



PM WBS Guide

Project Management Work Breakdown Structure

Program Management Improvement - PIP

Document control sheet

Contact for enquiries and proposed changes

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Glossary

Term	Description
BS&I	Business Solutions & Information Division
OnQ Project Methodology	Management The project management methodology adopted by the Transport Portfolio (MR/QT), consisting of a set of inter-related phases, activities and tasks that define the project process, from the start through to completion
OSP	Other SAP Functionalities
PD&D	Program Development & Delivery Division
PMBoK	Project Management Body of Knowledge
PM WBS	Project Management Work Breakdown Structure
PPMU	Formerly known as Project +, is the Project & Program Management Unit – Project Delivery Improvement Branch – E&T
SIIP	System Integration Improvement Project
Transport Portfolio	Main Roads and Queensland Transport are portfolio partners under the leadership of the Minister for Transport and Main Roads
WBS	Work Breakdown Structure – a product oriented family tree of phases, activities and tasks which organises, defines and graphically displays the total work to be accomplished in order to achieve the final objectives of a project.

1.0 Introduction

The Project Management Working Breakdown Structure (PMWBS) project, managed by Project & Program Management Unit – PPMU (formerly Project+) – E&T, in conjunction with the Major Projects Office (MPO), was set up to:

"Develop standard PM WBS templates for all types of infrastructure and non infrastructure projects, based on the OnQ Methodology and processes established by the Department, to be used when managing/scheduling projects."

A PM WBS includes phases, activities and tasks which organise, define and graphically display the total work to be accomplished, in order to achieve the final objectives of a project. They are comprehensive and detailed templates for scheduling projects

The PM WBS template for infrastructure projects (types 1, 2 and 3) has already been finalised, handed over to the business owners for implementation and it is currently being implemented and operationalised across the Department.

The PMWBS template for non infrastructure project is still under development and will soon be piloted by one of the areas of the Department. Following the results of the pilot, the template will be refined and released as the standard PM WBS to schedule non infrastructure Projects

The standard PM WBS supply project managers and schedulers with a tool that will assist in providing:

- Consistency of project management information needed to assist in decision-making and to manage a state-wide work force
- More effective and consistent communication and reporting relative to project level work throughout the Department.
- Ease of data transfer, interface and integration with other systems and software within the Department (for example, CATS/SAP, ProjMan, Primavera, and so on.)
- Decreased "culture shock" when employees transfer to different locations and work assignments.

The standard PM WBS templates for scheduling projects within the Department will be an important part of the specialist scheduling course, currently being developed by PPMU. The objective of the scheduling specialist training course is to increase the organisations' schedulers and project managers scheduling management capability and skills.

This Guide has been developed to assist practitioners in the understanding and use of the PM WBS templates.

Note that certain sections of the PM WBS Interim Guide are still under development, and a full version will be released, in the near future, as part of the Guide to Project Management, being currently produced by PPMU.

It should be emphasised that the PMWBS for infrastructure and non-infrastructure projects are project management tools, developed by PPMU, to provide the project managers with a framework for organising and managing project work. For project scheduling purposes, project managers can decided on the number of levels of PM WBS needed for the work to be performed within a project, according to the magnitude and complexity of the project.

However, Main Roads project managers/schedulers need to be aware that there are/will be procedures and business rules, developed by different areas of the Department, for the application and operationalisation of the PM WBS templates. Certain areas may mandate a certain level of standardisation and the mandatory use of specific PM WBS levels for state-wide reporting and cost or time monitoring/collection purposes.

Some projects may be too small and may not need the assistance of the PM WBS templates. However, the principles of project management methodology and the procedures and processes established by the Department should still be complied with.

2.0 What is a Project?

A project is a temporary endeavour undertaken to create a unique product or service, or a known product or service in a unique environment. A set of inter-related and controlled activities with start and finish dates, undertaken to achieve a unique objective conforming to specific requirements, including the restraints of time, cost and resources.

It is important to understand that not every work is a project. A project is a temporary and one-time endeavour, with a definite start and an end date, undertaken to create a unique product or service, that brings about beneficial change or added value.

- **Temporary** means that any project will have a start and an end date (but it has nothing to do with short duration).
- Project produces **unique** results: meaning the product or service at the end of the project should be some way different than the existing (can be an invention or an innovation.)
- Projects are characterised by progressive elaboration: due to uniqueness and greater uncertainty, projects cannot be understood entirely at or before project start, and therefore planning and execution of projects is happening many times in separate steps or phases. As project progresses, project team understands next steps, deliverables and way of execution much better. Based on this knowledge, team members elaborate initial draft plans, and execute next phase of the project based on these detailed plans.

