to both Prequalified Consultants where prequalification categories apply and Non-Prequalified Consultants where work categories do not meet the specific project requirement.

The *Queensland Procurement Policy* applies to the procurement processes for the engagement of Engineering Consultants described in this Manual.

1.2 System applicability

This System applies to the engagement of Consultants for engineering projects, including project sub-components (that is, Work Packages) by the Department.

For clarity, and as noted above, **no agreement will be formed between the Department and an Offeror unless and until a Letter of Acceptance has been issued by the Department and sent to the Offeror.** The Letter of Acceptance will confirm the documents forming the Contract.

1.3 Management culture

The System has been developed with the intent of encouraging the engagement of Engineering Consultants based on price averaging. The Department discourages any industry culture of low bid offers, where the intent is to increase fees throughout the engagement by maximising variations.

The intent of the System is to foster good working relationships between the Department and Consultants, resulting in fair fees, relative to the quality of work and level of service provided, based on the complexity of the relevant project.

In addition, the duration (hours) component of a time rate fee is not to be considered as an open-ended situation. The Consultant is expected to deliver closely to the hours nominated in the price schedule.

The Department operates as an informed buyer. Functional specification templates have been developed, with the intention of producing high quality, project-specific briefs. Refer to Clause 4.3.2 of Chapter 4 and Clause 5.2.3 of Chapter 5 of this Manual for details of the functional specifications.

1.4 User compliance with system requirements

The General Manager (Program Delivery and Management (PMD)) may from time-to-time order independent audits of the use of the System for compliance with the specified requirements. Identified areas of non-compliance will be addressed directly with the preconstruction areas concerned.

This Manual provides Consultants with guidance on the requirements (including intent) and management practices covered by this Manual.

1.4.1 System documentation

All System documentation can be found on the Department's website - link: Engineering Consultant's webpage (<https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Consultants-for-engineering-projects>) and include the following:

- *Consultant for Engineering Projects (CFEP) Manual*
- Consultant Prequalification Forms:
 - Form C7511 *Information Brochure* (is duplicated as Chapter 2 of this Manual)
 - Form C7512 *Application Form*, and
 - Form C7513 *Curriculum Vitae for Prequalification / Tender*.
- Functional specification templates:
 - Form C7520 *Introduction and Administration*
 - Form C7521 *Options Analysis and Annexure*
 - Form C7521 *Addendum to Infrastructure Sustainability Requirements Options Analysis / Preliminary Evaluation Specification*
 - Form C7521 *Addendum to Public Utility Plant (PUP) Options Analysis*

- Form C7522 *Business Case and Annexure*
 - Form C7522 *Addendum to Infrastructure Sustainability Business Case Requirements*
 - Form C7522 *Addendum to Public Utility Plant (PUP) Business Case Requirements*
- Form C7523 *Preliminary Design and Annexure*
- Form C7524 *Detailed Design and Annexure*
 - Form C7523 / C7524 *Addendum to Infrastructure Sustainability Design Requirements*
 - Form C7523 / C7524 *Addendum to Public Utility Plant (PUP) Design Requirements*
- Form C7525 *Native Title, Land Acquisition and Limitation of Access*
- Form C7526 *Economic Analysis (Deliverables and Reporting)*, and
- Form C7556 *Typical Stage Codes*.
- Sustainability Appendices to Addendums C7521, C7522 and C7524:
 - *Appendix B Infrastructure Sustainability Management Plan (ISMP) – (Planning / Design / Construction)*
 - *Appendix C Guidance Note – Project Sustainability Objectives and Targets*
 - *Appendix D Guidance Note – Infrastructure Sustainability Base Case Framework, and*
 - *Appendix E Guide to Incorporating Sustainability into Project Decision-Making*
 - *Sustainability Decision-Making Tool*.
- Terms of Reference – Environmental
 - Form C7557 *Terms of Reference for Preliminary Environmental Assessment*
 - Form C7558 *Terms of Reference for Review of Environmental Factors*, and
 - Form C7559 *Terms of Reference for Cultural Heritage Assessment*.
- Offer and Contract documents:
 - Form C7542 *General Conditions of Offer*
 - Form C7545 *General Conditions of Contract*
 - Form C7547 *Consultants Professional Indemnity and Public Liability Insurance Declaration*
 - Form C7554 *Supplementary Conditions of Contract for Road Planning and Design Projects*
 - Form C7554.1 *Annexure A - Management Procedures and Forms*
 - Form C7554.2 *Annexure B - Delegation of Functions of the Principal and the Consultant*

- Form C7554.3 *Annexure C - Additional Clauses*
- Form C7555 *Notices to Offerors (Includes Notices to Invitees)*
- Form C7585 *Invitation for Offer for Consultant Service*
- Form C7586 *Offer for Consultant Service – Non-Price Component*
- Form C7587 *Offer for Consultant Service - Price Component*
- Form C7598 *Unsuccessful Advice, and*
- Form C7599 *Letter of Acceptance.*
- Performance reporting forms and user guide:
 - *Performance Reporting User Guide*
 - Form C7561 *Initiation of Contract*
 - Form C7562 *Pre-Construction, and*
 - Form C7563 *Post-Construction.*
- Standard Management Forms
 - Form C6930 *Request for Variation*
 - Form C6931 *Principal Proposed Variation*
 - Form C6932 *Variation Order*
 - Form C6933 *Request by Consultant for Information*
 - Form C6934 *Direction / Reply to Consultant*
 - Form C6935 *Consultant Liaison with other Consultants*
 - Form C6936 *Request for Extension of Time*
 - Form C6937 *Grant of Extension of Time*
 - Form C6938 *Consultant Referral*
 - Form C6939 *Referral to Principal's Delegate*
 - Form C6940 *Unit Rates Order*
 - Form C6941 *Submission of Project Review Report*
 - *Form C6942 Submission of Preliminary Design Report*
 - Form C6943 *Submission of Detailed Design Report*
 - Form C6944 *Submission of Drawings and Other Documents*
 - Form C6945 *Meeting Action Summary*
 - Form C6946 *Public Utility Plant Conflict Advice*

- Form C6947 *Tax Invoice Attachment – Progress Payment Claim (PPCA) Preliminary Design*
- Form C6947SI *Tax Invoice Attachment – Progress Payment Claim (PPC) Single Invitee / Sole Supplier*
- Form C6948 *Progress Payment Certificate (PCR)*
- Form C6948SI *Progress Payment Certificate (PCRS) Single Invitee / Sole Supplier*
- Form C6949 *Reference to Sub-Consultant*
- Form C6950 *Consultant Proposed Variation*
- Form C6951 *Communication from Principal*
- Form C6952 *Document Transfer Form*
- Form C6953 *Tax Invoice Attachment – Progress Payment Claim (PPCB) Detailed Design*
- Form C6954 *Document Transfer Form, and*
- Form C6955 *Notice of Dispute.*

The following 2 documents are available on the Engaging an Engineering Consultant (CFEP) page on the Department's SharePoint site (for internal use only):

- Form C7566 *Excel assessment spreadsheet for Qualification Based Selection*
- Form C7567 *Excel assessment spreadsheet for Value Based Selection.*

Email infrastructureproc@tmr.qld.gov.au for copies.

1.4.2 System database

3PCM stores the Supplier Prequalification Register. The 3PCM Register provides current details on all Prequalified Consultants:

- Organisation / contact information
- Prequalification entitlements
- Registered Professional Engineer of Queensland (RPEQ) personnel
- Insurances
- Quality System
- State / local registers (nominated areas of service), and
- Standard computer systems.

1.5 System review and maintenance

PMD may undertake periodic reviews of the system. The basis for review will include information contained in completed performance reports and any other relevant information / specific feedback, including independent audit reports.

Special reviews may be directed as a result of subsequent construction problems, cost overruns, excessive variation claims and so on.

1.6 Enquiries

For enquiries related to this Manual, please contact consultantprequal@tmr.qld.gov.au.

For enquiries related to infrastructure procurement, including the procurement processes outlined in this Manual, please contact infrastructureproc@tmr.qld.gov.au.

2 Consultant Prequalification System

2.1 Introduction

Engineering Consultant organisations wishing to provide engineering services to the Department for transport infrastructure projects, must be Prequalified Consultants. The aim of the System is to classify Consultants commensurate with their technical skills, available resources, and managerial capability to undertake commissions for those projects.

Prequalification does not provide any guarantee of any volume or value of engagements by the Department.

2.1.1 Scope

The System applies to organisations (that is, not to specific individual persons) wishing to make competitive offers for engineering projects fitting the following 16 categories of prequalification:

1. Bridge Design (BD)
2. Cost Estimating (CE)
3. Cost Management (CM)
4. Data Analysis and Insights (DAI)
5. Economic Studies (ES)
6. Financial / Commercial (FC)
7. Geotechnical Engineering (GE)
8. Highway Engineering (HE)
9. Hydraulic Design (HD)
10. Intelligent Transport Systems (ITS)
11. Marine Engineering (ME)
12. Rail Engineering (RE)
13. Rail Operations Modelling (ROM)
14. Traffic Engineering (TE)
15. Transport and Land Use Modelling (TLUM), and
16. Transport Planning (TP).

There are 3 levels (Level one, 2 and 3) for each of the above categories, where Level 3 is the highest.

These prequalification requirements also apply to Consultants wishing to tender in response to public advertisement for the provision of services on engineering projects.

2.2 Requirements for prequalification

Consultants wishing to make an application for prequalification will be required to demonstrate that they can meet the mandatory requirements of prequalification.

2.2.1 Appropriately completed application form

Applicants are required to complete all relevant parts of Form C7512 *Application Form* and supply objective evidence supporting the applicant's required prequalification requirements.

2.2.2 Requirements for prequalification of Consultant organisation

The purpose of prequalification is to appoint suitable Consultants to the categories and levels commensurate with the capability and capacity of the Consultant organisation, together with the experience of the applicant's nominated personnel.

2.2.3 Quality system

Applications for Bridge Design:

- the applicant must hold current third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation. Self-assessed systems are not acceptable. The scope of the certification must reference the services relevant to the categories of prequalification.

Applications for Geotechnical Engineering, Highway Engineering, Hydraulic Design, Marine Engineering (except Level 1 subcategories of ME1.b Numerical modelling and ME1.c Finite element modelling) and Traffic Engineering:

- the applicant must hold current third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation. Self-assessed systems are not acceptable. The scope of the certification must reference the services relevant to the categories of prequalification, or
- where an applicant can demonstrate that the organisation has no employees other than the individual providing the service, Controlled Self-Assessment in conjunction with the Department is acceptable for submission. The Department will require comprehensive documentation of the Consultant's quality system as part of the

assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).

Applications for Cost Estimating and Cost Management:

- For CE and CM Levels 1 and 2 – Controlled Self-Assessment in conjunction with the Department is acceptable. The Department will require comprehensive documentation of the Consultant's quality system as part of the assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).
- For CE and CM Level 3 – the applicant must hold current third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation. The scope of the certification must cover CE services.

Applications for Economic Studies, Financial / Commercial:

- the applicant shall preferably hold third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation, or
- where third-party certification is not undertaken, Controlled Self-Assessment in conjunction with the Department is acceptable. The Department will require comprehensive documentation of the Consultant's quality system as part of the assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).

Applications for Intelligent Transport Systems:

- For ITS Level 1 and 2 – Controlled Self-Assessment in conjunction with the Department is acceptable. The Department will require comprehensive documentation of the Consultant's quality system as part of the assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).
- For ITS Level 3 – the applicant must hold current third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation. The scope of the certification must cover ITS services.

Applications for Marine Engineering (Level 1 subcategories of ME1.b Numerical modelling and ME1.c Finite element modelling):

- the applicant shall *preferably hold* third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation, or
- where third-party certification is not undertaken, Controlled Self-Assessment in conjunction with the Department is acceptable. The Department will require comprehensive documentation of the Consultant's quality system as part of the

assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).

Applications for Rail Engineering:

- For RE1 and RE2 – Controlled Self-Assessment in conjunction with the Department is acceptable. The Department will require comprehensive documentation of the Consultant's quality system as part of the assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).
- For RE3 – the applicant must hold current third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation. The scope of the certification must cover RE services.

Applications for Rail Operational Modelling:

- For ROM1 and ROM2 – Controlled Self-Assessment in conjunction with the Department is acceptable. The Department will require comprehensive documentation of the Consultant's quality system as part of the assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).
- For ROM3 – the applicant must hold current third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation. The scope of the certification must cover RE services.

Applications for Data Analysis and Insights (DAI) and Transport and Land Use Modelling (TLUM)

- the applicant shall *preferably hold* third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation, or
- where third-party certification is not undertaken, Controlled Self-Assessment in conjunction with the Department is acceptable. The Department will require comprehensive documentation of the Consultant's quality system as part of the assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).

Applications for Transport Planning:

- For TP Level 1 and 2 – Controlled Self-Assessment in conjunction with the Department is acceptable. The Department will require comprehensive documentation of the Consultant's quality system as part of the assessment process. Refer to Attachment P in the application document (Form C7512 *Application Form*).

- For TP Level 3 – the applicant must hold current third-party certification to the relevant Australian Standard from a JAS-ANZ accredited organisation. The scope of the certification must cover TP services.

Applications for multiple categories:

- For applicants who already hold third-party certification, all categories applied for **must** be covered by the certification – in this circumstance, Controlled Self-Assessment is **not** acceptable.

Use of Sub-Consultants:

- If the Consultant outsources any component of a Contract service to a Sub-Consultant, the Consultant **must** control the processes required in providing these outsourced services. Control of these outsourced services **must** be identified within the Consultant's quality system.

2.2.4 Registered Professional Engineers

Consultants should consider their legal obligations under the provisions of the *Professional Engineers Act 2002 (Qld)*, including any requirement for individual engineers to register with the Board of Professional Engineers before they can practise as a professional engineer in Queensland. That is, persons who in their employment or business provide an engineering service must be a Registered Professional Engineer of Queensland (RPEQ).

An exception applies for persons who provide an engineering service that is or will be under the direct supervision of a RPEQ registered engineer in the same field of engineering. The requirement applies regardless of whether the professional engineer provides professional engineering services to his or her employer or to external clients.

A condition of prequalification with the Department, is that Engineering Consultants comply with the statutory requirements of the *Professional Engineers Act 2002 (Qld)* and ensure at all times that persons employed as professional engineers are registered (as an RPEQ), or work under the direct supervision of an RPEQ in the same field (discipline) of engineering.

A further condition of prequalification is that a person's RPEQ registration is in the relevant area (discipline) of engineering for the engineering service being provided.

While the overall responsibility for engineering project design and documentation services rests with the Consultant organisation carrying out the work, the Department requires that individual design responsibility for each area of engineering under the *Professional*

Engineers Act 2002 (Qld) is identified and recorded in accordance with the Department's *Drafting and Design Presentation Standards Manual*, Volume 1, Chapter 1.

Consultants are required to demonstrate in their application how the above RPEQ requirements will be addressed.

If overseas personnel are nominated in an application, Consultants are required to advise how the organisation would manage the above RPEQ requirements with respect to those personnel.

2.2.5 Australian Business Number and Australian Company Number

Applicants must have a registered Australian Business Number (ABN) and/or an Australian Company Number (ACN).

2.2.6 Insurances at Prequalification Stage

It is a condition of the system that applicants hold Consultant Arranged Insurance consisting of:

- Professional Indemnity (for an amount not less than \$1M for any one claim; \$2M in the aggregate)
- Public Liability (for an amount not less than \$20M for each occurrence), and
- where applicable, Workers' Compensation insurances.

Additionally, all Contracts for Consultant services require the Consultant to have current Professional Indemnity (if Principal Arranged Insurance not applicable), Public Liability and Workers' Compensation insurances.

The level of insurance cover required for individual projects will be specified in Form C7585 *Invitation for Offer for Consultant Service*. Refer to Clause 3.7.2 in Chapter 3 of this Manual for details of Contract insurance requirements.

Insurance policies come in different forms and have a multiplicity of possible detailed requirements and conditions. Accordingly, the Department will consider the adequacy of a Consultant's liability insurance prior to:

- the granting of Prequalification Level(s), and
- the award of a Contract for Consultant services.

In all circumstances, the Consultant must provide evidence that its insurance policies for professional indemnity, public liability and, if applicable, workers' compensation insurance meet the Department's requirements, such as a Certificate of Currency.

For all Contracts for Consultant services, the Consultant's insurance policies must meet the requirements in Form C7545 *General Conditions of Contract*.

2.3 Prequalification

The System is managed and maintained by the Department's Prequalification Team in PMD.

Where the required service does not align with any of the prequalification categories and levels, refer to Chapter 5 *Invitation Process – Non-Prequalified Consultants* of this Manual.

2.3.1 Prequalification registers

The System permits 2 types of Engineering Consultant registration comprising:

- a statewide register, and
- a district register.

2.3.1.1 Statewide register

A statewide register is the primary register of the Department as it records all Prequalified Consultants who can provide services on engineering projects for the Department. The statewide register will only be used where the district register does not meet the work categories and levels requirement for a particular commission.

2.3.1.2 District registers

District registers are compiled by individual districts from the statewide register, to identify those consultancies which have been assessed as having the appropriate credentials to meet specific work requirements in that district.

These special district requirements (local needs) will normally be for any of the following reasons:

- **local interfaces** – knowledge and experience (for example, expansive black soils, wet tropics, and so on), local delivery capability / availability of local personnel, and
- **face-to-face project reviews** – communication capability.

This does not necessarily mean district registers will be restricted to locally-based Consultants.

2.3.1.3 Use of prequalification registers

The prequalification registers shall be used when seeking Prequalified Consultants for engineering projects. Only Prequalified Consultants shall be engaged as the primary

Consultant on engineering projects and in design and construct-style infrastructure procurement, such as TIC-DC and Early Contractor Involvement.

Sub-Consultants providing services covered under the categories of this System must also be prequalified.

The intention is that districts should use local resources wherever possible and use the statewide register where the district register does not adequately cover a specific project need.

2.3.2 Application for prequalification

Consultants and other organisations (for example, Local Government Authorities wishing to make competitive offers for engineering projects) which meet the mandatory requirements are eligible to apply for prequalification. Providing evidence of capabilities for the applicable categories and levels, and sufficient information for the assessments, is the responsibility of each applicant.

2.3.2.1 Initial applications

New applications for prequalification may be made at any time. New applications must be made using Form C7512 *Application Form*. The applicable attachments to the application form are listed below and are to be completed to demonstrate appropriate experience against the nominated category criteria:

- Attachment A – Current Projects
- Attachment B – Projects completed during past 3 years, demonstrating relevant experience at the prequalification level being applied for
- Attachments C – P Technical Experience of Personnel (by category), and
- Attachment S – QMS Controlled Self-Assessment - an option for applicants for CE (levels 1, 2), CM (levels 1, 2), DAI (all levels), ES (all levels), FC (all levels), ITS (levels 1, 2), ME1 (subcategories of ME1.b Numerical modelling and ME1.c Finite element modelling only), RE (levels 1, 2), ROM (levels 1, 2), TLUM (all levels), TP (levels 1, 2).

Supporting evidence should include:

- detailed planning / design layouts; site locality plans; drawing indices; longitudinal sections; cross sections (include pavement design); signage and line marking plans; intersection plans
- general arrangement drawings, to show the complexity and size of projects

- for Bridge Design – design calculations, drawings’ Structural Notes. For Bridge Design Level 3 – drawings of bridge types such as Super T girder bridges, box girder bridges, and
- reports relating to the nominated projects.

Curriculum Vitae’s (CVs) of nominated personnel are required (including all nominated RPEQs and Sub-Consultants). The Department template Form C7513 *Curriculum Vitae for Prequalification / Tender* is to be used, available on the following website:

Link: [Consultants for Engineering Projects webpage](#).

2.3.2.2 Renewal of prequalification status

Prequalified Consultants are required to apply for renewal of their prequalification levels every 3 years, unless there is a condition requiring a shorter period of renewal. All existing Prequalified Consultants will be advised via email when they are required to renew their prequalification.

Renewal applications require full and complete information in the following disciplines:

- Cost Estimating (CE)
- Cost Management (CM)
- Economic Studies (ES)
- Financial / Commercial (FC)
- Intelligent Transport Systems (ITS)
- Traffic Engineering (TE)
- Transport and Land Use Modelling (TLUM), and
- Transport Planning (TP).

Only new information since last application with changes highlighted will be required in the following disciplines:

- Bridge Design (BD)
- Data Analysis and Insights (DAI)
- Geotechnical Engineering (GE)
- Highway Engineering (HE)
- Hydraulic Design (HD)
- Marine Engineering (ME)
- Rail Engineering (RE), and
- Rail Operational Modelling (ROM).

2.3.2.3 Upgrading of prequalification categories and levels

Prequalified Consultants may apply to upgrade their prequalification level after 6 months from the last assessment period. If an upgrade application is accepted, the validity period will continue to remain the same as per the last renewal application.

Prequalified Consultant may apply for any new categories at any time. However, if accepted, the validity period will remain the same as per the last renewal application.

Applications for upgrading of prequalification levels must contain the same information as required for new applications. Applications for upgrading will be assessed in the same way as new applications.

Applicants seeking an upgrade in their prequalification should acquaint themselves with the characteristics of projects at the higher level being applied for (refer to Clause 6 in Chapter 2 of this Manual) and be able to demonstrate that, on previous projects, they have acquired the requisite experience to meet the assessment criteria corresponding to the level sought.

Applicants should note that it may not be sufficient to simply recruit more experienced key personnel in order to obtain an upgrade. The overall organisation also needs to be able to demonstrate the required company experience, including any mandated software.

HD2 and HD3 upgrade applications must include hydraulic reports as evidence of capability, for the application to be considered.

Where an organisation recruits additional key personnel with experience at a higher level than the organisation's current prequalification level, the Prequalification Committee may (at its discretion) consider an upgrade and may grant conditional prequalification at a higher level. Any such conditional prequalification would be subject to review following satisfactory completion of the first Contract by the organisation at the conditional prequalification level.

2.3.2.4 Changes to Consultant's organisation

A Prequalified Consultant is required to immediately advise the Department in writing of any change, such as:

- in ABN or legal entity name
- in its management capability, technical skills or available resources, which is likely to affect eligibility for continued registration in any category or level of prequalification
- in their address or contact details

- in insurance or quality assurance details, and
- if any sanctions or suspended sanctions are being investigated under the Procurement Assurance Model (PAM) Framework.

The requested changes and/or failure to advise of changes may result in a review of an organisation's prequalification status.

2.3.2.5 Newly formed organisations

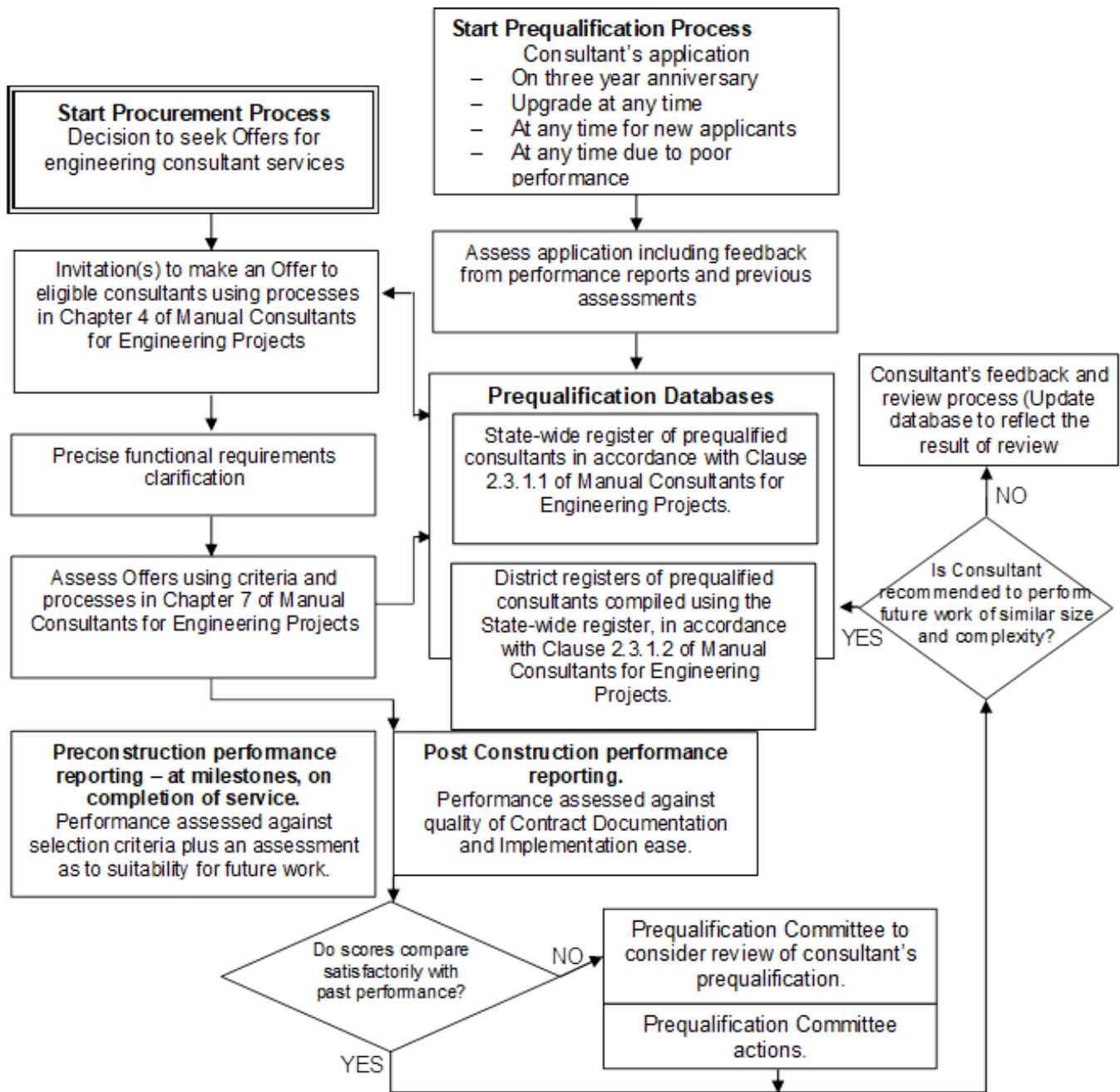
Newly formed organisations may apply for prequalification. The assessment of these applications will focus primarily on the capability and experience of the nominated personnel. It is understood that newly formed organisations would have untested management and quality assurance systems.

Any prequalification entitlements considered by the Prequalification Committee will commence at Level One (Entry Level) for a period of 12 months. This would enable the organisation to gain experience undertaking work as an operational business, and also demonstrate the effectiveness of the organisation's policies, procedures and systems. Another application would be required for an assessment after 12 months, in order to confirm the prequalification entitlement(s).

2.3.2.6 Assessment of applications

Applicants must meet the mandatory requirements before an assessment is made (refer Clause 2.3). The overall assessment process is shown in Figure 2.3.2.6.

Figure 2.3.2.6 – Overall process for prequalification assessment and maintenance



The Prequalification Team is responsible for the processing of applications and will:

- a) arrange with the relevant head of discipline or delegate for assessment of the relevant categories and levels applied for
- b) arrange for the updating of the prequalification register, and
- c) notify the applicant of the assessment results and provide relevant feedback as necessary.

Factors which are considered in an assessment are:

- **Past performance:** on completion of a Contract, a confidential report on the Consultant's performance is prepared and submitted. These reports may be used by category assessors and the Prequalification Committee when assessing applications and for maintenance of the prequalification system.
- **Availability:** of relevant software by the applicant, and
- **Technical and management skills and resources:** key individual's skills matched to the prequalification levels, that is, category of work descriptions.

2.3.3 Notification of assessment results

Applicants will be notified by letter of their approved prequalification level, which will nominally remain current for 3 years, unless there is a condition requiring a shorter period. During this period, a Consultant may have its prequalification rescinded or level changed if circumstances warrant (refer to Clause 2.3.5). The Department usually requires at least 6 weeks to consider an application.

2.3.4 Request for review of assessment

Applicants may request a review of an assessment within 20 business days of written notification of the outcome of an application. Requests should be addressed to the Secretary of the Prequalification Committee and emailed to consultantprequal@tmr.qld.gov.au.

There will be no changes to an advised assessment outcome whilst the review process is being conducted.

2.3.4.1 Appeals against outcome of assessment review

If an applicant is not satisfied with the outcome of an assessment review, an appeal may be made to the General Manager (Program Management and Delivery) within 20 business days of the Department's written notification of the outcome of that review.

An appeal should be addressed to:

General Manager (Program Management and Delivery)
Department of Transport and Main Roads
GPO Box 1549
Brisbane Qld 4001

And emailed to consultantprequal@tmr.qld.gov.au.

The decision of the General Manager (Program Management and Delivery) will be final. There will be no changes to an advised assessment outcome whilst the appeal process is being conducted.

2.3.5 Reviewing, rescinding or downgrading prequalification

The Department reserves the right to review a Consultant's prequalification at any time and, if considered appropriate, rescind the prequalification or reduce the level of prequalification based on matters including but not limited to:

- unsatisfactory project performance
- unsatisfactory management of a nominated Sub-Consultant
- change in personnel nominated in a Consultant's application without notification to the Principal
- failure to submit renewal application within a reasonable time (60 days from invitation to submit renewal application)
- failure to respond satisfactorily to a performance report within a reasonable time (30 days)
- failure to continue to comply with mandatory prequalification requirements, or
- failure to maintain Contract prequalification requirements during the term of a Contract. Refer to Clause 2.17 in Form C7545 *General Conditions of Contract* for details and Contract-specific actions.

Before such action is taken, the Consultant will be given an opportunity to show cause as to why its prequalification registration should not be rescinded or reduced. The Consultant will also be given details of the matters prompting the show cause notice.

2.3.6 Sub-Consultants and joint ventures for planning and design projects

2.3.6.1 Sub-Consultants

Sub-Consultants at the prequalification stage

The nomination of Sub-Consultants for a category will be considered in the assessment process on a discretionary basis. The application must include evidence demonstrating a proven and established relationship between the applicant and the Sub-Consultant.

For the categories of Bridge Design, Geotechnical Engineering, Highway Engineering, Hydraulic Design, Intelligent Transport Systems, Marine Engineering and Traffic Engineering, evidence is required for RPEQ sign off by the nominated Sub-Consultant over a range of projects spanning a number of years.

Sub-Consultants at the offer stage

A Consultant may utilise the services of Sub-Consultants, provided that the Sub-Consultants are on the register and prequalified to the appropriate level. Offer invitation documents shall stipulate the project's prequalification categories that may be outsourced to a Sub-Consultant(s). The primary Consultant is required to be prequalified in the remaining categories.

The offer must be submitted under the name of the invitee who will be held responsible for the performance of the Contract and be the sole Departmental contact for the duration of the Contract. In this respect, only engineering consultancies may be primary Consultants on engineering projects.

2.3.6.2 Joint ventures

Joint ventures at the offer stage may be considered. Contact the Prequalification team at consultantprequal@tmr.qld.gov.au for more information.

2.3.7 Consultant prequalification information – availability of information

The Department will maintain on its website, a list of the names, addresses and other details, including prequalification categories and levels, of currently Prequalified Consultants.

Link: [Consultants for Engineering Projects webpage](#).

No responsibility is accepted by the Department for any consequences arising from the publication or use of any such information and each Consultant consents to the disclosure and publication of such information.

2.4 Confidentiality

Confidential information provided with applications will be dealt with on the same terms as the Confidential Information provisions of Form C7542 *General Conditions of Offer*.

2.5 Prequalification categories

The 14 prequalification categories and levels are described in this clause. Each level of category includes the lower level within that category as relevant. Consultants are required to nominate the level for assessment when applying for prequalification.

To attain prequalification, an applicant must have professional staff with demonstrated competencies in the categories and levels for which the applicant is applying.

Design verification and proof engineering services

Applicants should note that design verification and proof engineering services are not part of the System. Prequalification at the stipulated project level is required as a prerequisite to carrying out these services.

2.5.1 Bridge Design (BD)

Consultancies applying for prequalification in bridge design are expected to have a strong track record of delivery in relevant subject areas.

This category only applies to road and rail bridges that are delivered by the Department.

Temporary structures, formwork, falsework, jacking, driven / mined tunnels, jack box designs for tunnels and bridge structural assessments are NOT part of this prequalification category.

Company eligibility for level BD1 and BD2 is based on road bridge experience held by current RPEQs in the company within the past 3 years for any one or more of the following clients:

- the Department, including demonstrated experience in the use of the Department's *Design Criteria for Bridges and Other Structures*
- other State road authorities, demonstrating expertise with the relevant Australian Standards
- Australian Local Authority, to an Australian Standard where it can be demonstrated the standard is equivalent to the Department, and
- another client, where the code specified was not the Australian Standard but the standard and technical standards are of similar complexity, for example, British Standards.

Eligibility for level BD3 is dependent on successful demonstration of this expertise on the Department's bridge design projects for the lower levels, or for other State road authorities using AS/NZS 5100 *Bridge Design*. These are Department delivered projects where the bridges and structures are:

- technically complex
- large projects
- have high monetary value
- have heightened safety requirements, and
- have high impacts on the community.

BD3 prequalification is recognised by the Department as an assured means to successfully deliver the design of such projects with high risk profiles.

To obtain prequalification in all levels, the Consultant would require sufficient staff to permit all bridges and other structures to be:

- designed by an engineer who is an RPEQ or an engineer supervised by a suitably experienced RPEQ, and
- all designs to be design checked by an engineer who is an RPEQ or supervised by a suitably experienced RPEQ.

The engineers and RPEQ supervisors who undertake the check shall be different to the engineers and RPEQ supervisors who undertake the design. BD3 design check would require the work to be completed in a separate office to that of the designer.

The prequalification levels for bridge design are described in Table 2.5.1.

Table 2.5.1 – Bridge Design prequalification levels

Level	Class of Work Description
BD1	<ul style="list-style-type: none"> • Simple bridges where geometry is substantially predetermined. • Noise barriers, light poles, minor sign supports that do not span over the carriageway, that is, 'off carriageway. • Variable message (VMS) and other sign gantries that do not span over the carriageway, that is, 'off carriageway', sign structures. • Advertising sign structures that do not span over the carriageway, that is, 'off carriageway'. • Retaining walls and scour protection, and • Drainage structures.
BD2	<p>As for BD1 plus:</p> <ul style="list-style-type: none"> • significant urban bridges (excluding complex bridges), major rural bridges and rail overpasses where geometric, geotechnical, or hydraulic complications may occur • gantry structures that span over carriageways, and • advertising sign structures that span over the carriageway, i.e. 'on carriageway'.
BD3	<p>As for BD2 plus:</p> <ul style="list-style-type: none"> • complex road and rail bridges and major urban bridges using non-standard structural members • major projects that have a lot of road and/or rail bridges • additional qualification procedures may be used for particular structures, and • cut and cover tunnels, major civil structures, retaining wall structures.

Refer to Clause 2.7.1 of this Manual for commentary on how applicants may address bridge design criteria.

2.5.2 Cost Estimating (CE)

Consultancies applying for prequalification in cost estimating are expected to have expertise and a strong track record of delivery in the following relevant subject areas relating to cost estimating:

- delivery of full cost management services for a variety of transport infrastructure project types (for example preparation of elemental cost plans, estimating, life cycle costing (Net Present Value (NPV), cash flows, estimating peer reviews, report writing)
- ability to undertake first principles cost estimating of transport infrastructure, in accordance with both Australian and Queensland Government requirements
- ability to undertake project risk analysis, both qualitative and quantitative assessments, and
- a detailed understanding and application of available tools to undertake cost estimating for transport infrastructure projects, both at the project and program level.

Consultants making application to perform work for the Department should be aware that experience obtained more than 3 years ago, works delivered to other agencies or in non-transport infrastructure activities will not necessarily demonstrate an ability to effectively undertake the Department's cost estimating activities for transport infrastructure projects.

The Consultant must have at least one experienced and qualified in-house cost estimator with a proven track record in preparing civil construction estimates and tenders. However, for CE2 and CE3 levels, the Consultant should be able to demonstrate the capability and reliability of the estimating team to handle various complex activities in addition to the requirements outlined in CE1. Desirable academic or professional qualifications include: Tertiary qualifications in project management, civil engineering, quantity surveying or equivalent civil engineering / surveying qualifications that are acceptable for corporate membership of Engineers Australia or the Australian Institute of Quantity Surveyors.

It is a requirement of the *Professional Engineers Act 2002* (Qld) that professional engineering services in Queensland and the design of buildings, plants, machinery or products for use in Queensland, are carried out by a RPEQ, or alternatively by a person who carries out the services under the direct supervision of a RPEQ who is ultimately responsible. As such, where an assessment or interpretation of engineering design,

staging, or construction risk is required, that work must be approved by an appropriately qualified RPEQ.

In this category, the Consultant is assessed on its demonstrated ability to identify and evaluate cost estimating issues and develop estimates for projects.

The prequalification levels for cost estimating are described in Table 2.5.2.

Table 2.5.2 – Cost Estimating prequalification levels

Level	Class of Work Description
<p>CE1</p>	<ul style="list-style-type: none"> • Cost estimating for simple transport infrastructure projects related to roads and bridges in various phases of project development (strategic estimates, concept phase estimates, development phase estimates and implementation phase estimates). • Scope: Simple projects at HE1, BD1, GE1, HD1. • Estimating construction Contractor’s costs, Principal’s costs, risk and contingency and escalation. • Application of applied cost estimating methods such as cost planning, global rate estimating, unit rate estimating, first principles estimating, probabilistic estimating. • Issues identification relating to cost estimating and tendering. • Benchmarking and cost comparison with market rates. • Construction strategies and staging. • Application of the Department's <i>Project Cost Estimating Manual (PCEM)</i>, <i>Infrastructure Cost Estimating Policy</i>, <i>Infrastructure Asset Accounting Policy</i> and Federal Government's <i>Best Practice Cost Estimating Standard for Publicly Funded Road and Rail Construction Guide</i>. • Use of tools required to prepare an estimate (for example, Microsoft Excel, dedicated estimating software, such as Expert Estimation, Palisade @Risk and relevant resource databases), and • Supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CE1 requirement outlined above.
<p>CE2</p>	<p>As for CE1 plus:</p> <ul style="list-style-type: none"> • cost estimating for medium complexity projects • scope: medium complexity projects at HE2, BD2, GE2, HD2, and rail networks, and • supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CE2 requirement outlined above.

Level	Class of Work Description
CE3	As for CE2 plus: <ul style="list-style-type: none"> • cost estimating for complex projects • scope: complex projects at HE3, BD3, GE3, HD3, bored and immersed tunnels, and • supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CE3 requirement outlined above.

Refer to Clause 2.7.2 of this Manual for commentary on how applicants may address CE criteria.

2.5.3 Cost Management (CM)

Consultancies applying for prequalification in cost management are expected to have expertise and a strong track record of delivery in the following relevant subject areas relating to cost management:

- ability to deliver budget performance and cost management services (for example budget and schedule variance analysis and reporting and contingency performance analysis and reporting)
- build cost models to predict future costs to align with the Department’s Cost Breakdown Structure (CBS) and update periodically
- identify potential risks such as scope changes and unforeseen conditions by collaborative working with project team
- set a baseline budget including contingency
- track and compare actual costs and identify variances
- analyse cost variances and provide guidance to project team for corrective actions
- provide regular reports to stakeholders, including Project Managers or senior leadership showing cost performance
- ability to undertake quantitative schedule risk analysis (including but not limited to sensitivity analysis, probability distribution of project completion and risk adjusted schedule review)
- ability to undertake project risk analysis, both qualitative and quantitative assessments, and
- detailed understanding and application of available tools to undertake cost management for transport infrastructure projects, both at the project and program level.

The Consultant must have at least one experienced and qualified in-house cost manager with a proven track record in managing civil construction costs and tenders. However, for CM2 and CM3 levels, the Consultant should be able to demonstrate the capability and reliability of the cost management team to handle various complex activities, in addition to the requirements outlined in CM1. Desirable academic or professional qualifications include:

- tertiary qualifications in project management
- civil engineering, and
- quantity surveying, or equivalent civil engineering / surveying qualifications that are acceptable for corporate membership of Engineers Australia or the Australian Institute of Quantity Surveyors.

In this category the Consultant is assessed on its demonstrated ability to identify and evaluate cost management (budget and schedule) issues for projects.

The prequalification levels for cost estimating are described in Table 2.5.3.

Table 2.5.3 – Cost Management prequalification levels

Level	Class of Work Description
CM1 - Budget Performance and Cost Management	
CM1.1 Approved Budget Performance and Cost Management	<p>Approved budget performance and cost management for simple multi-modal transport infrastructure projects in various phases of project development and delivery (concept phase, development phase estimates and implementation phase and forecasted to finalisation).</p> <ul style="list-style-type: none"> • Scope: Simple projects at HE1, BD1, GE1, HD1. • Approved budget performance and cost management of construction Contractor’s costs, Principal’s costs, risk and contingency and escalation. • Application of applied methods for monitoring Approved Budget performance and cost management. • Issues identification relating to budget performance and cost management and reporting with highlighted intervention recommendations where necessary. • Risk contingency budget expenditure and forecasting to completion and comparison to equivalent work performed. • Identification of over and under-performance of budgeted cost of work performed against actual cost of work performed.

Level	Class of Work Description
	<ul style="list-style-type: none"> • Use of tools required to prepare a budget performance and cost management project status reporting using applicable software that can be interrogated by others, and • Supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CM1.1 requirement outlined above.
CM1.2 Approved Budget Performance and Cost Management	<p>As for CM1.1 plus:</p> <ul style="list-style-type: none"> • approved budget performance and cost management for medium complexity projects • scope: medium complexity projects at HE2, BD2, GE2, HD2, and rail networks, and • supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CM1.2 requirement outlined above.
CM1.3 Approved Budget Performance and Cost Management	<p>As for CM1.2 plus:</p> <ul style="list-style-type: none"> • approved budget performance and cost management for complex projects • Scope: complex projects at HE3, BD3, GE3, HD3, bored and immersed tunnels, and • supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CM1.3 requirement outlined above.
CM2 - Quantitative Schedule Risk Analysis (QSRA)	
CM2.1 Quantitative Schedule Risk Analysis	<p>Quantitative Schedule Risk Analysis for simple multi-modal transport infrastructure projects in various phases of project development and delivery (concept phase, development phase, implementation phase and forecasted to finalisation).</p> <ul style="list-style-type: none"> • Scope: Simple projects at HE1, BD1, GE1, HD1. • Quantitative Schedule Risk Analysis (QSRA) of construction Contractor's schedule and alignment to Project Schedule. • Application of applied methods for conducting Quantitative Schedule Risk Analysis. • Issues identification relating to Quantitative Schedule Risk Analysis and reporting with highlighted recommendations where necessary. • Quantitative Schedule Risk Analysis of risk contingency and how this translated into Schedule risk and project duration to completion. • Ability to identify factors of influence impacting project critical path with defined effects.

Level	Class of Work Description
	<ul style="list-style-type: none"> • Use of tools required to prepare a Quantitative Schedule Risk Analysis of project status reporting using applicable software that can be interrogated by others. The Department primarily uses P6 Primavera, and • Supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CM2.1 requirement outlined above.
<p>CM2.2 Quantitative Schedule Risk Analysis</p>	<p>As for CM2.1 plus:</p> <ul style="list-style-type: none"> • Quantitative Schedule Risk Analysis for medium complexity projects • scope: medium complexity projects at HE2, BD2, GE2, HD2, and rail networks, and • supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CM2.2 requirement outlined above.
<p>CM2.3 Quantitative Schedule Risk Analysis</p>	<p>As for CM2.2 plus:</p> <ul style="list-style-type: none"> • Quantitative Schedule Risk Analysis for complex projects • scope: complex projects at HE3, BD3, GE3, HD3, bored and immersed tunnels, and • supporting documents (transport infrastructure projects completed within 3 years prior to the application) to demonstrate the capability of CM2.3 requirement outlined above.

Refer to Clause 2.7.3 of this Manual for commentary on how applicants may address CM criteria.

2.5.4 Data Analysis and Insights (DAI)

The Consultant must have at least one experienced analyst with capabilities in one or more of the following 4 disciplines:

- **Data Engineering:** Data Engineers architect big data infrastructure that supports strong data governance and can be used by Data Scientists and Analysts. The role can involve designing / developing / testing / maintaining highly scalable data architecture, writing complex queries to optimise the performance within the ecosystem, setting up and/or scheduling ETL (Extract, Transform and Load) tasks, or improving systems by integrating newer data management technologies.
- **Data Analysis:** Data Analysts clean, transform, and analyse quantitative and qualitative data to provide business insights and inform decision making. This often involves engaging with decision makers to understand the questions they are seeking to answer through the analysis. As such, this role often extends beyond

purely analytical skills and often involves providing recommendations and conclusions as well as presentation and report writing skills.

- **Data Science:** Data Scientists create algorithms and models that assist with or automate decision making. This is often accomplished through the application of statistical methods, modelling, machine learning, artificial intelligence, programming and analytics. Engagement with other areas of the business to understand existing processes and available data will often also be required.
- **Data Visualisation:** Data Visualisation specialists build visualisations that enable intuitive self-service analytics and/or convey stories that provide context and clearly communicate findings and insights. This often involves engaging with end-users to understand the insights they are attempting to extract from data and then working with data analysts, scientists, or engineers to prepare visualisations that service these requirements. Some preparation and analysis of data may also be expected of the visualisation specialist themselves, depending on the size of the project team.

The prequalification levels for data analysis and insights are described in Table 2.5.4.

Table 2.5.4 – Data Analysis and Insights prequalification levels

Level	Class of Work Description
DAI1	<p>Data engineering tasks, such as:</p> <ul style="list-style-type: none"> • development and maintenance of desktop or cloud ETL pipelines • design, development, and maintenance of data storage solutions, and • reviewing solution architectures to ensure compliance with data governance standards and legislative requirements. <p>Data analysis tasks, such as:</p> <ul style="list-style-type: none"> • data cleansing and preparation • undertaking analyses of observed transport-related data to generate insights that answer business questions, and • developing reports, presentations, and briefings to communicate results to both technical and non-technical stakeholders. <p>Data science tasks, such as:</p> <ul style="list-style-type: none"> • codifying and classifying data to train models to use machine learning techniques, AI, and/or algorithms to undertake advanced analysis tasks to generate insights that answer business questions, and • communicating model strengths, limitations, and scope of application to stakeholders.

Level	Class of Work Description
	<p>Data visualisation tasks, such as:</p> <ul style="list-style-type: none"> • preparing data sources for visualisation • developing infographics, cartographic maps, and/or interactive data visualisations to communicate insights and inform decision making, and • collaborating with data custodians to ensure data is not misrepresented. <p>Data storytelling</p>
DAI2	<p>As for DAI1 plus:</p> <p>Data engineering tasks, such as:</p> <ul style="list-style-type: none"> • design and implementation of cloud based ETL pipelines, and • design and development of cloud data storage solutions. <p>Data analysis tasks, such as:</p> <ul style="list-style-type: none"> • hosting stakeholder workshops to gather analysis requirements and understand where insights are needed • developing metrics and composite measures for performance monitoring and scenario comparison, and • using data blending techniques or conducting multi-criteria analyses to inform complex decisions that individual data sources alone cannot address. <p>Data science tasks, such as:</p> <ul style="list-style-type: none"> • hosting stakeholder workshops to understand data gaps and where additional insights are needed • developing fit-for-purpose models (other than classic strategic, mesoscopic, or microsimulation transport modelling), and • running scenarios / experiments through models to answer business questions and communicating results to stakeholders. <p>Data visualisation tasks, such as:</p> <ul style="list-style-type: none"> • collaborating with data engineers to optimise data delivery pipelines for visualisations • hosting workshops with end-users to understand their data visualisation needs, and • managing the sharing of data visualisations through online portals.
DAI3	<p>As for DAI2 plus:</p> <p>Data engineering tasks, such as:</p> <ul style="list-style-type: none"> • requirements gathering and documentation • designing and building cloud solutions that meet a set of user requirements • automation of ETL pipelines in the cloud • ensuring security is maintained in the cloud, and • cost optimisation in the cloud.

Level	Class of Work Description
	<p>Data analysis tasks, such as:</p> <ul style="list-style-type: none"> • working with data engineers to automate analysis pipelines, and • analysing and summarising modelling results including the evaluation of different scenarios. <p>Data science tasks, such as:</p> <ul style="list-style-type: none"> • working with data engineers to automate the execution of models and experiments • building and using models to develop future projections, and • application of emerging artificial intelligence and machine learning techniques to address business questions that other data science techniques have not been able to address. <p>Data visualisation tasks, such as:</p> <ul style="list-style-type: none"> • participating in iterative development cycles for building data visualisations to ensure end-users needs are met • working with data engineers to automate pipelines that feed data visualisations, and • hosting end-user training workshops and/or 1:1 sessions.

Refer to Clause 2.7.4 for commentary on how applicants may address DAI criteria.

2.5.5 Economic Studies (ES)

Consultants applying for prequalification in economic studies are expected to have a strong track record of delivery in relevant subject areas.

The following is a list of the of relevant subject areas relating to economic studies in which the Consultant is required to have expertise:

- theoretical principles underpinning transport economic analyses and related sectoral work
- detailed understanding and application of available tools to undertake economic analysis for transport infrastructure projects, both at the project and program level
- ability to undertake cost-benefit analyses of transport infrastructure, in accordance with both Australian and Queensland Government reporting requirements
- understanding of techniques and principles underpinning State and regional economic modelling
- ability to undertake economic impact analysis methods, techniques and studies, and
- ability to undertake economic and public policy analysis.

Consultants are expected to be familiar with a range of methods and guidelines to inform the analysis, whilst being able to draw on internal specialist expertise and be ready to engage relevant analytical methods.

Consultants are expected to meet Australian and Queensland Government reporting requirements. Economic studies and analysis will require involvement from the Project Evaluation Unit of the Department's Portfolio Investment and Programming Branch.

Submissions for prequalification are expected to be of a high standard. Consultants are required to provide sufficient evidence to address the criteria outlined in this brochure. Applications should only contain personnel relevant to addressing the criteria outlined in this chapter.

Key points of contact for Economic Studies within the Department is the Director (Project Evaluation) and Economics Evaluation Team (Project Evaluation) in the Portfolio Investment and Programming Branch.

The prequalification levels for economic studies are described in Table 2.5.5.

Table 2.5.5 – Economic studies prequalification levels

Level	Class of Work Description
<p>ES1</p>	<ul style="list-style-type: none"> • Use of applied economic evaluation methods such as cost benefit analysis (including standard project evaluation methodology and techniques), multi-criteria analysis, strategic merit test, and local investment impact analysis. • This level of prequalification is required for the economic evaluation of rural projects of low complexity. • Examples of projects subject to economic analysis include, but are not limited to, overtaking lanes, road widening, sealing unsealed road, and safety related projects, and • A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience.
<p>ES2</p>	<p>As for ES1 plus:</p> <ul style="list-style-type: none"> • Applied analysis involving sub-regional, regional or statewide economic impact analyses to inform project proposals and development of regional or statewide road investment strategies. Emphasis is placed on proven economic modelling techniques and understanding of linkages between investment in transport infrastructure and impacts on the broader economy. • Analysis can be of regional, statewide or national significance, relating to contribution to economic output and/or improvements to productivity, and • A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience.

Level	Class of Work Description
ES3	<p>The criteria for both ES1 and ES2 is required before an application can be considered for ES3.</p> <ul style="list-style-type: none"> • In addition to ES1 and ES2 the following is required: • applied economic analysis of major infrastructure projects or infrastructure programs that encompass large-scale infrastructure, which may also consider the impacts on the wider economy • this level of prequalification is required for the economic evaluation of large multi-modal projects, transport projects of great national significance, and projects or programs that require complex and sophisticated modelling and analysis, and • a recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience.

Refer to Clause 2.7.5 of this Manual for commentary on how applicants may address economic studies criteria.

2.5.6 Financial / Commercial (FC)

Consultants applying for prequalification in financial / commercial are expected to have a strong track record of undertaking analysis of transport infrastructure.

The following is a list of relevant subject areas in which a financial / commercial specialist would have recent knowledge and experience:

- theoretical principles underpinning financial analyses and market conditions
- awareness of available tools to undertake an analysis of capital, operations and maintenance costs associated with transport infrastructure
- ability to develop and assess a range of funding and staging scenarios, and
- awareness of commercial aspects of a range of infrastructure assets, including but not limited to the following:
 - road and bridge projects
 - public transport projects, including bus, heavy rail, light rail, and so on
 - multi-modal projects
 - transit oriented developments
 - mixed commercial / residential property developments, and
 - marine / boat harbour development assessments.
- awareness of project risk analysis, both qualitative and quantitative assessments

- ability to undertake value for money and affordability assessments involving variants of private sector involvement models and public sector comparator assessments, and
- awareness of a range of assessment guidelines, such as the Queensland Government Project Assurance and Value for Money frameworks, and Infrastructure Australia and National Public Private Partnership (PPP) guidelines.

It will be expected that Consultants will be familiar with a range of methods and guidelines to inform the analysis, whilst being able to draw on internal specialist expertise and be ready to engage relevant analytical methods and advise accordingly.

To meet Australian and Queensland Government reporting requirements and prioritise investments, Financial and Commercial assessments will require involvement from Project Evaluation Unit in Portfolio Investment and Programming Branch.

Key point of contact for Financial / Commercial assessments within the Department is the Director (Project Evaluation) in Portfolio Investment and Programming Branch.

The prequalification levels for financial / commercial are described in Table 2.5.6.

Table 2.5.6 – Financial / Commercial prequalification levels

Level	Class of Work Description
FC1	<ul style="list-style-type: none"> • Applied financial analysis methods, including discounted cash flow techniques, with an emphasis on whole-of-life costs assessments. • Evaluations are to be conducted in accordance with Australian and Queensland Government reporting requirements, and • A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience.
FC2	<p>As for FC1 plus:</p> <ul style="list-style-type: none"> • applied financial analysis for larger scale transport related infrastructure project assessments • analysis is more complex, with broader emphasis on commercial aspects of the project. Analysis should consider market conditions, risk allocation and procurement related issues that may impact on the project (i.e. funding, delivery and timing) • projects in this category are often of sub-regional, regional and/or national significance in terms of impacts and scale of investment, and • a recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience.

Level	Class of Work Description
<p>FC3</p>	<p>In addition to FC1 and FC2 the following is required:</p> <ul style="list-style-type: none"> • applied financial analysis on complex transport related infrastructure projects • the assessment is more comprehensive with an emphasis on commercial and risk aspects of mixed commercial / residential property developments, transit oriented developments and marine / boat harbour assessments, along with road and public transport projects, to inform government investment decision-makers, and • a recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience.

Refer to Clause 2.7.6 of this Manual for commentary on how applicants may address financial / commercial criteria.

2.5.7 Geotechnical Engineering (GE)

Note: Temporary works designs are **not** part of this prequalification category.

Consultants seeking prequalification in geotechnical engineering **must** demonstrate a strong track record of successfully delivering geotechnical design services for transport infrastructure projects.

Prequalification for GE1 and GE2, the Consultant must have a minimum of one RPEQ on staff who can demonstrate expertise in the field of geotechnical engineering. This expertise in geotechnical engineering should have been associated with infrastructure development projects for road authorities.

For renewing and upgrading at the GE3 level, the Consultant must have sufficient staff, including, but not limited to, the following:

- a minimum of 2 RPEQ geotechnical engineers is required: One engineer should be responsible for the design certificate, while the other, independent of the design team, will be responsible for checking and reviewing the design. Both engineers must sign off on the design reports and drawings, and must demonstrate expertise in geotechnical engineering, with a proven track record in infrastructure development projects for road authorities. They should possess a minimum of 15 years of proven industry experience in design and tasks outlined under GE1 to GE3 Class of Work. Additionally, they must demonstrate proficiency in utilising the Transport and Main Roads *Geotechnical Design Standard* and other Departmental Technical Specifications within the last 5 years.

- an experienced engineering geologist with proven experience in tasks specified under GE1 to GE3 Class of work, and
- to demonstrate the company's experience, the Consultant company must showcase successful design experience in GE3 level permanent works (by the current RPEQ geotechnical engineering expertise in the company) on Departmental projects within the last 3 years. Alternatively, consideration may also be given to large-scale road transport infrastructure projects that have been designed within the last 3 years, which are geotechnically complex and executed using Departmental technical documents (i.e. Technical Specifications, design standards, Standard Drawings, Technical Notes, etc.) and/or other Australian State Road Authorities' specifications.

The nominated project should also have characteristics specifically relevant to the GE3 class of work, and Transport and Main Roads GE assessor will make the final decision regarding the suitability of the nominated projects for consideration.

Company eligibility for all levels is based on experience in infrastructure development projects for road authorities.

The prequalification levels for geotechnical engineering are described in Table 2.5.7.

Table 2.5.7 – Geotechnical engineering prequalification levels

Level	Class of work description
GE1	<ul style="list-style-type: none"> • Simple foundation (footing and driven pile) analysis including bearing capacity calculation and settlement prediction. • Soil cut slope design and stability analysis (height ≤ 5 m), with static and/or perched water table, using both circular and non-circular slip surfaces. • Embankment (unreinforced) (height ≤ 10 m) design, stability and settlement analysis for embankments founded on cohesive (undrained strength > 75kPa, that is, stiff clays) and non-cohesive materials. • Retaining wall design up to 5 m height. • Instrumentation monitoring of ground water table, and • Planning of geotechnical site investigation for minor infrastructure projects.
GE2	<p>As for GE1 plus:</p> <ul style="list-style-type: none"> • geotechnical design of all foundation types, and rock sockets for less than 5MN axial load including uplift • soil cut slope design and stability analysis (height ≤ 10 m) • rock cut slope design and stability analysis (height ≤ 10 m) • reinforced slope design

Level	Class of work description
	<ul style="list-style-type: none"> • embankment design, stability and settlement analysis for all embankment heights on all soil types, including soft soils (< 10 m thick) and design of ground improvements • design / remediation of embankment / culvert on expansive clays • retaining wall design up to 10 m • reinforced soil structure analysis and design up to 10 m • planning, monitoring and interpretation of geotechnical instrumentation for embankments, cuts and structures, and • planning of geotechnical site investigation for major infrastructure projects.
GE3	<p>As for GE2 plus:</p> <ul style="list-style-type: none"> • rock sockets for all loads • deep excavation design and analysis in both soil and rock, including bored tunnels • design of ground improvements for embankment / structure on thick (> 10 m) soft / loose layers • soil cut slope design and stability analysis (any height) • rock cut slope design and stability analysis (any height) • design of remedial works for soil and rock natural slope failures (landslides) • design of remedial works on failed cut slopes and embankments • geotechnical design of remedial works on movements of structures (including embankments) • retaining wall and reinforced soil structures (any height), and • embedded retaining wall as well as cut and cover tunnel design.

Refer to Clause 2.7.7 of this Manual for commentary on how applicants may address geotechnical engineering criteria.

2.5.8 Highway Engineering (HE)

Highway engineering is a skill required to perform planning and/or design activities in accordance with the Department's planning and design manuals. Engineering Consultants making application to perform work for the Department should be aware that experience in subdivisional planning and design activities will not necessarily demonstrate an ability to effectively undertake the Department’s planning and design activities for road infrastructure projects.

The Consultant must have a minimum of one RPEQ on staff who can demonstrate expertise in the field of highway engineering.

The prequalification levels are described in Table 2.5.8.

Table 2.5.8 – Highway Engineering prequalification levels

Level	Class of Work Description
HE1	<p>Please note - a prerequisite for HE1 is Hydraulic Design Level 1.</p> <ul style="list-style-type: none"> • Highway engineering including the full consideration of Public Utility Plant (PUP), environmental and cultural heritage issues, involving the design for upgrading of existing roads with pavement strengthening, re-sheeting or widening requiring type - sections and nominal details. (All with basic control line setting out, but no grading, for example, rural local roads and asphalt overlays of generally urban areas). • Highway engineering including the full consideration of environmental and cultural heritage issues, involving the widening and overlay of existing rural roads. • Highway engineering including the full consideration of environmental and cultural heritage issues, involving the design of rural roads requiring earthworks balancing, floodways, cross sections, drainage, turnouts and minor intersections. (All with calculated control line setting out and grading).
HE2	<p>As for HE1 plus:</p> <ul style="list-style-type: none"> • Highway engineering including the full consideration of PUP, environmental and cultural heritage issues, involving the assessment of suitable road corridor / alignment options and preparation of detailed planning reports and layouts for a future road upgrading or a new road, including the coordination of alignments and terrain fitting as relevant. • Highway engineering including the full consideration of PUP, environmental and cultural heritage issues, involving the design of rural roads with multiple complexities comprising earthworks balancing, benching for sight lines, floodways, cross sections, drainage, detailed intersections and/or grade separation. • Highway engineering including the full consideration of PUP, environmental and cultural heritage issues, involving the widening and overlay of existing urban roads. • Highway engineering including the full consideration of environmental and cultural heritage issues, involving the design of urban roads without complicated design considerations.
HE3	<p>As for HE2 plus:</p> <ul style="list-style-type: none"> • Highway engineering including the full consideration of PUP, environmental and cultural heritage issues, involving the route location and/or road corridor fixing for major complex highways, motorways, interchange locations and warrants, includes the coordination of alignments and terrain fitting.

Level	Class of Work Description
	<ul style="list-style-type: none"> Highway engineering including the full consideration of PUP, environmental and cultural heritage issues, involving the planning and design of urban roads and major highways with multiple complexities comprising major channelised intersections or grade separation requiring major services alterations, stormwater drainage and detailed property accesses. (All with complex control and grade line setting out).

Refer to Clause 2.7.8 of this Manual for commentary on how applicants may address highway engineering criteria.

2.5.9 Hydraulic Design (HD)

The Consultant must have a minimum of one RPEQ on staff who can demonstrate expertise in the field of hydraulic design.

Note: Applications for HD2 and HD3 prequalification **must** include sufficient description of experience and nomination of the software used, in support of these classifications.

In addition to drawings, upgrade applications **must** include hydraulic reports as evidence of capability, for the application to be considered.

The prequalification levels for hydraulic design are described in Table 2.5.9.

Table 2.5.9 – Hydraulic Design prequalification levels

Level	Class of Work Description
<p>HD1</p>	<ul style="list-style-type: none"> Rainfall runoff calculations (hydrology) for small catchments (area less than 200 km²). Hydraulics for a single stream and overflows to assess culvert, bridge and floodway requirements and other drainage structures for roads. Bridge Afflux Calculations. Steady flow backwater modelling, for example, using HEC-RAS software. Road pavement runoff and aquaplaning.
<p>HD2</p>	<p>As for HD1 plus:</p> <ul style="list-style-type: none"> hydrology for large catchments (area greater than 200 km²) mathematical modelling of unsteady flow in open channel systems including components such as natural streams, flood plains, roads and bridges, man-made channels, reservoirs, dams, weirs and tidal flows 2D hydraulic modelling scour calculations

Level	Class of Work Description
	<ul style="list-style-type: none"> • time of submergence calculations • frequency analysis of flood data records, and • 2D hydraulic modelling involving floodplain storage and/or local catchment overland flows.
HD3	<p>As for HD2 plus:</p> <ul style="list-style-type: none"> • Special investigations, for example, physical hydraulic modelling, 2D modelling of complex floodplains, computational fluid dynamics (CFD) modelling. Special registration procedures apply.

Refer to Clause 2.7.9 of this Manual for commentary on how applicants may address hydraulic design criteria.

2.5.10 Intelligent Transport Systems (ITS)

The Consultant must have a minimum of one RPEQ in Electrical on staff who can demonstrate expertise in the field of Intelligent Transport Systems (planning, design, construction, integration, operations and maintenance). The following is a list of subjects in which an experienced engineer would be knowledgeable:

- road lighting design
- traffic signals design
- design of ITS enabling services – electrical, communications, network design and so on
- placement of ITS devices for arterial roads and highways - (ramp signalling, variable speed limit signs, variable message signs, CCTV, vehicle detection systems, and so on)
- systems engineering concepts – concept of operations
- integration of ITS devices – commissioning and testing planning, operational response, and concept of maintenance, and
- traffic management systems – design of upgrades and enhancements.

Company eligibility for each level is based on road lighting, traffic signal, ITS placement, and all 3 areas require electrical design experience held by employees who are current RPEQs in the company within the past 3 years. Each discipline will be assessed individually at each level, and all demonstrated design capability shall comply with Queensland requirements.

Eligibility for level ITS3 is dependent on successful demonstration of design expertise on the Department’s ITS projects with high-risk profiles.

Department delivered ITS projects with high-risk profiles are:

- technically complex
- large projects
- have integration and complex enhancement to the Departmental systems
- have high monetary value
- have heightened safety requirements, and
- have high impacts on the community.

ITS3 prequalification is recognised by the Department as an assured means to successfully deliver the design of such projects with high-risk profiles.

To obtain prequalification in each level, the Consultant would require demonstrating capability of relevant RPEQ employee for each area of Road lighting, Traffic signal and ITS separately, and shall provide:

- sample design drawings - designed by an Electrical RPEQ employee at the time of service, and
- sample design drawings - certified by an Electrical RPEQ employee at the time of service.

The prequalification levels for Intelligent Transport Systems are described in Table 2.5.10.

Table 2.5.10 – Intelligent Transport Systems prequalification levels

Level	Class of Work Description
ITS1	<ul style="list-style-type: none"> • Road Lighting: <ul style="list-style-type: none"> – design for arterial roads that comply with Queensland requirements, and – design of ITS enabling services – electrical, network design end communications design and data services. • Traffic signals: <ul style="list-style-type: none"> – design for basic intersections that comply with Queensland requirements, and – design of ITS enabling services – electrical, network design end communications design and data services. • Placement of ITS devices <ul style="list-style-type: none"> – design on arterial roads that comply with Queensland requirements, and – design of ITS enabling services – electrical, network design end communications design and data services.
ITS2	<p>As for ITS1 plus:</p> <ul style="list-style-type: none"> • Road lighting: <ul style="list-style-type: none"> – design for highways and complex intersections.

Level	Class of Work Description
	<ul style="list-style-type: none"> • Traffic signals: <ul style="list-style-type: none"> – design for complex intersections that comply with Queensland requirements. • Placement of ITS devices: <ul style="list-style-type: none"> – design on highways that comply with Queensland requirements.
ITS3	<p>As for ITS2 plus:</p> <ul style="list-style-type: none"> • Systems Engineering concepts – Development of Concept of Operations and Operations Design reports. • Road lighting: <ul style="list-style-type: none"> – electrical design for complex motorways and interchanges with large underpasses requiring daytime lighting analysis. • Traffic signals: <ul style="list-style-type: none"> – design for complex interchange with geometry or physical limitation, and complex phasing that comply with Queensland requirements, and – complex design enhancements for systems for ITS and traffic signal management. • Placement of ITS devices: <ul style="list-style-type: none"> – design for Managed Motorways that comply with Queensland requirements, and – integration of ITS devices into Departmental systems – commissioning and testing planning, and operational responses.

Refer to Clause 2.7.10 of this Manual for commentary on how applicants may address intelligent transport systems criteria.

2.5.11 Marine Engineering (ME)

Consultancies applying for prequalification in Marine Engineering (ME) are expected to have expertise and a strong track record of delivery in the following relevant subject areas relating to design and delivery of marine infrastructure and maintenance of marine infrastructure assets.

- ability to conduct structural inspections on marine structures, timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons, and floating walkways
- ability to conduct structural inspections and structural engineering assessment of marine structures such as breakwaters, rock revetments and recreational public boating infrastructure

- ability to conduct numerical modelling of coastal hydrodynamics to assess the structural performance of marine structures
- ability to conduct coastal and fluvial process investigations to adequately assess the impact of infrastructure on coastal / fluvial processes and suitably identify the impact of coastal / fluvial processes on the marine infrastructure
- ability to conduct Finite Element Modelling (FEM) and techniques to analyse structural response to various loading conditions on marine structures
- ability to design of marine infrastructure using relevant design guidelines, codes and standards and providing engineering certifications
- ability to undertake investigations required to support statutory approvals for new infrastructure construction and dredging projects and the ability to prepare these applications, and
- ability to prepare tender documents for marine infrastructure projects.

Consultants applying to perform work for the Department should be aware that experience obtained more than 3 years ago will not necessarily demonstrate an ability to effectively undertake the marine engineering services.

The Consultant **must** have at least one experienced qualified engineer with a proven track record in conducting marine infrastructure inspections, design, and construction. Desirable academic or professional qualifications include tertiary qualifications in coastal engineering, civil engineering, that are acceptable for corporate membership of Engineers Australia.

It is a requirement of the *Professional Engineers Act 2002* (Qld) that professional engineering services in Queensland and the design of infrastructure, buildings, plants, machinery or products for use in Queensland, are carried out by a RPEQ, or alternatively by a person who carries out the services under the direct supervision of a RPEQ who is ultimately responsible. As such, where an assessment or interpretation of engineering design, staging, or construction risk is required, that work must be approved by an appropriately qualified RPEQ. In this category the consultancy is assessed on its demonstrated ability to conduct inspections of existing marine infrastructure, design of marine infrastructure and numerical modelling of hydrodynamics and FEM modelling and analysis of marine structures.

Points for Consultants to note:

There are 3 subcategories under ME1 category.

1. ME1.a – Marine Engineering tasks

- 2. ME1.b – Numerical modelling tasks, and
- 3. ME1.c – Finite element modelling tasks.

Accordingly, a Consultant can request prequalification on a conditional basis to ME1 subcategories based on their experience and qualifications.

It is not necessary to comply with subcategories for ME1.b Numerical modelling tasks and ME1.c Finite element modelling tasks to qualify for ME2 and ME3 categories, however they **must** comply with requirements for ME1.a Marine Engineering tasks.

The prequalification levels (ME1 – ME3) for Marine Engineering are described in Table 2.5.11.

Table 2.5.11 – Marine Engineering prequalification levels

Level	Class of Work Description
<p>ME1</p>	<p>ME1.a Marine Engineering tasks such as:</p> <ul style="list-style-type: none"> • Level 1 – Routine Maintenance structural inspection on Marine Structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways as per the <i>Structures Inspection Manual</i> – A visual inspection to check the general serviceability of the structure, particularly for the safety of the users, and to identify any emerging problems. • Level 2 – Condition Rating structural inspection on Marine Structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways – An inspection to assess and rate the condition of a structure (as a basis for assessing the effectiveness of past maintenance treatments, identifying current maintenance needs, modelling and forecasting future changes in condition and estimating future budget requirements). • Preparing structural inspection reports on Marine Structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways as per the requirements of the <i>Structures Inspection Manual</i>. • Preparing of repair, reinstate, demolition estimates as per the recommendations in the structural inspection report. • Preparing tender documents for repair works as per the department’s Minor Infrastructure Contract (MIC) or Small Scale Minor Works (SSMW) Contract. • Providing technical support, Contract administration support for implementing the repair projects. <p>ME1.b Numerical modelling tasks such as:</p> <ul style="list-style-type: none"> • Conducting desktop wave assessments. • Numerical modelling of coastal hydrodynamics (wind, wave and tidal action). • Numerical coastal morphological modelling (morphological changes due to wave, and tidal actions).

Level	Class of Work Description
	<ul style="list-style-type: none"> • Numerical modelling and assessment of combination of tidal and catchment flow action required for marine infrastructure planning and design. <p>ME1.c Finite element modelling tasks such as:</p> <ul style="list-style-type: none"> • Dynamic response analysis of marine structures. • Fatigue analysis of marine structures. • Finite Element Analysis of marine structures.
ME2	<p>As for ME1.a plus:</p> <p>Marine Engineering tasks such as:</p> <ul style="list-style-type: none"> • Conducting Level 3 Special structural inspections on Marine structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways as per the <i>Structures Inspection Manual</i>. Level 3 inspection is to provide improved knowledge of the condition, load capacity, in-service performance or any other characteristic beyond the scope of other types of inspection. Special inspections may be used to inform / develop the scope of other types of inspection. • Level 3 inspection categories include: <ul style="list-style-type: none"> – structural engineering inspection and estimating residual capacity of the structural action – inspection of type of corrosion, corrosion levels and residual thickness of steel in jetties and piles and aluminium structures – inspection of concrete decay, cracks, concrete cancer and spalling due to corrosion of embedded metals, chloride ion intrusion, carbonation, dissimilar metal corrosion, alkali-silica reactivity, alkali-carbonate reactivity, aggregate expansion, surface defects, abrasion erosion, overload impacts and chemical attack such as acids and salts. Concrete can be damaged by fire, aggregate expansion, sea water effects, bacterial corrosion, calcium leaching, physical damage and chemical damage (from carbonatation, chlorides, sulphates and non-distilled water) – inspection of timber structures for timber decay due to corrosion of connections, slitting and water intrusion, marine borer attack and attack by other pests – underwater inspections of structures – preparing structural inspection reports as per the requirements of <i>Structures Inspection Manual</i> – preparing of repair, reinstate, demolition estimates as per the recommendations in the structural inspection report – preparing tender documents for repair works as per the Department's MIC or SSMW, and – providing technical support, Contract administration support for implementing the repair projects.

Level	Class of Work Description
	<ul style="list-style-type: none"> • Designing of boat ramps in accordance with the Department’s design criteria and Technical Specifications. • Designing of breakwaters, shore protection structures, groynes and beach stabilisation structures. • Design of car trailer parking areas, access roads and public amenity structures for boat ramp facilities using the Department’s guidelines. • Designing of pontoons and floating walkways in accordance with the Department’s design criteria and Technical Specifications. • Preparation of relevant statutory approval applications, and • Preparation of tender documents based on the Department’s – MIC and Transport Infrastructure Contracts (TIC) tender formats. • Assessment for compliance to <i>Disability Discrimination Act 1992 (Cth) (DDA)</i> and <i>Disability Standards for Accessible Public Transport 2002 (Cth) (DSAPT)</i> for new and existing public transport facilities. • Preparation of 3D digital models.
ME3	<p>As for ME2 plus:</p> <p>Marine Engineering tasks such as:</p> <ul style="list-style-type: none"> • designing of timber / steel or concrete jetties and wharves • designing of sheet pile walls and earth retaining structures for maritime infrastructure • designing of ferry terminals and related infrastructure • designing of navigational aids and related structures to the Department’s standards • design of onshore dredge spoil disposal facility and/or land reclamation • preparation of relevant statutory approval applications. • preparation of tender documents based on the Department’s – MIC and TIC tender formats • assessment for compliance to DDA and DSAPT for new and existing public transport facilities, and • Preparation of 3D digital models.

Refer to Clause 2.7.11 of this Manual for commentary on how applicants may address the marine engineering criteria.

2.5.12 Rail Engineering (RE)

Rail Engineering (RE) is the planning and/or design of Rail Infrastructure in accordance with the department's and other authorities' planning, design manuals, standards, and specifications.

RE may require consultants to demonstrate their specific experience in managing RE work, focusing on the technical activity for RE only and excluding their capability in other subcategories such as Geotechnical Engineering (GE) and Hydrology Engineering (HE).

As part of the submissions, the Consultant is not expected to have the capability to deliver all aspects of a complex project, including the above examples of different specialist engineering; however, the Consultant should be able to provide evidence of their capability and experience in being involved in the RE portion of a complex project as required.

The consultant must have at least one RPEQ on staff who can demonstrate expertise in Rail Engineering (RE).

General Requirements for all levels:

- At least one RPEQ in the relevant discipline must be nominated.
- Evidence of quality management systems (refer Clause 2.2.3) and project examples that illustrate compliance with departmental and Queensland Rail standards.
- Demonstrable evidence of delivering RE projects for clients.
- Applicants should highlight past performance, delivery of multidisciplinary rail projects, and the capacity to provide resources for projects of the scale applied for.

The prequalification levels for Rail Engineering are described in Table 2.5.12.

Table 2.5.12 – Rail Engineering prequalification levels

Level	Class of Work Description
<p>RE1</p>	<ul style="list-style-type: none"> • RE, including the full consideration of Public Utility Plant (PUP), drainage, environmental and cultural heritage issues, involving the design of new or the upgrade of existing rail lines. • Track alignment design, including: <ul style="list-style-type: none"> – mainline track alignment design – yard track alignment, and – track realignment. • Rail-related infrastructure, including: <ul style="list-style-type: none"> – culverts / drainage structures – embankments and cuttings – retaining walls up to 3 metres in height, and – Rail Maintenance Access Roads (RMAR).

Level	Class of Work Description
RE2	<p>As for RE1 plus:</p> <ul style="list-style-type: none"> • RE including the full consideration of, drainage and property impacts involving the assessment of rail track alignment options and preparation of detailed planning reports and layouts for a future rail track realignment or new rail alignments and facilities, including the coordination of alignments and terrain fitting as relevant. • RE, involving the design of rail alignment with multiple complexities comprising earthworks balancing, hydrology / drainage / flooding, cross sections, drainage, rail systems (OHLE, Comms, Signalling) and/or grade separation. • Track alignment design, including: <ul style="list-style-type: none"> – track rearrangement, including turnouts, and – greenfield junctions. • Track Structure design, including: <ul style="list-style-type: none"> – capping layer and formation layer. • Rail-related infrastructure, including: <ul style="list-style-type: none"> – OHLE, SER / PER, Signal structure and foundation design.
RE3	<p>As for RE2 plus:</p> <ul style="list-style-type: none"> • RE, including the full consideration of, drainage and property impact of major complex rail upgrades or new rail lines, including the coordination of alignments and terrain fitting. • Please note that the Department is not seeking to evaluate a consultant who provides all services. Still, one with demonstrable experience in projects across RE works that include these elements as part of the deliverable / outcome. • RE, involving the planning and design of rail alignments with multiple complexities, including interfaces with the existing railway, rail systems (OHLE, Comms, Signalling), grade separation requiring significant service alterations, and detailed property impacts. • Track alignment design, including: <ul style="list-style-type: none"> – structure and rolling stock gauge clearance calculations, and – platform clearance and cope set out. • Re-creation of existing monumented track alignments. • Advanced track Structure design, including: <ul style="list-style-type: none"> – track structure transition design, and – material engineering of track elements (rail, ballast, and so on). • Rail-related infrastructure such as Station platforms.

Refer to Clause 2.7.12 for commentary on how applicants may address the rail engineering criteria.

2.5.13 Rail Operational Modelling (ROM)

Consultants applying for prequalification in Rail Operational Modelling (ROM) are expected to demonstrate capability in developing, using, and interpreting rail operational models to inform planning, design, and business case development for rail infrastructure projects.

ROM is used across regional, freight, and suburban rail planning contexts, and interfaces with signalling, fleet management, service planning, infrastructure planning and business case processes.

Applicants must:

- Demonstrate relevant project experience across the different levels within the past 3 years.
- Nominate professional staff with proven technical expertise in rail operational modelling tools and methodologies. These staff should have the ability to demonstrate the delivery of ROM across specific projects, and
- Provide evidence of ability to engage with technical and non-technical stakeholders to support project outcomes.

General Requirements for all levels:

- applicants must demonstrate proven use of recognised rail operational modelling software and tools
- at least one nominated staff member must be a suitably qualified professional with direct modelling experience
- evidence of quality management systems must be provided, and
- applicants should highlight past performance, ability to interpret and communicate results, and experience engaging with project stakeholders.

The prequalification levels for Rail Operational Modelling are described in Table 2.5.13.

Table 2.5.13 – Rail Operational Modelling prequalification levels

Level	Class of Work Description
ROM1	<ul style="list-style-type: none"> • Undertaking rail operational modelling studies for planning purposes and concept-level timetabling. • Undertaking rail model development and calibration activities under direction. • Interpreting basic rail operational modelling scenarios and providing advice to decision-making bodies, and

Level	Class of Work Description
	<ul style="list-style-type: none"> • Preparation and contributing to reports and technical notes on model development or application activities.
ROM2	<p>As per ROM1 plus:</p> <ul style="list-style-type: none"> • undertaking rail operational modelling studies to support rail infrastructure designs and preliminary timetable development • managing and delivering rail model development and calibration activities • actively engaging with and managing technical and non-technical stakeholders on behalf of Transport and Main Roads, and • generating reports and technical notes on model development or application activities.
ROM3	<p>As per ROM2 plus:</p> <ul style="list-style-type: none"> • developing timetables and operating concepts to support major infrastructure business cases, such as new rail lines • advising on rail modelling, technical and management methodologies • leading the design and implementation of new modelling approaches and capabilities • developing rail modelling governance approaches and documentation, and • assessment of highly complex rail operations environments, for example inner-Brisbane network with frequent mixed freight and passenger services.

Refer to Clause 2.7.13 for commentary on how applicants may address the rail operational modelling criteria.

2.5.14 Traffic Engineering (TE)

The Consultant must have a minimum of one RPEQ on staff who can demonstrate expertise in the field of traffic engineering. The following is a list of subjects in which an experienced traffic engineer would be knowledgeable:

- traffic flow theory (road user and vehicle characteristics and roadway and intersection capacity)
- intersection control (non-signalised and signalised)
- road safety investigation and analysis
- traffic impact analysis
- isolated traffic signal analysis and operation, and
- traffic signal network analysis and operation.

In all categories, it is expected that the Consultant **must** be able to analyse data and draw conclusions from that analysis.

The prequalification levels for traffic engineering are described in Table 2.5.14.

Table 2.5.14 – Traffic engineering prequalification levels

Level	Class of Work Description
TE1	<ul style="list-style-type: none"> • Analysis of traffic impacts of minor developments (for example, a single small establishment), covering trip generation calculations, manual distribution, assignment and mode split, design requirements for parking, transit, pedestrians and cycling. • Intersection analysis using computer-based systems (SIDRA is the Department’s preferred application), deriving all but the most basic signal phasing, establishment of intersection and network design life and consideration of ‘back of queue’ impacts on design. • Basic intersection design encompassing the location of stop lines, posts, and lanterns. • Report and make recommendations following comparison of options, and • Design of traffic control device (signs and line marking) layouts using TraSIS and TrasiCAD or other appropriate software. Familiarity with the design requirements of AS 1743 and AS 1744 for sign design.
TE2	<p>As for TE1 plus:</p> <ul style="list-style-type: none"> • analysis of traffic impacts of major developments (for example, major shopping centres), and • basic benefit cost analysis of a small TE project.
TE3	<p>As for TE2 plus:</p> <ul style="list-style-type: none"> • traffic signal network analysis and optimisation of traffic signal timings • simulation of small to medium sized traffic networks using computer-based systems (for example AIMSUN, Paramics, VISSIM) • impact analysis for developments having regional impact • major traffic engineering projects • complex traffic analysis. Note that complex system enhancements encompassing integrated Intelligent Transport Systems (ITS) fall within the ITS category • major project evaluation, and • road safety investigation and analysis. Road Safety Auditors must be registered with the Department and recorded at https://www.tmr.qld.gov.au/Safety/Road-safety/Road-safety-auditors.