The Project Management Institute, with its PMBOK (Project Management Body of Knowledge) sets a common international standard in terminology that transcends industry sectors and professions. According to PMBOK – which describes the sum of knowledge within the profession of project management, "projects are undertaken at all levels of the organisation. They may involve a single person or many thousands. Projects may involve a single unit of one organisation or may cross organisational boundaries as in joint ventures or partnering. Projects are often critical components of the performing organisation's business strategy. Examples of projects include:

- Developing a new product or service
- Effecting a change in structure, staffing, or style of an organisation
- Designing a new transportation vehicle
- Developing or acquiring a new or modified information system
- Constructing a building or facility
- Running a campaign for political office
- Implementing a new business procedure or process".

In Main Roads, there are two types of projects: Infrastructure and Non-Infrastructure projects (refer to Sections 7.1 and 7.2). **Projects differ from operations**, because operations are continuous and repeating (projects are temporary), and operations deliver the same or almost the same results (project results are in contrast unique).

3.0 What is Project Management?

Project Management is the planning, organising, monitoring and controlling of all aspects of a project in a continuous process to achieve its objectives, both internal and external.

4.0 What is a Work Breakdown Structure (WBS)?

Successful project management depends in a large degree on the project manager's ability to specify the work content of projects in terms of its products (deliverables) and activities. One of the principal tools for planning and controlling the work content is the WBS.

The WBS is commonly used at the beginning of a project for defining project scope, organising Gantt schedules and estimating costs. It lives on, throughout the project, in the project schedule.

A WBS is a product oriented family tree of phases, activities and tasks which organises, defines and graphically displays the total work to be accomplished in order to achieve the final objectives of a project. It is a fundamental project management technique for defining and organising the total scope of a project, using a hierarchical tree structure.

Each descending level represents an increasingly detailed definition of the project. It is a system for subdividing a project into manageable work packets, components or elements to provide a common framework for scope, schedule, costs, allocation of responsibility, communications, risk assessment monitoring and control.

5.0 Project Management WBS (PM WBS)

A PM WBS helps break thousands of tasks into chunks that we can understand and assimilate. It is the foundation of a project schedule and project resource estimates, and is used to build the project plan. Preparing and understanding a PM WBS for a project is a big step towards managing and mastering its inherent complexity.

Project managers regularly are challenged to clearly describe desired project outcomes to all involved, while they also capture the order and sequence of the work necessary to produce those outcomes.

The PM WBS defines the total scope of a particular project in a hierachal format. It breaks a large work effort into smaller pieces that may be easily understood, monitored, and controlled.

The subdivision continues until the described work element is small enough to be adequately scheduled, resourced, monitored, and managed.

Once it is complete, the PM WBS becomes an essential building block and reference point for other project plan components.

It is important to understand that the PM WBS is a **project management tool**. Once the work is identified as a "project" (refer to project definition in Section 2 - What is a Project), the PM WBS can be used as a valuable tool for the project managers to break the project deliverables into smaller components.

6.0 MR Standard Project Management WBS (PM WBS)

Standard PM WBS have been developed for the Department, based on the Main Roads' OnQ Project Management Methodology and established Departmental processes, which provide the direction and guidance for effective management and delivery of projects across the portfolio.

Standard PM WBS have been developed for all types of infrastructure and non-infrastructure projects and contain all the PM WBS levels, descriptions and identifiers that a Main Roads project can contain.

The standard PM WBS templates reflect the OnQ Methodology (they include the OnQ project management phases, approval processes, etc.), include the various processes established by the Department regarding the delivery of a project (e.g. environmental

approvals, public consultation, resumption process, etc.) and were based on the way previous projects have been developed and delivered.

It doesn't mean that every project will use all the elements included in the PM WBS template. Elements within the template can be left blank if not relevant to the project. In addition, the templates will need to be tailored for smaller projects to suit the size of the project, and reflect only the elements needed for the work to be carried out.

For example: if a project does not involve Cultural Heritage issues, this PM WBS level will be left blank, as it is not relevant to the project.

Some projects are so small that they do not justify the use of a PM WBS template. However, the concepts and principles of the OnQ Project Management should still be applied for the proper delivery of these projects.