Refer to Clause 2.7.14 for commentary on how applicants may address the traffic engineering criteria.

2.5.15 Transport and Land Use Modelling (TLUM)

The Consultant must have at least one experienced transport or land use / demographic modeller who has worked on model or data development, maintenance and/or application in one or more of the following modelling specialisations:

- **Strategic transport models**, such as 4-step multi-modal transport models or activity-based models, that estimate and forecast travel demand across the region.
- **Mesosopic transport traffic models** that consider a level of traffic detail greater than a strategic model to include geographic zones such as cities, major exit and entry centroid connector links, intersections, traffic generators such as large shopping centres, lane-based congestion, time-based changes such as on-street parking restrictions in peak hours and reduced speed limits around academic education institutions.
- **Microsimulation / intersection traffic models** focused on simulating movements of individual vehicles on a given road network to help understand the causes and bottlenecks of congestion such as driver behaviour (for example, lane changing, gap acceptance and weaving).
- **Public transport-specific models** focused on demand forecasting and route scheduling of an integrated public transport network or discrete public transport modes (rail, bus and so on), and
- **Demographic and land use models**, including regional and small area demographic, employment and enrolment forecasting and allocation models and tools to provide data inputs to transport modelling and transport planning analysis.

Transport or land use / demographic modellers with prequalification levels 2 or 3 would be expected to have significant experience in the design, development, maintenance and improvement of models within one of the above specialisations.

The prequalification levels for transport and land use modelling are described in Table 2.5.15.

Table 2.5.15 – Transport and Land Use Modelling prequalification levels

Level	Class of Work Description
TLUM1	<p>Strategic transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • undertaking model development and maintenance activities • model application work and providing interpretation and analysis of model results, and • contributing to reports and technical notes on model development or application activities.

Level	Class of Work Description
	<p>Mesoscopic traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • undertaking model development and maintenance activities • model application work and providing interpretation and analysis of model results, and • contributing to reports and technical notes on model development or application activities. <p>Microsim / intersection traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • undertaking model development and maintenance activities • model application work and providing interpretation and analysis of model results, and • contributing to reports and technical notes on model development or application activities. <p>Public transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • undertaking model application tasks, including running existing models for given scenarios, extracting outputs, and preparing charts or summaries • supporting model development activities under supervision (for example, preparing network inputs, testing model runs, assisting in calibration) • preparing and coding basic timetable or route inputs (for example, GTFS) and participating in validation and QA tasks, and • supporting technical reporting and documentation of both application and development activities. <p>Land use / demographic modelling tasks, such as:</p> <ul style="list-style-type: none"> • undertaking data compilation, analysis, model development and maintenance activities • analysis and model application work and providing interpretation of results, and • contributing to reports and technical notes on analysis, model development or application activities.
TLUM2	<p>As for TLUM1 plus:</p> <p>Strategic transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • lead and undertake a variety of model development and maintenance tasks • provide technical advice to inform the design of and improvement to models • lead model application work on behalf of the Department • actively engage with and manage technical and non-technical stakeholders on behalf of the Department in regard to mesoscopic transport traffic model development or application projects, and • generate reports and technical notes on model development or application activities.

Level	Class of Work Description
	<p>Mesoscopic traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • lead and undertake a variety of model development and maintenance tasks • provide technical advice to inform the design of and improvement to models • lead model application work on behalf of the Department • actively engage with and manage technical and non-technical stakeholders on behalf of the Department in regard to mesoscopic transport traffic model development or application projects, and • Generate reports and technical notes on model development or application activities. <p>Microsim / intersection traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • lead and undertake a variety of model development and maintenance tasks • provide technical advice to inform the design of and improvement to models • lead model application work on behalf of the Department • actively engage with and manage technical and non-technical stakeholders on behalf of the Department in regard to mesoscopic transport traffic model development or application projects, and • generate reports and technical notes on model development or application activities. <p>Public transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • Leading model application tasks across a range of use cases, such as: <ul style="list-style-type: none"> – testing changes to service frequencies, routes, or infrastructure, and – performing sensitivity and scenario analyses to inform project development or business cases. • Undertaking and guiding model development activities, including: <ul style="list-style-type: none"> – coding new transit lines or modifying schedules – enhancing calibration, validation, or scenario management workflows, and – identifying bugs or limitations in model logic and proposing improvements. • Advising stakeholders on appropriate use of model outputs. <p>Land use / demographic modelling tasks, such as:</p> <ul style="list-style-type: none"> • lead and undertake conduct of or developing population, employment and enrolment forecasting analyses, models, methods and maintenance tasks • provide technical advice to inform the design of and improvement to analysis and model methods • lead analysis and model application work on behalf of the Department • actively engage with and manage technical and non-technical stakeholders on behalf of the Department in regard to land use / demographic analysis or model development or application projects, and • generate reports and technical notes on analysis, model development or application activities.

Level	Class of Work Description
<p>TLUM3</p>	<p>As for TLUM2 plus:</p> <p>Strategic transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • lead and manage model development projects, and • provide expert technical and specialist advice to inform the design of and improvement to strategic transport models. <p>Mesoscopic traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • lead and manage model development projects, and • provide expert technical and specialist advice to inform the design of and improvement to mesoscopic models. <p>Microsim / intersection traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • lead and manage model development projects, and • provide expert technical and specialist advice to inform the design of and improvement to microsim / intersection models. <p>Public transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • Leading and managing model development initiatives, including: <ul style="list-style-type: none"> – upgrading existing public transport models with new structure, logic, or data flows • designing modelling solutions for emerging modes • creating new tools, interfaces, or automation scripts to improve PT model performance or integration with other Strategic Transport Models • overseeing advanced model application projects such as multi-scenario comparisons, demand forecasting for long-term plans, or stress-testing public transport timetables, and • providing strategic advice to the Department / Translink on the role, scope, and limitations of public transport models in planning and investment decisions. <p>Land use / demographic modelling tasks, such as:</p> <ul style="list-style-type: none"> • lead, plan, manage and/or conduct a range of projects concerned with small area population, employment and enrolment statistics and projections • provide expert technical and specialist advice to inform the development of demographic and land use related spatial data sets relevant to transport modelling and planning, and • analyse and draw conclusions from very large and complex data sets from multiple sources, including identifying data set limitations.

Refer to Clause 2.7.15 of this Manual for commentary on how applicants may address TLUM criteria.

2.5.16 Transport Planning (TP)

The Consultant must have at least one experienced transport planner with a proven track record in transport network and/or services planning. In this category, the consultancy is assessed on its demonstrated ability to identify and evaluate transport issues, options and priorities, and develop appropriately balanced multi-modal transport strategies.

The following is a list of relevant subject areas in which a transport planner would have recent knowledge and experience:

- collection of relevant data and design of data collection programs
- strategic transport modelling, including application of models and interpretation of outputs
- network and operational planning requirements for all transport modes, including private and freight vehicles, rail, bus, cycle and pedestrians
- travel demand management techniques
- integration of transport and land use
- integration of different jurisdictional networks (one network)
- stakeholder engagement and management, and
- coordination with complementary transport planning activities.

It is expected that Consultants apply ‘one network’ planning principles and are familiar with a range of methods and industry standards to inform planning activities.

The prequalification levels for transport planning are described in Table 2.5.16.

Table 2.5.16 – Transport Planning prequalification levels

Level	Class of Work Description
TP1	<ul style="list-style-type: none"> • Planning for simple networks • Issues identification and data collection for local areas • Local traffic management planning • Network options evaluation and strategy development • Network concept planning • Prioritisation of transport improvements, and • Stakeholder liaison.

Level	Class of Work Description
<p>TP2</p>	<p>As for TP1 plus:</p> <ul style="list-style-type: none"> • planning for medium complexity networks at a corridor and area scale • multi-modal planning including integration of pedestrian, cycle and passenger transport requirements with road and rail networks • applying modelling tools and other techniques to evaluate network options and functional priorities • travel demand management • stakeholder management and negotiation, and • coordination with allied transport projects.
<p>TP3</p>	<p>As for TP2 plus:</p> <ul style="list-style-type: none"> • planning for highly complex multi-modal networks and transport at a regional level • freight operations and intermodal transfer • passenger transport operations • comprehensive travel demand management • application of complex transport models and evaluation of modelling outputs • planning studies requiring multi-disciplinary approaches • network impact assessment and evaluation • high-level feasibility and implementation assessment, and • complex stakeholder management and community consultation.

Refer to Clause 2.7.16 of this Manual for commentary on how applicants may address transport planning criteria.

2.6 Projects with multiple disciplines

Where a project involves multiple disciplines, all relevant prequalification categories and levels will be specified in Form C7585 *Invitation for Offer for Consultant Service*.

If a Consultant is not prequalified at the nominated level for one of the components, nomination of a suitably prequalified Sub-Consultant is required with the offer for Consultant services.

2.7 Addressing prequalification criteria

2.7.1 Bridge design

Consultants shall provide documentation to demonstrate that they have systems in place to ensure that all structural designers within their organisation design to the same design criteria and technical guidelines.

They shall demonstrate how this conformity to a consistent design methodology and design criteria is monitored, controlled and audited with their quality systems.

The prequalification levels for bridge design with commentary are described in Table 2.7.1.

Table 2.7.1 – Bridge design prequalification levels with commentary

Level	Class of Work Description	Commentary
BD1	<ul style="list-style-type: none"> Simple bridges where geometry is substantially predetermined. 	<ul style="list-style-type: none"> Demonstrated capability to use the Department’s <i>Design Criteria for Bridges and Other Structures</i>, AS/NZS 5100 and the <i>Structural Drafting Manual</i> (Chapter 3 of the Department’s <i>Drafting and Design Presentation Standards Manual</i>). Structural software to be used shall include grillage analysis package such as ACES and SPACE GASS, or equivalent. Demonstrated capability to use Geotechnical Reports and Bore Logs, and Hydraulics Reports in bridge design. The Department recommends attendance by some of the Consultant’s design personnel at its ‘TMR Structures Life Cycle Program (Bridge and Culverts) eLearn Program’.
	<ul style="list-style-type: none"> Noise barriers, light poles, minor sign supports that do not span over the carriageway, that is, ‘off carriageway’. 	<ul style="list-style-type: none"> Demonstrated capability to design in accordance with the relevant Department Technical Specifications and Technical Notes, AS/NZS 5100 and Australian Standards.
	<ul style="list-style-type: none"> Variable message (VMS) and other sign gantries that do not span over the carriageway, that is, ‘off carriageway’, sign structures. 	<ul style="list-style-type: none"> Demonstrated capability to design to the section on gantries and sign structures in the Department’s <i>Design Criteria for Bridges and Other Structures</i>. AS/NZS 5100 and Australian Standards including AASHTO structural fatigue design and WHS requirements.
	<ul style="list-style-type: none"> Advertising sign structures that do not span over the carriageway, that is, ‘off carriageway’. 	<ul style="list-style-type: none"> Demonstrated capability to design in accordance with the section on gantries and sign structures in the Department’s <i>Design Criteria for Bridges and Other Structures</i>, AS/NZS 5100 and Australian Standards including AASHTO structural fatigue design and WHS requirements.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> Retaining walls and scour protection. 	<ul style="list-style-type: none"> Capability to use the Department's design guidelines for retaining structures in the Department's <i>Design Criteria for Bridges and Other Structures</i>, AS/NZS 5100, Australian Standards and the Department's <i>Geotechnical Design Standards – Minimum Requirements</i>. Understanding the Department's guidelines and Standard Drawings for scour protection of bridges. Proven capability to utilise Hydraulics and Geotechnical Reports to estimate scour depths and to structurally design the bridge structure for scour effects and scour protection, including protection of bridge approaches.
	<ul style="list-style-type: none"> Drainage structures. 	<ul style="list-style-type: none"> Proven capability for structural analysis and design of culverts for multiple load cases in accordance with the <i>Design Criteria for Bridges and Other Structures</i> and other relevant standards and Technical Specifications referenced in that document.
BD2	As for BD1 plus:	
	<ul style="list-style-type: none"> Significant urban bridges (excluding complex bridges), major rural bridges and rail overpasses where geometric, geotechnical, or hydraulic complications may occur. 	<ul style="list-style-type: none"> Demonstrated application of the Department's <i>Design Criteria for Bridges and Other Structures</i>, AS/NZS 5100 and the Department's <i>Structural Drafting Manual</i> (Chapter 3 of the Department's <i>Drafting and Design Presentation Standards Manual</i>) to the design of significant urban bridges, major rural bridges, rail bridges, on previous Departmental projects where geometric, geotechnical or hydraulic complications may occur.
	<ul style="list-style-type: none"> Gantry and sign structures that span over the carriageway. 	<ul style="list-style-type: none"> Demonstrated application of the section on gantries and sign structures in the Department's <i>Design Criteria for Bridges and Other Structures</i>. AS/NZS 5100 and Australian Standards including AASHTO structural fatigue design and WHS requirements on previous Departmental projects.
	<ul style="list-style-type: none"> Advertising sign structures that span over the carriageway, that is, 'on carriageway'. 	<ul style="list-style-type: none"> Demonstrated capability to design in accordance with the section on gantries and advertising sign structures in the Department's <i>Design Criteria for Bridges and Other Structures</i>, AS/NZS 5100 and Australian Standards including AASHTO structural fatigue design and WHS requirements.

Level	Class of Work Description	Commentary
		<ul style="list-style-type: none"> • Demonstrated capability to analyse the structural capacity of the existing bridge structure using AS/NZS 5100 and the Department <i>Design Criteria for Bridges and Other Structures</i>, for design loads from vehicles, vehicle impact on traffic barriers and advertising signs that are attached to the bridge. • Structural software to be used shall include grillage analysis packages such as ACES and SPACE GASS or equivalent.
BD3	As for BD2 plus:	
	<ul style="list-style-type: none"> • Complex road and rail bridges and major urban bridges using non-standard structural members. 	<ul style="list-style-type: none"> • In addition to BD2 requirements, demonstrated capability to design and draft complex bridges such as box girders and cable stayed bridges. • Demonstrated capability to undertake in-house technical investigation to provide solutions to unusual design situations, unique to the project in hand on previous Departmental projects.
	<ul style="list-style-type: none"> • Major projects that have a lot of road and/or rail bridges. 	<ul style="list-style-type: none"> • Demonstrated application and capability on previous Departmental projects to design and draft every bridge in the project to the Department <i>Design Criteria for Bridges and Other Structures</i>, AS/NZS 5100 and the Department's Structural Drafting Manual (Chapter 3 of the Department's <i>Drafting and Design Presentation Standards Manual</i>). • The design and details shall all be consistent and uniform across the project. Demonstrated capability to deliver the design documentation on time on previous Departmental projects.
<ul style="list-style-type: none"> • Additional qualification procedures may be used for particular structures. 	<ul style="list-style-type: none"> • In-house engineers who have a proven track record in 'hands on' technical investigation to solve complex structural design and analysis problems. • Demonstrated capability to achieve innovative and durable solutions. 	

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Cut and cover tunnels, major civil structures, retaining wall structures. 	<ul style="list-style-type: none"> • Demonstrated application and capability on previous Department projects to design and draft cut and cover tunnels, major civil structures and retaining walls to the Department <i>Design Criteria for Bridges and Other Structures</i>, AS/NZS 5100 and the Department's Structural Drafting Manual (Chapter 3 of the Department's <i>Drafting and Design Presentation Standards Manual</i>). The design and details shall all be consistent and uniform across the project. Demonstrated capability to deliver the design documentation on time on previous Departmental projects.

2.7.2 Cost estimating

Applicants are advised to take note of the following when compiling their applications:

- Eligibility for level CE3 is dependent on successful demonstration of this expertise on Department projects within the past 3 years with the following characteristics:
 - technically complex, and
 - value (typically >\$100M construction value).
- CE3 prequalification is recognised by the Department as a means to confidently deliver the cost estimate of such projects with high-risk profiles.
- Consultants are expected to meet Australian and Queensland Government estimating requirements. Major project estimating will require involvement from the Estimating Unit of Infrastructure Management Division.
- Applications should only contain personnel details relevant to addressing the criteria outlined in this brochure.

The prequalification levels for cost estimating with commentary are described in Table 2.7.2.

Table 2.7.2 – Cost estimating prequalification levels with commentary

Level	Class of Work Description	Commentary
CE1	Use of applied cost estimating methods such as cost planning, global rate estimating, unit rate estimating, first principles estimating, probabilistic estimating. This level of prequalification is required for the cost estimation of simple projects, such as rural projects of low complexity.	<ul style="list-style-type: none"> • Demonstrated experience in estimating transport infrastructure projects (road and/or rail). • Examples of projects may include overtaking lanes, minor Intersection and junction upgrades, road widening, sealing unsealed road, minor structures, and safety related projects.
		<ul style="list-style-type: none"> • Demonstrated experience (work sample) of applied estimating in the relevant subject areas. • Examples of projects (within 3 years prior to the application).
		<ul style="list-style-type: none"> • Demonstrated experience utilising a range of estimating methods.
		<ul style="list-style-type: none"> • Demonstrated experience utilising tools required to prepare an estimate (for example, Microsoft Excel, dedicated estimating software, such as Expert Estimation, Palisade @Risk and relevant resource databases).
		<ul style="list-style-type: none"> • Demonstrated experience and capability to estimate the following aspects of an infrastructure project from first principles: <ul style="list-style-type: none"> – Environmental works – Traffic management – Public utility plant – Earthworks – Retaining walls – Drainage – Bridges – Pavement – Finishing works – Traffic signage, signals and controls – Road agency costs (for example, design, Contract administration and operational phase costs).
		<ul style="list-style-type: none"> • Demonstrated familiarity with the Australian Government's <i>Cost Estimating Guidelines</i>, project cost benchmarking, and the Department's <i>Project Cost Estimating Manual</i>.

Level	Class of Work Description	Commentary
<p>CE2</p> <p>As for CE1 plus: Emphasis is placed on proven cost estimating techniques across multiple project phases from project evaluation to project completion. Estimating is more complex, with broader emphasis on commercial aspects of the project including market conditions, risk allocation and construction staging that may impact on the project estimate. This level of prequalification is required for the cost estimation of projects such as rural or urban projects of moderate complexity.</p>		<ul style="list-style-type: none"> • Demonstrated experience in cost estimating utilising more complex estimating methods and techniques. • Examples of projects may include road or rail bridges (BD2, BD3), major roadworks, or Intersection / Junction upgrades (HE2, HE3).
		<ul style="list-style-type: none"> • Demonstrated experience (for example, estimate reports) of work that reflects the capability of the Consultant. • Examples of a project (within 3 years prior to the application).
		<ul style="list-style-type: none"> • Demonstrated experience in undertaking detailed project cost estimating in the context of Australian and State policies, for a range of transport infrastructure projects, with a particular emphasis on the State Highway Network.
		<ul style="list-style-type: none"> • Demonstrated familiarity with a range of estimating methods and be able to draw on internal specialist expertise.
		<ul style="list-style-type: none"> • Demonstrated experience in the provision of full cost management services, including preparation of regular milestone estimates from project inception through to construction tender, preparation of project cashflows, detailed elemental cost analyses, assistance in tender evaluation, preparation of tender reconciliations, negotiation and assessment of construction variation claims.
<p>CE3</p> <p>The criteria for both CE1 and CE2 is required before an application can be considered for CE3. In addition to CE1 and CE2, the following is required:</p>		<ul style="list-style-type: none"> • Demonstrated experience in accurate cost estimating of major transport infrastructure projects. • This level of prequalification is required for the cost estimation of large major transport infrastructure projects, and projects or programs that require integrated time, cost and risk schedules across multiple projects and/or program elements.
		<ul style="list-style-type: none"> • Demonstrated recent experience in undertaking detailed cost estimates of a range of transport infrastructure projects to inform investment prioritisation at the State and/or national level. • Examples of projects may include complex, multi-phase major projects which include road and/or rail bridges structures (BD3), tunnels, complex geotechnical conditions (GE3).

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> Applied cost estimating of major infrastructure projects or infrastructure programs that encompass large-scale infrastructure, such as large public transport projects, including bus, heavy rail, light rail, multi-modal projects, transit-oriented developments. 	<ul style="list-style-type: none"> Demonstrated experience in the preparation of first principles and/or unit rate based estimates (or a combination of both methods) and associated reports for projects at strategic, concept, detailed and tender phases incorporating quantity take-offs, cost estimates, risk assessments (inclusive of developing risk registers, facilitating risk workshops, assessment of risk items, calculation of risk values using Monte Carlo simulation software and the like), project schedules, construction methodology and staging, cash flows and the like for complex road and rail infrastructure projects.

2.7.3 Cost management

Applicants are advised to take note of the following when compiling applications:

- eligibility for level CM1.3 and CM2.3 is dependent on successful demonstration of this expertise on Department projects within the past 3 years with the following characteristics:
 - technically complex
 - value (typically > \$100M construction value)
- CM1.3 and CM2.3 prequalification is recognised by the Department as a means to confidently deliver the cost management of such projects with high-risk profiles, and
- applications should only contain personnel details relevant to addressing the criteria outlined in this Manual.

The prequalification levels for cost management with commentary are described in Table 2.7.3.

Table 2.7.3 – Cost Management prequalification levels with commentary

Level	Class of Work Description	Commentary
CM1.1 and CM2.1	Use of applied cost management methods such as budgeting, cost control, resource allocation and value engineering.	<ul style="list-style-type: none"> Demonstrated experience in cost management for transport infrastructure projects (road and/or rail). Examples of projects may include overtaking lanes, minor intersection and junction upgrades, road widening, sealing unsealed road, minor structures, and safety related projects.

Level	Class of Work Description	Commentary
	<p>This level of prequalification is required for budget performance and cost management and for Quantitative Schedule Risk Analysis (QSRA) for simple multi-modal transport infrastructure projects.</p>	<ul style="list-style-type: none"> • Demonstrated experience (work sample) of applied estimating in the relevant subject areas. • Examples of projects (within 3 years prior to the application). <hr/> <ul style="list-style-type: none"> • Demonstrated experience utilising tools required to prepare budget performance and cost management project status reporting and QSRA including using applicable software. <hr/> <ul style="list-style-type: none"> • Demonstrated familiarity with the Department's <i>Project Cost Estimating Manual</i>.
<p>CM1.2 and CM2.2</p>	<p>As for CM1.1 and CM2.1 plus:</p> <ul style="list-style-type: none"> • Emphasis is placed on proven cost management techniques across multiple project phases from project evaluation to project completion. • This level of prequalification is required for budget performance and cost management, and QSRA for medium complexity projects. 	<ul style="list-style-type: none"> • Demonstrated experience in cost management utilising more complex performance analysis methods and techniques. • Examples of projects may include road or rail bridges (BD2, BD3), major roadworks, or Intersection / Junction upgrades (HE2, HE3). <hr/> <ul style="list-style-type: none"> • Examples of a project (within 3 years prior to the application). <hr/> <ul style="list-style-type: none"> • Demonstrated experience in undertaking detailed project cost management in the context of Australian and State policies, for a range of transport infrastructure projects, with a particular emphasis on the State Highway Network. <hr/> <ul style="list-style-type: none"> • Demonstrated familiarity with a range of performance analysis methods and be able to draw on internal specialist expertise. <hr/> <ul style="list-style-type: none"> • For CM1.2, demonstrated experience in the provision of cost management services, including Estimate and Project Budget Performance analysis, review of construction and Principal costs, measurement of the actual risk costs compared to estimated unplanned / planned risk costs within the approved budget. • For CM2.2, demonstrated experience in the provision of cost management services, including probability distribution of project completion, risk-adjusted project schedule and sensitivity analysis.

Level	Class of Work Description	Commentary
<p>CM1.3 and CM2.3</p>	<p>The criteria for both CM1.1 and CM2.1, and CM1.2 and CM2.2 is required before an application can be considered for CE1.3 and CE2.3.</p>	<ul style="list-style-type: none"> • Demonstrated experience in cost management of major transport infrastructure projects. • This level of prequalification is required for the cost management of large major transport infrastructure projects, and projects or programs that require integrated time, cost and risk schedules across multiple projects and/or program elements.
	<p>In addition to CM1.1 and CM2.1, and CM1.2 and CM2.2, the following is required:</p> <ul style="list-style-type: none"> • Applied cost management of major infrastructure projects or infrastructure programs that encompass large-scale infrastructure, such as large public transport projects, including bus, heavy rail, light rail, multi-modal projects, transit-oriented developments. 	<ul style="list-style-type: none"> • Demonstrated recent experience in undertaking detailed cost management of a range of transport infrastructure projects to inform investment prioritisation at the state and/or national level. • Examples of projects may include complex, multi-phase major projects which include road and/or rail bridges structures (BD3), tunnels, complex geotechnical conditions (GE3).
		<ul style="list-style-type: none"> • Demonstrated experience in cost management for complex road and rail infrastructure projects, including managing and overseeing first principles and/or unit rate-based estimates (or a combination of both methods) throughout the strategic, concept, detailed, and tender phases. This includes the development and oversight of associated reports, control measures, risk analysis, project schedules, construction methodologies and staging, cash flows, and other related activities.

2.7.4 Data Analysis and Insights

Points for Consultants to note:

- Please ensure submissions demonstrate a clear distinction between which disciplines of data analysis and insights the Consultant has skills and experience in.
- A Consultant is not expected to have equivalent level skills / experience across all disciplines of data analysis and insights, in order to be prequalified at a particular level. That is, a consultancy might be prequalified at level 3 due their high degree of experience and expertise in data science, despite only moderate skills and experience in data visualisation.

The prequalification levels for this category with commentary are described in Table 2.7.4.

Table 2.7.4 – Data analysis and insights prequalification levels with commentary

Level	Class of Work Description	Commentary
DAI1	Data engineering tasks, such as: <ul style="list-style-type: none"> • Development and maintenance of desktop or cloud ETL pipelines. • Design, development, and maintenance of data storage solutions. • Reviewing solution architectures to ensure compliance with data governance standards and legislative requirements. 	To be awarded this level your personnel must have demonstrated project experience in: <ul style="list-style-type: none"> • writing SQL and querying data stores • Python coding • using version control tools such as Git and GitHub • creating ETL pipelines, and • designing, building, and optimising data storage solutions.
	Data analysis tasks, such as: <ul style="list-style-type: none"> • Data cleansing and preparation. • Undertaking analyses of observed transport-related data to generate insights that answer business questions. • Developing reports, presentations, and briefings to communicate results to both technical and non-technical stakeholders. 	To be awarded this level your personnel must have demonstrated project experience in: <ul style="list-style-type: none"> • the use of Excel, Python, Alteryx, Tableau, PowerBI and/or other desktop tools for analysis purposes • working with geospatial data and in the use of GIS software such as QGIS, ArcGIS, MapInfo or similar • preparing and cleansing data for use in analyses • the use of descriptive statistics in reporting and analysis • preparation of reports, presentations, and technical notes using the Microsoft Office suite.
	Data science tasks, such as: <ul style="list-style-type: none"> • Codifying and classifying data to train models with using machine learning techniques, AI, and/or algorithms to undertake advanced analysis tasks to generate insights that answer business questions. • Communicating model strengths, limitations, and scope of application to stakeholders. 	To be awarded this level your personnel must have demonstrated project experience in: <ul style="list-style-type: none"> • Python coding • writing SQL to querying data stores • the use of version control software such as Git and DVC • statistical modelling, transport modelling, or machine learning • the use of geospatial data and GIS software for data science purposes • codifying and classifying data that can be used to train models, and

Level	Class of Work Description	Commentary
	<p>Data visualisation tasks, such as:</p> <ul style="list-style-type: none"> • Preparing data sources for visualisation. • Developing infographics, cartographic maps, and/or interactive data visualisations to communicate insights and inform decision making. • Collaborating with data custodians to ensure data is not misrepresented. • Data storytelling. 	<ul style="list-style-type: none"> • presenting and explaining the strengths, limitations, and scope of application of models to stakeholders. <p>To be awarded this level your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • writing SQL • connecting to and working with data from a range of data storage solutions • working with geospatial data • Tableau, Power BI, or ArcGIS for the purpose of creating data visualisations, and • communicating insights from data to both technical and non-technical audiences.
DAI2	<p>As for DAI1 plus:</p> <p>Data engineering tasks, such as:</p> <ul style="list-style-type: none"> • Design and implementation of cloud based ETL pipelines. • Design and development of cloud data storage solutions. 	<p>To be awarded this level your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • The use of Amazon Web Services, Microsoft Azure, or Google Cloud Platform for data and analytics tasks. • Deploying and maintaining fit-for-purposes data storage solutions and ETL pipelines in the cloud. • Additionally, your organisation must have: <ul style="list-style-type: none"> – completed projects that involve the use of the cloud for data and analytics.
	<p>Data analysis tasks, such as:</p> <ul style="list-style-type: none"> • Hosting stakeholder workshops to gather analysis requirements and understand where insights are needed. • Developing metrics and composite measures for performance monitoring and scenario comparison. • Using data blending techniques or conducting multi-criteria analyses to inform complex decisions that individual data sources alone cannot address. 	<p>To be awarded this level your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • Experience engaging with data owners and decision makers to translate business needs into analysis tasks. • Writing SQL and querying cloud-based or on-prem data stores. • Joining and blending multiple data sources. • Additionally, your organisation must have: <ul style="list-style-type: none"> – completed projects that involve leveraging data and analysis to inform planning decisions, investment prioritisation, and/or policy development.

Level	Class of Work Description	Commentary
	<p>Data science tasks, such as:</p> <ul style="list-style-type: none"> • Hosting stakeholder workshops to understand data gaps and where additional insights are needed. • Developing fit-for-purpose models (other than classic strategic, mesoscopic, or microsimulation transport modelling). • Running scenarios / experiments through models to answer business questions and communicating results to stakeholders. 	<p>To be awarded this level your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • Experience engaging with data owners and decision makers to translate business needs into model development tasks and experiment / scenario designs. • Experience presenting and explaining model strengths, limitations, and scope of application to technical and non-technical stakeholders. • Use of version control software for experimentation. • Additionally, your organisation must have: <ul style="list-style-type: none"> – completed projects that involve building and running models (other than classic strategic, mesoscopic, or microsimulation transport models) that have been used to inform business decisions, investment prioritisation, and/or policy development.
	<p>Data visualisation tasks, such as:</p> <ul style="list-style-type: none"> • Collaborating with data engineers to optimise data delivery pipelines for visualisations. • Hosting workshops with end-users to understand their data visualisation needs. • Managing the sharing of data visualisations through online portals. 	<p>To be awarded this level your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • Optimising visualisations for performance. • Working with end users to deliver visualisation products that consider their user experience. • Graphic design. • Using online portals to share data visualisations such as Tableau Server or ArcGIS Online. • Additionally, your organisation must have: <ul style="list-style-type: none"> – completed projects that involve publication of data visualisations through an online portal that is then used by the business to inform decision making.
DAI3	<p>As for DAI2 plus: Data engineering tasks, such as:</p> <ul style="list-style-type: none"> • Requirements gathering and documentation. 	<p>To be awarded this level your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • Engaging with data owners, technicians, and end users to gather requirements.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Designing and building cloud solutions that meet a set of user requirements. • Automation of ETL pipelines in the cloud. • Ensuring security is maintained in the cloud. • Cost optimisation in the cloud. 	<ul style="list-style-type: none"> • Translating requirements into fit-for-purpose data and analytics solutions in the cloud. • Designing, developing, and testing cloud-based platforms for data science experimentation, analysis, and/or model execution. • Automating ETL tasks in the cloud. • Designing and implementing network security features in the cloud that are just permissive enough to meet user and organisational governance requirements. • Ensuring security and access needs are met through user access controls. • Optimising data storage solutions and ETL pipelines in the cloud to balance cost and performance. • Additionally, your organisation must have: <ul style="list-style-type: none"> – completed projects that involve designing and building cloud solutions that integrate multiple services to meet user requirements.
	<p>Data analysis tasks, such as:</p> <ul style="list-style-type: none"> • Working with data engineers to automate analysis pipelines. • Analysing and summarising modelling results including the evaluation of different scenarios. 	<p>To be awarded this level your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • Collaborating with data engineers to automate repeatable analysis tasks. • Use of cloud-based analytics tools, such as leveraging virtual compute resources and interacting with cloud-based data stores. • Interrogating and summarising model results into reports and presentations. • Additionally, your organisation must have: <ul style="list-style-type: none"> – completed projects that involve the use of cloud-based analytics services and/or automated analytics pipelines.
	<p>Data science tasks, such as:</p> <ul style="list-style-type: none"> • Working with data engineers to automate the execution of models and experiments. 	<p>To be awarded this level your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • Collaborating with data engineers to automate repeatable data science tasks.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Building and using models to develop future projections. • Application of emerging artificial intelligence and machine learning techniques to address business questions that other data science techniques have not been able to. 	<ul style="list-style-type: none"> • Use of cloud-based analytics tools, such as leveraging virtual compute resources and interacting with cloud-based data stores. • Developing future-year scenarios and experiments. • The use of emerging artificial intelligence and machine learning techniques. • Additionally, your organisation must have: <ul style="list-style-type: none"> – completed projects that involve the use of artificial intelligence and machine learning techniques (beyond classic strategic, mesoscopic, or microsimulation transport models) to solve novel business challenges.
	<p>Data visualisation tasks, such as:</p> <ul style="list-style-type: none"> • Participating in iterative development cycles for building data visualisations to ensure end-users needs are met. • Working with data engineers to automate pipelines that feed data visualisations. • Hosting end-user training workshops and/or 1:1 sessions. 	<p>To be awarded this level, your personnel must have demonstrated project experience in:</p> <ul style="list-style-type: none"> • The use of wire-frames for drafting data visualisations. • Building minimal viable products and iteratively developing data visualisations to maximise the chances of user uptake. • User experience testing. • Theoretical awareness of cloud data pipeline architectures. • End-user training and education. • Additionally, your organisation must be able to: <ul style="list-style-type: none"> – provide examples such as screenshots of data visualisations your organisation has delivered (you are encouraged to redact identifying information and sensitive figures, we are looking mainly here at design).

2.7.5 Economic Studies

Consultants applying for prequalification in economic studies are expected to have a strong track record of delivery in relevant subject areas.

The following is a list of the of relevant subject areas relating to economic studies in which the Consultant is required to have expertise:

- theoretical principles underpinning transport economic analyses and related sectoral work
- detailed understanding and application of available tools to undertake economic analysis for transport infrastructure projects, both at the project and program level
- ability to undertake cost-benefit analyses of transport infrastructure, in accordance with both Australian and Queensland Government reporting requirements
- understanding of techniques and principles underpinning state and regional economic modelling
- ability to undertake economic impact analysis methods, techniques and studies, and
- ability to undertake economic and public policy analysis.

Consultants are expected to be familiar with a range of methods and guidelines to inform the analysis, whilst being able to draw on internal specialist expertise and be ready to engage relevant analytical methods.

Consultants are expected to meet Australian and Queensland Government reporting requirements. Economic studies and analysis will require involvement from the Project Evaluation Unit in Portfolio Investment and Programming Branch.

Submissions for prequalification are expected to be of a high standard. Consultants are required to provide sufficient evidence to address the criteria outlined in this brochure. Applications should only contain personnel relevant to addressing the criteria outlined in this document.

Key points of contact for Economic Studies within the Department is the Director (Project Evaluation) and Economics Evaluation Team (Project Evaluation) in Portfolio Investment and Programming Branch.

The prequalification levels for economic studies with commentary are described in Table 2.7.5.

Table 2.7.5 – Economic Studies prequalification levels with commentary

Level	Class of Work Description	Commentary
ES1	Use of applied economic evaluation methods such as cost benefit analysis	<ul style="list-style-type: none"> • Consultant or analyst with a proven track record in cost benefit analysis / economic evaluation of transport infrastructure projects.

Level	Class of Work Description	Commentary
	<p>(including standard project evaluation methodology and techniques), multi-criteria analysis, strategic merit test, and local investment impact analysis.</p> <p>This level of prequalification is required for the economic evaluation of rural projects of low complexity.</p> <p>Examples of projects subject to economic analysis include, but are not limited to, overtaking lanes, road widening, sealing unsealed road, and safety related projects.</p> <p>A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience.</p>	<ul style="list-style-type: none"> • Consultants should provide evidence (work sample) of applied analysis in the relevant subject areas. <p>Consultants are expected to have a thorough understanding and capability to articulate the following aspects of an analysis:</p> <ul style="list-style-type: none"> • traffic data and traffic modelling required for an analysis • economic modelling assumptions • tools required to conduct analysis (for example, excel spreadsheets, dedicated analysis tools, and relevant databases) • discounted cash flow analysis and use of appropriate discount rates • road agency costs (for example, capital costs, whole of life costs, and residual values) • road user costs savings (for example, travel time cost savings, vehicle operating costs savings, accident costs savings, externalities cost savings) • range of economic indicators (for example, net present value, benefit-cost ratio, net benefit investment ratio, internal rate of return, first year rate of return) • options analysis and use of net present value and incremental benefit-cost ratio to Rank options • appropriate sensitivity tests to be conducted (for example, impacts to costs or benefit factors), and • compile technical reports.
ES2	<p>As for ES1 plus:</p> <ul style="list-style-type: none"> • Applied analysis involving sub-regional, regional or statewide economic impact analyses to inform project proposals and development of regional or statewide road investment strategies. 	<ul style="list-style-type: none"> • Consultant or analyst with a proven track record in economic impact assessments and broader economic evaluation methods and techniques. • Consultants should provide defensible evidence (work sample or reference) of work that has contributed to the development of investment proposals and strategies to Australian and Queensland Government infrastructure bodies in relevant subject areas.

Level	Class of Work Description	Commentary
	<p>Emphasis is placed on proven economic modelling techniques and understanding of linkages between investment in transport infrastructure and impacts on the broader economy.</p> <ul style="list-style-type: none"> • Analysis can be of regional, statewide or national significance, relating to contribution to economic output and/or improvements to productivity. • A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience. 	<ul style="list-style-type: none"> • Consultants should be able to demonstrate recent experience in undertaking detailed economic analysis in the context of state / national policy, reform or industry studies to inform a range of transport infrastructure outcomes, with a particular emphasis on sectoral analysis.
ES3		<ul style="list-style-type: none"> • Consultant or analyst with a proven track record in cost benefit analysis / economic evaluation of major transport infrastructure projects. • Consultant or analyst with a proven track record in economic impact assessments and broader economic evaluation methods and techniques. • Consultants should provide defensible evidence (for example work sample) of having practiced cost-benefit analysis with particular reference to complex project and program level evaluations and regional investment impact analyses. • Consultants are expected to demonstrate recent experience in undertaking detailed economic analysis of a range of transport infrastructure projects to inform investment prioritisation at the State and/or national level.

Level	Class of Work Description	Commentary
	<p>The criteria for both ES1 and ES2 are required before an application can be considered for ES3.</p> <p>In addition to ES1 and ES2, the following is required:</p> <ul style="list-style-type: none"> • Applied economic analysis of major infrastructure projects or infrastructure programs that encompass large-scale infrastructure, which may also consider the impacts on the wider economy. • This level of prequalification is required for the economic evaluation of large multi-modal projects, transport projects of great national significance, and projects or programs that require complex and sophisticated modelling and analysis. • A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience. 	<ul style="list-style-type: none"> • Consultants should provide defensible evidence (for example work sample) of work that has contributed to the development of policy or investment submissions to either: national investment bodies, transport forums; Federal commissions of inquiry; infrastructure / tax / pricing / regulatory reviews (for example, ACCC / Productivity Commission inquiries) in relevant subject areas.

2.7.6 Financial / Commercial

Consultants applying for prequalification in financial / commercial are expected to have a strong track record of undertaking analysis of transport infrastructure.

The following is a list of relevant subject areas in which a financial / commercial specialist would have recent knowledge and experience:

- theoretical principles underpinning financial analyses and market conditions
- awareness of available tools to undertake an analysis of capital, operations and maintenance costs associated with transport infrastructure, and
- ability to develop and assess a range of funding and staging scenarios.

- Awareness of commercial aspects of a range of infrastructure assets, including but not limited to the following:
 - road and bridge projects
 - public transport projects, including bus, heavy rail, light rail, and so on
 - multi-modal projects
 - transit oriented developments
 - mixed commercial / residential property developments, and
 - marine / boat harbour development assessments.
- Awareness of project risk analysis, both qualitative and quantitative assessments.
- Ability to undertake value for money and affordability assessments involving variants of private sector involvement models and public sector comparator assessments, and
- Awareness of a range of assessment guidelines, such as the Queensland Government Project Assurance and Value for Money frameworks, and Infrastructure Australia and National Public Private Partnership (PPP) guidelines.

It is expected that Consultants will be familiar with a range of methods and guidelines to inform the analysis, whilst being able to draw on internal specialist expertise and be ready to engage relevant analytical methods and advise accordingly.

To meet Australian and Queensland Government reporting requirements and prioritise investments, Financial and Commercial assessments will require involvement from Project Evaluation in Portfolio Investment and Programming Branch.

Key point of contact for Financial / Commercial assessments within the Department is the Director (Project Evaluation) in Portfolio Investment and Programming Branch.

The prequalification levels for Financial / Commercial with commentary are described in Table 2.7.6.

Table 2.7.6 – Financial / Commercial prequalification levels with commentary

Level	Class of Work Description	Commentary
FC1	Applied financial analysis methods, including discounted cash flow techniques, with an emphasis on whole-of-life costs assessments. Evaluations are to be conducted in accordance with Australian and Queensland Government reporting requirements. A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience.	Consultant or analyst with recent experience in discounted cash flow analysis and project evaluation methodologies.
		Consultants should be able to provide evidence of having applied financial analysis skills and experience in providing outputs that supports investment decision-making. Consultants should be able to develop a financial analysis methodology, listing the below aspects: <ul style="list-style-type: none"> • financial modelling assumptions • appropriate discount rates • discounted cash flow analysis of capital and whole of life costs • a range of financial indicators (for example, Net Present Costs, Net Present Value, Internal Rate of Return) • any scenarios or sensitivity tests to be conducted (for example, early works packaging, staging analysis, varying escalation or contingency factors), and • compile technical reports.
FC2	As for FC1 plus: <ul style="list-style-type: none"> • Applied financial analysis for larger scale transport related infrastructure project assessments. • Analysis is more complex, with broader emphasis on commercial aspects of the project. Analysis should consider market conditions, risk allocation and procurement related issues that may impact on the project (that is, funding, delivery and timing). 	Consultant or analyst with a proven track record in discounted cash flow analysis and project evaluation methodologies. Consultant or analyst with proven track record in risk and/or commercial analysis.
		Consultants should be able to provide evidence of having applied financial and commercial analysis skills and experience in providing advice that supports investment decision-making. In addition to FC1 , Consultants should also be able to demonstrate recent experience in undertaking detailed risk and commercial assessments for a range of transport infrastructure projects, to inform Value for Money and Affordability assessments.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Project in this category are often of sub-regional, regional and/or national significance in terms of impacts and scale of investment. • A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience. 	<p>As part of these assessments, Consultants should have recent experience in advising on market conditions (for example, cost of debt / equity, competition, cost of materials, inflationary effects, risk allocation and pricing, and so on) and procurement and delivery strategies that may impact on the project timing, cash flows and financing mechanisms.</p> <p>Advisors may also be sought on procurement and delivery strategies involving partnership arrangements with the private sector, including methods to explore value uplift and innovation opportunities, appropriate risk transfer strategies, and their impact on project timing, cash flows, financing and innovation.</p>
FC3	<p>In addition to FC1 and FC2, the following is required:</p> <ul style="list-style-type: none"> • Applied financial analysis on complex transport related infrastructure projects. • The assessment is more comprehensive with an emphasis on commercial and risk aspects of mixed commercial / residential property developments, transit-oriented developments and marine / boat harbour assessments, along with road and public transport projects, to inform government investment decision-makers. • A recent work sample (within 3 years prior to the application) is required as part of the application to verify relevant experience. 	<p>Financial modelling Consultant or analysts with a proven track record in discounted cash flow analysis and project evaluation methodologies within the relevant subject area.</p> <p>Risk and/or commercial Consultant or analyst with proven track record in the fields of transport, property and marine related infrastructure assessments for both private and publicly funded projects.</p> <p>Consultants should be able to provide evidence of having applied financial and commercial analysis skills and experience in providing advice that supports investment decision-making.</p> <p>In addition to FC2, Consultants should be able to demonstrate recent experience in undertaking detailed risk and commercial assessments for a range of transport infrastructure projects, with a particular emphasis on value capture issues for residential and commercial land-uses and/or marine / boat harbour assessments, in addition to road and public transport projects assessments.</p>

2.7.7 Geotechnical Engineering

The Department expects Consultants to be able to demonstrate the experience set out in Table 2.7.7.

Table 2.7.7 – Geotechnical Engineering prequalification levels with commentary

Level	Class of Work Description	Commentary
GE1	<ul style="list-style-type: none"> Simple foundation (footing and driven pile) analysis including bearing capacity calculation and settlement prediction. 	<ul style="list-style-type: none"> Designing simple foundation for small bridge, culvert, noise barrier walls, sign-post and so on, by simple hand calculations.
	<ul style="list-style-type: none"> Soil cut slope design and stability analysis (height \leq 5 m), with static and/or perched water table, using both circular and non-circular slip surfaces. 	<ul style="list-style-type: none"> Analysing cut slope using limit equilibrium slope stability software such as SLOPE/W.
	<ul style="list-style-type: none"> Embankment (unreinforced) (height \leq 10 m) design, stability and settlement analysis for embankments founded on cohesive (undrained strength $>$ 75kPa, that is, stiff clays) and non-cohesive materials. 	<ul style="list-style-type: none"> Stability and settlement analysis of embankment by simple hand calculations and/or using charts.
	<ul style="list-style-type: none"> Retaining wall design up to 5 m height. 	<ul style="list-style-type: none"> Designing gravity and cantilever types retaining walls.
	<ul style="list-style-type: none"> Instrumentation monitoring of ground water table. 	<ul style="list-style-type: none"> Ability to monitor and interpret ground water records from different types of piezometers.
	<ul style="list-style-type: none"> Planning of geotechnical site investigation for minor infrastructure projects. 	<ul style="list-style-type: none"> Planning and managing different types of geotechnical investigation such as Borehole, Test pit and Penetrometer tests for minor infrastructure projects. Ability to assign appropriate laboratory tests from the field investigation.
	GE2	<p>As for GE1 plus:</p> <ul style="list-style-type: none"> Geotechnical design of all foundation types, and rock sockets for less than 5MN axial load including uplift.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Soil cut slope design and stability analysis (height \leq 10 m). 	<ul style="list-style-type: none"> • Analysing cut slope using limit equilibrium slope stability software such as SLOPE/W for complex geology.
	<ul style="list-style-type: none"> • Rock cut slope design and stability analysis (height \leq 10 m). 	<ul style="list-style-type: none"> • Analysing static and kinematic slope stability for complex geology.
	<ul style="list-style-type: none"> • Reinforced slope design. 	<ul style="list-style-type: none"> • Designing insitu slope stabilisation (for example, soil nails or rock dowels) and reinforced embankment as per design standard such as BS8006.
	<ul style="list-style-type: none"> • Embankment design, stability and settlement analysis for all embankment heights on all soil types, including soft soils (< 10 m thick) and design of ground improvements. 	<ul style="list-style-type: none"> • Stability analysis based on limit equilibrium methods. • Settlement analysis based on Terzaghi one-dimensional consolidation theory. • Estimating secondary consolidation (creep) settlement. • Designing various type of ground improvement techniques. • Designing sidelong embankments.
	<ul style="list-style-type: none"> • Design / Remediation of embankment / culvert on expansive clays. 	<ul style="list-style-type: none"> • Designing of embankment, pavement and culvert on expansive clays. • Designing of remedial treatment for distress structures such as embankment, pavement and culvert on expansive clays.
	<ul style="list-style-type: none"> • Retaining wall design up to 10 m. 	<ul style="list-style-type: none"> • Designing different types of retaining walls such as Gabion, Boulder, RC and Soil nail walls.
	<ul style="list-style-type: none"> • Reinforced soil structure analysis and design up to 10 m. 	<ul style="list-style-type: none"> • Internal and external design of RSS wall.
	<ul style="list-style-type: none"> • Planning, monitoring and interpretation of geotechnical instrumentation for embankments, cuts and structures. 	<ul style="list-style-type: none"> • Planning, monitoring and interpretation of geotechnical instrumentation such as settlement marker, settlement plate, inclinometer, extensometer and different types of piezometers.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> Planning of geotechnical site investigation for major infrastructure projects. 	<ul style="list-style-type: none"> Planning and managing different types of geotechnical investigation such as Borehole, Test pit and Penetrometer tests for major infrastructure projects including investigation for major bridge foundations, retaining walls, culverts, cuts and embankments. Investigating in soft clay, reactive clay, different types of soils and rocks. Ability to assign appropriate laboratory testing from the field investigation.
GE3	As for GE2 plus:	Demonstrated extensive experience in the following:
	<ul style="list-style-type: none"> Rock sockets for all loads. 	<ul style="list-style-type: none"> Designing rock sockets, preferably the design method due to Pells (1999): <i>State of practice for the design of socketed piles in rock.</i>
	<ul style="list-style-type: none"> Deep excavation design and analysis in both soil and rock, including bored tunnels. 	<ul style="list-style-type: none"> Designing cut and cover tunnels and bored tunnels in both soil and rock including soft clay.
	<ul style="list-style-type: none"> Design of ground improvements for embankment / structure on thick (> 10 m) soft / loose layers. 	<ul style="list-style-type: none"> Designing different types of ground improvement techniques such as stage construction, counter berms, surcharge, wick drain, dynamic compaction and pile raft for thick, soft or loose layers.
	<ul style="list-style-type: none"> Soil cut slope design and stability analysis (any height). 	<ul style="list-style-type: none"> Analysing cut slope using limit equilibrium slope stability software such as SLOPE/W for cut height greater than 10 m.
	<ul style="list-style-type: none"> Rock cut slope design and stability analysis (any height). 	<ul style="list-style-type: none"> Analysing static and kinematic slope stability for cut height greater than 10 m.
	<ul style="list-style-type: none"> Design of remedial works for soil and rock natural slope failures (landslides). 	<ul style="list-style-type: none"> Designing different types of remedial works such as re-profiling (with earthfill / rockfill) and retaining wall systems.
	<ul style="list-style-type: none"> Design of remedial works on failed cut slopes and embankments. 	<ul style="list-style-type: none"> Designing different types of remedial works such as re-shaping, re-profiling (with earthfill / rockfill), netting and/or retaining wall systems.
	<ul style="list-style-type: none"> Geotechnical design of remedial works on movements of structures (including embankments). 	<ul style="list-style-type: none"> Designing of remedial treatment for distress structures such as embankment, pavement, bridge and culvert on problematic soil / rock or unforeseen ground conditions.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Retaining wall and reinforced soil structures (any height). 	<ul style="list-style-type: none"> • Designing different types of retaining walls such as Gabion, RC, RSS and Soil nail walls.
	<ul style="list-style-type: none"> • Embedded retaining wall design. 	<ul style="list-style-type: none"> • Designing embedded retaining walls preferably as per BS8002.

Applications should also include project examples for each class of works with company and personnel contributions. Details to be included, but are not limited to, project name, location, cost, duration, description of structure, geotechnical conditions (soil type, thickness and so on), other engineering issues, design details, construction issues and mitigation measures implemented.

2.7.8 Highway Engineering

Applicants are advised to take note of the following when compiling their Highway Engineering applications:

- Consultants shall provide documentation to demonstrate that they have systems in place to ensure that all highway engineers and designers within their organisation design to the same design criteria and technical guidelines. They shall demonstrate how this conformity to a consistent design methodology and design criteria is monitored, controlled and audited with their quality systems.
- The Department will consider the location of Consultant’s offices, and location of RPEQs, compared to the geographic area(s) of nominated operation. Refer to Section B and H of Form C7512 *Application Form*.
- Applications for HE2 and HE3 prequalification must include sufficient software in support of these classifications. It is expected that software packages such as ARNDT, RISC would be required to cover the likely range of Departmental projects at these levels. Refer Section I of Form C7512 *Application Form*.
- The Consultants must provide details to demonstrate how the requirements of Clause 2.2.4 Registered Professional Engineers of this Manual will be implemented, especially how direct supervision and RPEQ sign off is managed.
- The Department will consider the number of RPEQs available compared to the Consultant’s total available HE staff numbers.
- The Department will consider the experience and capability of non-engineers for example road designers.

- Applications for HE2 and HE3 prequalification must include sufficient description of experience in support of nominated classification for each project. Applications should include detailed project descriptions with examples for each class of works with company and personnel contributions. Details to be included, but not limited to, project name, location, cost, duration, description of road type, other engineering issues, design details, construction issues and mitigation measures implemented. Refer Attachment A and B.
- The skills and experience of key personnel, especially RPEQs, must be appropriate for the HE level being requested. RPEQs should be experienced and have supervised projects at or close to HE level requested. Refer Attachment G of Form C7512 *Application Form*, and
- Consultants need to detail relevant engineering skills and experience in the CVs for highway engineers and designers, especially RPEQs, and clearly detail what engineering / design work they were actually responsibly for.
- Drawing requirements:
 - Drawings for Department projects should reflect the Department's *Drafting and Design Presentation Standards Manual*.
 - HE1 applicants should submit as many of their drawings as possible, to demonstrate their capability and experience.
 - HE2 and HE3 applicants should submit:
 - Site Locality Plan (for context purposes)
 - Drawing Index (for context purposes)
 - General Arrangement / Layout plans and Detail plans
 - Submit any other relevant information for HE2 and HE3 level projects, such as sight distance calculations, aquaplaning calculations, vehicle swept path checks, reports, and so on.
 - Longitudinal sections
 - Cross-sections (include pavement design)
 - Signage and line marking plans, and
 - Intersection plans.

2.7.9 Hydraulic Design

Applicants are reminded that upgrade applications **must** include hydraulic reports as evidence of capability, for the application to be considered.

The prequalification levels for hydraulic design with commentary are described in Table 2.7.9.

Table 2.7.9 – Hydraulic Design prequalification levels with commentary

Level	Class of Work Description	Commentary
HD1	<ul style="list-style-type: none"> • Rainfall runoff calculations (hydrology) for small catchments (area less than 200 km²). • Hydraulics for a single stream and overflows to assess culvert, bridge and floodway requirements and other drainage structures for roads. • Bridge Afflux Calculations. Steady flow backwater modelling, for example, using HEC-RAS software. • Road pavement runoff and aquaplaning. 	<ul style="list-style-type: none"> • Understanding of the application of appropriate procedures in the Department's <i>Road Drainage Manual</i> and <i>Australian Rainfall and Runoff</i>. • Understand the principles of calculating design floods for small catchments throughout Queensland and how to apply this to calculating flows through bridges, culverts and other road drainage infrastructure. • Demonstrated capability to apply appropriate hydraulic design software, including rainfall – runoff models, regional flood frequency and HEC-RAS. • Demonstrated capability to prepare hydraulic design reports for bridges and culverts in roads. • Understand the assessment of observed hydraulic data and its application to road design projects. Data may include both formal data programmes from agencies such as DNRM and BoM as well as anecdotal flood data and observations.
HD2	<p>As for HD1 plus:</p> <ul style="list-style-type: none"> • Hydrology for large catchments (area greater than 200 km²). • Mathematical modelling (1-dimensional or 2-dimensional) of unsteady flow in open channel systems including components such as natural streams, flood plains, roads and bridges, man-made channels, reservoirs, dams, weirs and tidal 	<ul style="list-style-type: none"> • Demonstrated capability to analyse larger catchments than apply for HD1. • Demonstrated skills in application of unsteady 1D, quasi-2D or 2D hydraulic analysis to tidal flows and applications involving floodplain storage and/or local catchment overland flows. • Demonstrated skills in the application of flood frequency analysis for both at-site and regional procedures. • Understand and apply the scour concepts outlined in the Department's <i>Bridge Scour Manual</i> and <i>Austrroads Guide to Bridge Technology Part 8, Chapter 5: Bridge Scour (2018)</i>.

Level	Class of Work Description	Commentary
	flows. <ul style="list-style-type: none"> • 2D hydraulic modelling. • Scour calculations. • Time of submergence calculations. • Frequency analysis of flood data records. • 2D hydraulic modelling involving floodplain storage and/or local catchment overland flows. 	<ul style="list-style-type: none"> • Ability to prepare hydraulic designs for floodways and design scour protection measures for floodway design. • Understand and apply hydrologic analysis to joint probability assessments for tidal boundaries and tributary flows. • Ability to apply time of submergence calculations for road design projects. • Ability to assess road surfaces for aquaplaning issues.
HD3	As for HD2 plus: <ul style="list-style-type: none"> • Special investigations, for example, physical hydraulic modelling, 2D modelling of complex floodplains), computational fluid dynamics modelling (CFD). Special registration procedures apply. 	<ul style="list-style-type: none"> • Demonstrated capability in the application of advanced 2D hydraulic modelling to road and bridge projects. • Demonstrated experience in the analysis of road embankments across floodplains and in areas of complex flow distribution. • Understand the principles of physical hydraulic modelling. • Ability to analyse hydraulic issues for road links as well as individual crossings. • Demonstrated skills in assisting in consultation with stakeholders and the community in matters related to flood and drainage issues. • Demonstrated ability to prepare review reports and act as an expert witness in complex matters involving hydraulic issues for road infrastructure projects. • Demonstrated capability in the application of CFD modelling to road and bridge / culvert projects (not mandatory for HD3 but will be highly regarded).

Consultants must demonstrate relevant corporate skills and experience as well as provide CVs for staff with relevant skills and experience.

The experience must be appropriate to drainage for road infrastructure, rather than general skills in drainage design, though these more general skills will be useful as secondary skills.

Consultants must demonstrate that they hold current licences for software suitable for hydraulic design of road infrastructure.

2.7.10 Intelligent Transport Systems

Applicants are reminded that upgrade applications must include design samples as evidence of capability, for the application to be considered.

There are 3 subcategories under the ITS category for Consultants to note:

1. Road Lighting
2. Traffic Signal
3. Placement of ITS devices (for example CCTV, VMS, LUMS).

Therefore, Consultants can request conditional prequalification’s for each subcategory based on their experience and qualifications.

The prequalification levels for intelligent transport systems prequalification with commentary are described in Table 2.7.10.

Table 2.7.10 – Intelligent Transport Systems prequalification levels with commentary

Level	Class of Work Description	Commentary
ITS1	<ul style="list-style-type: none"> • Road Lighting <ul style="list-style-type: none"> – Design for arterial roads that comply with Queensland requirements. – Design of ITS enabling services – electrical, network design end communications design and data services. • Traffic Signals <ul style="list-style-type: none"> – Design for basic intersections that comply with Queensland requirements. – Design of ITS enabling services – electrical, network design end communications design and data services. 	<ul style="list-style-type: none"> • Road Lighting: <ul style="list-style-type: none"> – Development of road lighting and electrical design for arterial roads with basic intersection and/or straight sections. Sample design to include pole placement, luminaire placement, conduit placement and relevant civil design components. Isolux overlay and/or route lighting calculations. Brief explanation of AS/NZS 1158.1.1 category chosen. An electrical schematic with associated electrical calculations. – Experience using one or more Road Lighting software packages such as Perfect Lite AutoCAD Interface or AGI 32. – Design of ITS enabling services – electrical, network design end communications design and data services.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Placement of ITS devices <ul style="list-style-type: none"> – Design on arterial roads that comply with Queensland requirements. • Design of ITS enabling services – electrical, network design end communications design and data services. 	<ul style="list-style-type: none"> • Traffic Signal: <ul style="list-style-type: none"> – Development of Traffic Signal and electrical design for basic intersection. Sample design to include traffic signal controller hardware configuration requirement, lantern placement, detector placement and configuration, phasing/staging diagram, defined signal group and detector operation, traffic signal timings, conflict table, constructability, and maintainability plan. – Design of ITS enabling services – electrical, network design end communications design and data services. • Placement of ITS devices: <ul style="list-style-type: none"> – Placement of ITS devices on arterial roads such as road condition sign (RCS), variable message sign (VMS) and camera placement. • Design of ITS enabling services – electrical, network design end communications design and data services.
ITS2	<p>As for ITS1 plus:</p> <ul style="list-style-type: none"> • Road lighting: <ul style="list-style-type: none"> – design for highways and complex intersections. • Traffic signals: <ul style="list-style-type: none"> – design for complex intersections that comply with Queensland requirements. • Placement of ITS devices. • Design on highways that comply with Queensland requirements. 	<p>As for ITS1 plus:</p> <ul style="list-style-type: none"> • Development of business case and options analysis documentation for ITS infrastructure. • Complex multi-discipline integration of ITS, signals and lighting systems with civil road design. • Road Lighting: <ul style="list-style-type: none"> – road lighting and electrical design for complex motorways, interchanges, and brownfield arterial corridors with multiple entry points along the route. • Traffic Signal: <ul style="list-style-type: none"> – traffic signals design for complex intersections with geometry or physical limitation, complex phasing, see-through effect management and /or interaction with heavy rail – optimisation of protective treatments for vulnerable road users, and high-risk movements. • Placement of ITS devices: <ul style="list-style-type: none"> – road safety investigation and analysis for ITS infrastructure.

Level	Class of Work Description	Commentary
		<ul style="list-style-type: none"> • Placement of ITS devices on highways, including camera, detectors placement, VMS, changeable message sign, and RCS.
ITS3	<p>As for ITS2 plus:</p> <ul style="list-style-type: none"> • Systems Engineering concepts – Development of Concept of Operations and Operations Design reports. • Road lighting: <ul style="list-style-type: none"> – electrical design for complex motorways and interchanges with large underpasses requiring daytime lighting analysis. • Traffic signals: <ul style="list-style-type: none"> – Design for complex interchange with geometry or physical limitation, and complex phasing that comply with Queensland requirements. – Complex design enhancements for systems for ITS and traffic signal management. • Placement of ITS devices: <ul style="list-style-type: none"> – Design for Managed Motorways that comply with Queensland requirements. – Integration of ITS devices into Departmental systems – commissioning and testing planning, and operational responses. 	<p>As for ITS2 plus:</p> <ul style="list-style-type: none"> • Development of Concept of Operations and Operations Design reports. • Road Lighting: <ul style="list-style-type: none"> – Road lighting and electrical design for complex motorways and interchanges with large underpasses requiring daytime lighting analysis. • Traffic Signal: <ul style="list-style-type: none"> – Design for complex interchange with geometry or physical limitation, complex phasing. alternative recommendations and design. – Complex system enhancements design for ITS and traffic signal management. • Placement of ITS devices <ul style="list-style-type: none"> – Design for Managed Motorways, such as managed motorway detector placement, lane use management sign (LUMS) placement and ramp signalling. – Integration of ITS devices into Departmental systems – commissioning and testing planning, and operational responses. – Complex system enhancements design for ITS and traffic signal management.

2.7.11 Marine Engineering

Points for Consultants to note:

There are 3 subcategories under ME1 category.

1. ME1.a – Marine Engineering tasks
2. ME1.b – Numerical modelling tasks
3. ME1.c – Finite element modelling tasks.

Accordingly, Consultants can request prequalification on a conditional basis to ME1 subcategories based on their experience and qualifications. It is not necessary to comply with subcategories for ME1.b Numerical modelling tasks and ME1.c Finite element modelling tasks to qualify for ME2 and ME3 categories, however, they should comply with requirements for ME1.a Marine Engineering tasks.

The prequalification levels for Marine Engineering with commentary are described in Table 2.7.11.

Table 2.7.11 – Marine Engineering prequalification levels with commentary

Level	Class of Work Description	Commentary
ME1	<p>ME1.a Marine Engineering tasks such as:</p> <ul style="list-style-type: none"> • Level 1 – Routine Maintenance structural inspection on Marine Structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways as per the <i>Structures Inspection Manual</i> – A visual inspection to check the general serviceability of the structure, particularly for the safety of the users, and to identify any emerging problems. • Level 2 – Condition Rating structural inspection on Marine Structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways – An inspection to assess and rate the condition of 	<ul style="list-style-type: none"> • Demonstrated capability to use the Departmental <i>Structures Inspection Manual</i>. • Demonstrated capability of providing sufficient staff for the structural inspection with relevant experience on inspecting marine structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways exposed to tidal and wave actions. • At least one member of each project team is RPEQ accredited in the relevant field.

Level	Class of Work Description	Commentary
	<p>a structure (as a basis for assessing the effectiveness of past maintenance treatments, identifying current maintenance needs, modelling and forecasting future changes in condition and estimating future budget requirements).</p> <ul style="list-style-type: none"> • Preparing structural inspection reports on Marine Structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways as per the requirements of <i>Structures Inspection Manual</i>. • Preparing of repair, reinstate, demolition estimates as per the recommendations in the structural inspection report. • Preparing tender documents for repair works as per the Department's MIC or SSMW. • Providing technical support, Contract administration support for implementing the repair projects. • Numerical modelling and assessment of combination of tidal and catchment flow action required for marine infrastructure planning and design. 	
	<p>ME1.b Numerical modelling tasks such as:</p> <ul style="list-style-type: none"> • Conducting desktop wave assessments. • Numerical modelling of coastal hydrodynamics (wind, wave and tidal action). 	<ul style="list-style-type: none"> • Demonstrated capability of using 1D, 2D and 3D numerical modelling software for wave, flow and morphological modelling. Demonstrated experience in using Deltares, DHI, Tuflow and SWAN modelling software. • Demonstrated capability of conducting desktop analysis of wave propagation, decay and dissipation using coastal engineering fundamentals.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Numerical coastal morphological modelling (morphological changes due to wave, and tidal actions). <p>ME1.c Finite element modelling tasks such as:</p> <ul style="list-style-type: none"> • Dynamic response analysis of marine structures. • Fatigue analysis of marine structures. • Finite Element Analysis of marine structures. 	<ul style="list-style-type: none"> • At least one member of each project team is RPEQ-accredited in the relevant field. <hr/> <ul style="list-style-type: none"> • Demonstrated capability of using structural modelling software such as SPACE GASS, ETABS, SAP2000, STAADPRO. • Demonstrated capability of using Finite Element software packages Sim Scale, deal.II or various open source FEM models.
<p>ME2</p>	<p>As for ME1.a plus:</p> <p>Marine Engineering tasks such as:</p> <ul style="list-style-type: none"> • Conducting Level 3 Special structural inspections on Marine structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways as per the <i>Structures Inspection Manual</i>. Level 3 inspection is to provide improved knowledge of the condition, load capacity, in-service performance or any other characteristic beyond the scope of other types of inspection. Special inspections may be used to inform / develop the scope of other types of inspection. • Level 3 inspection categories include: <ul style="list-style-type: none"> – Structural engineering inspection and estimating residual capacity of the structural action. 	<p>Demonstrated experience in the following:</p> <ul style="list-style-type: none"> • Demonstrated capability to use the Departmental <i>Structures Inspection Manual</i>. • Demonstrated capability of providing sufficient staff for the Level 3 structural inspection with relevant experience on inspecting marine structures such as timber jetties, concrete jetties, structural aluminium structures, boat ramps, pontoons and floating walkways exposed to tidal and wave actions. • At least 2 members of each project team is RPEQ accredited in the relevant field for supervising and reviewing works. • Demonstrated capability to design in accordance with the relevant Departmental Guidelines, Design Criteria and Technical Specifications. • Demonstrated capability to design marine structures in accordance with Australian and International Standards. • Demonstrated capability to use the Department’s MIC and TIC tender formats. • Demonstrated capability to design in accordance with Disability Standards for accessible public transport and related guidelines and Technical Specifications. • Proven capability for structural analysis and design of marine infrastructure.

	<ul style="list-style-type: none"> – Inspection of type of corrosion, corrosion levels and residual thickness of steel in jetties and piles and aluminium structures. – Inspection of concrete decay, cracks, concrete cancer and spalling due to corrosion of embedded metals, chloride ion intrusion, carbonation, dissimilar metal corrosion, alkali-silica reactivity, alkali-carbonate reactivity, aggregate expansion, surface defects, abrasion erosion, overload impacts and chemical attack such as acids and salts. Concrete can be damaged by fire, aggregate expansion, sea water effects, bacterial corrosion, calcium leaching, physical damage and chemical damage (from carbonatation, chlorides, sulphates and non-distilled water). – Inspection of timber structures for timber decay due to corrosion of connections, slitting and water intrusion, marine borer attack and attack by other pests. – Underwater inspections of structures. – Preparing structural inspection reports as per the requirements of <i>Structures Inspection Manual</i>. – Preparing of repair, reinstate, demolition estimates as per the recommendations in the structural inspection report. – Preparing tender documents for repair works as per the Department’s MIC or SSMW Infrastructure Contracts. 	<ul style="list-style-type: none"> • Demonstrated capability in the preparation of Statutory approvals required for marine infrastructure projects. • Demonstrated capability in the use of 3D modelling software. • Familiarity with design of structures using composite technology. • Demonstrated capability of handling development applications for marine infrastructure projects through state and federal regulatory agencies.
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Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> – Providing technical support, Contract administration support for implementing the repair projects. • Designing of boat ramps in accordance with the Department’s design criteria and Technical Specifications. • Designing of breakwaters, shore protection structures, groynes and beach stabilisation structures. • Design of car trailer parking areas, access roads and public amenity structures for boat ramp facilities using Transport and Main Roads guidelines. • Designing of pontoons and floating walkways in accordance with the Department’s design criteria and Technical Specifications. • Preparation of relevant statutory approval applications. • Preparation of tender documents based on the Department’s MIC and TIC tender formats. • Assessment for compliance to DDA and DSAPT for new and existing public transport facilities. • Preparation of 3D digital models. 	
ME3	<p>As for ME2 plus:</p> <p>Marine Engineering tasks such as:</p> <ul style="list-style-type: none"> • Designing of timber / steel or concrete jetties and wharves. • Designing of sheet pile walls and earth retaining structures for maritime infrastructure. 	<p>Demonstrated experience in the following:</p> <ul style="list-style-type: none"> • Demonstrated capability to design in accordance with the relevant Departmental Guidelines, Design Criteria and Technical Specifications. • Demonstrated capability to design marine structures in accordance with Australian and International Standards.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Designing of ferry terminals and related infrastructure. • Designing of navigational aids and related structures to relevant Australian and International Standards. • Design of onshore dredge spoil disposal facility and/or land reclamation. • Preparation of relevant statutory approval applications. • Preparation of tender documents based on the Department’s MIC and TIC tender formats. • Assessment for compliance to DDA and DSAPT for new and existing public transport facilities. • Preparation of 3D digital models. 	<ul style="list-style-type: none"> • Demonstrated capability of design of dredging campaigns, dredge disposal sites. • Demonstrated capability to use the Department’s MIC and TIC tender formats. • Demonstrated capability to design in accordance with Disability Standards for accessible public transport and related guidelines and Technical Specifications. • Proven capability for structural analysis and design of marine infrastructure. • Demonstrated capability in the preparation of Statutory approvals required for marine infrastructure projects. • Demonstrated capability in the use of 3D modelling software. • Familiarity with design of structures using composite technology. • Demonstrated capability of handling development applications for marine infrastructure projects through state and federal regulatory agencies. • Sufficient RPEQ qualified staff to supervise works, peer review, and certify the design and construction works.

2.7.12 Rail Engineering

The prequalification levels for Rail Engineering with commentary are described in Table 2.7.12.

Table 2.7.12 – Rail Engineering prequalification levels with commentary

Level	Class of Work Description	Commentary
RE1	<ul style="list-style-type: none"> • RE, including the full consideration of Public Utility Plant (PUP), drainage, environmental and cultural heritage issues, involving the design of new or the upgrade of existing rail lines. • Track alignment design, including: <ul style="list-style-type: none"> – mainline track alignment design 	<ul style="list-style-type: none"> • Demonstrated experience in the planning or design of basic rail track alignments (mainline, yard, realignments), including documentation of recent projects that have been delivered within the last 5 years. At least 2 projects within the previous 3 years. • Evidence of capability to consider Public Utility Plant (PUP), environmental, and cultural heritage requirements in design deliverables.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> – yard track alignment – track realignment. Rail-related infrastructure, including: <ul style="list-style-type: none"> • Culverts / drainage structures. • Embankments and cuttings. • Retaining walls up to 3 m in height. • Rail Maintenance Access Roads (RMAR). 	<ul style="list-style-type: none"> • Drawings, layouts, and reports showing competency in: <ul style="list-style-type: none"> – track alignment design (horizontal and vertical geometry) – minor associated structures such as culverts and retaining walls. • Evidence of RPEQ sign-off for designs.
RE2	As for RE Level 1 plus: <ul style="list-style-type: none"> • RE, including the full consideration of, drainage and property impacts involving the assessment of rail track alignment options and preparation of detailed planning reports and layouts for a future rail track realignment or new rail alignments and facilities, including the coordination of alignments and terrain fitting as relevant. • RE, involving the design of rail alignment with multiple complexities comprising earthworks balancing, hydrology / drainage / flooding, cross-sections, drainage, rail systems (OHLE, Comms, Signalling) and/or grade separation. • Track alignment design, including: <ul style="list-style-type: none"> – track rearrangement, including turnouts – greenfield junctions. • Track Structure design, including: <ul style="list-style-type: none"> – capping layer and formation layer. 	As for RE1 plus evidence of: <ul style="list-style-type: none"> • Option assessment and detailed planning reports for rail realignment or new greenfield alignments. • Track alignment and structure designs involving multiple complexities, including: <ul style="list-style-type: none"> – earthworks, balancing, hydrology / drainage / flooding – property impacts and terrain fitting – interfaces with rail systems (Overhead Line Equipment (OHLE), signalling, Comms). <p>Please note that the Department is not seeking to evaluate a consultant who provides all services. Still, one with demonstrable experience in projects across RE works that include these elements as part of the deliverable / outcome.</p> <p>Demonstrated experience in:</p> <ul style="list-style-type: none"> • Track rearrangements, turnouts, junction design. • Track structure design (capping, formation layer). • Rail-related infrastructure (OHLE supports, signal structures, foundation design). • Project evidence should include detailed drawings, cross-sections, construction staging reports, and alignment option assessments.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Rail-related infrastructure, including: <ul style="list-style-type: none"> – OHLE, SER / PER, Signal structure and foundation design. 	
RE3	<p>As for RE Level 2 plus:</p> <ul style="list-style-type: none"> • RE, including the full consideration of, drainage and property impact of major complex rail upgrades or new rail lines, including the coordination of alignments and terrain fitting. • Please note that the Department is not seeking to evaluate a consultant who provides all services. Still, one with demonstrable experience in projects across RE works that include these elements as part of the deliverable / outcome. • RE, involving the planning and design of rail alignments with multiple complexities, including interfaces with the existing railway, rail systems (OHLE, Comms, Signalling), grade separation requiring significant service alterations, and detailed property impacts. • Track alignment design, including: <ul style="list-style-type: none"> – structure and rolling stock gauge clearance calculations – platform clearance and cope set out. • Re-creation of existing monumented track alignments. • Advanced track Structure design, including: <ul style="list-style-type: none"> – track structure transition design – material engineering of track elements (rail, ballast, and so on) 	<p>As for RE2 plus evidence of:</p> <ul style="list-style-type: none"> • Delivery of major complex rail projects, including new corridors and significant upgrades with multiple external interfaces. • Designs addressing: <ul style="list-style-type: none"> – complex interfaces with existing operational railways, including staging and service alteration planning – property impacts, and integration with other transport infrastructure – gauge clearance calculations, platform set-out, and recreation of monumented alignment – advanced track structure transition design and materials engineering (rail, ballast, sleepers). <p>Demonstrated capability in RE projects incorporating:</p> <ul style="list-style-type: none"> • Different aspects of RE projects that may include stations, associated buildings, rail over road and road over rail bridge structures. • Reports, calculations, and drawings to show project scale, technical complexity, and RPEQ involvement.

Level	Class of Work Description	Commentary
	– rail-related infrastructure such as station platforms.	

2.7.13 Rail Operational Modelling

The prequalification levels for Rail Operational Modelling with commentary are described in Table 2.7.13.

Table 2.7.13 – Rail Operational Modelling prequalification levels with commentary

Level	Class of Work Description	Commentary
ROM1	<ul style="list-style-type: none"> • Undertaking rail operational modelling studies for planning purposes and concept-level timetabling. • Undertaking rail model development and calibration activities under direction. • Interpreting basic rail operational modelling scenarios and providing advice to decision-making bodies. • Preparation and contributing to reports and technical notes on model development or application activities. 	<ul style="list-style-type: none"> • Undertaking planning-level modelling and concept timetabling. • Includes basic model development, calibration under direction, interpretation of simple scenarios and preparation of reports. Foundational capability under guidance.
ROM2	<p>As per ROM1 plus:</p> <ul style="list-style-type: none"> • Undertaking rail operational modelling studies to support rail infrastructure designs and preliminary timetable development. • Managing and delivering rail model development and calibration activities. • Actively engaging with and managing technical and non-technical stakeholders on behalf of Transport and Main Roads. 	<ul style="list-style-type: none"> • Modelling for infrastructure design support, timetable development, independent model calibration and validation, stakeholder engagement, and technical reporting. • Demonstrates ability to manage modelling projects independently.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> Generating reports and technical notes on model development or application activities. 	
ROM3	<p>As per ROM2 plus:</p> <ul style="list-style-type: none"> Developing timetables and operating concepts to support major infrastructure business cases, such as new rail lines. Advising on rail modelling, technical and management methodologies. Leading the design and implementation of new modelling approaches and capabilities. Developing rail modelling governance approaches and documentation. Assessment of highly complex rail operations environments, for example inner-Brisbane network with frequent mixed freight and passenger services. 	<ul style="list-style-type: none"> Development of timetables and concepts for major infrastructure business cases, advising on methodologies and governance, leading modelling innovations, assessing complex operations environments. Demonstrates leadership and strategic modelling capability.

2.7.14 Traffic Engineering

The prequalification levels for traffic engineering with commentary are described in Table 2.7.14.

Table 2.7.14 – Traffic Engineering prequalification levels with commentary

Level	Class of Work Description	Commentary
TE1	<ul style="list-style-type: none"> Analysis of traffic impacts of minor developments (for example, a single small establishment), covering trip generation calculations, manual distribution, assignment and mode split, design requirements for parking, transit, pedestrians and cycling. 	<p>The Department expects that Traffic Impact Assessments will be undertaken using the tools outlined here, and that the Consultant will have experience with simple calculations for trip generation, manual distribution, assignment and mode split; simple crash investigation; size and design requirements for parking, transit, and active transport needs (pedestrians, cycling).</p>

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Intersection analysis using computer-based systems (SIDRA is the Department's preferred application), deriving all but the most basic signal phasing, establishment of intersection and network design life and consideration of 'back of queue' impacts on design. • Basic intersection design encompassing the location of stop lines, posts, and lanterns. • Report and make recommendations following comparison of options. 	<p>The Department is looking for the appropriate use of intersection analysis tools, primarily SIDRA. While spreadsheet tools based on either Austroads' <i>Guide to Traffic Management</i> (AGTM) or TRB's <i>Highway Capacity Manual</i> (HCM) are a feasible means with which to undertake the analysis, evidence of competency will need to be supported with substantial worked examples.</p> <p>The intersection design elements that the Department is looking for encompasses locating stop lines and posts / lanterns, and basic signal phasing. The key reference here is the GTM along with the Department's <i>Road Planning and Design Manual</i> (RPDM). Link: (https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Road-planning-and-design-manual-2nd-edition).</p> <p>Electrical cabling design and its associated documentation fall within the Intelligent Traffic Systems (ITS) category.</p>
TE2	<p>As for TE1 plus:</p> <ul style="list-style-type: none"> • Analysis of traffic impacts of major developments (for example, major shopping centres). 	<p>The Department is looking for Consultants with sound knowledge of the application of traffic control devices, in accordance with GTM / RPDM, Austroads' <i>Guide to Road Design</i> (GRD), and the Queensland <i>Manual of Uniform Traffic Control Devices</i> (MUTCD).</p> <p>As above in TE1, with an increased use of outputs from transport planning tool (for example, EMME) to assess traffic impacts and design.</p> <p>Note that, depending on its scope, an assessment may need to comply with the Department's <i>Guide to Traffic Impact Assessment</i>. Link: (https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment).</p>

Level	Class of Work Description	Commentary
		<p>The Department is looking for the ability to undertake an analysis of small networks where queues spillback from one intersection to another using SIDRA (manually adjusting for queue interaction) or TRANSYT-7F.</p> <p>The Department is looking for experience in assessing the interaction and implications of different types of traffic control; the impacts of lane balancing; and the integration with urban design, public transport stations / stops and active transport facilities along the length of the road (not just at intersections).</p> <p>The Department will accept broader application of traffic engineering principles as a demonstration of meeting this requirement. For example, knowledge and application of on-road cycling facilities and on-road public transport priority; evaluation of performance based on persons rather than vehicles and implementation of treatments reflecting the findings.</p>
	<ul style="list-style-type: none"> Basic benefit cost analysis of a small TE project. 	<p>Ability to estimate 'conceptual design' project cost and derive the \$ benefits of the project through traffic analysis tools.</p>
TE3	<p>As for TE2 plus:</p> <ul style="list-style-type: none"> Traffic signal network analysis and optimisation of traffic signal timings. 	<p>Where this class of work includes the development of new STREAMS time of day plans, the Consultant will need to demonstrate some familiarity with STREAMS. This would include getting flow and cycle time data from STREAMS and making sure the output is in the correct format to go back into STREAMS. The Department will look for evidence that its procedures and guidelines for this analysis have been followed.</p>

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> Simulation of small to medium sized traffic networks using computer-based systems (for example AIMSUN, Paramics, VISSIM). 	<p>The Department is looking for experience in the use and application of microscopic and mesoscopic simulation tools (such as SATURN), and the development / adjustment of O/D matrix data. AIMSUN is the Department's preferred micro-simulation tool. Note that the Department is currently considering mandating AIMSUN for micro-simulation.</p>
	<ul style="list-style-type: none"> Impact analysis for developments having regional impact. 	<p>An assessment at this TE level will need to comply with the Department's <i>Guide to Traffic Impact Assessment</i>. Link:(https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment).</p>
	<ul style="list-style-type: none"> Major traffic engineering projects. Complex traffic analysis. Note that complex system enhancements encompassing integrated Intelligent Transport Systems (ITS) fall within the ITS category. 	<p>The Department is looking for the ability to consider multiple factors – over-saturated links, significant pedestrian activity, active transport, passenger transport, where merging and weaving behaviours become an important factor, and bottleneck analysis.</p> <p>The Department is looking for the ability to undertake weave and merge-diverge analysis as per Highway Capacity Manual (HCM 2010) or use of HCS.</p> <p>Please note that complex system enhancements encompassing integrated Intelligent Transport Systems (ITS) fall within the ITS category.</p>
	<ul style="list-style-type: none"> Major project evaluation. 	
	<ul style="list-style-type: none"> Road safety investigation and analysis. 	<p>The Department is looking for familiarity with, and application of, Austroads' Guide to Road Safety, Part 8 (Treatment of Crash Locations). Such analysis may involve accessing data from the Department's CARS (link: https://cars.tmr.qld.gov.au/cars/) application and developing / recommending treatments to improve safety. Road Safety Auditors must be registered with the Department and recorded at https://www.tmr.qld.gov.au/Safety/Road-safety/Road-safety-auditors</p>

2.7.15 Transport and Land Use Modelling

Points for Consultants to note:

- Please ensure submissions demonstrate a clear distinction between which disciplines of transport and land use modelling the Consultant has skills and experience in.
- A Consultant is not expected to have equivalent level skills / experience across all disciplines of transport and land use modelling, in order to be prequalified at a particular level, that is, a consultancy might be prequalified at level 3 due their high degree of experience in mesoscopic modelling, despite only moderate experience in strategic modelling.