A standard PM WBS provides several benefits to the Department, including:

- Consistency of project management information needed to assist in decision-making and to manage a state-wide work force
- More effective and consistent communication and reporting relative to project level work throughout the Department.
- Ease of data transfer, interface and integration with other systems within the Department (for example, CATS/SAP, ProjMan, Primavera, and so on).
- Decreased “culture shock” when employees transfer to different locations and work assignments.

7.0 Types of Projects

7.1 Road Infrastructure Projects

Main Roads road infrastructure projects are funded by Australian Government Funded Programs (Auslink National Network and National Black Spot Program), State Government Funded Programs (Other State Controlled Roads Network - OSCRs, Regional Bridge Renewal Program, Safe Roads Sooner Program, Transport Infrastructure Scheme – TIDS) and Roads Alliance. It is essential to follow proper processes established by these funding sources when delivering RIP projects, and these needed to be reflected by the activities in the WBS.

Projects range from very simple projects of a very short time duration, to projects that require significant investigations, and sometimes, years to develop a business case.

Within the Department, projects are classified as Type 1, 2 or 3 according to the size, level of risk and complexity of the project. The higher the complexity and risk, the greater the rigour and control that is required.

Refer to Attachment 1 for guidance on how to classify a project into one of three types, based on complexity, risk and concept phase duration.

Type 1 project	Significant road /infrastructure project that is complex, high risk or expensive and thus requires higher amounts of rigour and control.
Type 2 project	Relatively straightforward, low risk, road /infrastructure project for which a lesser amount of rigour and control is appropriate.
Type 3 project	Small, simple road /infrastructure project of low cost that progress quickly through the concept phase.

A PM WBS has been developed for infrastructure projects types 1, 2 and 3. A comprehensive and detailed PMWBS template is available for type 1 projects.

It is important to understand that for types 2 and 3 projects, the same template is used, but it needs to be tailored to cater for smaller projects (only the relevant elements of the template are used to schedule the project).

Some Type 3 projects may involve only one or a few people over a short time. Typically, small projects will have few tasks dependent on other tasks, and will be relatively simple and easy to coordinate, and may not need the assistance of the PM WBS template. However, the principles of the OnQ project management methodology, and the procedures and processes established by the Department to deliver a project, must still be complied with.

7.2 Business Improvement Projects

Non infrastructure projects are undertaken to improve the efficiency of an organisation. Workout/Rollout and the Road System Manager (RSM) projects are good examples of non infrastructure projects conducted by the Department.

Successful non infrastructure (business improvement) projects result in increased efficiency to an organisation through the elimination of redundant processes or steps within processes, increased use of technology and an increased effectiveness of human resources. These projects also result in reduced costs, improved productivity, greater morale within the organisation and increased customer satisfaction.

In Main Roads, non infrastructure projects may involve:

- Improving, streamlining, integrating and/or automating business processes
- Developing plans, policies, guidelines, procedures or business rules
- Relocations, renovations or refurbishments
- Developing training courses, etc.

The PM WBS template for non infrastructure projects was developed due to requests from project managers carrying out non infrastructure projects (IT, policies, plans, refurbishment, etc.) for the corporate areas of the Department.

While we had developed and refined the PM WBS template for infrastructure projects, there was no template available to assist project managers to deliver non infrastructure projects. Like the PM WBS template for infrastructure projects, the PM WBS for non infrastructure projects was also developed based on the OnQ project management methodology and process established by the Department.

The PM WBS template for non infrastructure projects is, currently, in draft form and a pilot is being set up in one of the E&T Branches to test the template. Following the pilot, a final version of the PM WBS will be released for use within the Department, and the PM WBS Guide upgraded to include the template and respective guidance on how to use it.

8.0 PM WBS Structure

The PM WBS contains several levels of breakdown of the work, where each level is a distinct component of the total work.

The highest level of the PM WBS (Level 1) identifies the project's unique (RIP) number and the name of the project. Lower levels represent project phases and project decomposition according to the OnQ project methodology and Departmental processes (**refer to Attachment 2 for a summary chart view of the Standard PM WBS for Infrastructure Projects**).

A main principle is that one level is completely described in further detail by the level below it. Each level is a summary of the work in its lower levels. Therefore, it

provides for a progressively detailed definition of work elements for all levels and facilitates summary reporting at a variety of levels.

PM WBS levels (coloured rows in the template) cannot be deleted or changed to allow for consistency of project data across the State. It is very important to maintain that level of standardisation because the PM WBS interfaces with software and systems such as the Primavera software and the CATS/SAP system, and others. The interface with the CATS systems, for example, allows staff to charge time spent on projects to the actual task they perform. Proper time charging gives the Department a means to track the actual cost of projects.

Some projects (particularly types 1 and 2) may need further levels, beyond the level 5 (red rows) included in the template. This is because large projects need further PM WBS levels for planning, schedule and management of the work.

The activities (white rows) under the WBS levels shown in **Attachment 4 - Standard PM WBS Template for Infrastructure Projects – WBS Levels with Suggested Activities/triggers** are only triggers to assist the project managers. Activities can be added or changed according to the needs of the project managers to assist them in managing their projects properly.

The PM WBS, the coding structure and the definitions of WBS levels are not meant to be a blueprint for managing a project. The actual project management processes, governing policies and procedures, legislation, and so on, are defined in other manuals and documents within the Department. These manuals, policies and guidelines should be consulted for details on Departmental processes (e.g. Preconstruction Processes Manual) or on how to manage a project (e.g. OnQ Project Management Methodology).

9.0 Types of Standard PM WBS

- Standard PM WBS for Infrastructure Projects (Types 1, 2 and 3)
- Standard PM WBS for Business Improvement Projects

9.1 **Standard PM WBS Template for Infrastructure Projects (Types 1, 2 & 3)**

A standard PM WBS template was developed for infrastructure projects Types 1, 2 and 3. (**Refer to Attachment 3 for the complete Standard PM WBS Template for Infrastructure Projects (WBS Levels)**). The template shows the PM WBS Levels 1 (dark blue), 2 (green), 3 (yellow), 4 (light blue) and 5 (red).

It is important to understand that the activities (white rows) are just suggestions/triggers to assist the project manager to further clarify what is covered by the PM WBS levels (**Refer to Attachment 4 for the Standard PM WBS Template for Infrastructure Projects – WBS Levels with Suggested Activities/triggers**).

Further activities can be added under PM WBS levels, if necessary, to address the work to be done to achieve the objectives of the project.

9.1.1 PM WBS Levels Explained

The PM WBS contains several levels of breakdown of the work, starting with Level 1. Each succeeding level breaks down the project work into component parts.

Each level represents a summary of the work below it, and can be the basis for reporting that gets as detailed as needed. Refer to Attachment 5 for the Standard PM WBS Template for Infrastructure Projects (with Descriptions and Guidance).

For example:

Project: 060608/WBS-1 Pacific Motorway	PM WBS Level 1
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CONCEPT PHASE	PM WBS Level 2
Concept Phase Project Management	PM WBS Level 3
Concept Phase – Project Management (General)	PM WBS Level 4
Appoint Project Manager	PM WBS Level 4
Community Engagement – Concept Phase	PM WBS Level 4
Project Proposal	PM WBS Level 3
Determine Functional Requirements & Scope	PM WBS Level 4
Produce Project Proposal	PM WBS Level 4
Development of Options Analysis and Recommendations	PM WBS Level 3
Develop Concept Planning Brief	PM WBS Level 4
Procure Concept Planning Consultant	PM WBS Level 4
Produce Options Analysis and Recommendations	PM WBS Level 4
Compile Draft Options Analysis & Recommendations	ACTIVITY (trigger)
Review Draft Options Analysis & Recommendations	ACTIVITY (trigger)
Finalise Options Analysis & Recommendations	ACTIVITY (trigger)
Liaison with Principal	PM WBS Level 5
Contractor's Internal Project Management	PM WBS Level 5
Environmental Management	PM WBS Level 5

- **Infrastructure PM WBS Level 1 (Blue Level)**

The PM WBS starts with Level 1 which contains the unique project number identifier (RIP number) and the project name. It is the highest WBS level within the PM WBS.

- **Infrastructure PM WBS Level 2 (Green Level)**

This PM WBS Level 2 relates to the OnQ project management methodology phases: Concept, Development, Implementation and Finalisation.

- **Infrastructure PM WBS Level 3 (Yellow Level)**

PM WBS Level 3 refers to the work packages that need to be delivered under each project management phase.

- **Infrastructure PM WBS Level 4 (Blue Level)**

PM WBS Level 4 details, decomposes and subdivides the work to be performed even further, and represents the minimum level of detail required to plan, schedule, and manage projects. Any number of activities can be added under this level to describe, in more details, the work required under this level.