The prequalification levels for Transport and land use modelling with commentary are described in Table 2.7.15.

Table 2.7.15 – Transport and Land Use modelling prequalification levels with commentary

Level	Class of Work Description	Commentary
TLUM1	<p>Strategic transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • Undertaking model development and maintenance activities. • Model application work and providing interpretation and analysis of model results. • Contributing to reports and technical notes on model development or application activities. 	<ul style="list-style-type: none"> • Experience in model development and application for the urban and regional city-wide models. • Experience working with one or more of the following modelling software packages: EMME, VISUM, or Cube.
	<p>Mesoscopic traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Undertaking model development and maintenance activities. • Model application work and providing interpretation and analysis of model results. • Contributing to reports and technical notes on model development or application activities. 	<ul style="list-style-type: none"> • Experience in traffic or transport modelling. • Experience working with one or more of the following modelling software packages: AIMSUN, SATURN, DYNAMIQ and VISUM / VISSIM modelling software.

Level	Class of Work Description	Commentary
	<p>Microsim / intersection traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Undertaking model development and maintenance activities. • Model application work and providing interpretation and analysis of model results. • Contributing to reports and technical notes on model development or application activities. 	<ul style="list-style-type: none"> • Experience in traffic engineering or transport modelling. • Experience working with one or more of the following modelling software packages: AIMSUN, VISSIM and SIDRA modelling software.
	<p>Public transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • Undertaking model application tasks, including running existing models for given scenarios, extracting outputs, and preparing charts or summaries. • Supporting model development activities under supervision (for example, preparing network inputs, testing model runs, assisting in calibration). • Preparing and coding basic timetable or route inputs (for example, GTFS) and participating in validation and QA tasks. • Supporting technical reporting and documentation of both application and development activities. 	<ul style="list-style-type: none"> • Exposure to both model development (for example, data preparation, minor edits to model inputs) and application (for example, testing scenarios, interpreting outputs). • Familiarity with model operation and results interpretation than with deep technical customisation. • Limited or developing capability in scripting, data pipelines, or model architecture.
	<p>Land use / demographic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Undertaking data compilation, analysis, model development and maintenance activities. • Analysis and model application work and providing interpretation of results. 	<ul style="list-style-type: none"> • Experience in regional and small area analysis, projection and spatial allocation of population, employment and enrolment data. • Experience with human geography related data sets (for example, ABS data, cadastre, land use data, visitor overnight location and tourism data) and economic datasets (including labour force, state and national accounts, tourism accounts, trade and other related datasets).

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Contributing to reports and technical notes on analysis, model development or application activities. 	<ul style="list-style-type: none"> • Proficient in one or more of the following analysis tools or programming languages: Microsoft Excel, Alteryx, python or similar. • Experience working with geospatial data and in the use of GIS software such as QGIS, ArcGIS, MapInfo or similar. • Experience with using relational databases.
TLUM2	<p>As for TLUM1 plus:</p> <p>Strategic transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • Lead and undertake a variety of model development and maintenance tasks. • Provide technical advice to inform the design of and improvement to models. • Lead model application work on behalf of the Department. • Actively engage with and manage technical and non-technical stakeholders on behalf of the Department in regard to mesoscopic transport traffic model development or application projects. • Generate reports and technical notes on model development or application activities. 	<ul style="list-style-type: none"> • 3+ years' experience working as a transport modelling professional. • Experience in leading model development projects, preferably for government. • Experience in programming or other data-science skillsets. • Experience in leading modelling application projects, preferably for government.
	<p>Mesoscopic traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Lead and undertake a variety of model development and maintenance tasks. • Provide technical advice to inform the design of and improvement to models. • Lead model application work on behalf of the Department. 	<ul style="list-style-type: none"> • 3+ years' experience working as a traffic modelling professional. • Experience in leading model development projects, preferably for government. • Experience in model development for the wider area traffic network. • Experience in options analysis and business case modelling. • Experience in programming or other data-science skillsets. • Experience in leading modelling application projects, preferably for government.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Actively engage with and manage technical and non-technical stakeholders on behalf of the Department in regard to mesoscopic transport traffic model development or application projects. • Generate reports and technical notes on model development or application activities. 	
	<p>Microsim / intersection traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Lead and undertake a variety of model development and maintenance tasks. • Provide technical advice to inform the design of and improvement to models. • Lead model application work on behalf of the Department. • Actively engage with and manage technical and non-technical stakeholders on behalf of the Department in regard to mesoscopic transport traffic model development or application projects. • Generate reports and technical notes on model development or application activities. 	<ul style="list-style-type: none"> • 3+ years' experience working as a traffic modelling professional. • Experience in leading model development projects, preferably for government. • Experience in programming or other data-science skillsets. • Experience in model development for the urban corridors and traffic impact assessments. • Experience in options analysis and business case modelling. • Experience in pedestrian modelling with microsimulation models. • Experience in leading modelling application projects, preferably for government.
	<p>Public transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • Leading model application tasks across a range of use cases, such as: <ul style="list-style-type: none"> – testing changes to service frequencies, routes, or infrastructure – performing sensitivity and scenario analyses to inform project development or business cases. 	<ul style="list-style-type: none"> • 3+ years' experience in transport modelling, including model development, application, or analytical tasks related to public transport. • Proficient in one or more of the following strategic transport modelling software packages: EMME, CUBE, AIMSUN, VISUM, SATURN, and/or limited understanding of RailSys.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Undertaking and guiding model development activities, including: <ul style="list-style-type: none"> – coding new transit lines or modifying schedules – enhancing calibration, validation, or scenario management workflows – identifying bugs or limitations in model logic and proposing improvements – advising stakeholders on appropriate use of model outputs. 	<ul style="list-style-type: none"> • Experience in transit assignment modelling and calibration using observed data (for example, Translink GoCard boardings, stop-level demand, or passenger counts). • Practical experience with GTFS data for schedule-based modelling, scenario building, or visualisation tasks. • Strong capabilities in presenting both observed and modelled results in a meaningful way to technical and non-technical audiences. • Familiarity with route and timetable planning tools (for example, Remix, or other GTFS editors, HASTUS). • Experience leading small to medium-scale model application projects or scenario assessments. • Working knowledge of programming, databases, or cloud-computing (for example, Python, SQL, AWS). • Demonstrated ability to perform both model development and model application, including: <ul style="list-style-type: none"> – adjusting model parameters or data structures – modifying network coding or service assumptions. • Capable of identifying when model outputs are erroneous or inconsistent, and tracing issues back to data, inputs, or configurations. • Working knowledge of data transformation or scripting tools (for example, Python, SQL) to handle GTFS, ticketing, or model files.
	<p>Land use / demographic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Lead and undertake conduct of or developing population, employment and enrolment forecasting analyses, models, methods and maintenance tasks. 	<ul style="list-style-type: none"> • 3+ years’ experience working as a small area population or employment modelling, forecasting professional.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Provide technical advice to inform the design of and improvement to analysis and model methods. • Lead analysis and model application work on behalf of the Department. • Actively engage with and manage technical and non-technical stakeholders on behalf of Transport and Main Roads in regard to land use / demographic analysis or model development or application projects. • Generate reports and technical notes on analysis, model development or application activities. 	<ul style="list-style-type: none"> • Experience in leading and implementing innovative and best practice methodologies and projects for the analysis, projection and allocation of population, employment and enrolment data, including methodology and model development. • Technical expertise (including associated software, geospatial and analytical tools) in demographic analysis and data development relevant to transport modelling, including small area demographic projections, geospatial analysis, statistical analysis, and assimilation of land use planning information. • Experience with human geography related data sets (for example, ABS data, cadastre, land use data, visitor overnight location and tourism data) and economic datasets (including labour force, state and national accounts, tourism accounts, trade and other related datasets) and dealing with disparate datasets (from different sources), in different formats and data cleansing.
TLUM3	<p>As for TLUM2 plus:</p> <p>Strategic transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • Lead and manage model development projects. • Provide expert technical and specialist advice to inform the design of and improvement to strategic transport models. 	<ul style="list-style-type: none"> • Significant experience in leading model development and application projects, preferably for government. • 7+ years' experience in model development and application strategic transport models.
	<p>Mesoscopic traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Lead and manage model development projects. • Provide expert technical and specialist advice to inform the design of and improvement to mesoscopic models. 	<ul style="list-style-type: none"> • Significant experience in leading model development and application projects, preferably for government. • 7+ years' experience in model development and application for urban and large-scale traffic models.

Level	Class of Work Description	Commentary
	<p>Microsim / intersection traffic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Lead and manage model development projects. • Provide expert technical and specialist advice to inform the design of and improvement to microsim / intersection models. 	<ul style="list-style-type: none"> • Significant experience in leading model development and application projects, preferably for government. • 7+ years' experience in model development and application for complex urban network models.
	<p>Public transport modelling tasks, such as:</p> <ul style="list-style-type: none"> • Leading and managing model development initiatives, including: <ul style="list-style-type: none"> – upgrading existing public transport models with new structure, logic, or data flows – designing modelling solutions for emerging modes – creating new tools, interfaces, or automation scripts to improve PT model performance or integration with other Strategic Transport Models – overseeing advanced model application projects such as multi-scenario comparisons, demand forecasting for long-term plans, or stress-testing public transport timetables – providing strategic advice to the Department / Translink on the role, scope, and limitations of public transport models in planning and investment decisions. 	<ul style="list-style-type: none"> • 7+ years' experience in public transport modelling, with a track record of delivering major model development or application projects. • Demonstrated leadership in the design and implementation of large-scale public transport model upgrades or forecasting frameworks. • Significant understanding of travel demand forecasting techniques with a focus on public transport demand, schedule-based and frequency-based assignment methods, and multimodal travel behaviour calibration. • Demonstrated expertise in both model development (core logic, network design, software configuration) and model application (for example, business case support, operations planning). • Can architect and build tools or workflows to support long-term modelling frameworks. • Proven ability to advise the Department / Translink and related agencies on network planning, service reform, patronage forecasting, and investment analysis using model results. • Strong demonstrated understanding and demonstrated experience of how public transport modelling supports policy, business case development, and transport outcomes.

Level	Class of Work Description	Commentary
	<p>Land use / demographic modelling tasks, such as:</p> <ul style="list-style-type: none"> • Lead, plan, manage and/or conduct a range of projects concerned with small area population, employment and enrolment statistics and projections. • Provide expert technical and specialist advice to inform the development of demographic and land use related spatial data sets relevant to transport modelling and planning. • Analyse and draw conclusions from very large and complex data sets from multiple sources, including identifying data set limitations. 	<ul style="list-style-type: none"> • Advanced data science, computer science, and/or programmatic skills (for example, API integration, automation pipelines, machine learning with transport data). • Significant experience as a demography professional in leading and implementing innovative and best practice methodologies and projects for the analysis, projection and allocation of population, employment and enrolment data. • 7+ years' technical expertise (including associated software, advanced geospatial and analytical tools) in demographic analysis and data development relevant to transport modelling, including small area demographic projections, geospatial analysis, statistical analysis, and assimilation of land use planning information. • 7+ years' experience with human geography related data sets (for example, ABS data, cadastre, land use data, visitor overnight location and tourism data) and economic datasets (including labour force, state and national accounts, tourism accounts, trade and other related datasets) and dealing with large disparate datasets (including pulling data together from different sources), in different formats and data cleansing.

2.7.16 Transport Planning

Points for Consultants to note:

- Please ensure the submission addresses the classes of work outlined in Table 2.7.16 and demonstrates a clear understanding of the distinction between traffic engineering and transport planning:
 - Traffic Impact Analysis, Traffic Management and Operation Plans are considered Traffic Engineering, not Transport Planning.
 - Detailed infrastructure design, even for large projects, is considered Traffic Engineering / Highway Engineering, not Transport Planning.

- TP2 and TP3 level projects must demonstrate planning in a corridor / network context and consider broader network options and impacts – not just a solution for single link / intersection / interchange (considered Traffic Engineering / Highway Engineering).
- For TP2 and TP3 prequalification, the Consultant needs to demonstrate consideration / evaluation of multi-modal requirements (potentially including private vehicles, freight, train, tram, bus, ferry, rideshare, cycles and walking) to determine the need for infrastructure upgrades / changes and preferred form and function.
- Two new prequalification categories have been introduced – Data Analysis & Insights, and Transport & Land Use Management. TP3 prequalification no longer requires demonstrated capability to develop and refine complex transport models. Notwithstanding this, TP2 and particularly TP3 prequalification still require evidence of ability to effectively apply analytical tools and interpret modelling outputs to inform planning activities.
- Where the Consultant is not wholly responsible for a nominated project, the Consultant is to clearly indicate what aspect of the project they worked on and the cost of the transport planning component. Providing the overall Contract or construction value will not be deemed appropriate. On multi-disciplinary projects, the Consultant is to indicate what percentage of the fees were associated with transport planning.
- For TP1 and TP2 prequalification relating to data collection, the Consultant needs to describe their ability to develop and deliver data collection methodologies to meet project requirements.

The prequalification levels for traffic engineering with commentary are described in Table 2.7.16.

Table 2.7.16 – Transport Planning prequalification levels with commentary

Level	Class of Work Description	Commentary
TP1	<ul style="list-style-type: none"> • Planning for simple networks. 	<ul style="list-style-type: none"> • Examples may include options analysis of rural / low traffic volume roads and subdivision design including undertaking multi-criteria analysis against factors such as safety, access, environment, community impacts, mix of, and potential conflict between traffic types and flood immunity.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> Local traffic management planning. 	<ul style="list-style-type: none"> Examples should demonstrate successful integration of various transport modes at a given location or precinct.
	<ul style="list-style-type: none"> Transport data collection. 	<ul style="list-style-type: none"> Examples may include design and implementation of traffic surveys or determination of necessary count locations to inform planning.
	<ul style="list-style-type: none"> Network concept planning. 	<ul style="list-style-type: none"> Examples may include network concepts (road, public transport and active networks) for small master planned communities or large sub-divisions requiring an internal road hierarchy. This does not include road / intersection design.
	<ul style="list-style-type: none"> Prioritisation of transport improvements. 	<ul style="list-style-type: none"> Examples may include Options Analysis.
	<ul style="list-style-type: none"> Stakeholder liaison. 	<ul style="list-style-type: none"> Examples may include the identification of, and engagement with, key stakeholders to inform planning.
TP2	As for TP1 plus:	
	<ul style="list-style-type: none"> Planning for medium complexity networks at a corridor or area scale. 	<ul style="list-style-type: none"> Examples must be for projects at corridor or area scale, not single intersections or road links. Examples should show how corridor function was determined and how it was applied to identify preferred transport outcome and infrastructure form. Examples should demonstrate how include corridor / area strategies address identified transport problem(s) and the recommended infrastructure and/or non-infrastructure initiatives. Examples should demonstrate how State, regional and/or local policy contexts were considered. Examples should include instances where non-infrastructure solutions were also assessed. Examples should take account of social, environment and economic outcomes.
<ul style="list-style-type: none"> Multi-modal planning. 	<ul style="list-style-type: none"> Examples should demonstrate investigation of multi-modal demand and opportunities and identification of integrated solutions that provide for safe travel options. 	

Level	Class of Work Description	Commentary
		<ul style="list-style-type: none"> • Examples should demonstrate an understanding of the planning and design requirements for safe provision of modal networks (for example bus, rail, cycle).
	<ul style="list-style-type: none"> • Applying modelling tools and other evaluation techniques. 	<ul style="list-style-type: none"> • Examples may include demonstrated ability to develop and assess modelling scenarios to evaluate benefit / impact of plans / transport options. • Examples may demonstrate understanding of strengths and weaknesses of available models and application of fit-for-purpose models and evaluation methodologies. • This does not include Traffic Impact Assessment or Road Safety Audits.
	<ul style="list-style-type: none"> • Travel Demand Management. 	<ul style="list-style-type: none"> • Examples should demonstrate identification, evaluation and implementation of non-infrastructure initiatives to reduce demand on target networks (and potentially reducing scope of infrastructure upgrades). This may include initiatives to encourage: reduced travel; use of a different route; travel at a different time or use of a different mode.
	<ul style="list-style-type: none"> • Stakeholder management. 	<ul style="list-style-type: none"> • Examples may include the identification of stakeholders and development / application of specific strategies to keep them informed of planning progress or elicit input to inform planning to reduce projects risk.
TP3	As for TP2 plus:	
	<ul style="list-style-type: none"> • Regional level multi-modal transport planning for complex networks. 	<ul style="list-style-type: none"> • Examples may include planning for very large areas with extensive multi-modal networks. Planning should demonstrate an ability to balance competing modal demands and prioritise network improvements using sophisticated evaluation techniques such as multi-modal modelling, multi-criteria analysis and benefit cost assessment. • Examples may include preparation of Integrated Regional Transport Plans, passenger transport network plans, freight studies or larger planning studies incorporating broad scale transport models.

Level	Class of Work Description	Commentary
	<ul style="list-style-type: none"> • Freight operations. 	<ul style="list-style-type: none"> • Examples should demonstrate a detailed understanding of freight operational requirements and operating conditions and interdependencies with intermodal terminals and land use. • Examples should demonstrate an understanding of viable freight operations.
	<ul style="list-style-type: none"> • Passenger transport operations. 	<ul style="list-style-type: none"> • Examples may demonstrate a detailed understanding of passenger transport operational requirements and operating conditions, passenger demand and interdependencies with other modes / networks. • Examples should demonstrate an understanding of viable passenger transport operations.
	<ul style="list-style-type: none"> • Complex stakeholder management and community consultation. 	<ul style="list-style-type: none"> • Examples should demonstrate the ability to develop and implement community consultation strategies and tactics to effectively engage diverse communities. • Examples should demonstrate a comprehensive understanding of consultation techniques and familiarity with a range of engagement tools and approaches. • Examples should demonstrate effective application of consultation techniques to fulfil project requirements, reduce project risk, value-add to the planning process and promote community acceptance / ownership of planning outputs.

3 Preliminary considerations

3.1 General

3.1.1 Need for a Consultant

Consultants may be engaged where the relevant Consultant services are required to complete specific projects with definable deliverables in a relatively confined timeframe or to carry out selected parts of a project. These projects will normally be identified on the approved Queensland Transport and Roads Investment Program (QTRIP).

Note: Consultants used in this process will generally be prequalified to the relevant project work categories and levels.

3.1.2 Tender and Contract review

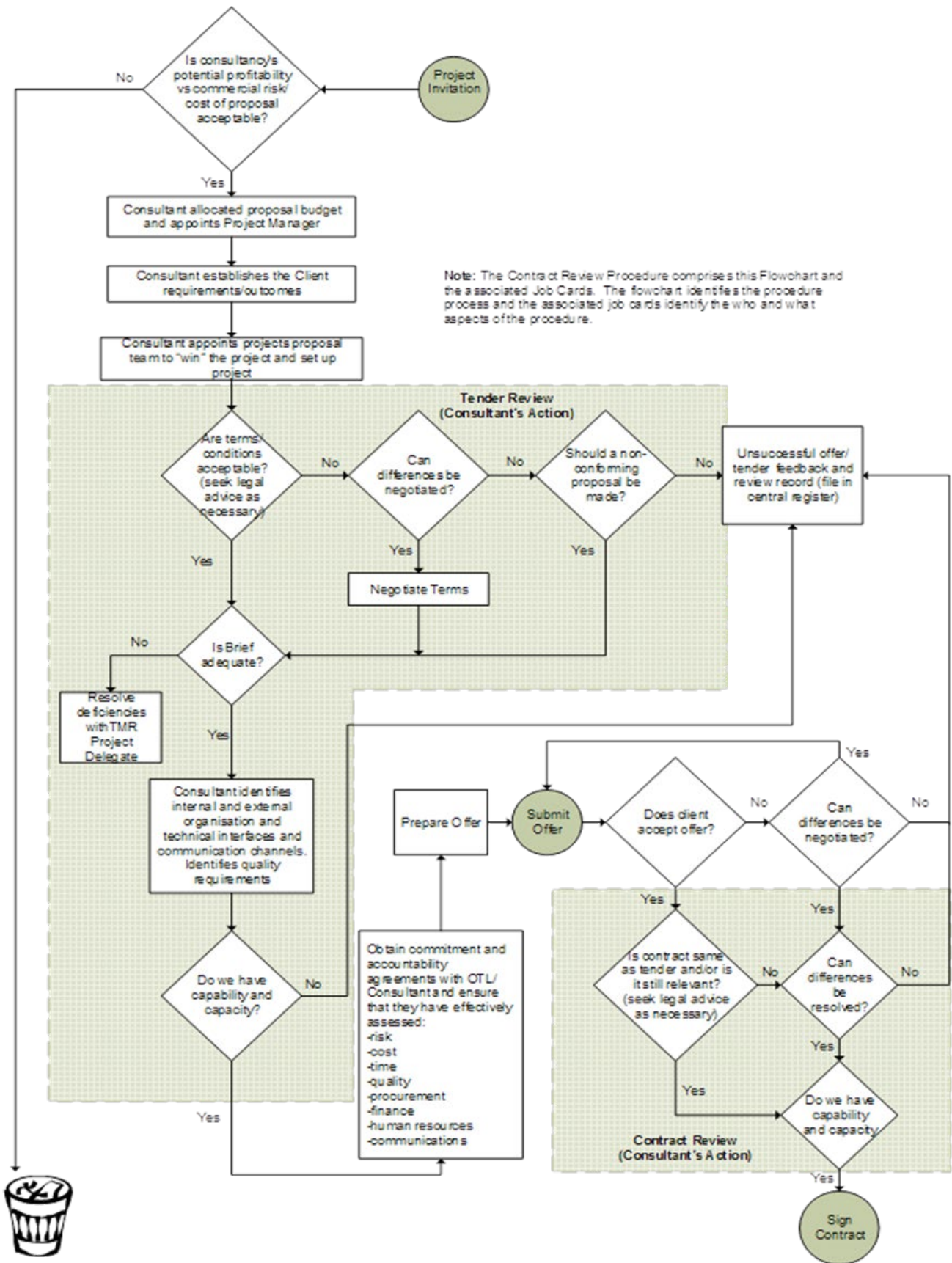
For the effective engagement of a Consultant on an engineering project, it is important that the engagement process results in a clear and common understanding of requirements, including the commercial arrangements. The process requires the Consultant to review the proposed engagement at both the tender and Contract stages of the engagement to ensure the proposed terms and conditions are acceptable for the delivery of the specified requirements.

Reviews must be conducted by the Consultant to ensure that:

- a clear understanding of the Department's required outcomes from the project is gained
- the requirements of the engagement are adequately defined and documented (in regard to both what is required and in what form and how it is to be delivered), and
- the Consultant has the capability to perform the Contract on the applicable terms.

A Tender and Contract review flowchart is shown in Figure 3.1.2.

Figure 3.1.2 – Tender and Contract review



3.1.3 Process summary

A typical sequence for selection and engagement of a Consultant by the Department is as follows:

1. Confirm the procurement process and then select the appropriate engagement templates including assessment plans.
2. Assess the procurement and Contract risks to determine most appropriate invitation method.
3. Develop the Functional Specification and Brief.
4. Determine resourcing for the project (demonstrate need for Consultant).
5. Establish insurance requirements / parameters.
6. Prepare a Price Schedule based on Activity and/or by Discipline including Project Management Activities.
7. Form and brief Assessment Panel.
8. Seek approval to invite offers **Hold Point**
9. Invite offers using Form C7585 *Invitation for Offer for Consultant Service*.
10. Hold optional pre-tender meeting, in week one of the tender period, to ensure a clear understanding of expected outcomes with the invitees (this may require modification of the Brief / Functional Specification). Note – a second meeting, prior to tender close, is also optional for engagements less than \$2M in value, but mandatory for engagements more than \$2M in value.
11. Close and register offers.
12. Commence assessment of offers **Hold Point**
13. For Qualification Based Selection (QBS), shortlist Offerors using non-price assessment first, then agree on price through clarification (based on Brief / Functional Specification) with the Preferred Offeror, to confirm that the price meets the methodology / scope expected by the Principal. Ensure insurance coverage and policies are adequate.
14. For Value Based Selection (VBS), agree on scope of work through clarification with the 'recommended' offer (based on brief / functional specification) and ensure insurance policies are adequate.
15. Recommendation of offer and approval of expenditure **Hold Point**
16. Purchase order issued.

17. Finalise Contractual Arrangements (issue Form C7599 *Letter of Acceptance*)

Hold Point

18. Perform / manage the Contract.

19. Complete Form C7561 *Initiation of Contract* at the commencement of the Contract, immediately after Award.

20. Initiate and continue payment process, and

21. Complete performance reports during Contract Form C7562 *Pre-Construction* and Form C7563 *Post-Construction* (if construction resulted).

Note: The Hold Points, indicated above show where each stage of the invitation process ends and Departmental officers are to ensure that all procedures within a particular stage are complete before commencing the next stage.

The Processes for Invitation, Assessment and Approvals is summarised in Table 3.1.3.

For projects involving Prequalified Consultants refer to Chapter 4.

Where the Consultant services for engineering projects do not involve Prequalified Consultants, refer to Chapter 5.

The offer conditions which apply to offers will be set out in Form C7585 *Invitation for Offer for Consultant Service*, which include Form C7542 *General Conditions of Offer*.

Table 3.1.3 – Process summary for invitation, assessment, approvals

Where PC = Prequalified Consultants, NPC = Non-Prequalified Consultants.

Step 1 Prepare Brief and Principal's Estimate			
	Single Invitee / Sole Supplier (PC & NPC)	Limited Invitations (NPC)	Limited Invitations (PC)
ESTIMATED FEE VALUE (including GST)	< \$300,000 (PC) or < \$300,000 in special circumstances (for example, disaster periods) < \$150,000 (NPC) or < \$300,000 in special circumstances (for example, disaster periods)	> \$150,000 but < \$300,000	> \$300,000
Step 2 Carry out assessment on procurement and Contract risks, as part of determination of method of invitation. Form and brief Assessment Panel.			
Step 3 Obtain Approval to Invite			
METHOD OF INVITATION	Single Invitee / Sole Supplier. PC – Clause 4.1.1 Chapter 4 of this Manual NPC – Clause 5.1.1 Chapter 5 of this Manual	Limited invitations to a minimum of 3 Consultants Clause 5.1 Chapter 5 of this Manual For > \$300,000 – Open invitation using QTenders or email. Clause 3.4.1, Chapter 3 of this Manual	Invitations to a minimum of 3 Consultants Clause 4.1 Chapter 4 of this Manual

Step 3 Obtain Approval to Invite cont.			
	Single Invitee / Sole Supplier (PC & NPC)	Limited Invitations (NPC)	Limited Invitations (PC)
PROCESS	<p>Check availability followed by written invitation and offer</p> <p>PC – Clause 4.1.1 Chapter 4 of this Manual</p> <p>NPC – Clause 5.1.1 Chapter 5 of this Manual</p>	<p>Check availability of Consultants followed by written invitation and offers</p> <p>two-stage tendering when appropriate. Clause 5.1.3 Chapter 5 of this Manual</p>	<p>Check availability of Consultants followed by written invitation and offers</p>
METHOD OF ASSESSMENT	<p>700+ for Weighted Total Scores (PC) Clause 7.1.1 Chapter 7 of this Manual</p> <p>500+ for Weighted Total Scores (NPC) Clause 7.1.1 Chapter 7 of this Manual</p>	<p>VBS – for tight / concise briefs AND Between \$150,000 and \$300,000</p> <p>QBS only – for > \$300,000 Clause 7.1.2 Chapter 7 of this Manual</p>	<p>VBS – for tight / concise briefs AND Between \$300,000 and \$1M</p> <p>Clause 7.1.2.2 Chapter 7 of this Manual.</p> <p>QBS only - for > \$1M Clause 7.1.2.1 Chapter 7 of this Manual</p>

	Single Invitee / Sole Supplier (PC & NPC)	Limited Invitations (NPC)	Limited Invitations (PC)
ASSESSMENT PANEL	<p>< \$300K – Assessment Panel may be one person</p> <p>> \$300K – Assessment Panel must be 2 or more people</p> <p>Clause 7.4.1, Chapter 7 of this Manual</p>	<p>< \$300K – Assessment Panel may be one person</p> <p>> \$300K – Assessment Panel must be 2 or more people</p> <p>Clause 7.4.1, Chapter 7 of this Manual</p>	<p>< \$300K – Assessment Panel may be one person</p> <p>> \$300K – Assessment Panel must be 2 or more people</p> <p>> \$500K – Assessment Panel must be 3 or more people</p> <p>Clause 7.4.1, Chapter 7 of this Manual</p>
Step 4 Obtain Approvals			
APPROVALS procurement, financial, legislative	<p>Officer with relevant delegations to engage Consultants</p> <p>Procurement delegate (District Director or delegate)</p>	<p>Procurement delegate (District Director or delegate)</p>	<p>Procurement delegate (District Director or delegate)</p>

	Single Invitee / Sole Supplier (PC & NPC)	Limited Invitations (NPC)	Limited Invitations (PC)
DOCUMENTATION	For NPC and PC– Invitation and approval of same Summary of information supplied to Consultant Approved Requisition Invitation Brief / Proposal General Conditions of Offer and correspondence Recommendation Purchase Order Letter of Acceptance	Invitation and approval of same Brief / Proposal General Conditions of Offer and correspondence Recommendation Purchase Order Letter of Acceptance	Invitation and approval of same Brief / Proposal General Conditions of Offer and correspondence Recommendation Purchase Order Letter of Acceptance
Step 5 Payment and Performance Reporting – refer to Chapter 8			

3.1.4 Documents summary

The Consultant system documents (Chapter 10) reflect the invitation, offer and acceptance aspects of Contract formation as well as the Contractual procedures and forms.

Documents common to all Consultants include the following:

- Form C7585 *Invitation for Offer for Consultant Service*
- Form C7542 *General Conditions of Offer*
- Form C7586 *Offer for Consultant Service - Non-Price Component*
- Form C7587 *Offer for Consultant Service - Price Component*
- Form C7547 *Consultants Professional Indemnity and Public Liability Insurance Declaration*
- Form C7545 *General Conditions of Contract*, and
- Documents specific to Prequalified Consultants (additional to the common documents) include the following:
 - Form C7554 *Supplementary Conditions of Contract for Road Planning and Design Projects*
 - Forms C7520 - C7526 *Functional Specifications* (specific to the project -refer to Chapter 4, Clause 4.3.2)
 - Form C7557 *Terms of Reference for Preliminary Environmental Assessment*
 - Form C7558 *Terms of Reference for Review of Environmental Factors*, and
 - Form C7559 *Terms of Reference for Cultural Heritage Assessment*.

Note: Documents specific to Contracts for Non-Prequalified Consultants (additional to the common documents) must be prepared on a project-by-project basis. A Design Brief / Functional Specification dealing with the subject matter of the Contract must be prepared.

Where Supplementary Conditions of Contract are required, these documents should generally follow those for Prequalified Consultants and should be developed in consultation with Manager (Prequalification) from the Department's PMD Branch.

3.1.5 Stakeholder engagement

The Department is committed to effective and appropriate stakeholder engagement, recognising that it is essential to improve decisions and listen and respond to community needs. Engagement is an integral part of how the Department conducts its functions and operations. It is an inclusive process to ensure people have the opportunity to participate in engagement activities about Departmental decisions that may impact on their lives.

The Department's engagement policy, principles, standards and guidelines promote an open and accountable process whereby individuals and groups can participate in decision-making processes and influence the outcomes of a policy or decision.

Note: External project stakeholders must be excluded from offer Assessment Panels where their presence would constitute a conflict of interest.

The policy, principles, standards and guidelines apply equally to Departmental employees undertaking engagement internally and externally, as well as Contractors and Consultants working for the Department who are involved in interacting with the community.

The guidelines also apply to all phases of the Department's business. This includes policy development, strategy development, road and transport-system planning, corridor planning, works' program development, infrastructure projects and relevant road operations.

Accordingly, any engineering project (using prequalified or other Consultants) requiring public consultation needs this to be highlighted as a requirement in the invitation documents.

Consultants engaged to undertake public consultation should do so in line with Departmental policies, standards and guidelines.

The Consultant must be:

- suitably qualified and able to undertake public engagement and consultation in line with Departmental requirements, and
- aware of the Department's approach to issues management and the Departmental media policy.

3.2 *Fee issues*

3.2.1 General

When selecting the method of payment for Consultant services, the following primary considerations may be taken into account by the relevant Departmental officers:

- compliance with the intent of Government policy
- general economic environment of the market place
- degree of completeness of the brief / functional specification
- ease of analysing offers and selecting a preferred / Recommended Offeror
- availability of Consultants with the necessary expertise
- timeframe for completion of the work, and
- nature of the work.

3.2.2 Fee basis

Payment of fees to the Consultant will be made on the following basis:

- **Lump Sum** is the Department's preferred basis for the payment of fees where there is a detailed Functional Specification / Design Brief, which clearly defines the requirement, and the work effort required.
- **Unit Rate** may be used by the Department, where the nature of the work cannot be precisely defined, for example, for aspects of preliminary design. The risk of time overruns must be managed.
- **Lump Sum + Unit Rates** may be used where the outcome is not predictable, for example, for research and development projects.

The 'time' component of a time rate fee is not to be considered as an open-ended situation. The Consultant is expected to deliver closely to the hours nominated in the Price schedule.

3.2.3 Goods and Services Tax

Officers considering the engagement of Consultants on engineering projects will consider the Department's and the Consultant's requirements and obligations in respect of GST, however, Consultants are required to obtain and rely on their own advice in respect of GST.

Officers should refer to the Department's *Financial Management Practice Manual – Policy Requirements* (FMPM) Goods and Services Tax Clause 3.1 which includes a link to the Department's GST procedures. Departmental officers may contact the email: FinGov@tmr.qld.gov.au if further guidance is required.

Note: GST is likely to apply to transactions with entities outside of the Department (that is, Suppliers, local governments, other Queensland government departments. GST is unlikely to apply to transactions between internal areas of the Department (that is, transactions that are recorded using the Sales and Distribution (S & D) module of the SAP system. Refer to the Department's *Financial Management Practice Manual* Section 14.1.1 – Internal Trading).

Some items obtained by the Department may be of a type classified as GST free and other items may be classified as input taxed. Details of which goods and services are GST free and input taxed are determined by the *New Tax System (Goods and Services Tax) Act 1999* (Cth) and officers may require specific tax advice.

3.3 Invitation / Offer issues (Prequalified Consultants)

3.3.1 Limited invitation (Prequalified Consultants)

Limited invitation to engage Prequalified Consultants on engineering projects may be progressed through email or electronic tender portal (for example, QTenders). In some cases, the procurement method is dependent on the funding course (for example, Australian government or State government funding) and the estimated value of the engagement.

The selection of Prequalified Engineering Consultants to make an offer is to be made from either the Department's statewide or district / local prequalification registers. The minimum number of available Consultants to be selected and invited to make an offer will generally be either one (sole invitee) or 3 (limited invitations).

Where limited invitations are issued, a local or District-based rotation system will be considered, refer to Clause 4.2.1.1 *Work Categories and Levels*.

Note: Where a rotation system is implemented by the Department, its purpose is to provide a fair and reasonable opportunity to all Consultants on the register to submit offers over time. This is not a strict mathematical process and will be subject to Departmental requirements. See Clause 4.1.3 for more details.

Invitations from the Department will be made using standard documentation, Form C7585 *Invitation for Offer for Consultant Service*.

3.3.2 Single Invitee / Sole Supplier (Prequalified Consultants)

Single Invitee – refers to an approach where the Department will issue an invitation to one Supplier, despite availability of other Suppliers, without a competitive bidding process.

Sole Supplier – refers to only one genuine Supplier that can provide the requirements of a Contract.

For Contracts where the estimated Contract amount is not likely to exceed \$300,000 (including GST), the Department may invite a Single Invitee or Sole Supplier to submit an offer.

Note: the use of Single Invitee or Sole Supplier is not compulsory. Limited invitations may be issued.

Refer to Clause 4.2.1.7 *Genuine Urgencies* and Clause 4.2.1.8 *Significant Project Information*.

3.3.3 Limited invitations (Prequalified Consultants)

A limited invitation includes an approach where a minimum of 3 Consultants from the relevant category and level of the prequalification register are invited to submit an offer.

Consideration needs to be given to the value and complexity of each Contract when selecting the Consultants.

Note: See Clause 4.1.2 *Type of Offers* for guidance to the selection of Value Based Selection (VBS) or Qualification Based Selection (QBS) method of invitation.

3.3.4 Two-stage procurement (Prequalified Consultants)

A two-stage invitation process generally involves an Expression of Interest process followed by a limited invitation process to the shortlisted Consultants. Approval to proceed with a two-stage invitation process is required from the relevant delegated officer. Each stage of a two-stage invitation process is to be clearly indicated on the relevant documentation. Two-stage procurement is appropriate for more complex / higher value projects where it is determined that more than 3 Consultants should be given an opportunity to make an offer.

3.3.5 Multi-phase project (Prequalified Consultants)

A multi-phase project involves distinct phases of a long-term or complex project. Consultant services may be required for the term of all phases of the project or, alternatively, Consultant services may be required for each distinct phase, independent to any previous or following phases. Whichever process is determined, the initial approach for availability to deliver the project should fully outline the intentions on how Consultants are to be engaged over the entire project. Information provided should include:

- the number of phases proposed for the entire project
- the estimated timeframe for each phase, and
- the objectives for each of the proposed phases.

If future phases are dependent on the outcomes of the initial or subsequent phase, this also should be disclosed.

Note: For projects involving distinct phases, documents calling for Expressions of Interest or invitations for offer will state that it is a multi-phase project, and whether or not offers may be called for each successive phase. Where competitive offers may not be called for subsequent phases, Consultants will be required to submit proposals for proceeding on options from one phase to the next.

3.4 Invitation / offer issues (Non-Prequalified Consultants)

See Table 3.1.3 for Process Summary for Invitations, Assessment and Approvals.

3.4.1 Open invitations (Non-Prequalified Consultants)

An open invitation involves an approach where the invitation is advertised to the public marketplace on the QTenders website or via a two-stage process (for example, Expressions of Interest, followed by limited invitations to a minimum of 3 Consultants).

Link: [Qld QTenders](#) or app on iPhone or Android devices.

3.4.2 Limited invitations (Non-Prequalified Consultants)

Limited invitations involves an approach where a minimum of 3 Consultants shall be invited to respond.

3.4.3 Single Invitee / Sole Supplier (Non-Prequalified Consultants)

Single Invitee – refers to an approach where one Supplier, despite availability of other Suppliers, without a competitive bidding process.

Sole Supplier – refers to an approach where the Department will issue an invitation to one Supplier, that is, the only Supplier that can provide the requirements of the Contract.

In addition, where the estimated Contract amount is less than \$150,000 (including GST), the Department may invite a Single Invitee or Sole Supplier to make an offer.