- **Infrastructure PM WBS Level 5 (Red Level)**

The Standard PM WBS template includes PM WBS Level 5 under some of the WBS Level 4 (e.g. Produce Business Case). This is because there is a substantial amount of work already identified under these levels.

For example: under PM WBS Level 4 "Produce Business Case", the PM WBS Level 5 (red levels) describes the design/work elements for producing a business case required under a contract (e.g. Liaison with Principal, Contractor's Internal Project Management, Environmental Management, etc.).

These elements are established by the Manual - Consultants for Engineering Projects - Main Roads Functional Specifications for Consultant Services on Engineering Projects under "Summary of Functional Specification Items", and therefore included in the template. Evidently, not all elements will be applicable for every project.

The Manual includes functional specifications when an external consultant is engaged to perform the work. However, all the functional specification items must be addressed regardless if the work is performed by consultants or in-house.

Project managers can choose to add PM WBS Level 5 under other PM WBS Level 4 within the template, if they need to break the project work even further.

- **Beyond the lowest Infrastructure PM WBS Level 5**

For scheduling purposes, project managers can go beyond Level 5, if they feel they need further breakdowns and more PM WBS levels to plan, schedule and manage the work involved in deliver the project.

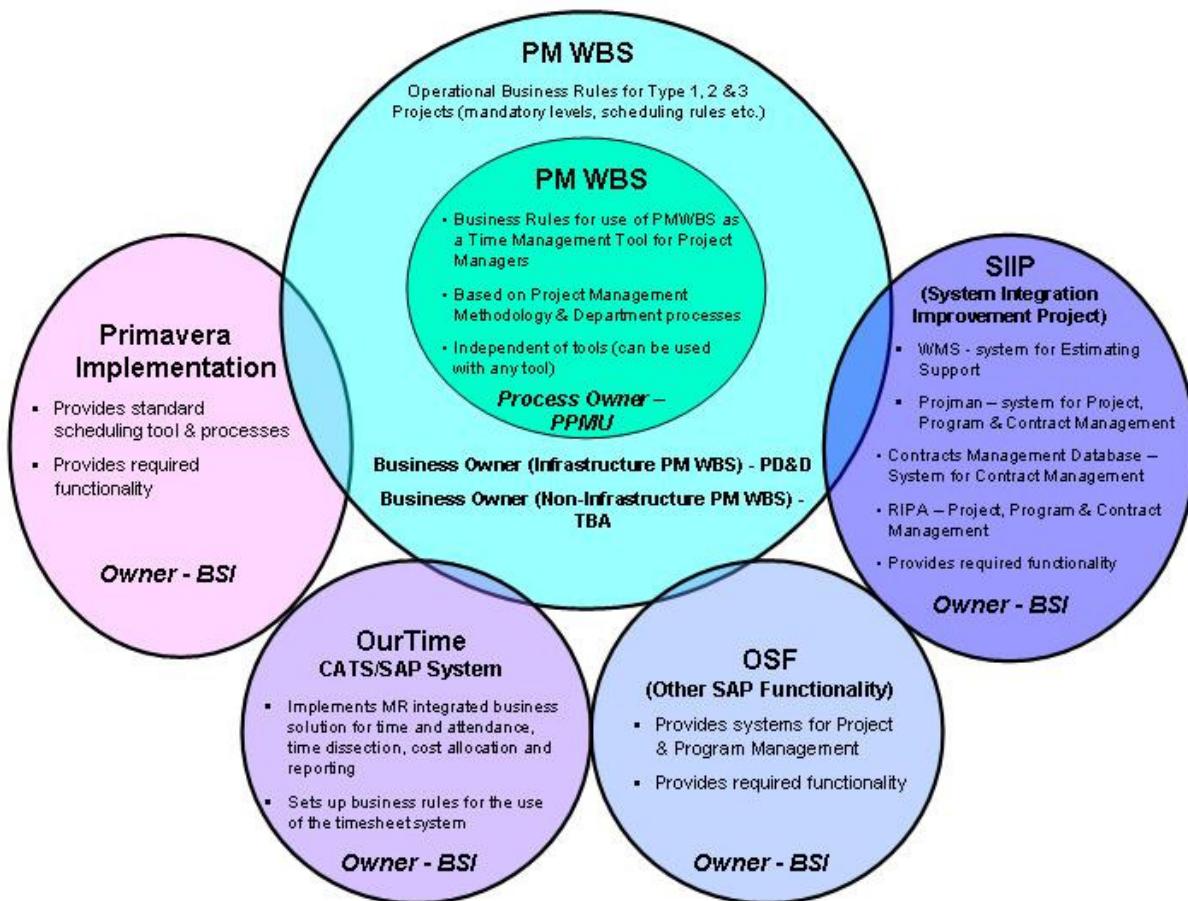
- **Activities/triggers (white rows)**

Activities are not part of the PM WBS. They were added to the PM WBS template to assist the project managers in identifying the work to be done under the PM WBS Levels.

Project Managers can add as many activities as needed for them to understand the details of work to be performed to properly deliver their project. The activities already included in the template are just triggers/suggestions to assist the project managers in the delivery of the project and are based on experience and previous projects.

9.2 Standard PM WBS Template for Non Infrastructure Projects (*In Progress*)

9.3 PM WBS Ownership



- PPMU – Project & Program Management Unit

PPMU has developed a standard PM WBS for both Infrastructure and Non-Infrastructure projects. This includes PM WBS templates for Infrastructure and Non-Infrastructure projects and an associated Guide with guidelines (business rules) for the process of using the PM WBS templates as a time management tool for project managers. PPMU is the **Process Owner** of these templates and Guide.

PD&D (Program Development & Delivery) Division, in consultation with the Major Projects Office, are the **Business Owners** for the Infrastructure PM WBS. They are responsible for defining the business rules in relation to the operational application of the PM WBS across Type 1, Type 2 and Type 3 projects.

This includes the minimum mandatory levels to which the PM WBS is used across Type 1, Type 2 and Type 3 projects and standard rules in relation to schedule management and the use of the scheduling tool (Primavera). Major Projects has already defined these rules for Type 1 projects (see appendix 1). PD&D needs to formally define these rules in relation to type 2 & 3 projects.

BSI (Business Solutions & Information) Division is accountable for the delivery / maintenance of a number of Main Roads core business systems which contribute to effective and efficient project and program delivery. They are responsible for ensuring that the PM WBS is mapped and used across these core business systems. The business rules they set for these systems need to take into account the Project Management PM WBS guidelines set by PPMU and the Operational Business rules set by Major Projects / PD&D.

Roles and Responsibilities for the ownership and use of the PM WBS regarding to its implementation are as follows:

PPMU – Process Owners of the PM WBS for both Infrastructure and Non-Infrastructure Projects. Responsible for:

- Maintaining the overarching PM WBS for Infrastructure and Non-Infrastructure Projects as part of the OnQ project management Framework.
- Maintaining the Project Management WBS Guide (PM WBS Guide)
- Ensuring understanding of the use and benefits of a PM WBS as a project time management tool via:
 - PM 102 (Project Management – Beyond the Fundamentals) - Target Audience: Main Roads Project Staff ; and
 - PM 230 (Specialist Scheduling Course) - Target audience: project managers, schedulers and support staff
- Providing advice and support on the implementation of the PM WBS.

PD&D – Business Owners, in consultation with Major Projects, for the **Infrastructure PM WBS**. Responsible for:

- Setting the Business rules for the application of the PM WBS across Type 1, Type 2 and Type 3 Infrastructure Projects;
- Communicating the business rules across the Districts;
- Liaising with BSI to ensure that the business rules are appropriately captured in systems, and as part of systems rollout and education

BSI – Responsible for aligning systems with standard PM WBS requirements and liaising with PD&D to ensure that the business rules are appropriately captured in systems, and as part of systems rollout and education including:

- Primavera Rollout
 - Implementation, in Primavera, of the standard PM WBS
 - Sets up software Business Rules
 - Sets up required PM WBS levels
 - Provides Primavera software training. Target audience: schedulers
- OurTime (CATS/SAP SYSTEM)
 - Uses the PM WBS as template for project time allocation, cost dissection and control
 - Sets up business rules for the timesheet system, including use of the PMWBS within the system
 - Provides timesheet system training. Target audience: all MR staff
- SIIP Project
 - Central responsibility for the delivery of the required improvements to Projman, Works Management System, Roads Implementation Program Application and the various databases that make up the Contract Management System
 - PM WBS is mapped across these core business systems
 - Sets up business rules for use of the systems
- OSF Project

- Delivery of a shared SAP solution for non-finance and HR functionality (i.e. Program and Project Management). The OSF project is currently in 'Blueprint' phase which involves mapping existing business processes to determine functionality requirements for a potential solution.