3.5 Engagement of government agencies

Open competitive invitations, no matter what the value of the Contract, may not be required in circumstances where the Consultant services are to be undertaken by a Commonwealth, State, Local Government or Joint Government Agency, provided the agency is not a Government Owned Business or a business unit in competition with private enterprise.

Where there is uncertainty in being able to determine whether an Offeror is affected by this provision, purchase approval to engage a government agency directly may be sought by an appropriately delegated officer prior to making any formal arrangement with the government agency in question.

Note: An evaluation of the government agency in question may be undertaken to ensure competitive neutrality under the National Competition Policy. Agreed rates should be determined prior to engaging a government agency, to ensure the Department is receiving value for money.

This does not apply to Non-Contestable Work.

3.6 Urgent cases

Sometimes urgency (including an emergency) may preclude the development of a written brief or a comprehensive functional specification, prior to calling for invitations and/or completion of a detailed recommendation and assessment.

In such urgent cases, the officer with the relevant delegated financial authority may grant approval for the standard invitation procedures to be set aside.

For the purposes of internal procurement records, Departmental officers may prepare documentation which includes:

- clearly stated reasons as to why the Consultant has been engaged under urgent circumstances, and
- details of all offers and, where available, copies of written confirmations.

Note: The appropriate documentation must be forwarded to the relevant procurement section within the Department.

The Contract must be formalised by either a Letter of Acceptance or formal agreement including the applicable Contract system documents.

3.7 Contractual issues

3.7.1 Quality assurance – Consultants on engineering projects

Consultants prequalified in any of the following categories (all levels):

- Bridge Design (BD)
- Geotechnical Engineering (GE)
- Highway Engineering (HE)
- Hydraulic Design (HD), and
- Traffic Engineering (TE),

must hold current third-party certification to the relevant Australian Standard, as indicated in Clause 2.2.3 of this Manual

OR

where a Prequalified Consultant has no employees other than the individual providing the service, the prequalification process includes the option for a controlled Self-Assessment in conjunction with the Department.

For the categories of Cost Estimating and Cost Management

For CE and CM Levels 1 and 2 – Controlled Self-Assessment option at the prequalification stage.

For CE and CM Level 3 – current third-party certification to the relevant Australian Standard.

For the categories (all levels) of Economic Studies, Financial / Commercial

Prequalified Consultants shall preferably hold third-party certification to the relevant Australian Standard

OR

Controlled Self-Assessment option at the prequalification stage.

For the category of Intelligent Transport Systems

For ITS Level 1 and 2 – Controlled Self-Assessment option at the prequalification stage.

For ITS Level 3 – current third-party certification to the relevant Australian Standard.

For the category of Marine Engineering

For ME Level 1 sub-categories of ME1.b numerical modelling and ME1.c finite element modelling only – Controlled Self-Assessment option at the prequalification stage.

For ME1.a, Level 2 and 3 – Current third-party certification to the relevant Australian Standard.

For the categories of Data Analysis and Insights, and Transport and Land Use Modelling

Prequalified Consultants shall preferably hold third-party certification to the relevant Australian Standard

OR

Controlled Self-Assessment option at the prequalification stage.

For the categories of Rail Engineering (RE) and Rail Operational Modelling (ROM)

For RE and ROM Levels 1 and 2 – Controlled Self-Assessment option at the prequalification stage.

For RE and ROM Level 3 – current third-party certification to the relevant Australian Standard.

For the category of Transport Planning

For TP Level 1 and 2 – Controlled Self-Assessment option at the prequalification stage.

For TP Level 3 – current third-party certification to the relevant Australian Standard.

The above are conditions of prequalification and so are automatically addressed for the categories of work where the prequalification register is used.

Quality assurance for Sub-Consultants on non-engineering aspects (for example, public consultation, environmental studies, cultural heritage studies, and so on) who are not prequalified and are engaged to deliver non-engineering aspects of the project need to demonstrate that they have an appropriate quality assurance system commensurate with the requirements of the invitation documents.

Note: The officer developing the Design Brief / Functional Specification, will include the appropriate quality assurance arrangements. Quality assurance specified will be based on a risk assessment, performed by the officer developing the Brief / Functional Specification. The officer must determine whether the Consultant services incur a (i) high, (ii) moderate or (iii) low risk to the Department in relation to the expected project outcomes.

3.7.2 Consultant Contract insurance

Consultants (other than sole practitioners) are required to comply with Form 7545 *General Conditions of Contract*, including to hold workers' compensation insurance for employees, as applicable. The Consultant **must** effect and maintain insurance policies for public liability and professional indemnity as specified in Form C7585 *Invitation for Offer for Consultant Service*. The Consultant **must** immediately notify the Department of any changes to any of these insurances.

Whether standard documentation is used for the invitation process, or insurance requirements are nominated in the offer documentation, the Consultant **must** nominate on Form C7586 *Offer for Consultant Service – Non-Price Component* the following details of insurance policies held:

- Workers' compensation insurance policy number and expiry date
- Public liability insurance policy number, expiry date, minimum one claim amount, aggregate value of cover, value of excesses, rating, name of insured and insurer, and any non-compliance details, and
- Professional indemnity insurance policy number, expiry date, single claim amount, aggregate value of cover, value of excesses, policy exclusions, jurisdictional and territorial limits, and name of insured and insurer.

Table 3.7.2 – Insurance summary

Indicative Principal Arranged Insurance (PAI). Consultant / Contractor Arranged Insurance (CAI).

Scenario	Planning Phase / Concept Phase	Development Phase	Other Detailed Design
Scope	<p>Design within Planning Phase or Concept Phase for example, Design Development, Project Proposal, Options Analysis, Business Case.</p> <p>May include cost estimating, economic analysis, hydraulic modelling, traffic modelling, geotechnical investigation, engineering design to an approximate level.</p>	<p>Detailed Design Phase of a QTRIP listed project including preparation of tender documents, Contract documents, Issued for Construction (IFC) design and schedule of rates.</p> <p>May involve cost estimating, preparation of tender documents, economic analysis, hydraulic modelling, geotechnical investigation, traffic modelling, engineering design of transport infrastructure including bus station and multistorey carpark to approx. 100% complete (suitable for construction).</p>	<p>A detailed design for a non-QTRIP listed project or project not covered by PAI.</p>
Contract Value (excl GST)	Not applicable.	Not applicable.	Not applicable.
Method of cover	CAI	<p>CAI</p> <p>OR</p> <p>PAI only where the consultancy directly supports a construction project with a value greater than \$100M</p> <p>Contact TMR_Insurance@tmr.qld.gov.au to utilise PAI as an insurance option.</p>	<p>CAI</p> <p>OR</p> <p>PAI only where the consultancy directly supports a construction project with a value greater than \$100M</p> <p>Contact TMR_Insurance@tmr.qld.gov.au to utilise PAI as an insurance option.</p>

Scenario	Planning Phase / Concept Phase	Development Phase	Other Detailed Design
Limit of Professional Indemnity (PI) cover	Risk based assessment.	Risk based assessment if CAI elected. \$20M each claim if PAI elected.	Risk based assessment if CAI elected. \$20M each claim if PAI elected.
Consultant's Limit of Liability	A Consultant's liability under a Contract is limited to the amount of insurance the Consultant is required to obtain under the particular Contract.	A Consultant's liability under a Contract is limited to the amount of insurance the Consultant is required to obtain under the particular Contract.	A Consultant's liability under a Contract is limited to the amount of insurance the Consultant is required to obtain under the particular Contract.
Deductible	Not applicable.	Not applicable if CAI elected. \$500,000 each claim if PAI elected.	Not applicable if CAI elected. \$500,000 each claim if PAI elected.
Public Liability (PL) coverage required	\$20M for each occurrence.	\$20M for each occurrence.	\$20M for each occurrence.

3.7.3 Workers' compensation insurance

The Consultant's worker's compensation insurance policy shall be valid for the duration of the Consultant services.

3.7.4 Public liability insurance

General public liability

The Consultant's public liability insurance policy shall be valid for the duration of the Consultant services, including policy renewal as required to maintain the insurance cover for the duration specified in the Contract. The relevant minimum cover amount will be nominated in Form C7585 *Invitation for Offer for Consultant Service*.

Pre- and post-construction

Because Consultants may need to visit the proposed project site prior to or post construction, liability for loss, damage or injury incurred by third-parties on the site and caused by the Consultant or its employees must be covered by the Consultant's public liability insurance.

During construction on site

Once construction on a project has commenced, the principal Contractor's project-specific 'All Risks' works insurance will cover against third-party personal injury and property damage arising from construction activities except where caused by the Principal or the Consultant.

3.7.5 Professional indemnity insurance

Consultant arranged insurance (CAI)

Generally, the Consultant's **Professional Indemnity (PI) insurance** is the protection it buys from an insurance underwriter to insure it against its legal liabilities for professional negligence. The extent of the Consultant's liability to the Department is not related to the limit or level of the Consultant's insurance. It is necessary to make sure that the insurance requirements under any Contract reflect the reality of what is available by way of insurance and the policy conditions on which the insurance is available.

The insurer **must** have:

- a sound financial standing
- a good record in regard to claims administration and settlement, and
- expertise in the field of civil construction insurance.

Note: Further information is available at the S&P Global website:

Link: <https://www.spglobal.com/ratings>.

Where Departmental officers have any concerns about the adequacy of an insurance policy, contact should first be made with the PMD Insurance Team via TMR_Insurance@tmr.qld.gov.au who can assist in providing advice regarding the insurance documents and referral to the Department's insurance broker where needed.

Principal Arranged Insurance (PAI)

Principal Arranged Insurance is an insurance option offered to Consultants when they are joint parties (under a no-blame framework) in any of the following:

- a referral Contract, those with a Contract value greater than \$150M (excluding GST) but less than \$200M, or
- a major Contract, those with a Contract value greater than \$150M, or
- a design and construct model of Contract of any value.

Note: The PAI PI policy is activated upon award of the associated construction Contract. Therefore, even if electing PAI PI, Consultants need to have their own PI insurance in place from the start of their work package Contract until award of the construction Contract. For further advice, Departmental officers may email PMD's Insurance Services Unit via TMR_Insurance@tmr.qld.gov.au.

3.7.6 Intellectual property rights

The Department's requirement in relation to the ownership of intellectual property rights is to be assessed and the requirement indicated in the relevant box set aside for this purpose in Form C7585 *Invitation for Offer for Consultant Service* and subject to Clause 12.1 of Form C7545 *General Conditions of Contract for Consultant Service*. The Department's general requirements, in relation to intellectual property rights, are as follows:

- research and development – Consultant to assign (transfer) full ownership of Contract material to the Department
- planning / design – Consultant as owner to grant the Department a royalty-free licence for the full period during which such rights subsist, and
- other forms of intellectual property – as decided by assessment of Departmental needs.

Note: The Invitation for Offer provides for a selection regarding ownership of intellectual property rights in new Contract material. This is material that is created, developed or otherwise brought into existence by, or on behalf of, the Consultant pursuant to the Contract. This might include designs, reports and other materials.

The Department will need to evaluate the requirement to own intellectual property rights in new Contract material in the specific context of the procurement. For example, if it requires the exclusive right to own, use, reproduce and adapt that new Contract material.

The alternative to ownership is a licence to exercise the intellectual property rights in the new Contract material, which may be sufficient. The licence granted in the General Conditions of Contract is a perpetual, irrevocable, paid-up and royalty-free, transferrable, sub-licensable, non-exclusive licence to use, reproduce and adapt that new Contract material for any purpose.

4 Invitation process – Prequalified Consultants

4.1 General (Prequalified Consultant)

The *Queensland Procurement Policy* applies to the procurement processes for the engagement of Engineering Consultants when selected from the prequalification register. Table 4.1 sets out indicative invitation methods and their corresponding estimated values.

Table 4.1 – Invitation process for Prequalified Consultants

Estimated value (including GST)	< \$300,000	\$300,000 to \$1M	>\$1M
Type of Invitation	Sole Invitation SI Note: The use of SI is not compulsory.	Limited invitations (minimum of 3) <ul style="list-style-type: none"> Value Based Selection VBS (if brief is tight and concise), or Qualification Based Selection QBS 	Limited invitations (minimum of 3) <ul style="list-style-type: none"> Qualification Based Selection QBS only

4.1.1 Single Invitee / Sole Supplier or limited invitees (Prequalified Consultant)

a) Single Invitee / Sole Supplier (Prequalified Consultant)

Invitations may be on the basis of **Single Invitee / Sole Supplier** where:

- the estimated Contract amount is less than \$300,000 (including GST), or
- there is a genuine urgency (refer Clause 4.2.1.7), or
- a particular Consultant has previously performed significant parts of the project, for example, possesses substantial data, knowledge, and understanding of the project requirements (refer Clause 4.2.1.8).

Note – The use of Single Invitee / Sole Supplier is not compulsory, even if there is justification to do so.

Invitations, after verbal or email confirmation of availability, will be in writing using Contract system documents. All offers will be in writing or submitted electronically. Offers submitted via an IT-secured e-tendering system may be accepted as indicated in the invitation documents and at the discretion of the Departmental Officer.

b) Limited invitees (Prequalified Consultants)

Invitations are to be made on a limited invitation basis with a recommended minimum of 3 Suppliers when using a limited invitation (refer Clauses 3.3.3 and 4.1.3). All invitations will be in writing using Contract system documents and all resulting offers will also be in writing or submitted electronically (as applicable to the procurement process). No facsimile offers will be accepted. All offers shall be opened privately.

Note: Where a limited number of local Consultants meet the specified prequalification levels, the Department may issue a reduced number of invitations. Competitiveness of offers might be achieved by utilising a predetermined schedule of work activities with relevant fees as a basis for determining the appropriateness of an offer.

In addition to Clause 4.1.1, a risk analysis should be carried out by the officer responsible for the proposed engagement. Risks for evaluation by the officer might include procurement as well as Contract risks.

4.1.2 Type of offers (Prequalified Consultant)

Qualification Based Selection

When compiling documentation for invitation purposes, the Department will establish the type of offer to be sought.

Where the **estimated fees are greater than \$1M** (including GST) the Qualification Based Selection (QBS) method may be adopted for planning / design Consultant services. This approach allows a clarification process that should ensure a common understanding of requirements and agreement on an appropriate fee.

The intention is that, operationally, the need for an excessive number of variations from the Consultant will be removed and allow better relationships to be established and maintained. The use of the QBS method does require the industry to respond in a reasonable manner in terms of offered price.

Value Based Selection

The Value Based Selection (VBS) approach may be used where the scope of works is accurately defined, and the **estimated fees are greater than \$300,000 (including GST) but less than \$1M (including GST)**.

Note: **VBS is not the preferred approach** for services where the scope of work cannot be accurately defined. If VBS is used, the intention of the Department is to avoid invitations to Consultants that have significantly different overheads, for example, a small local consultancy (small overheads) and a large consulting organisation (large overheads).

Approval to proceed with the nominated method of invitation will be internally finalised by the Department prior to seeking offers.

To enable the invitation process to commence within the Department, the relevant Departmental Officer will arrange for approval of its request together with a draft of the invitation documents including a functional specification.

Any resulting Contract will be in accordance with the Department's Contract System documents described in Chapter 10.

4.1.3 Rotation of Prequalified Consultants

Each district will use reasonable endeavours to establish and manage a periodic 'rotation system' for inviting Prequalified Consultants. Using a rotation system based on prior opportunities to offer for Consultant services ensures the widest possible engagement of all Prequalified Consultants.

The intention of the rotation system is to provide Prequalified Consultants with a reasonable opportunity to submit an offer, including Single Invitee / Sole Supplier and limited invitation situations. At their discretion, districts may include one or 2 proven performers at any time with each offer to ensure a suitable mix of Consultants for each project.

In the situation where a Consultant declines a proposed invitation (for example, resources not available) the reason will be documented by the Department in the rotation system and on the project file – this is not included in the rotation system count.

Where the rotation of Consultant selection does not identify Consultants with the discrete knowledge for a particular project in a limited invitation situation, then one or 2 Consultants meeting the requirements may be invited to make an offer.

Districts may use the State Register to create their own registers (refer Clause 2.3.1.2 in this Manual), to include Consultants with local knowledge and local availability.

An illustration of example rotation systems is as follows:

- districts may choose to issue periodic expressions of interest for a known program of projects, with Consultants submitting a 2-3 page response document, covering team, methodology, availability, history. Based on the information provided, different Consultants can be selected to submit offers for different projects on the program, or
- alternatively, districts may choose to have periodic group meetings with a number of Consultants, discuss the district's program of projects and come to an understanding on availability, capacity and capability. On this basis, different Consultants can be selected to submit offers for different projects on the program.

Delegated officers will keep a record (such as in an Excel spreadsheet) of:

- Consultants identified to receive invitations
- invitations issued
- offers received, and
- Consultants awarded with Contracts,

so that the history of Consultants' tendering opportunities is documented and used as a basis for future invitations.

Districts will nominate an owner for their individual local registers, who is responsible for establishment and maintenance.

4.2 Selecting Consultant(s) to make an offer

4.2.1 Specifying project prequalification requirements

To start the invitation process, the relevant Departmental officer will determine the primary prequalification requirements of the project. Areas that will be considered are:

- work categories and levels
- estimated Contract amount
- software requirements, and
- locality.

Any mandated software requirements for the relevant project will be included as part of the project requirements and included in the search process.

Only those Consultants who meet all of the prerequisites will be considered for invitation purposes.

4.2.1.1 Work categories and levels

Work categories and levels will be used to assist in selecting a suitably Prequalified Consultant.

Note: It is the Department’s policy to avoid over-specification of work category and level requirements, as doing so may unnecessarily limit the pool of Consultants capable of doing the work.

The approach for selecting a primary Prequalified Consultant will be based on a risk assessment.

Department officers may obtain advice on the selection of appropriate project prequalification levels from the Manager (Prequalification) in PMD Branch.

The Department may consider the use of Sub-Consultants, to broaden the pool of eligible primary Consultants.

Example 1

In terms of the type of Consultant selected to perform the Consultant services, consideration could be given to selecting a primary Prequalified Consultant with major specialist aspects of the work being sublet to prequalified Sub-Consultants. For example, if the project is primarily a road design with a bridge(s) but requiring major hydraulic modelling (such as flood studies), then the prequalification requirements should be for Highway Engineering and Bridge Design prequalification at the required category and level with the flood study being done by a prequalified Hydraulic Design Sub-Consultant.

This approach does not exclude, for example, specialist organisations prequalified in only one category of work (for example, Hydraulic Design only organisations) from being engaged to perform the work, as would be the case if all the categories and levels for the work concerned were combined as a single requirement.

Example 2

Highway Engineering, Bridge Design and Hydraulic Design requirements could be specified for the primary Consultant, with the Traffic Engineering / Transport Planning being performed by a prequalified specialist Sub-Consultant – this would give wider exposure in this area of expertise.

4.2.1.2 Use of Prequalified Consultants on external roadworks adjoining the Department's roads

Road and/or bridgeworks to be carried out within the Department's road reserve require Departmental approval, or approval as part of the Integrated Development Assessment System (IDAS).

As part of IDAS approvals (or other approvals), Engineering Consultants (and construction Contractors) are required to demonstrate satisfactory prior experience relative to the scale and complexity of the work involved.

For Contracts that are **not** conducted under a Department Contract, districts are to make their own assessments on the required Engineering Consultant prequalification levels for the external works. Use of the Department's prequalification system will limit the Engineering Consultants who can carry out the works to those the Department has deemed capable under its systems.

When a prequalified Engineering Consultant is engaged, districts will be responsible for ensuring that performance is monitored during the Contract period and that performance reporting is done. Refer to Clause 8.3 *Performance Reports*.

4.2.1.3 Selection and weighting of evaluation criteria

Prior to inviting offers, the assessment panel will determine the evaluation criteria, weightings, and selection process. Standard criteria together with their weightings are shown in Clause 7 *Assessment of Offers*. These are to be adopted for all projects unless there are project specific requirements that dictate a variation.

At the time of invitation, evaluation criteria must be disclosed. Weightings are usually disclosed at the same time.

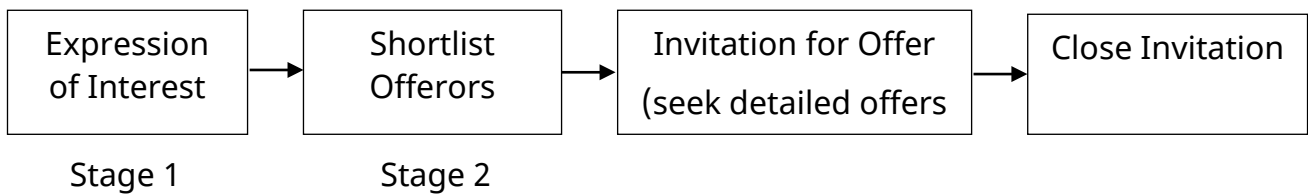
4.2.1.4 Invitation process using prequalification registers

The Departmental officer will request each listed Consultant to indicate its interest and availability in preparation of a complete offer for the Consultant services concerned. An initial verbal or email contact will generally be made with the selected Consultants to confirm their availability to undertake the Consultant services in accordance with the invitation documents. By way of example, the authorised officer may only forward invitation documents to the first available Consultant (Single Invitee / Sole Supplier) or the first 3 (minimum) or 6 (maximum) available Consultants (for limited invitations).

Where a Consultant declines a proposed invitation, the reason should be documented and placed on the Department’s project file. However, when a Consultant shows their interest for the invitation and does not submit an offer after the invitation to submit an offer, the authorised officer shall request the Consultant to submit reasons for the non-submission of an offer.

4.2.1.5 Two-stage invitation process for Prequalified Consultants

Figure 4.2.1.5 – Two-stage invitation



Where the required consultancy is for an extremely large and/or complex project or the project work description is on the upper fringe of a Level 3 Prequalification Category(s) (for example BD3, HE3, GE3), then a **Two-stage process** (Figure 4.2.1.5) of short duration may be utilised to ensure the relevant specialist expertise is identified. No rates will be sought at this stage.

The evaluation criteria included at the first stage only relates to the (non-price) short listing process, focussing on availability and timing. New or different criteria can be included in Form C7585 *Invitation for Offer for Consultant Service* (second stage document), focussing on methodology and personnel.

Invitations seeking detailed offers including price at the second and any subsequent stages may be limited to the shortlisted Suppliers. Such offers will close in the normal offer lodgement process. This may be via email or an IT-secured e-tendering system as approved by the Department. If using electronic tendering, offers must be submitted in Adobe Acrobat PDF format or equivalent.

4.2.1.6 Multi-phase projects for Prequalified Consultants

Figure 4.2.1.6(a) – Example 1 of a multi-phase project

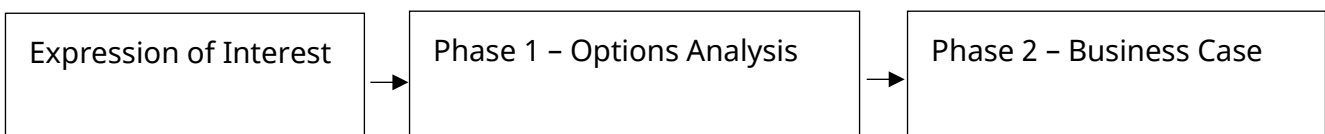
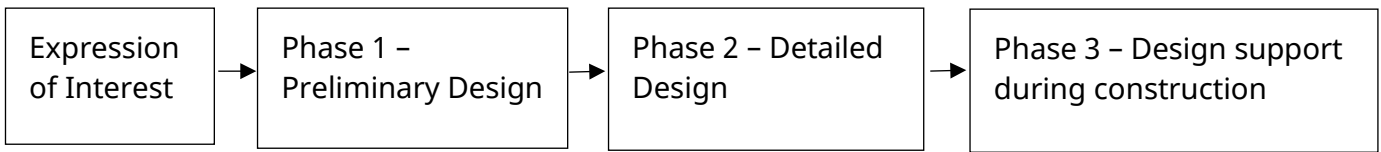


Figure 4.2.1.6(b) – Example 2 of a multi-phase project



A **multi-phase project** involves distinct phases of a long term or complex project. Consultant services may be required for the term of all phases of the project or alternatively, Consultant services may be required for each distinct phase, independent to any previous or following phases. Whichever process is determined, the initial Expression for Interest will fully outline the intentions on how Consultant services are to be engaged over the entire project. Information to be provided will include:

- the phases proposed for the entire project
- the estimated timeframe for each phase, and
- the objectives for each of the proposed phases, for example, Options Analysis, Business Case, and so on.

The Department intends to disclose if future phases are dependent on the outcomes of the initial or subsequent phase.

Note: For projects involving distinct phases, documents calling for Expressions of Interest will state that it is a multi-phase project and whether or not offers may be called for each successive phase.

Where competitive offers may not be called for subsequent phases, Consultants are required to submit proposals for proceeding on options from one phase to the next as part of the first phase. Any proposed extension of the Consultant service to deliver the next phase (as a new Contract) will be subject to a satisfactory Performance Report and agreed pricing arrangements.

Prequalified Consultants who deliver a Detailed Design service shall not be engaged to deliver Contract administration services on any resulting construction. Refer to TIPDS Volume 2: *Tendering for Infrastructure Works*. Link:

(<https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/TIPDS/Volume-2>).

4.2.1.7 Genuine urgencies for Prequalified Consultants

Standard invitation procedures may be set aside by the Department where the responsible officer determines that the service must be procured urgently, however, this situation is exceptional, as decisions are not ordinarily made by a single officer except in emergencies.

Departmental officers must arrange for endorsement of the invitation document by a Level 5 procurement delegate prior to approval.

In the context of prequalified Suppliers, this may mean a Single Invitee / Sole Supplier process where the estimated fee exceeds \$300,000 (including GST).

The invitation procedure **must** be approved by the financial delegate and include reasons, in detail, for the urgency.

Note: The general process within the Department is that the procurement delegate will confirm that adequate justification is provided for the genuine urgency. If approved, the Letter of Acceptance is then issued to the Consultant and endorsed 'Confirmation of previous advice dated dd/mm/yy' if confirmation has already been conveyed to the Consultant.

It is the intention of the Department that urgent situations are to be avoided as much as possible by the adoption of forward planning techniques.

4.2.1.8 Significant project information

Where a particular Consultant has acquired significant project data, knowledge, and understanding of the project requirements, then a Single Invitee / Sole Supplier invitation may be progressed due to the potential time, cost, or value-for-money savings to the Department.

This information could come from a range of circumstances not directly related to the immediate preceding stage, for example, associated and/or adjacent projects.

Where project information is acquired from an immediate previous stage Contract then that previous stage engagement process may identify that the service may be extended as a new Consultant Contract (not as a variation to the existing Contract), subject to a satisfactory performance report and agreed pricing arrangements. Use Section 1.6.3 in Form C7585 *Invitation for Offer for Consultant Service* for this.

4.3 Invitation documents

4.3.1 General

The documents associated with the invitation for offers consist of the Department's Contract System documents including a written Functional Specification.

Note: Refer to Chapter 10 for details.

Some offer responses may include large parts of 'standard' responses to the assessment criteria. To assist in the offer assessment process, restrictions on the number of printed pages, page size, font type, font size, font colour, and line spacing of Consultant responses when addressing the criteria may be used. These requirements must be customised to suit the requirements of the project under consideration. An example of how this might be done is:

- Arial or Calibri font, 11-point black text, single line spacing
- patterned or shaded backgrounds are not permitted
- technical skills of key team members using Form C7513 *CV template* (up to 3 printed pages per person)
- delivering the service (4 printed pages)
- relationship management (4 printed pages)
- local benefits (4 printed pages), and
- quality of deliverables (4 printed pages).

Engineering Consultants such as surveyors or environmental officers on engineering projects may use different criteria for each project however, the same principles apply to restrict unnecessarily wordy and lengthy submissions.

4.3.2 The Functional Specification

The Functional Specification generally describes the design / work elements (including for example, Schedule Items and the Schedule of Fees) that comprise the Consultant services, for example, Environmental Management, Hydraulic Analysis, and so on. It also includes planning information provided by the Department, design criteria, standards for design and construction as well as the deliverables required. These must be matched against the expected functional outcomes described in the project proposal.

The functional specifications for the 4 major stages of preconstruction are for:

- Form C7521 *Options Analysis*
- Form C7522 *Business Case*
- Form C7523 *Preliminary Design*, and
- Form C7524 *Detailed Design*.

In addition, functional specification templates are available for Form C7520 *Introduction and Administration*, Form C7525 *Native Title, Land Acquisition and Limitation of Access* and Form C7526 *Economic Analysis (Deliverables and Reporting)*.

The Department will include the project-specific and local requirements (for example, Codes of Practice) to supplement the requirements of the Department's source documents for planning / design.

Note: If the engagement is likely to exceed \$2M in value, guidance can be provided to Departmental officers by emailing consultantprequal@tmr.qld.gov.au.

The Functional Specification templates are available on the Department's website.

Link: [Consultants for Engineering Projects webpage](#).

4.3.3 The Schedule of fees

Note: Consultants must provide sufficient information of their proposed work activities / tasks so that their offer can be assessed.

When pricing an offer, the Consultant should ensure appropriate staff are nominated to perform the work, for example, senior staff nominated to perform routine work is not appropriate.

The 'Attachment to Assessment Schedule 2 - Schedule of Services' (refer Clause 4.2 of the offer - Form C7586 *Offer for Consultant Service – Non-Price Component*) requires the Consultant to provide details of the proposed work activities / tasks to deliver the service concerned, together with the proposed deliverables.

A companion to the Schedule of Services is the Price Submission (Form C7587 *Offer for Consultant Service - Price Component*) which also includes a duplicate list of the required services (refer Clause 2.1) against which the Consultant is required to specify the pricing structure to deliver the work activities / tasks and deliverables identified in Form C7586 *Offer For Consultant Service – Non-Price Component*.

The offer forms are available on the Department's website.

Link: [Consultants for Engineering Projects webpage](#).

The **Schedule of Fees** is prepared by Departmental officers to contain project specific Items. Key points about the Schedule of Fees are:

- It provides a basis for clarification in Qualification Based Selection (Clause 7.1.2).
- It is used for a comparison of approaches by Offerors in Value Based Selection (Clause 7.1.2).
- It provides a basis for price variations valuations and price clarifications where appropriate, for example, change of work scope during the Contract.
- It can be used as a tool in assessing progress of the work and for assessing progress payments.

4.3.4 Presentation of the Functional Specification / Design Brief

The requirements of the **Functional Specification / Design Brief** will be presented to all invited Offerors to ensure a uniform and clear understanding of the requirements, both in terms of expected outcomes and deliverables.

The Consultant's clear understanding of the problem or need to be addressed, is a crucial prerequisite for the achievement of the required outcomes and supporting deliverables. For all tenders, the presentation may be carried out at a tender meeting (as indicated in Item 3.6 of Form C7585 *Invitation for Offer for Consultant Service*). The Department intends that tender meetings (if held) will be held in week one of the tender period, to allow Offerors to develop their bids accordingly.

Note: For services in excess of \$2M in total value, the Department may organise a pre-tender meeting as a way to present all relevant information, where all Offerors have an opportunity to attend, but the attendance is not a mandatory requirement.

4.3.5 Computer software used to produce computer system outputs

Consultants shall use the Principal's Computer Software as nominated in the *Invitation for Offer for Consultant Service* (Form C7585) in the electronic production of design, drawings and electronic models.

In addition, the Consultant is required to provide to the Principal with each work package or at a time otherwise agreed, the raw model, the design parameters that were used to generate the design model, including the input files, modifiers and macros that were applied to generate the various elements of the design model, horizontal and vertical

alignment, pavement widths / depths, crossfall / superelevation, tapers, drains and batters, in accordance with Clause 15.10 of Form C7545 *General Conditions of Contract*.

4.4 Approving invitation processes

Before invitations are issued for the engagement of Consultants, the invitation process / documentation must be approved by a procurement officer with the appropriate delegation.

5 Invitation process – Non-Prequalified Consultants

5.1 General

Non-Prequalified Consultants may include planning or design, or other services related to:

- design of airports, tunnels, desalination plants, sewerage plants, public buildings and facilities, gas and water supply
- electronic and telecommunications engineering, and
- environmental engineering.

Table 5.1 – Invitation Process for Non-Prequalified Consultants

Estimated value (including GST)	< \$150,000	\$150,000 to \$300,000	> \$300,000
Type of Invitation	Sole Invitation SI Note: The use of SI is not compulsory.	Limited invitations to a minimum of 3 Offerors <ul style="list-style-type: none"> • Value Based Selection VBS (if brief is tight and concise), or • Qualification Based Selection QBS 	Open invitations on QTenders or email <ul style="list-style-type: none"> • Qualification Based Selection QBS

5.1.1 Single Invitee / Sole Supplier invitation (Non-Prequalified Consultant)

A **Single Invitee / Sole Supplier invitation for a Non-Prequalified Consultant** may be issued directly to a Supplier despite availability of other Suppliers, without a competitive bidding process.

Invitations may be on the basis of a **Single Invitee / Sole Supplier** where:

- the estimated Contract amount is less than \$150,000 (including GST)
- there is a genuine urgency (refer Clause 5.1.3), or
- a particular Consultant has previously performed significant parts of the project, for example, possesses substantial data, knowledge, and understanding of the project requirements.

Note: The use of Single Invitee / Sole Supplier invitation is not compulsory.

Invitations, after verbal or email confirmation of availability, will be in writing using Contract system documents. All offers must be in writing or e-tendering system as approved by the Department. No facsimile offers will be accepted.

The Department can set aside standard invitation procedures where an officer considers that a Single Invitee / Sole Supplier procurement process is applicable.

Internally, the Department requires endorsement from a certified procurement delegate in relation to a Single Invitee / Sole Supplier procurement. The invitation procedure is to be endorsed giving the reasons why a Single Invitee / Sole Supplier situation exists.

The Department's intention is that the amount and form of invitation documentation required for a Single Invitee / Sole Supplier will be consistent with Clause 3.1 (refer Table 3.1.3 Process Summary for Invitation, Assessment and Approval), depending on the estimated value of the invitation.

Note: Invitations may be confined to a Supplier or limited number of Suppliers, after research has determined that the required services can only be supplied by a Sole Supplier or limited number of Suppliers. The degree of research for additional Suppliers requires judgement based on the nature and value of the required services.

The usual Department procedures for invitations and offers are to apply, except in relation to Single Invitee / Sole Supplier invitations:

- public advertising is not required
- invitations will be made to all identified Suppliers in the case of limited Suppliers, and
- for Single Invitee / Sole Supplier situations, an invitation will be forwarded direct to the Supplier.

5.1.2 Limited invitations (Non-Prequalified Consultant)

For Contracts where the estimated Contract amount is more than \$150,000 but less than \$300,000 (including GST) **limited invitations** to a minimum of 3 Offerors may be made.

Invitations, after verbal or email confirmation of availability, will be in writing using Contract system documents.

Offers will close in the normal offer lodgement process. This may be email or an IT-secured e-tendering system as approved by the Department. If using an IT-secured e-tendering system, offers must be submitted in a non-editable format, such as Adobe Acrobat PDF format or equivalent, unless directed otherwise in the invitation.

Where a district also requires an offer in Excel format (for checking of costs, and how the offer was built up), this will usually be requested in the invitation period as per Chapter 10.

5.1.3 Two-stage invitations (Non-Prequalified Consultant)

A **Two-stage invitation** process involves the calling of expressions of interest and capability, followed by invitations to shortlisted, approved Consultants from the stage one assessment or Prequalified Consultants.

The two-stage invitation process may be utilised for services which are generally more complex (that is, wider scope or unusual features and/or circumstances). For example, services not covered by the categories of prequalification, such as the design of roadway tunnels or design of light rail lines.

The preferred procurement method for two-stage invitations is through an open invitation request for Expression of Interest (using non-price criteria), followed by limited invitations from shortlisted applicants from the Expression of Interest process.

The assessment criteria included at the Expression of Interest stage only relates to the non-price shortlisting process. New or different criteria can be included in Form C7585 *Invitation for Offer for Consultant Service* (second stage document). Criteria will be similar to that listed in Clause 7.2.1.

Each stage of a two-stage invitation process is to be clearly identified in the advertising and calling of invitations.

Invitations seeking detailed offers including price at the second and any subsequent stages can be limited to the shortlisted Suppliers. Such offers will close in the normal offer lodgement process. This may be via email, or an IT-secured e-tendering system as approved by the Department. If using an IT-secured e-tendering system, offers must be submitted in a non-editable format, such as Adobe Acrobat PDF format or equivalent.

Where a district also requires an offer in Excel format (for checking of costs, and how the offer was built up), this will usually be requested in the invitation period.

5.1.4 Genuine urgencies for Non-Prequalified Consultants

The Department may set aside standard invitation procedures when it considers that the required service must be purchased urgently to satisfy a need.

Departmental officers must arrange for endorsement of the invitation document by a Level 5 procurement delegate prior to approval.

In the context of Non-Prequalified Suppliers, this may mean a Single Invitee / Sole Supplier process where the estimated fee exceeds \$150,000 (including GST).

The Tender Assessment Panel is required to forward the required documentation to the relevant procurement delegate with the appropriate delegation. It must be fully completed and approved by the authorised financial delegate and include reasons, in detail, for the urgency.

Note: The general process within the Department is that the procurement delegate will confirm that adequate justification is provided for the genuine urgency. If approved, the Letter of Acceptance is then issued to the Consultant and endorsed 'Confirmation of previous advice dated dd/mm/yy' if confirmation has already been conveyed to the Consultant.

It is the intention of the Department that urgent situations are to be avoided as much as possible by the adoption of forward planning techniques.

5.2 Documentation

5.2.1 Expression of interest documents

Departmental officers may seek assistance from PMD's Infrastructure Procurement team to provide input into the Expression of Interest process and associated documentation, by emailing infrastructureproc@tmr.qld.gov.au.

5.2.2 Invitation documents

The Contract System documents for Non-Prequalified Consultants are set out on the Department's website (refer to Clause 3.4).

Link: [Consultants for Engineering Projects webpage](#).

5.2.3 Design brief / Functional Specification

A Design Brief / Functional Specification describing the subject matter of the Contract, applicable standards, deliverables and so on, will be prepared (refer Clause 4.3.2 for more detail).

5.2.4 Presentation of Design Brief / Functional Specification

The requirements of the **Functional Specification / Design Brief** will be presented to all Offerors to ensure a uniform and clear understanding of the requirements both in terms of expected outcomes and deliverables. The Consultant's clear understanding of the problem or need to be addressed as a crucial prerequisite for the achievement of the required outcomes and supporting deliverables.

Presentations may be carried out at a pre-offer meeting (as indicated in Item 3.5 of Form C7585 *Invitation for Offer for Consultant Service*). It is the Department's intention that pre-offer meetings (if held) will be held in week one (no later) of the tender period, to allow Offerors to develop their bids accordingly.

A second meeting, prior to tender close (pre-close meeting), may be held if required (as indicated in Item 3.5 of Form C7585 *Invitation for Offer for Consultant Service*).

The above forms are available on the Department's website.

Link: [Consultants for Engineering Projects webpage](#).

Refer Clause 4.3.4 in Chapter 4.

Approving invitation processes

Before invitations are issued for the engagement of Consultants, the invitation process / documentation will be endorsed by a procurement delegate with the appropriate delegation.

6 Dealing with Invitees / Offerors

6.1 *Probity*

The Code of Conduct for the Queensland Public Service applies to employees of Queensland public service agencies. Government procurement should be able to withstand public scrutiny and instil confidence that all potential Suppliers are given fair and equitable treatment.

Note: Departmental officers and non-public servants involved with the invitation / offer process and during the Contract period must declare a conflict of interest.

Probity measures include but are not limited to:

- strict confidentiality and probity protocols apply throughout the procurement process
- if a conflict of interest occurs or if circumstances change during the offer period which is considered to be a conflict of interest, personnel must complete a Conflict of Interest Declaration Form and forwarded to the Procurement Delegate or Assessment Panel Chair
- personnel must not accept or entertain any approaches from Offerors or potential Offerors that might be interpreted as attempts to influence the invitation, offer assessment and acceptance process (for example: attend lunches, functions, seminars or receive gifts from Offerors or potential Offerors), and
- offer documents including USB sticks, hard disks and CDs must be stored in a locked cabinet or room, and electronic data stored in a secure place such as a limited access folder on a server. It is the responsibility of the Procurement Delegate or Assessment Panel Chair to ensure security of offer documents / electronic data.

6.2 *Preliminary*

6.2.1 Use of IT-secured e-tendering system

Where the Department seeks competitive offers, arrangements will be made for these offers to close in an IT-secured e-tendering system approved by the Department for the purposes of ensuring confidentiality of each offer prior to closing time. Offers must be submitted in a non-editable format, such as Adobe Acrobat PDF or equivalent.

6.2.2 Administration of process

The project or procurement personnel will:

1. store all invitation, tendering and offer documents on a restricted access folder on the server
2. allocate a unique number (generally a Contract number) before forwarding invitation documents to invitees / Offerors
3. record details of invitees / Offerors
4. arrange Notices to Offerors distribution, tender meeting and pre-close meeting (if either / both held – refer to Clause 4.3.4 or 5.2.4) correspondence
5. open offers at the appropriate time and record the results in the register of offers
6. determine which (if any) offers do not conform with the invitation documents, giving reasons; and
7. forward both the Conforming and Non-Conforming Offers to the responsible officer for the assessment process.

6.3 Period up to close of offers

- Refer to Clause 7 of Form C7542 *General Conditions of Offer* for lodgement of offer procedures.
- The following are indicative tender periods for Consultant engagements:
 - Engineering Consultant (short duration, for example, 40 hours) – 5 business days
 - Engineering Consultant (medium to long duration, for example, > one month) – 10 business days
 - Business case – 20 business days, and
 - Detailed design – 20 business days.

6.3.1 Queries

Note: If it is considered that information provided by the Department, in relation to the content of invitation documents may have an effect on other potential Offerors, then that same information will be forwarded to all other invitees / Offerors **at the same time**. This practice is intended to provide fair and equitable treatment to all invitees / Offerors.

In some circumstances, an invitee / Offeror may seek information to help in producing an innovative solution. If such information were forwarded to all invitees / Offerors, it might prejudice the intellectual property rights of the invitee / Offeror. Therefore, its release to other invitees / Offerors will be carefully considered by the Procurement Delegate or Assessment Panel Chair.

Where the Department changes Form C7585 *Invitation for Offer for Consultant Service*, for example, scope of work / specification, then this information must be forwarded to all Offerors at the same time.

Commercial-in-Confidence questions will be evaluated on a case-by-case basis by the Procurement Delegate or Assessment Panel Chair.

Where queries are received from invitees / Offerors in relation to the content of invitation documents and those queries:

- require an amendment to the documentation
- are of a complex nature
- are of substantial nature, or
- highlight an ambiguity,

then they must be submitted in writing.

Any advice given by the Department to the invitees / Offerors in relation to such queries, will also be given in writing, generally in the form of 'Notices to Offerors'.

Note:

- The names of members of the Assessment Panel are to be kept confidential.
- The Assessment Panel Chair and all other panel members (internal and external) are required to sign a conflict of interest declaration. External panel members may also be required to sign a confidentiality agreement.
- Notices to Offerors will be issued in a timely manner, that is, at least 1-3 days before tender close. Refer Section 1.4 in Form C7586 *Offer for Consultant Service - Non-Price Component*.

Any requests for information by an invitee / Offeror, which may be regarded as referring to the personal, financial or business affairs of another invitee / Offeror or of a confidential nature, will be refused. In relation to Clause 2.3.7 of this Manual, confidential information submitted by invitees / Offerors will be treated as confidential and will not be released to other invitees / Offerors or competitors.

6.4 Period from closing time for offers to Letter of Acceptance

6.4.1 Late offers

Any offer received after the nominated closing time will not to be considered unless evidence can be shown that the offer:

- was delivered to the nominated place in time, or
- was despatched to the nominated place in sufficient time to effect delivery to the nominated place under normal circumstances.

Any late offer may be rejected regardless of the reason for late delivery.

For e-tender submissions, online systems will generally automatically close at the nominated date and time and not accept late offers. Some systems provide a grace period after the closing time which must be considered when preparing offer documents and nominating the closing date / time.

Note: While the Department retains discretion in its rejection or consideration of late delivery of offers, this will be done in liaison with the procurement delegate and Assessment Panel Chair.

6.4.2 Non-Conforming Offers

Offers must be submitted in accordance with the provisions of the offer documents including Form C7542 *General Conditions of Offer*. Non-conformances of a minor nature by an Offeror may be considered where it can be demonstrated that it does not result in unfair treatment to other Offerors and is in the Department's best interest. Examples of minor non-conformances include, but are not limited to:

- failure to provide required information of a non-critical nature (for example, phone numbers), or
- failure to provide all necessary documents with the offer, providing the missing documents are only supporting ones and do not form a key part of the offer (for example, a missing Quality Assurance certificate could be acceptable, but a missing Fee Schedule would not).

Note: For a minor non-conformance, an Offeror may be given the opportunity to comply with the requirements of the invitation documents, but only without altering the substance of the offer (for example, the Fee Schedule including the offered Contract amount may not be added).

Any request by the Department for clarification of an offer should be in writing. Any subsequent information provided by the Offeror should be in writing and should form part of their offer.

6.4.3 Non-Compliance table

Table 6.4.3 lists non-compliances that may be found in offers and recommended actions should any of them be identified in an offer under examination. The list is not exhaustive and other types of non-compliance may arise.

Table 6.4.3 – Offer Non-compliances and recommended actions

#	Non-Compliance	Recommended Action
1	Offer did not include fully completed <i>Price Component</i> (second envelope – Form C7587).	Will not be considered. Record the date and time of receipt and return to Offeror.
2	<i>Non-Price Component of Offer</i> (Form C7586) did not include completed Assessment Schedules 1-5 (in part or full).	Will not be considered.
3	Offer does not comply with the <i>Supplier Code of Conduct</i> .	Will not be considered.
4	Offer was not for the whole of the required service.	Will not be considered.
5	Offer Forms were not signed by an authorised person.	Will not be considered.
6	Alternative Offer submitted but no Conforming Offer.	Will not be considered.
7	Conditional Offer submitted in addition to a Conforming Offer.	Conditional Offer may be considered or rejected at the Principal’s discretion.
8	Alternative Offer submitted in addition to a Conforming Offer.	Alternative Offer may be considered or rejected at the Principal’s discretion.

#	Non-Compliance	Recommended Action
9	Offer did not include non-critical information (for example, contact details).	Minor non-conformance. Offeror may be given opportunity to comply with the requirements of the invitation documents.
10	Offer submitted to Lodgement Box after the nominated closing time / date.	Will not be considered. May be considered - If there is satisfactory evidence that a late offer had been despatched to the Offer Lodgement Box / Opening Location in sufficient time to reach that place under normal circumstances and was still in the course of delivery at the specified closing time. Rejection of consideration of late delivery of offers need to be done in liaison with the procurement officer and Assessment Panel Chair.
11	Offer submitted electronically after the nominated closing time / date.	Will not be considered, unless online system provides a grace period after the closing time. Rejection of consideration of late offer(s) will be done in liaison with the procurement delegate and Assessment Panel Chair.
12	Offer submitted by means not specified in Clause 8.1 of the <i>General Conditions of Offer</i> (Form C7542).	Will not be considered.
13	Electronically submitted offer was not in non-editable format.	May be considered. Offeror may be given opportunity to comply with the requirements of the invitation documents.
14	Offer not submitted under prequalified entity name and ABN.	Will not be considered.
15	Offeror did not acknowledge all Notices to Offerors (NTO) in Section 1.4 of <i>Offer - Non-Price Component</i> (Form C7586).	Will not be considered.

6.4.4 General offer queries

After receipt of offers, there may be a need for the Department or the Assessment Panel to clarify the nature of any offer or any component of an offer.

This can be undertaken during the non-price or price assessment. Clarification may serve to ensure that both the Department / Assessment Panel and the Offeror have a common understanding of the requirements and what is being offered. Clarification may be sought in writing or through interviews with the Offeror's representatives. However, any clarification or interview will not provide:

- the opportunity for the substance of an offer to be altered in any form, or
- an Offeror with an unfair competitive advantage due to the outcomes of the clarification or interview.

In the context of a price assessment for QBS, the Assessment Panel will consider whether the price provides value for money.

7 Assessment of offers (Prequalified and Non-Prequalified Consultants)

7.1 Assessment of offers

This guidance relates to offers that are assessed against the default selection criteria shown in Clause 7.2 and where relevant Clause 7.3.

7.1.1 Assessment of Single Invitee or Sole Supplier offer

When seeking to engage a Consultant as a Single Invitee or Sole Supplier, the invitation and offer process described in Clause 4.1.1 of Chapter 4 or Clause 5.1.1 of Chapter 5 will be used. Both types of offers must be evaluated for suitability to deliver the specified work. This suitability is measured in terms of the offer assessment Weighted Total Score:

- for a **Prequalified Consultant**: the offer assessment Weighted Total Score is expected to be greater than 700 out of 1000 to justify acceptance, whereas
- for a **Non-Prequalified Consultant**: the offer assessment Weighted Total Score is expected to be greater than 500 out of 1000 to justify acceptance.

The acceptance process for a Single Invitee or Sole Supplier offer, is rigorous to ensure the Department receives value for money in the transaction.

7.1.2 Assessment of limited offers

Note: The process for determining the selection method when seeking limited offers (where the estimated Contract amount for the project is greater than \$300,000 (including GST) for Prequalified Consultants or greater than \$150,000 (including GST) for Non-Prequalified Consultants) depends on whether or not the scope of the work can be accurately defined.

There are 2 approved methods for assessing a Consultant(s) offer:

- a) Qualification Based Selection (QBS), and
- b) Value Based Selection (VBS).

In both selection methods the non-price (Form C7586) and price (Form C7587) offer components are presented in separate and clearly marked submissions (which may be in the form of envelopes or electronic files).

For offers involving Prequalified Consultants, details of the procedures, and so on, are set out in Chapter 2 of this Manual. For Non-Prequalified Consultants, similar offer documents including supplementary conditions of offer must be produced.

The Project Manager is responsible for preparing project-specific offer documents in accordance with the scope of work. Offer documentation for Prequalified Consultants may be used for guidance.

Note: Subject to any procurement specific requirements, for e-tender submissions, the responsible officer will store the files containing the prices in a secure place and only release the required files to the Tender Assessment Panel after the non-price evaluation has been completed.

For QBS offers using hard copy submissions, the responsible officer will return the unopened submissions to the unsuccessful Offerors following Contract award. Unopened submissions need to be suitably addressed to ensure prompt receipt by the relevant area within the Offeror organisation.

7.1.2.1 Qualification Based Selection (QBS)

Note: The QBS process will be adopted in most situations, especially where the scope of work cannot be accurately defined (producing higher risk).

Figure 7.1.2.1 – QBS example

Criteria	Weighting (%)	Offeror Ratings				Offeror wts			
		1	2	3	4	1	2	3	4
Technical skills of key team members	40	10	7	10	9	400	280	400	360
Delivering the service	30	10	10	9	9	300	300	270	270
Relationship	10	7	8	10	9	70	80	100	90
Local benefits test	10	9	10	8	10	90	100	80	100
Quality of deliverables	10	7	8	9	10	70	80	90	100
Total	100					930	840	940	920
Ranking						2	4	1	3
Percentage of highest wts						1.1%	10.6%	0.0%	2.1%
The highest wts and top ranked offeror is Offeror 3.									

The QBS process has 2 different scenarios (refer Table 7.1.2.1).

Note: In both QBS and VBS, the first envelope contains the responses to the non-price criteria. The second envelope contains the offered Contract amount and Price Schedule.

Table 7.1.2.1 – QBS scenario

Scenario	Action
Preferred Offeror determined, has highest non-price Weighted Total Score.	<p>The top ranked Offeror is the ‘Preferred Offeror’ and Envelope 2 containing the offered Contract amount and Price Schedule is opened, reviewed and clarification conducted, to have confidence that all components of the service have been scoped and included.</p> <p>The other Offeror(s) Envelope 2 containing the offered Contract amount is not opened at any stage.</p>

Note: Should an agreement not be reached with the Preferred Offeror, then consideration may be given to the second ranked Offeror. The offered Contract amount in the second submission is then opened for the second ranked Offeror.

The clarification process includes agreement on and documentation of the scope, including personnel and timing, and the Contract amount.

Envelope 2, which does not include a price schedule, will be considered non-conforming.

Note: Once abandoned, any previous ‘preferred’ Offeror cannot be brought back into selection consideration.

For further advice on the QBS process, Departmental officers can contact the Manager (Prequalification) in PMD via consultantprequal@tmr.qld.gov.au.

Note: Internal requests to modify the prescribed QBS assessment method must be submitted to and approved in writing by the Manager (Prequalification), on a project-by-project basis.

7.1.2.2 Value Based Selection (VBS)

The VBS process has 2 steps:

- i) the non-price criteria of all Offerors are first assessed (the second submissions are not opened before the non-price criteria are assessed), rated and documented, and

- ii) the second submissions containing the offered Contract amounts are then opened and the offered Contract amounts assessed as outlined in Clauses 7.3.1 and 7.3.2.

The Weighted Total Scores are summed, and the Recommended Offer is the one with the highest Weighted Total Score, subject to Assessment Panel discretion if appropriate (refer Clause 7.4.7).

7.2 Offer assessment non-price criteria

The offer assessment process will focus on project-specific success factors. Care must be taken to distinguish between Prequalified Consultants and Non-Prequalified Consultants. Prequalified Consultants have been pre-assessed regarding their systems, resources and competency in delivering project, and Non-Prequalified Consultants may not have gone through this process.

For **Prequalified Consultants**, the assessment process will not focus on those areas covered by prequalification as the Consultant's capability has already been established. The important requirements in the offer assessment process will be those issues which cannot be specifically assessed at the time of prequalification, for example, availability of relevant skills for the service. In this respect, careful consideration of job specific Criterion is important if the most appropriate Consultant to undertake the project is to be selected.

For **Non-Prequalified Consultants**, the assessment process will focus on those areas pertaining to the Consultant's capability, skills and experience relating to the service. In this respect again, careful consideration of job specific Criterion is important if the most appropriate Consultant to undertake the project is to be selected.

Note: The 5 default non-price criteria and weightings (for both Prequalified and Non-Prequalified Consultants) may be modified to suit project-specific circumstances.

In the case of Non-Prequalified Consultants, additional questions may be added, to assess skills and capabilities.

The evaluation criteria are usually derived from the specification together with suitable elements reflecting cost, organisational capability, time performance, and so on. Weightings will be assigned to each selection criteria.

In addition to conforming with the requirements of the invitation documentation, the offer is to be assessed using the relevant evaluation criteria, which will be indicated in the brief.

7.2.1 Standard non-price assessment criteria

Note: An element of 'Track Record or past performance' is embedded in all of the assessment criteria. The Assessment Panel will consider past performance information during the assessment process to apply a 'reality check' against the initial assessment Ratings and modify the Ratings, as appropriate.

Copies of past performance reports (if on record) may be requested from PMD's Prequalification Team – consultantprequal@tmr.qld.gov.au.

The non-price assessment of all Prequalified Consultant offers will be based on the following criteria:

- Technical skills of key team members
- Delivering the service
- Relationship management
- Local benefits, and
- Quality of deliverables.

7.2.1.1 Technical skills of key team members

The assessment process for Rating these criteria will take into consideration the following:

- Technology expertise / knowledge relevant to these Consultant services as set out in the Functional Specification or the Brief.
- Understanding the Department's design and construction standards and relevant processes, especially those in the following manuals comprising the primary sources: [Link: Technical Publications](#):
 - *Road Planning and Design*
 - *Road Drainage Design*
 - *Drafting and Design Presentation Standards*
 - *Queensland Manual of Uniform Traffic Control Devices*
 - *Pavement Rehabilitation*
 - *Pavement Design Supplement*
 - *Design Criteria for Bridges and Other Structures*
 - *Geotechnical Design Standards*
 - *Standard Drawings Roads*

- *Transport and Main Roads Technical Specifications*
 - *Transport Infrastructure Project Delivery System*
 - *Project Cost Estimating*, and
 - environmental manuals and guidelines.
- Expertise / capacity to deliver suitable outputs, for example, design solutions, engineering drawings, supplementary specifications, program, schedules, estimates, electronic models, tender documents, quality plans and so on. Where indicated in Item 4 of Form C7586 *Offer for Consultant Service – Non-Price Component*, additional emphasis during assessment will be given to expertise / capacity in the nominated outputs.

Where the Consultant needs to utilise Sub-Consultants in the execution of the Contract, the Consultant must select appropriately prequalified and experienced Sub-Consultants compatible with the requirements of the Contract, including:

- expertise / knowledge of local Departmental design and construction requirements (for example, blacksoil design issues, environmental management such as sediment control, noise barriers, and so on). Where indicated in Item 4 of Form C7586 *Offer for Consultant Service - Non-Price Component*, additional emphasis during assessment will be given to expertise / knowledge in the nominated areas, and
- general capacity to handle project type and ability to provide backup in the event of changes to key team members (include the proposed organisation structure).

Note: The Offeror must demonstrate that its key team members, including Sub-Consultants, have experience / expertise in their proposed role in Consultant services of a generally similar nature as well as any locally nominated areas.

The offer shall include CVs and organisational structure for the proposed team as well as for backup personnel.

Table 7.2.1.1 – Ratings for Non-Price assessment criteria – technical skills of key team members

Rating	Assessment
10	Key team members have comprehensive ‘relevant qualifications and technical experience’ (appropriate to the nominated Consultant services) giving full confidence that they will form an effective team.
9	Key team members have extensive ‘relevant qualifications and technical experience’ giving a high level of confidence that they will form an effective team.

Rating	Assessment
8	Key team members have extensive 'relevant qualifications and technical experience' giving confidence that they will form an effective team
7	Key team members have sound 'relevant qualifications and technical experience' giving confidence that they will form an effective team.
6	Key team members have sound 'relevant qualifications and technical experience' giving some confidence that they will form an effective team.
5	Key team members have adequate 'relevant qualifications and technical experience' giving some confidence that they will form an effective team.
4	Key team members have adequate 'relevant qualifications and technical experience' giving limited confidence that they will form an effective team.
3	Key team members have limited 'relevant qualifications and technical experience' giving little confidence that they will form an effective team.
2	Key team members have limited 'relevant qualifications and technical experience' giving no confidence that they will form an effective team.
1	Not addressed.

7.2.1.2 Delivering the service

An evaluation will be made of the Offeror's approach methodology and apparent understanding of the need to be satisfied and the expected outcomes to be achieved by the completed project.

Where applicable the Offeror must detail the systems and computer programs to be used. The Offeror:

- a) Must articulate its proposed approach methodology for delivering the specified Consultant services on time and in accordance with Form C7585 *Invitation for Offer for Consultant Service* and associated documents.
- b) Must supply a precedence diagram (or Gantt Chart) showing how completion of the project will be achieved within the program cost and timeframe. This is essential. Activities must relate to the items specified in the cost schedules:
 - specified milestones must be included as reference or hold points in the precedence diagram, and
 - specified times for the Principal's audit and/or review before work can proceed to the next stage.

- c) Must articulate its detailed approach to the areas listed in Table 7.2.1.2(a). For each area of work listed in the table, the Offeror must detail the specific methodology for that area. In particular, the Offeror must include detail on the issues described below together with all other aspects of the relevant areas:
- i. the incorporation of specific environmental requirements into all aspects of the project together with how the impacts will be managed
 - ii. the proposed strategy for handling public consultation throughout the Contract, including the proposed procedures for addressing complaints from the public and communication with Members of Parliament
 - iii. the proposed strategy for collection of traffic data (including type and location of traffic surveys), methodology for predicting future traffic and the methodology for analysing the traffic data (including all software to be used)
 - iv. the details of any additional geotechnical work the Offeror considers is necessary and intends to carry out including frequency, locations, and testing details. The Offeror must separately identify the cost of such additional geotechnical work
 - v. the methodology for conducting hydraulic design, including proposed analytical tools (including computer programs) to be used
 - vi. details of any electronic 3D modelling (12D)
 - vii. details of any mesoscopic transport modelling (planning or (development stage)
 - viii. details and methodology of any bridge planning and design
 - ix. details and methodology of any road design plan work, and
 - x. details and methodology of any signalisation / lighting design / ITS placement / electrical design.
- d) Must have a comprehensive understanding of project management methodology, including the ten project management elements, and how they will be applied including the use of:
- scope management
 - time management
 - cost management
 - quality management
 - human resources management
 - communication management

- stakeholder management
- risk management
- procurement management, and
- integration management.

Table 7.2.1.2(a) – Area of work (planning vs design)

Planning	Design
Review of Environmental Factors and Environmental Management Plan (Planning)	Environmental Design Report
Public engagement and consultation	Public engagement and consultation
Traffic Counting and Analysis	Hydraulic Analysis and Design
Hydraulic Analysis	Provision for Traffic and Sidetracks
Bridge Planning Report	Landscaping
Planning and Preliminary Design Layouts and Report	Road Design and Drawings
Geotechnical Investigation, Analysis and Report	Bridge Design and Drawings
Project Proposal Report / Business Case	Quality in documentation, design and cost estimating

Table 7.2.1.2(b) – Ratings for Non-Price assessment criteria – delivering the service

Rating	Assessment
10	Outstanding project management approach – gives full confidence that the project will run efficiently and effectively.
9	Excellent project management approach – gives high level confidence that the project will run efficiently and effectively.
8	Excellent project management approach – gives confidence that the project will run efficiently and effectively.
7	Sound project management approach – gives confidence that the project will run efficiently and effectively.
6	Sound project management approach – gives some confidence that the project will run efficiently and effectively.
5	Adequate project management approach – gives some confidence that the project will run efficiently and effectively.

Rating	Assessment
4	Adequate project management approach – gives limited confidence that the project will run efficiently and effectively.
3	Unsatisfactory project management approach – gives little confidence that the project will run efficiently and effectively.
2	Unsatisfactory project management approach – gives no confidence that the project will run efficiently and effectively.
1	Not addressed.

7.2.1.3 Relationship management

The Offeror must demonstrate its commitment to:

- working in a collaborative manner to manage the Consultant services to best benefit the project
- working together with the Principal on the basis of the Principal playing an informed leadership role
- working in a collaborative way where the Principal will be part of the decision making process on a progressive basis
- setting up and attending regular project meetings together with relevant Key Team Members (including Sub-Consultants), as appropriate
- progressively identify and resolve variations at the earliest opportunity at project meetings
- doing business in a positive way, for example, without 'creative variations' (as a Prequalified Consultant, the nature of the work is understood and therefore a negotiated and agreed brief should include an 'in principle' approach not to seek variations for minor discrepancies in the documents), and
- performance reporting at agreed milestones during the Contract, a final performance report at the completion of the service and post-construction performance report (if construction resulted).

Table 7.2.1.3 – Ratings for Non-Price assessment criteria – relationship management

Rating	Assessment
10	Outstanding commitment to appropriate management relationships (seeks to create win-win project environments) – gives full confidence that team relationships will contribute to a successful project.
9	Excellent commitment to appropriate management relationships – gives high level confidence that team relationships will contribute to a successful project.
8	Excellent commitment to appropriate management relationships – gives confidence that team relationships will contribute to a successful project.
7	Sound commitment to appropriate management relationships – gives confidence that team relationships will contribute to a successful project.
6	Sound commitment to appropriate management relationships – gives some confidence that team relationships will contribute to a successful project.
5	Adequate commitment to appropriate management relationships – gives some confidence that team relationships will contribute to a successful project.
4	Adequate commitment to appropriate management relationships – gives limited confidence that team relationships will contribute to a successful project.
3	Unsatisfactory commitment to appropriate management relationships – gives little confidence that team relationships will contribute to a successful project.
2	Unsatisfactory commitment to appropriate management relationships – gives no confidence that team relationships will contribute to a successful project.
1	Not addressed.

7.2.1.4 Local benefits

The Offeror shall demonstrate that it can provide a local benefit through designing for:

- local conditions
- local supply chains and materials
- local community requirements, and
- road user requirements.

The Offeror shall demonstrate its approach to how the project team interface is to be undertaken. It would be an advantage to have the availability of local personnel with local expertise and capacity, enabling face to face communication for project reviews and a local team for any site inspections.

Table 7.2.1.4 – Ratings for Non-Price assessment criteria – Local Benefits

Rating	Assessment
10	Outstanding commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives full confidence that the Offeror recognises and is committed to addressing regional project requirements.
9	Excellent commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives high confidence that the Offeror recognises and is committed to addressing regional project requirements.
8	Excellent commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives confidence that the Offeror recognises and is committed to addressing regional project requirements.
7	Sound commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives high confidence that the Offeror recognises and is committed to addressing regional project requirements.
6	Sound commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives some confidence that the Offeror recognises and is committed to addressing regional project requirements.
5	Adequate commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives some confidence that the Offeror recognises and is committed to addressing regional project requirements.
4	Adequate commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives limited confidence that the Offeror recognises and is committed to addressing regional project requirements.
3	Unsatisfactory commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives little confidence that the Offeror recognises and is committed to addressing regional project requirements.
2	Unsatisfactory commitment to local requirements (regional delivery capability using local personnel, application of local design requirements, knowledge of local conditions) – gives no confidence that the Offeror recognises and is committed to addressing regional project requirements.
1	Not addressed

7.2.1.5 Quality of deliverables

The Offeror must demonstrate its commitment to quality, including how this will be put into practice:

- General reputation for work quality.
- Design quality:
 - appropriateness of design solutions
 - design compliance with design standards
 - design presentation clarity
 - freedom from errors, and
 - appropriateness for approval purposes.
- Engineering drawings quality:
 - drafting compliance with Drafting Standards
 - drawing readability / clarity
 - freedom from errors
 - appropriateness for construction purposes, and
 - RPEQ certification from appropriately qualified engineer in relevant discipline.
- Documentation quality:
 - number of Notices to Tenderers due to errors
 - number of requests for 'creative' variations
 - extent of rework, and
 - value of claims by the Principal for rectification costs.
- Estimating (Work Scheduling and Costing):
 - accuracy and completeness of Scheduled Work Items
 - accuracy of Work Item Quantities
 - appropriateness and accuracy of identified risks
 - accuracy of risk contingency provisions
 - accuracy of unit cost rates, and
 - accuracy of P90 or P50 estimates as appropriate.

Note: The focus of the above criteria is on effective project scoping for costing purposes.

Table 7.2.1.5 – Ratings for Non-Price assessment criteria – quality of deliverables

Rating	Assessment
10	The organisation has an extremely impressive industry record of delivering excellent quality for design, documentation and construction cost estimating giving absolutely full confidence that these requirements will be achieved in the delivery of the project.
9	The organisation has an impressive industry record of delivering excellent quality for design, documentation and construction cost estimating giving high level confidence that these requirements will be achieved in the delivery of the project.
8	The organisation has a very good record of delivering good quality for design, documentation and construction cost estimating giving confidence that these requirements will be achieved in the delivery of the project.
7	The organisation has a good record of delivering good quality for design, documentation and construction cost estimating giving confidence that these requirements will be achieved in the delivery of the project.
6	The organisation has a sound record of delivering good quality for design, documentation and construction cost estimating giving some confidence that these requirements will be achieved in the delivery of the project.
5	The organisation has an adequate record of delivering good quality for design, documentation and construction cost estimating giving some confidence that these requirements will be achieved in the delivery of the project.
4	The organisation has an adequate record of delivering excellent quality for design, documentation and construction cost estimating giving limited confidence that these requirements will be achieved in the delivery of the project.
3	The organisation has an unsatisfactory record of delivering excellent quality for design, documentation and construction cost estimating giving little confidence that these requirements will be achieved in the delivery of the project.
2	The organisation has an unsatisfactory record of delivering good quality for design, documentation and construction cost estimating giving no confidence that these requirements will be achieved in the delivery of the project.
1	The organisation has an unacceptable record of delivering good quality for design, documentation and construction cost estimating giving absolutely no confidence that these requirements will be achieved in the delivery of the project.

7.2.2 Weightings for assessment criteria

The weightings for assessment criteria will be set out in Form C7585 *Invitation for Offer for Consultant Service*. Where the boxes for Actual Weightings for QBS or VBS are not completed, default weightings set out in Tables 7.2.2.1 and 7.2.2.2 will apply to the assessment criteria for QBS and VBS situations where Form C7585 *Invitation for Offer for Consultant Service* is not completed.

7.2.2.1 QBS Weightings (for both Prequalified and Non-Prequalified Consultants)

After tender close, the Assessment Panel will use the weightings for the non-price assessment criteria as shown in the job's Form C7585 *Invitation for Offer for Consultant Service*.

Table 7.2.2.1 – QBS Default Weightings

Price / Non-Price Criteria	Assessment Criteria	QBS Default Weightings (%)
Non-Price	Technical skills of key team members	40
	Delivering the service	30
	Relationship management	10
	Local benefits	10
	Quality of deliverables	10
Total		100

The individual Default Weightings in Table 7.2.2.1 may be modified prior to release of the Invitation, to suit specific job requirements in Item 2.2(a) Qualification Based Selection (QBS) of Form C7585 *Invitation for Offer for Consultant Service* to provide the weightings for assessment of this offer.

7.2.2.2 VBS Weightings (for both prequalified and Non-Prequalified Consultants)

As part of the VBS procurement process, the weighting on price will be between 20% and 50% for Non-Engineering Consultancies and 20% for engineering consultancies. The selection of the price weighing will be done on a project-by-project basis, but it will not reduce the required quality and value in the transaction. The Panel may use the following weightings shown in Table 7.2.2.2.

Table 7.2.2.2 – VBS Default Weightings

Price / Non-Price Criteria	Assessment Criteria	VBS Default Weightings (%)
Non-Price	Technical skills of key team members	40
	Delivering the service	13
	Relationship management	9
	Local benefits	9
	Quality of deliverables	9
Price		20
	Total	100

The Default Weightings above may be modified by the Department prior to release of the invitation, to suit specific job requirements and will be stated in Clause 2.2(b) Value Based Selection (VBS) of Form C7585 *Invitation for Offer for Consultant Service*.

7.2.2.3 Assessment of non-price criteria

The assessment criteria have been devised to meet the general requirements of the Department’s engineering projects.

Note: Where there are a number of panel members, the panel will moderate their Ratings until there are no more than 2 Rating points difference between all of the panel members’ lowest and highest Ratings for each Criterion. Half marks (0.5) are permitted when Rating (except price).

7.3 Offer assessment - for price (VBS)

For a VBS process, the Assessment Panel will finalise the non-price agreed Ratings (in accordance with Clause 7.2) for each of the Offerors, based on their responses in Envelope 1 or file containing the non-price component. After completion of the non-price components, the panel will open each Envelope 2 containing the price component.

7.3.1 VBS Rating for Prequalified Engineering consultancies

The panel may, where there are any errors, discrepancies, alternatives or matters that would otherwise result in an unfair assessment, adjust the Offered Contract Amount from the Fee Schedules to obtain a Comparison Amount C_{Amt} for each of the offers.

For engineering consultancies, the average of the Comparison Amounts C_{Amt} is then determined and the calculated Rating for each offer are determined in accordance with the following formula.

All price offers are preliminarily processed to determine if there are any exceptionally low or high bids. The intent is to establish if any of the bids fall outside of the tolerance zone $[\pm (0.30 \times \text{mean})]$. For offers which fall outside the 30% tolerance, these may be considered on a discretionary basis with adequate justification. The Departmental officer will require approval from the General Manager (Program Management and Delivery) to include such offers in the Price Rating equation. These offers may receive the Rating (minimum) of 1 and are removed from the Price Rating equation. For all the other offers, the following calculation is used.

$$\text{Price Rating VBS Prequalified Consultants} = 10 - 10 \times \frac{|C_{Amt} - C_{Amt_{AV}}|}{C_{Amt_{AV}}}$$

The formula is designed to create Price Ratings between 1 and 10, however in some cases the Price Rating calculation will result in a negative value. All negative values will be changed to a Rating of 1 that is, they are removed from the Price Rating equation. Refer Figure 7.3.1 for example.

Note: The Principal’s estimate must be included in the Price Rating when there are 2 or fewer tenders received.

Figure 7.3.1 - Example calculation of VBS Price Rating

Offeror	C_{Amt}	$C_{Amt_{AV}}$	Price rating	Revised Price rating
1	95	151	6.3	6.3
2	80		5.3	5.3
3	120		7.9	7.9
4	150		9.9	9.9
5	310		-0.5	1
$C_{Amt_{AV}}$	+0.3 x mean	196.3		
	-0.3 x mean	105.7		

Note: The Price Rating formula will not be used for Non-Engineering Consultancies. Departmental officers may refer to an Excel spreadsheet program (Form C7567) with the specific Engineering Consultant criteria, together with the above formula incorporated. Departmental officers may email infrastructureproc@tmr.qld.gov.au for this document.

This spreadsheet is not available on the Department’s website or for release to prospective Suppliers.

7.3.2 VBS Rating for Non-Prequalified consultancies on engineering projects

Each non-price Criterion is to be rated using a numeric Rating system (1 to 10) with half marks (0.5) permitted.

A Rating of one for criteria (except price) should normally disqualify the offer on the grounds of non-conformance unless otherwise considered by the Department. A zero Rating would not normally apply when Prequalified Consultants are used.

Note: The Principal’s Estimate must be included in the Price Rating.

The Price Rating is to be calculated using the following formula and Ratings from 1 to 10. An example is given in Figure 7.3.2.

$$\text{Price Rating VBS Non-Prequalified Consultants} = 5 + 10 \times \left[\frac{\$M - \$T}{\$M} \right]$$

Where $\$M$ = the median price for 3 or more proposals, or the mean price if 2 are being considered.

Where $\$T$ = offer price.

Where the use of the formula gives a result which is:

- negative, then the adopted Rating shall be 1
- greater than 10, then the adopted Rating shall be 10.

Refer to Figure 7.3.2 for example.

Figure 7.3.2 – Example of Price Rating VBS Non-Prequalified Consultants

Offeror	\$ _T	\$ _M	Price rating	Revised Price
1	95	120	7.1	8.7
2	80		8.3	9.7
3	120		5.0	7.1
4	150		2.5	5.1
5	310		-10.8	1

Note: The above formula will not be used for calculating the Price Rating when assessing Prequalified Consultant offers. Departmental officers may refer to an Excel spreadsheet program (Form C7567) with the specific Engineering Consultant criteria, together with the above formula incorporated. Departmental officers may email: infrastructureproc@tmr.qld.gov.au for this document.

This spreadsheet is not available on the Department’s website or for release to prospective Suppliers.

7.3.3 Weighted Total Scores (VBS)

For a VBS process, the individual Ratings (non-price) and calculated Ratings (Price Rating) shall be subject to weighting in accordance with Clause 7.2.2.2 and a Weighted Total Score determined for each Offeror.

Refer to Clause 7.4.9 for Assessment Panel discretion.

The Offeror with the highest Weighted Total Score will be the Recommended Offeror and the Assessment Panel will proceed to advise the Principal's delegate of the identity of the Recommended Offeror.

7.4 Assessment basics

7.4.1 Assessment panel

Note: All Conforming Offers will be assessed. Departmental officers with appropriate professional technical knowledge of the Consultant services will be involved in the assessment process. The Panel Chair will be a Departmental employee.

External project stakeholders must be excluded from the panel where their presence would constitute a conflict of interest.

The Assessment Panel will be appointed and briefed before invitations for offers are issued.

Note: Alternative Offers - The Assessment Panel (on behalf of the Principal) reserves the right to consider and accept any Alternative Offer.

The Offeror may submit one or more Alternative Offers but only if they have submitted a Conforming Offer.

Subject to procurement-specific requirements of the Department:

- where the estimated Contract Amount is greater than \$300,000 (including GST) the Assessment Panel should include at least 2 persons, and
- where the estimated Contract Amount is greater than \$500,000 (including GST) the Assessment Panel should include at least 3 appropriately qualified and experienced persons, including at least one independent panel member (preferably not from the project team, but from, for example, a different division / branch / section / unit / team within the Department, or a non-departmental employee).

Refer to Table 3.1.3 in Chapter 3 of this Manual.

7.4.2 Conditional Offers

Note: The Assessment Panel (on behalf of the Principal) reserves the right to consider or reject any Conditional Offers.

7.4.3 Offer assessment process

The information relating to each non-price assessment Criterion should be examined and Rated using the Rating system (1 to 10) as outlined in this Chapter. Where a clarification is sought and that clarification results in an increase or decrease of resource requirements, a request for a price adjustment should be issued.

7.4.4 Rating of assessment criteria

Note: Each Criterion is to be Rated using a numeric Rating system (1 to 10) in accordance with Tables 7.2.1.1 (Technical skills of Key Team Members), 7.2.1.2(b) (Delivering the service), 7.2.1.3 (Relationship management), 7.2.1.4 (Local benefits) and 7.2.1.5 (Quality of deliverables).

All Ratings shall be in whole numbers (even though half marks (except price) are accepted)) to separate assessments to better relate to the threshold Rating and to differentiate between similar responses.

For the Rating of non-price criteria, the Assessment Panel will use the Rating method as set out in Tables 7.2.1.1 (Technical skills of Key Team Members), 7.2.1.2B (Delivering the service), 7.2.1.3 (Relationship management), 7.2.1.4 (Local benefits) and 7.2.1.5 (Quality of deliverables).

Standard Rating considerations are shown in Clause 7.2.1 for each Criterion. Any special project-specific considerations are shown in the relevant Assessment Schedule of the offer.

A clear requirement of this assessment process is a sensitivity and risk analysis. The Assessment Panel members should be completely conversant with the project scope and outcomes, so that they are able to understand the relevance of the assessment Criterion to the Department's exposure to risk in respect of each of the criteria. When the assessment result is sensitive to the Rating of a particular Criterion, or risk is seen to be high, evaluating officers will need to give full attention to the comparative attributes of the offers. In some cases, Offerors may be advised in the invitation documents of such special project needs, so that they can adequately address them in their offer.

7.4.5 Sensitivity and risk analysis

Note: The Rating determined by the assessment shall be subject to sensitivity and risk assessment based on past performance and any other valid information.

Panel members shall moderate the Ratings based on the likelihood of the Ratings reflecting reality based on past performance history. Where the sensitivity and risk analysis results in moderating the original Rating, the supporting objective evidence shall be documented and attached.

7.4.6 Value Based Selection (VBS) price assessment

Note: The Offeror's understanding (demonstrated in its offer) of the requirements of the functional specification should be subjected to a clarification process and where necessary, reconciled to ensure a common understanding and a problem-free delivery process.

If undertaking a VBS process, the Offeror with the Weighted Total Score for the non-price and price attributes (the sum of the products of weighting by Rating for each Criterion - the maximum possible Weighted Total Score is 1000) will be considered by the panel as the 'Recommended Offeror' and submitted to the relevant Departmental delegate for approval.

Post close of offer, clarifications may be held with the Recommended Offeror.

For situations involving well understood, uncomplicated projects, the Department is not required to go through the clarification process and the Principal's delegate may forward Form C7599 *Letter of Acceptance* or equivalent to the Recommended Offeror on the basis of its WTS.

For situations other than well understood, uncomplicated projects, the Recommended Offeror will be invited to a meeting with the Principal's delegate where the contents of Form C7587 *Offer for Consultant Service - Price Component* will be considered in conjunction with the extent of the Consultant services, including timing, in an attempt to clarify its offer (the 'clarification process'). Where clarification is agreed, the Principal's delegate may forward Form C7599 *Letter of Acceptance* or equivalent to the 'recommended' Offeror on the basis of the clarifications. Any negotiated offer would need to be re-approved by the delegates.

Where the Principal's delegate and the 'recommended' Offeror cannot agree within a reasonable time, the Principal should request the panel to select a new 'recommended' Offeror based on the next highest WTS. The new 'recommended' Offeror will be invited to go through the clarification process and so on until agreement is reached or the Offerors are all eliminated.

Any previous 'recommended' Offerors cannot be re-admitted to the clarification process.

The clarification process is aimed at securing the best outcome for the Department but may not change the substance of the original requirement. Clarifications may secure improved extent of services, warranties, and so on, but may not be used as a vehicle for bargaining to secure a lower price.

Any clarifications or interviews are to be conducted in accordance with Clause 7.7 and are to be documented with the outcome of the process being summarised and signed by both parties.

Note: The Department will not engage in price bargaining (that is, playing one Offeror against another).

7.4.6.1 Benchmarking

Note: In the selection process, it is of particular importance to the Department that, when only one or 2 offers are received, value for money and a satisfactory product are being offered. To establish if the prices and product quality are representative of the relevant market sector, the evaluating Assessment Panel members may obtain information from other government agencies and industry associations undertaking similar activities to establish profiles for comparative benchmarking.

When Consultant services are being sought from:

- a Single Invitee / Sole Supplier or limited number of Consultants, or
- specialist or confidential Consultants,

it may be appropriate to develop a benchmarking system to determine whether or not the price of the best offer is appropriate for carrying out the work specified in the brief.

Each project needs to be assessed separately as to whether benchmarking is required and if it is, the appropriate benchmarking must be determined by the selection panel prior to evaluating the offers.

7.4.7 Qualification Based Selection (QBS) assessment

Note: The Offeror's understanding (demonstrated in its offer) of the requirements of the functional specification must undergo a clarification process and where necessary, be reconciled to ensure a common understanding and a problem free delivery process. Adequate time to deliver the Consultant services is an essential element in the clarification process. This could result in a modification to the offered Contract amount / fee schedule depending on what was varied to reach the common understanding.

For the QBS process, the Offeror with the highest Weighted Total Score for the non-price Criterion (the maximum Weighted Total Score is 1000) shall be selected by the panel as the 'preferred' Offeror and referred to the relevant Departmental delegate (the Panel Chair) for a clarification process. Should more than one Offeror achieve the highest Weighted Total Score, then the Rating process shall be repeated and the Weighted Total Scores separated using half marks (or 0.5) where necessary, to make discrete differentials in the scoring. The process requires a single winning Weighted Total Score.

The negotiated offer is then submitted by the relevant Departmental delegate for financial and procurement approval.

7.4.8 Assessment panel discretion for VBS process

Note: Subject to any specific Departmental requirements for the procurement, this discretion only applies in the VBS process where the Contract amount is less than \$300,000 and when offers have been assessed as having the same relative total assessment Score, for example, within a 5%-point Score spread, and is applicable to both Single Invitee, Sole Supplier and limited invitations.

An Assessment Panel may select the lowest price offer, taking into consideration any pertinent and relevant considerations using a risk management approach.

For example, when assessing offers for a design development project, a risk assessment exercise could be performed on:

- whether the Offeror is fully conversant with local district requirements, and
- small businesses generally have lower overheads than larger businesses.

7.4.9 Financial approval process

After the selection process is finalised, the Department will arrange internal financial approval from an officer who holds the appropriate delegation to approve it.

Note: For the Department's internal purposes, consulting expenditure will be classed as operating expenditure for the purposes of financial approval limits.

Where necessary, an application for Ministerial / Executive Council Approval may be arranged, in accordance with current 'limits of authority' by the Department's Finance and Procurement Central or the appropriate area in the relevant district office.

7.5 Clarification with Preferred Offeror QBS

For situations involving well understood, uncomplicated projects, the Department is not required to go through the clarification process and the Principal's delegate may forward a Letter of Acceptance to the 'preferred' Offeror on the basis of its Weighted Total Score.

For situations other than well understood, uncomplicated projects, the 'preferred' Offeror will be invited to a 'clarification process' involving a meeting with the Principal's delegate, where the contents of the 'preferred' Offeror's Form C7587 *Offer for Consultant Service - Price Component* will be considered in conjunction with the extent of the Consultant services (including timing) to reach agreement. Where agreement is reached, the Principal's delegate may forward a Letter of Acceptance to the 'preferred' Offeror based on the clarified agreement.

Where the Principal's delegate and the 'preferred' Offeror cannot agree within a reasonable time, the Principal's delegate should request the panel to select a new 'preferred' Offeror based on the next highest WTS. The new 'preferred' Offeror will be invited to go through the clarification process and so on until agreement is reached or the Offerors are all eliminated. Any previous 'Preferred Offerors cannot be brought back into selection consideration.

The purpose of clarification is to:

- a) Develop a clear and common understanding of the scope of the Consultant services having regard to:
 - i. the original Departmental brief / functional specification, and
 - ii. the Consultant's understanding expressed in its offer documents.
- b) Adjust the Contract Amount using the Price Schedule to reflect any changes to the scope of the Consultant services, and
- c) Determine the extent of the Consultant services that apply to the offered Contract Amount (the Department may not proceed where there is an unacceptable discrepancy).

As a result of this process there is an expectation that the Consultant will not seek 'creative' variations during the Contract. The actual outcome may be reflected in the Consultant's performance report for the Contract and used as objective evidence during future offer assessment processes.

7.6 Interview rules

Any face-to-face discussions with invitees / Offerors must be:

- attended by at least 2 Assessment Panel members
- held at Departmental premises (except where inspection of invitee / Offeror's premises is required)
- held as an official meeting with minutes being kept, and
- before the meeting closes, an understanding should be reached by both parties on the outcomes of major points discussed and a summary of such points should be issued for confirmation by both parties.

7.7 Approving the procurement decision

On completion of the recommendation, all documentation together with a copy of the recommendation including assessment details and where required, the signed original

Letter of Acceptance (refer to Clause 7.10.2), should be forwarded to appropriate financial and procurement delegates for the creation of a purchase order.

The recommendation for the successful Consultant is to be reviewed by the relevant procurement delegate for compliance with the *Queensland Procurement Policy*, this Manual and the 'conditions of offer' included in the invitation documentation.

The procurement endorsement to engage the successful Consultant must be obtained from a certified procurement officer with the appropriate delegation.

On receipt of purchasing approval, an official purchase order shall be produced and sent with a Letter of Acceptance to the successful Consultant. The Consultant will be requested to show the purchase order number on all invoices.

Note: For the Department's internal purpose, the issue of a purchase order allows for greater control of expenditure, as well as providing a means of ensuring that invoices are paid against the correct projects.

7.8 Period after award of Contract - feedback to unsuccessful Offerors

Requests from unsuccessful Offerors for reasons for not being successful are to be submitted in writing.

Feedback shall be restricted to the Offeror's offer and shall not refer to any other offer. Discussion should include an explanation of why the offer was unsuccessful, including any areas of weakness or non-compliance in the offer. Suggestions to improve future submissions may be provided.

In all cases, the panel's ratings or rankings (compared to other offerors) of each criteria will not be disclosed.

Individual Consultant's scores are confidential and shall not be released to any other parties.

Details of accepted offers exceeding \$10,000 will be published in accordance with the [Queensland Government Contract Disclosure Guidelines](#).

7.9 Annual reporting requirements

For the Department's internal purposes, the Department's annual reporting requirements are detailed on the Department's Finance and Procurement Central SharePoint site. Email FinGov@tmr.qld.gov.au for details of this site.

Note: The account code determination has no influence on the current procurement procedures for engaging a Consultant or Contractor, documented in this Manual or on the internal Departmental Procurement SharePoint site.

7.9.1 Account code for Consultant Services

For the Department's internal purposes, the account code 51091 applies to all the Consultant services and Work Packages listed in Clause 1.1.2 in Chapter 1 of this Manual. Refer to Expenses in the Department's Chart of Accounts for further guidance when using this account code. Departmental officers may email FinGov@tmr.qld.gov.au for this document.

7.10 Awarding the Contract

7.10.1 General

A Form C7599 *Letter of Acceptance* and Departmental purchase order will be raised to formalise all consultancy expenditure.

For the Department's internal purposes, buyers (that is, districts, business units within the Department) will make Consultant Contracts by means of Form C7599 *Letter of Acceptance* (or equivalent).

The Letter of Acceptance must be included or referred to in the official purchase order.

Before a Letter of Acceptance is prepared, a check by the Contract's Project Manager of the Consultant's Professional Indemnity Insurance is necessary to confirm compliance with the requirements of the Contract. Refer to Clause 10.6.5.

7.10.2 Letter of acceptance

The Letter of Acceptance will address all issues that are different to the offer documents, such as:

- clarification that the recommended offer has occurred (VBS), and
- clarification has taken place with the Preferred Offeror (QBS).

The Letter of Acceptance will indicate the applicable Contract documents, including the Department's *General Conditions of Contract*, *Supplementary Conditions of Contract*, and functional specifications and will include the following information as a minimum:

- description of the Consultant services including the deliverables
- fee basis
- reference to Consultant's offer

- correct details (name and address) of Consultant, and
- duration of Contract.

The Letter of Acceptance should clearly set out the extent of the Contract documents. The level of documentation required to complete the Contract will be determined by the Departmental officer approving the procurement process.

7.10.3 Advice to unsuccessful Offerors

All unsuccessful Offerors will be advised in writing that they were not successful. Form C7598 *Unsuccessful Advice* may be used, or a standard letter format. Also refer to Clause 7.8 of this Manual.

Such advice shall include a link to Queensland Government's Open Data Portal where unsuccessful Offerors can search for the successful Offeror and Contract amount.

7.10.4 Formal Contract

In some instances, the Department will require a formal Contract in place of Contract acceptance by way of Letter of Acceptance. In addition to the terms of the formal Contract, as with formation of a Contract by a Letter of Acceptance, various documents may be expressly incorporated into, and become part of, the Contract.

However, care is needed if any documents comprised in the formal Contract conflict or are inconsistent with what has been agreed by the parties. This could arise, for example, where the procurement process has been particularly complex resulting in several variations to or departures from the purchase order or general conditions (including where various counter-offers are made).

In those instances, the Department may require draft replacement documents that clearly and concisely reflect the final agreed scope and terms of the Contract.

Due to the administrative actions associated with the preparation and execution of formal Contracts, districts are encouraged to make Consultant Contracts by means of a Letter of Acceptance. A Letter of Acceptance provides a sound basis for the formation of a Contract, without the administrative burden that may be associated with preparing a formal Contract.

8 Managing the Contract – Prequalified Consultants

8.1 Delegated officer

Note: Departmental officer(s) shall be delegated to manage and review the performance of the Consultant services.

The name and contact details of the delegated officer(s) will be advised to the Consultant in the Letter of Acceptance. The delegations are included in Form C7554.2 *Annexure B Delegation of Functions of the Principal and the Consultant* to the *Supplementary Conditions of Contract* and should be completed at or before the initial meeting.

The responsibilities of the delegated officer(s) include:

- monitoring the performance of the Consultant in carrying out the Consultant services must be addressed at all project meetings
- actively supervising the project
- liaising with the Consultant regarding project tasks, timeframes, milestones and progress updates
- ensuring all project meetings are formal and have documented minutes that have been accepted at a formal project meeting. Meetings are not to be electronically recorded
- maintaining records and preparing reports including the final performance report in relation to the Contract
- dealing with any unsatisfactory performance by the Consultant, and
- authorising the various payments to the Consultant.

8.2 Management issues

8.2.1 General

The Contract will be managed by development and maintenance of good relationships and communication to ensure maximum outcomes for the Department, the Consultant, the community and government by aligning the efforts of the parties and making best use of the expertise and resources available.

Form C7545 *General Conditions of Contract* and other Contract documents set out the following requirements for Contract management:

- the mandatory requirements

- project management systems and procedures
- managing relationships
- the Department’s Contract management as noted in the project specific Contract management plan, and
- relevant procedures and forms.

8.2.2 Mandatory requirements

The Consultant is required to comply with the relevant legislation, Australian standards and relevant local procedures. Key areas requiring compliance are, but not limited to:

- a) Legislation:
 - *Corporations Law Act 2001* (Cth)
 - *Professional Engineers Act 2002* (Qld)
 - *Work Health and Safety Act 2011* (Qld)
 - *Mining and Quarrying Safety and Health Act 1999* (Qld)
 - Mining and Quarrying Safety and Health Regulation 2017 (Qld)
 - Professional Standards Bill
 - The various environmental protection acts, and
 - *Building Industry Fairness (Security of Payment) Act 2017* (Qld).
- b) Standards:
 - Quality management.
- c) Client’s procedures:
 - Workplace Health and Safety, and
 - Quality system.

Also refer to Clause 6.1 of Form C7554 *Supplementary Conditions of Contract for Road Planning and Design Projects*.

8.2.3 Project management elements

The Consultant is also required to have systems and procedures based on the ten project management elements (refer to Clause 6.2 of the *Supplementary Conditions of Contract for Road Planning and Design Projects*) and to comply with those systems and procedures.

Note: An important aspect of this is Communications Management encompassing training, interfacing with external stakeholders, persons directly affected including Public Utility Plant owners as well as regular and special meetings between the Consultant and the Department (refer specifically to Clause 6.2.7 of the *Supplementary Conditions of Contract for Road Planning and Design Projects*).

8.2.4 Managing relationships

The Consultant and the Department are to manage their relationships in a collaborative manner, including attention to the following:

- ‘client leadership’, meaning that the Department is to be involved in the decision-making process on a continuous basis, using a collaborative win-win and best for project approach, and
- supporting cooperation and trust.

Also refer to Clause 6.3 of Form C7554 *Supplementary Conditions of Contract for Road Planning and Design Projects*.

In a typical meeting, relationship issues will be addressed prior to discussions on technical aspects regarding the project. This will include assessment and discussion of any Key Performance Indicators (KPIs) established at the initial meeting. Meetings should be collaborative in nature, to best benefit the project.

This part of the meeting should also include discussion on:

- what is working well
- what is not going well, and
- what actions will be taken to resolve these issues.

This session is aimed at identifying and resolving any blockages and sticking points at the earliest opportunity. It may also be beneficial to discuss what opportunities exist for incorporation of improvements to procedures and/or outputs and strategies.

8.2.5 Making progress payments

Departmental officers should consider any legal obligations to make progress payments on a regular basis. For example, consider the obligation to undertake monthly progress payment based on submission by the Consultant of a regular progress claim.

8.2.5.1 The Building Industry Fairness (Security of Payment) Act 2017

The *Building Industry Fairness (Security of Payment) Act 2017* (Qld) influences the administration of the Department's Consultant Contracts. The Act may apply to payments from head Consultant Contractors to Sub-Consultant Contractors, and Principal to the head Consultant Contractor.

The Act provides for:

- Statutory rights to:
 - progress claims, and
 - progress payments.
- Rapid adjudication
- Statutory rights to suspend works
- 'Pay when paid' and 'pay if paid' clauses are void, and
- Clauses in the Contract cannot 'contract out' of the Act.

Departmental officers should consider any requirements under the Act, as the payment claim may not state: 'This claim or invoice is made under the *Building Industry Fairness (Security of Payment) Act 2017* (Qld)'. The Department notes that relevant district staff should be aware of this requirement of the Act, together with the required actions that must be carried out.

Form C6948 *Progress Payment Certificate* serves a dual purpose as Payment Certificate under the Contract and Payment Schedule under the Act. The Payment Certificate has a list of valid reasons under the Contract for not paying the full amount of the claim, where relevant.

8.2.6 The Department's Contract management procedures and forms

Procedures and forms corresponding to various Contract conditions have been developed by the Department to assist in management of the project (refer to Form C7554.1 *Annexure A Management Procedures and Forms of the Supplementary Conditions of Contract for Road Planning and Design Projects*).

These include:

- purely Contractual issues such as progress payments, authorisation of variations, dispute resolution procedures, and
- technical items such as submission and approval of project reviews at various stages of the project.

1. Core management procedures and forms

The following procedures / forms apply to all projects:

- for Contractual issues, the core procedures / forms relate to payment and the procedures / forms described in Section 4 of Form C7554 *Annexure A Management Procedures and Forms to the Supplementary Conditions of Contract for Road Planning and Design Projects* (or similar agreed procedures / forms) are to be used in all situations, and
- for technical issues, the core procedures / forms relate to project and design reviews and the procedures / forms described in Section 1 of Form C7554 *Annexure A Management Procedures and Forms to the Supplementary Conditions of Contract for Road Planning and Design Projects* (or similar agreed procedures / forms) are to be used in all appropriate situations.

2. Other Management Procedures and Forms

Other forms that are to be used in association with Core Management Procedures and Forms include:

- Meeting Action Summary (MAS)
- Document Transfer Form (DTF), and
- Document Transfer – Drawings (DTD).

The Departmental delegate and the Consultant may agree to replace any of the above forms, which form part of most Consultants' quality plans.

Note: The remaining procedures in Form C7554.1 *Annexure A Management Procedures and Forms to the Supplementary Conditions of Contract for Road Planning and Design Projects* (for example, variations, dispute resolution) will not generally be used on most of the Contracts awarded using this system. These procedures (which are in accordance with General and Supplementary Conditions of Contract - Prequalified Consultants) and forms will be limited to use on longer projects (> 6 months' duration) or complex projects involving higher numbers of designers / Sub-Consultants (> 10 individuals) requiring prequalification levels of HE3 and/or BD3.

8.3 Performance reports

8.3.1 Introduction

The reporting of Contract performance is a process by which the Principal and the Consultant measure the relational and delivery aspects of the Contract.

The information collated from performance reporting provides an understanding of current issues, whilst also indicating improvements and evidence for future reference in prequalification assessment.

The completion of these reports is essential to the effective administration of prequalification registers and subsequent feedback to future Assessment Panels, which need to take into account Consultants who have a history of poor performance.

It is in the interests of the Consultant to actively ensure that performance reports are duly completed.

Performance reporting is to be conducted during 2 phases – Pre-construction and Post-construction.

The pre-construction reporting consists of 2 reports:

- Form C7561 *Initiation of Contract*, and
- Form C7562 *Pre-Construction*, for both milestone and finalisation of service reporting.

Post Construction is one form:

- Form C7563 *Post-Construction*, for use both during construction (to capture any issues) and after construction (to assess the constructability of the design).

Performance reports templates, together with the User Guide, can be found on the Department's website.

Completed performance reports are to be entered into 3PCM for the relevant project by district personnel and advised to consultantprequal@tmr.qld.gov.au.

8.3.2 Rating of performance criteria

Each Criterion is to be Rated using a 1 to 5 scoring system with decimal points not being permitted.

The assessment of the Consultants' performance is measured against the assessment criteria described in Table 3 'Assessment Guide' of the *Performance Reporting User Guide*. The Guide is available on the Department's website.

Link: [Consultants for Engineering Projects webpage](#).

A Consultant's performance reports on past projects may be used as past performance information when assessing the Rating for each Criterion during an offer assessment process.

Note: The assessment criteria for performance are the same assessment criteria used at the engagement stage of the consultancy, and it is not the intention of the Department to compare a Consultant's performance report against other Consultants on the basis the underlying projects will be different.

8.3.3 Pre-construction

All pre-construction performance reports are to be completed for the duration of the Consultant Contract:

- Form C7561 *Initiation of Contract*, and
- Form C7562 *Pre-Construction*, for both milestone reporting and finalisation of service reporting.

The milestone and finalisation reports using Form C7562 will be discussed with the Consultant. Reasons for conflicts and any failure to agree will be documented in the relevant sections of the forms. The Consultant will be afforded the opportunity to respond to any comments, adverse or otherwise, in the relevant sections of the forms. The response will form part of the report.

Performance assessment will be carried out on the following characteristics:

- technical skills of key members – the ability and suitability of key team members in the application of their technical skills to the project
- delivery of service – measurement of the Consultant's application of project management principles to the project
- relationship management – the effect to which the Consultant committed to the project in a relational manner, including the use of behaviours
- local benefits – evaluation of the benefits that the Consultant brings to the local area, and
- quality of deliverables – the level of commitment to quality and its practical application.

8.3.3.1 Initiation of Contract

Form C7561 *Initiation of Contract* report provides an overview of the Contract, describing the Contract parties, the type of work, the level of prequalification required, Contract sum, date of acceptance, anticipated completion date. It is usually completed by the nominated Departmental Officer representative (usually the Project Manager). It does not include any performance data nor input from the Consultant.

For the Department's internal purposes, because engineering consult Contracts are awarded locally, the Initiation of Contract report is usually the first indication for PMD that a Contract has been awarded and it is therefore essential, for PMD monitoring activities (for successive performance reports), that it is completed and emailed to consultantprequal@tmr.qld.gov.au.

8.3.3.2 Preconstruction evaluation

Form C7562 Milestone reporting

Evaluations are undertaken at agreed milestones / hold points, which align with milestones / hold points in the Consultant's schedule of work submitted after initiation of Contract, that is, at the preliminary design completion stage. The evaluations are completed by the nominated Departmental Officer (usually the Project Manager) in consultation with the Consultant.

Additional assessments can be included / excluded from the agreed reporting schedule based on the level of performance that is achieved. Any amendment to the reporting schedule will require agreement between the Contract parties.

The data obtained from these reports can be used in discussions that may result in dispute avoidance and resolution situations.

Form C7562 Finalisation of Service reporting

This report is a summary of the delivered Contract, completed by the Departmental Project Manager in consultation with the Consultant. The 5 standard performance criteria are again scored, from the perspective of the completed Contract. Final financial details (including any variations) are also given.

The information in the C7562 report is made available to prequalification assessors for use in assessing prequalification applications and can also be used by Tender Assessment Panels when evaluating future engagement opportunities.

8.3.3.3 Post-construction

Form C7563 Design issues during construction

This report is used to capture any design / constructability issues that have been identified. The Consultant will be afforded the opportunity to respond to identified issues.

Form C7563 Post-Construction

This report is to be completed within 4 weeks of completion of construction of any resulting transport infrastructure. All reports will be discussed with the Consultant. The

Consultant will be afforded the opportunity to respond to any comments, adverse or otherwise. The Consultant’s response shall form part of the report.

The report shall include responses to:

- Resulting Design Output performance, including:
 - Were construction Contract documents free from major errors and/or omissions?
 - Did presentation of construction Contract documents or design solutions cause construction difficulties?
 - Were on site design solutions adequate and effective?
 - Were As Constructed drawings free from major errors / omissions?
- Was the standard of liaison and cooperation with the construction Contract Administrator during construction adequate?
- Was the response to the Administrator's request for information timely?

All the above issues are to be assessed at the end of the construction phase.

The Departmental pre-construction Project Manager (during the design phase) also provides input into both reports.

8.3.3.4 Frequency of reporting

Table 8.3.3.4 – Frequency of performance reporting

Report Type	Contract Size		
	Small (<\$300,000)	Medium (\$300,000 - \$500,000)	Large (>\$500,000)
Form C7561 <i>Initiation of Contract</i>	Complete once, at beginning of Contract. Does not include performance data.		
Form C7562 <i>Pre-Construction Performance Evaluation</i>	<u>For milestone reporting</u> At agreed milestones / hold points (depending on the duration of the Contract – the Contract may contain no milestones / hold points).	<u>For milestone reporting</u> At agreed milestones / hold points. Also use to capture issues of concern at any stage.	<u>For milestone reporting</u> Monthly or at agreed milestones / hold points. Also use to capture issues of concern at any stage.

Report Type	Contract Size		
	Small (<\$300,000)	Medium (\$300,000 - \$500,000)	Large (>\$500,000)
	Also use to capture issues of concern at any stage.		
	<u>For Finalisation of Service reporting</u> At completion of Contract.	<u>For Finalisation of Service reporting</u> At completion of Contract.	<u>For Finalisation of Service reporting</u> At completion of Contract.
<i>Form C7563 Post-Construction Evaluation</i>	Complete within 4 weeks of Practical Completion of construction Contract. Also use to capture design-related issues during construction.		

8.3.4 Records management of performance reports

For the Department's internal purposes, all performance reports will be filed and retained by the Department's Code of Practice for Records Management Systems, either by the delegated officer or relevant district support area. Departmental officers can email consultantprequal@tmr.qld.gov.au for access details to the Department's *Records Management Policy*.

Reports submitted to PMD shall be recorded and retained in accordance with the Department's *Code of Practice for Records Management Systems*.

8.3.4.1 Controlled Self-Assessment (CSA-09)

This shall be undertaken by the relevant district support area, to ensure that performance reports are completed using the approved methodology, recorded and submitted to PMD. The process will also assist in identifying those projects where reporting has not been carried out.

For the Department's internal purposes, information on the Controlled Self-Assessment process can be obtained by Departmental officers by contacting the Program Assurance Team within PMD.

To fulfil the obligations under the *Queensland Procurement Policy*, the Department is required to publicly disclose information on awarded contracts (valued \$10,000 and over) via the Queensland Government's [Open Data Portal](#) and the [QTenders](#) website.

For this reason, it is important that performance reporting be undertaken on Consultant services to address procurement justification in an open and largely scrutinised marketplace.

8.3.5 Performance reporting monitoring

For the Department's internal purposes, the Prequalification Team within PMD is responsible for the day-to-day operations of the system.

Form C7561 *Initiation of Contract* report forms the basis for monitoring operations.

The milestone dates (approximate) need to be advised, to establish the frequency of reporting.

Extensions to project completion date (approximate) need to be advised (either in a milestone report or by email to consultantprequal@tmr.qld.gov.au to allow PMD to monitor for potential project completion.

Where it can be clearly demonstrated that performance reporting is not happening or being avoided, PMD's Manager (Prequalification) will investigate through dialogue with the delivery area concerned.

9 Managing the Contract – Non-Prequalified Consultants

9.1 Delegated Departmental officer

Consistent with the approach for Prequalified Consultants, a Departmental officer shall be delegated to manage and review the performance of Non-Prequalified Consultants. The delegated officer must be fully conversant with the requirements of the Contract and preferably should be a Departmental employee.

The delegations that apply (Form C7542 *General Conditions of Offer* and Form C7545 *General Conditions of Contract*) only are included in Form C7554.2 *Annexure B Delegation of Functions of the Principal and the Consultant to the Supplementary Conditions of Contract for Road Planning and Design Projects*.

However, separate delegations will have to be prepared on a Contract-by-Contract basis for Form C7554 *Supplementary Conditions of Contract for Road Planning and Design Projects*, if required.

9.2 Contract management

While Contract Management Procedures (refer to Clause 8.2.6) are the same for Prequalified and Non-Prequalified Consultants under Form C7545 *General Conditions of Contract*, the requirements for management of technical aspects of a project for Non-Prequalified Consultants will have to be developed on a project-by-project basis. The Prequalified Consultant technical procedures in Clause 8.2.6 may be used as a guideline.

9.3 Performance reporting

For Contracts involving Non-Prequalified Consultants where the Contract amount is less than \$50,000 the performance of the parties should be reflected in the minutes of regular meetings. Where the Contract amount is equal to or greater than \$50,000 formal performance reporting is required and is conducted during 2 phases – Pre-construction and Post-construction.

Pre-construction reporting consists of 2 reports:

- Form C7561 *Initiation of Contract*, and
- Form C7562 *Pre-Construction*.

Post-construction reporting consists of one report:

- Form C7563 *Post-Construction*.

Post-construction reporting is to be undertaken within 4 weeks of Practical Completion of any construction works resulting from the Consultant service.

Refer to Clause 8.3 in Chapter 8 of this Manual for guidance on the completion of these forms.

10 Document requirements

10.1 Retention of documents

Contract and prequalification documents

The Department's Retention and Disposal Schedule for Transport and Main Roads Infrastructure Contract Management (445) provides guidance on the retention and disposal of Contract and Prequalification documents.

Financial documents

The Department's General Retention and Disposal Schedule Finance and Asset Management (120) provides guidance on the disposal of financial documents.

10.2 Consultant system documents

Throughout the text of this Manual, reference is made to Consultant System documents, which are to be used at relevant stages for the engagement and use of Engineering Consultants. These documents are available on the Department's webpage.

Link: [Consultants for Engineering Projects webpage](#).

The main classifications of Consultant System documents are:

- Contract System documents including management forms, and
- supporting documents (for example, Prequalification Application form, Performance Reporting forms, Invitation templates).

10.2.1 Contract system documents

The Contract System documents have been designed to ensure uniformity of operation through the Department when dealing with Consultants on engineering projects. The *Queensland Procurement Policy* applies to the Contract System documents. Refer Clause 10.3 for descriptions of these documents.

There are 3 types of Contract System documents:

- **Invitation documents**

These are forwarded by the Department to the invitees.

- **Offer documents**

An Invitee should submit a completed offer form and various schedules and Annexures to the Department. Such documents (together with unchanged invitation documents) are termed 'offer documents'.

- **Contract documents**

After successful clarification with an Offeror the Departmental delegate forwards a Letter of Acceptance, documenting matters raised and agreed at such clarification and listing all the individual documents (Conditions, Schedules, Annexures, Notices to Offerors and so on) that apply to the Contract. These documents are termed the 'Contract documents'.

10.2.2 Supporting documents

The following are supporting documents:

- Form C7511 *Information Brochure*
- Form C7512 *Application Form*
- Form C7513 *Curriculum Vitae for Prequalification / Tender*, and
- Prequalification System Performance Reporting Forms:
 - Form C7561 *Initiation of Contract*
 - Form C7562 *Pre-Construction*, and
 - Form C7563 *Post-Construction*.

The following supporting documents are for internal use only:

- Microsoft Excel Spreadsheets for assessing both QBS (Form C7566) and VBS (Form C7567) offers. Form C7567 consists of 2 worksheets, for Prequalified and Non-Prequalified Consultants.

Email infrastructureproc@tmr.qld.gov.au for these internal documents.

10.3 Contract system document descriptions

These documents include:

- a) Common documents that apply to all Consultants on engineering projects:
 - Form C7585 *Invitation for Offer for Consultant Service*
 - Form C7542 *General Conditions of Offer*
 - Form C7586 *Offer for Consultant Service – Non-Price Component*
 - Form C7587 *Offer for Consultant Service – Price Component*
 - Form C7547 *Consultants Professional Indemnity and Public Liability Insurance Declaration*, and
 - Form C7545 *General Conditions of Contract*.

- b) Documents for pre-qualified Consultants only (equivalent documents must be produced locally for other Consultant Contracts):
- Form C7554 *Supplementary Conditions of Contract for Road Planning and Design Projects*:
 - *Annexure A – Management Procedures and Forms* (refer to Table 10.3 for list of Forms)
 - *Annexure B – Delegation of Functions of the Principal and the Consultant*, and
 - *Annexure C – Additional Clauses*.
- c) Functional specification templates (also available on the Department’s website. Link: [Consultants for Engineering Projects webpage](#)).
- Form C7520 *Introduction and Administration*
 - Form C7521 *Options Analysis, Annexure to Options Analysis Specification, and Sustainability Addendum and Appendix, Public Utility Plant (PUP) Addendum*
 - Form C7522 *Business Case, Annexure to Business Case, and Sustainability Addendum and Appendix, Public Utility Plant (PUP) Addendum*
 - Form C7523 *Preliminary Design and Annexure to Preliminary Design*
 - Form C7524 *Detailed Design, Annexure to Detailed Design, and Sustainability Addendum and Appendix*
 - *Design – Public Utility Plant (PUP) Addendum to C7523 | C7524*
 - Form C7525 *Native Title, Land Acquisition and Limitation of Access*
 - Form C7526 *Economic Analysis (Deliverables and Reporting)*
 - Form C7557 *Terms of Reference for Preliminary Environmental Assessment*
 - Form C7558 *Terms of Reference for Review of Environmental Factors, and*
 - Form C7559 *Terms of Reference for Cultural Heritage Assessment*.

Table 10.3 – Management forms

Form Number	Form code	Form description
1. Approvals / Design		
C6941	SPR	Submission / Approval of Project Review Report
C6942	PDR	Submission / Approval of Preliminary Design Report
C6943	DDR	Submission / Approval of Detailed Design Report

Form Number	Form code	Form description
C6944	SED	Submission / Approval of Engineering Drawings / Other Engineering Documents
2. Variations		
C6931	PPV	Principal Proposed Variation
C6950	CPV	Consultant Proposed Variation
C6930	RVQ	Request for Variation Quotation
C6932	VO	Variation Order
3. Extension of Time		
C6936	RET	Request for Extension of Time
C6937	GET	Grant of Extension of Time
4. Payment		
C6947	PPCA	Tax Invoice Attachment - Progress Payment Claim - Preliminary Design
C6947SI	PPC	Tax Invoice Attachment - Progress Payment Claim Single Invitee / Sole Supplier
C6953	PPCB	Tax Invoice Attachment - Progress Payment Claim -Detailed Design
C6948	PCR	Progress Payment Certificate
C6948SI	PCRS	Progress Payment Certificate Single Invitee / Sole Supplier
C6940	URO	Unit Rates Order
5. Dispute Resolution		
C6955	NOD	Notice of Dispute
6. Communication (Internal)		
C6951	CP	Communication from Principal
C6933	RCI	Request by Consultant for Information
C6934	DRC	Direction / Reply to Consultant
7. Communication (External)		
C6935	CLC	Consultant Liaison with other Consultants
C6946	CA	PUP Conflict Advice
C6949	RSC	Reference to Sub-Consultant
8. General		
C6935	CLC	Consultant Liaison with other Consultants
C6946	CA	PUP Conflict Advice

Form Number	Form code	Form description
C6949	RSC	Reference to Sub-Consultant
9. Other		
C6952	DTF	Document Transfer Form
C6954	DTD	Document Transfer – Drawings

10.4 Assembly of Invitation for Offer

The Invitation for Offer documentation will be assembled in a consistent manner, to ensure that the Consultants and Departmental officers are familiar with the finished set of documents.

All forms listed below are available on the Department's website. The Invitation for Offer Documentation would typically include the following.

Table 10.4 – List of Invitation for Offer documentation

Document	Form
PART - 1	
Part 1 Documents are submitted as the offer	
Forms to be returned in Envelope 1	
Offer for Consultant Service – Non-Price Component	C7586
Annexure B to Supplementary Conditions of Contract – Delegation of Functions (if required)	C7554.2
Consultant's PI Insurance Declaration	C7547
Forms to be returned in Envelope 2	
Offer for Consultant Service – Price Component	C7587
PART - 2*	
Covering letter, cover sheets and Index	–
Section 1 – Invitation for Offer, Conditions of Offer	
Invitation for Offer for Consultant Service	C7585
General Conditions of Offer	C7542
Section 2 – Conditions of Contract	
General Conditions of Contract	C7545

Document	Form
Supplementary Conditions of Contract for Road Planning and Design Projects (if required)	C7554
Annexure A – Management Procedures and Forms to Supplementary Conditions of Contract - (if required)	C7554.1
Annexure C – Additional Clauses to Supplementary Conditions of Contract (if required)	C7554.3
Section 3 – Functional Specification	
Introduction and Administration	C7520
Options Analysis (if required), Annexure, Sustainability Addendum and Appendix, Public Utility Plant (PUP) Addendum	C7521
Business Case (if required), Annexure, Sustainability Addendum and Appendix, Public Utility Plant (PUP) Addendum	C7522
Preliminary Design (if required), Annexure, Public Utility Plant (PUP) Addendum	C7523
Detailed Design (if required), Annexure, Sustainability Addendum and Appendix, Public Utility Plant (PUP) Addendum	C7524
Native Title, Land Acquisition and Limitation of Access (if required)	C7525
Economic Analysis (Deliverables and Reporting)	C7526
Terms of Reference for Preliminary Environmental Assessment	C7557
Terms of Reference for Review of Environmental Factors	C7558
PART – 3*	
Cover sheets and Index	-
Project Information	
Project Information (if required)	-
Additional Information (if required)	-
Installation of Underground Conduits Within the Boundaries of State- Controlled Roads (if required)	-
Transport and Main Roads On Q Project Management Methodology 4in1 Template – Infrastructure T1&2 - Project Proposal / Options Analysis / Business Case / Project Plan template (if required)	-
Design Development Report (Large Projects) or (Small Projects) template (if required)	-

Document	Form
Risk Management Plan (if required)	-
Preliminary Design Report (if required)	-
Codes of Practice	
Codes of Practice (if required)	-
PART - 4*	
Electronic Information	
Supplied on a suitable digital data transfer methodology as agreed with the Department.	-

* On smaller projects Parts 3 and 4 may not be required. Part 2 would contain all information outlined in Parts 2 to 4 above.

10.5 Document checklists

10.5.1 Introduction

The following checklists apply to Invitation, Offer and Contract documents associated with Contracts between the Department and Prequalified Consultants.

These checklists presume that the Proposal and possibly other Concept Phase Activities have been completed and that one or more of the Concept Phase and Development Phase Activities are to be Contracted.

10.5.2 Invitation documents

The Project Manager is responsible for the completion of the relevant fields / boxes in the following variable Invitation Documents including:

- Project proposal / brief (or work package brief)
- Appropriate Functional Specification (using Functional Specification Templates)
- Form C7585 *Invitation for Offer for Consultant Service*
- Form C7586 *Offer for Consultant Service – Non-Price Component*
- Form C7587 *Offer for Consultant Service – Price Component*, and
- Form C7547 *Consultant Statutory Declaration – Professional Indemnity Insurance and Public Liability Insurance*.

10.5.3 Offer documents

The Project Manager must ensure that each Offeror has completed variable information in the following documents included in its offer documents:

- Form C7586 *Offer for Consultant Service – Non-Price Component*
- Form C7587 *Offer for Consultant Service – Price Component*, and
- Form C7547 *Consultants Professional Indemnity and Public Liability Insurance Declaration*.

10.5.4 Contract documents

The Project Manager must ensure that the Contract Documents are complete and reflect the agreement between the Department and the preferred / Recommended Offeror before the Letter of Acceptance is forwarded:

- Form C7599 *Letter of Acceptance* (or equivalent) (describing all documents comprising the Contract)
- Any changes to variable information in Invitation or Offer documents
- Any changes to Form C7554.1 *Annexure A Management Procedures and Forms to Supplementary Conditions of Contract for Road Planning and Design Projects*
- Any changes to Form C7554.2 *Annexure B Delegation of Functions of the Principal and the Consultant to Supplementary Conditions of Contract for Road Planning and Design Projects*
- Form C7554.3 *Annexure C Additional Clauses to Supplementary Conditions of Contract for Road Planning and Design Projects* – if required, and
- Any changes to non-variable information in Invitation / Offer documents.

10.6 Documents

10.6.1 Introduction

The following checklists are for guidance only and do not reflect mandatory requirements for the Department in its procurement process. They may be used in any internal Departmental audit of the management of Consultant services by the Department.

The checklists may assist the Project Manager with the decision-making process relating to document requirements.

10.6.2 Initiation

Did the Principal's Delegate (Project Manager):

- Establish a NEED for an external Consultant?
- Assess the correct Prequalification Category / Level?
- Select from the statewide or relevant district / local prequalification register?
- Assemble all necessary documents and information for the next stage of the process? and
- Correctly select Single Invitee, Sole Supplier or limited invitation arrangement, that is, if limited invitation arrangement, correctly select QBS or VBS?

10.6.3 Pre-Invitation

Did the Principal's Delegate (Project Manager):

- Prepare the Functional Specification / Fee Schedule and determine a realistic estimated Contract Amount?
- Determine the local requirements for non-price assessment criteria / relevant weightings and complete the Invitation Form?
- Determine the composition of the Assessment Panel and advise / confirm members having regard to any conflicts of interest?
- Coordinate preparation of invitation documents in a timely manner?
- Ensure forms and annexures are accurately completed?
- Include assessment sub criteria to allow for the nature of the Consultant services and include local conditions?
- Brief the Assessment Panel on the assessment criteria and answer any questions? and
- Consider whether a formal Contract was warranted in this situation?

10.6.4 Invitation period - up to closing date

Did the Principal's Delegate (Project Manager):

- Keep appropriate records of all oral / written communications with invitees?
- Distribute appropriate Notices to Offerors, ensuring no advice is given that would unfairly benefit or cause a detriment to one or more of the invitees?

- Hold a Pre-Offer meeting (optional) in week one of the tender period, to ensure all Offerors have the same clear understanding of expected outcomes and providing all invitees with a written record of the meeting?
- Hold a Pre Close of Offer meeting (optional for engagement under \$2M, mandatory for engagements \$2M in value), dealing fairly with the invitees, ensuring all Offerors have the same clear understanding of the requirements and providing all invitees with a written record of the meeting?
- Deal with conflict of interest, confidential information and privacy issues at Pre Close meeting?
- Understand the required fee structure of the offer? and
- Ensure all invitees have a clear understanding of:
 - The problem or need to be satisfied by the service?
 - The corporate objective for the link?
 - The requirement for environmental sustainability? and
 - The required operational / functional outcomes of the completed infrastructure?

10.6.5 Invitation period closing date to award

Did the Principal's Delegate (Project Manager) prior to releasing offers to the Assessment Panel:

- Act fairly in deciding whether offers complied with the requirements of the General Conditions of Offer (Clauses 4, 5 and 8) relating to:
 - Receipt at right place within time? and
 - All Schedules completed, and so on?
- Act fairly in deciding whether Offers are Non-conforming or have unacceptable conditions?
- Confirm that any Sub-Consultants had appropriate prequalification category / level status?
- Check the current insurance status of all Offerors?
- Determine whether responses were generally consistent and in line with expected responses?
- Keep records of all oral / written communication with Offerors including requests for additional information? and
- Coordinate all activities prior to the award well within the Validity Period?

Did the Assessment Panel, after receipt of the offer documents:

- Understand and fairly apply the selection criteria / weightings and make an appropriate recommendation to the Principal's delegate?
- Have sufficient background information - for example, Prequalification Register details, specific performance reports, and so on, to make informed decisions?
- For VBS, determine any Comparison Amounts fairly? and
- Carry out some form of sensitivity analysis of the assessment to ensure a robust process?

Did the Principal's Delegate (Project Manager), after receipt of the Panel recommendation:

- Conduct clarifications with the Preferred Offeror (QBS) matching the Fee Schedule with the scope of the Consultant services, as described in the Functional Specification?
- Conduct clarifications with the Recommended Offeror (VBS) ensuring the Fee Schedule was within the scope of the Consultant services, as described in the Functional Specification?
- Ensure that the preferred / Recommended Offeror (including Sub-Consultants) had acceptable insurance policies (especially Professional Indemnity)? and
- Ensure that the Letter of Acceptance correctly represented the agreement between the parties and included reference to all relevant documents?

10.6.6 Managing the Consultant services

Did the Principal's Delegate (Project Manager):

- Use appropriate Contract management procedures and forms (for example those in *Annexure B Delegation of Functions of the Principal and the Consultant* to the Supplementary Conditions of Contract) and maintain records of Contract communications between the parties?
- Use appropriate project management procedures and forms (including various technical reviews) and maintain records of project management communications between the parties? and
- Respond to Consultant queries in a timely and appropriate manner?

10.6.7 During and after completion of Consultant services

Did the Principal's Delegate (Project Manager):

- Complete the relevant Performance Reports:
 - Form C7561 *Initiation of Contract*?
 - Form C7562 *Pre-Construction*. Complete report in 3PCM (Unifier)?
 - Obtain Consultant response and email to consultantprequal@tmr.qld.gov.au?, and
 - Ensure that the Consultant was aware of future Professional Indemnity insurance requirements, in accordance with Clause 11 of the *General Conditions of Contract*?

10.6.8 After completion of resulting infrastructure

Did the Principal's Delegate (Project Manager):

- Provide input into Form C7563 *Post-Construction* Performance Report, completed by the Administrator of the construction Contract?

Email: consultantprequal@tmr.qld.gov.au

The CFEP Amendment Register is located on the Department's website.

Link: [Consultants for Engineering Projects](#) webpage.