9.4 PM WBS Revision/Update Process

It may be necessary to revise the PMWBS templates, from time to time, in order to adapt to the changing business environment in which we operate.

Formal change procedures will be developed by the business owners of the various PMWBS.

Owners of PM WBSs include:

- Program Development & Delivery (PD&D) - PM WBS for infrastructure projects Types 1, 2 and 3.
- **TO BE CONFIRMED** - PM WBS for non infrastructure projects.

Each area of the Department will own their specific application of the PM WBS. Any change to the PM WBS may have impacts on other areas of the project development process and systems within the Department.

Consequently, a proper change process should be developed and an extensive review conducted, prior to approval and implementation.

Business rules regarding the application of the PM WBS and formal change procedures will need to be developed by the owners of the various PM WBS.

Attachment 1 - Project Governance Guidelines

The following Project Governance Guidelines are part of the Program Delivery Policy for Project Management and Performance Measurement of Roads Implementation Program (RIP) Projects.

PROJECT GOVERNANCE GUIDELINES

The level of governance (project management rigour and control measures) required from one project to another will vary depending upon a range of project specific factors. Project Customers and Sponsors are responsible for determining the level of governance required for each individual project.

This attachment provides guidance on classifying a project into one of three Types based on an assessment of three key factors: complexity, risk, and duration (Concept phase). Each Type uses a different suite of project management templates which act as checklists to ensure that the appropriate level of governance is applied.

Determining Project Type

Apply the Project Type Matrix to determine project type. Guidance on the various factors is provided.

- Step 1. Assess the projects risk level from available project information
- Step 2. Estimate the likely duration of the Concept Phase, based on past experience.
- Step 3. Assess the projects complexity level from available project information.
- Step 4. Plot the three values on the following Project Type Matrix to determine the recommended Project Type.

Project Type Matrix

Risk	Low Risk			Medium Risk			High Risk		
Concept Phase Duration Complexity	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Low Complexity	3	3	3	2	2	2	2	2	1
Medium Complexity	3	3	2	2	2	1	1	1	1
High Complexity	2	2	2	2	1	1	1	1	1

The number (1, 2 or 3) corresponds to the Project Type.

Risk

In assessing the risk level (Low, Medium or High), give consideration to:

- how well the project's scope and objectives are defined and understood
- how "routine" the project is
- the likely project cost and duration
- the experience and abilities of the project team
- the number, nature and commitment of stakeholders
- the procurement method
- the quality requirements
- the organisational environment (how stable and mature are the processes and procedures)
- technical constraints
- environmental constraints
- political involvement/interference
- time constraints
- the level of complexity

Concept Phase Duration

- **Short** - preparation of the Project Proposal within one day and concept phase duration in days or weeks
- **Medium** - preparation of the Project Proposal in one or two days and concept phase duration in weeks
- **Long** - preparation of the Project Proposal in more than a few days and concept phase duration in months

Complexity

In assessing the level of complexity (Low, Medium or High), give consideration to:

- the type of project in terms of the construction environment, e.g. Urban and/or High traffic volumes, Built-up areas and/or
- significant traffic volumes, Rural and/or Low traffic volumes
- the number and nature of stakeholders
- how "routine" the project is
- the number of related projects
- can the project be delivered using the standard processes
- number of different cost centres and agencies involved
- the size location and composition of the project team
- the likely use of unproven or unfamiliar technology

Type 1 Projects

The following characteristics are typical of type 1 projects:

- funding of the Concept Phase would most likely be through the RIP
- the project team may include personnel from other Main Roads organisations
- the project manager should have few, if any, other responsibilities
- will often have a Project Board or Steering Committee
- should use templates: R1001, R1002, R1003, R2001, R4001, R4002
- project reviews likely to be coordinated by the Major Projects Office
- should have regular formal reporting requirements

Type 2 Projects

The following characteristics are typical of type 2 projects:

- funding of the Concept Phase can be either through the RIP or Districts allocations
- the project team usually fairly small and unlikely to include non-district staff
- the project manager is likely to have other projects and responsibilities
- may have a steering committee
- should use templates R1001, R1004, R2002, R4003
- reporting requirements vary but likely to be regular but less formal

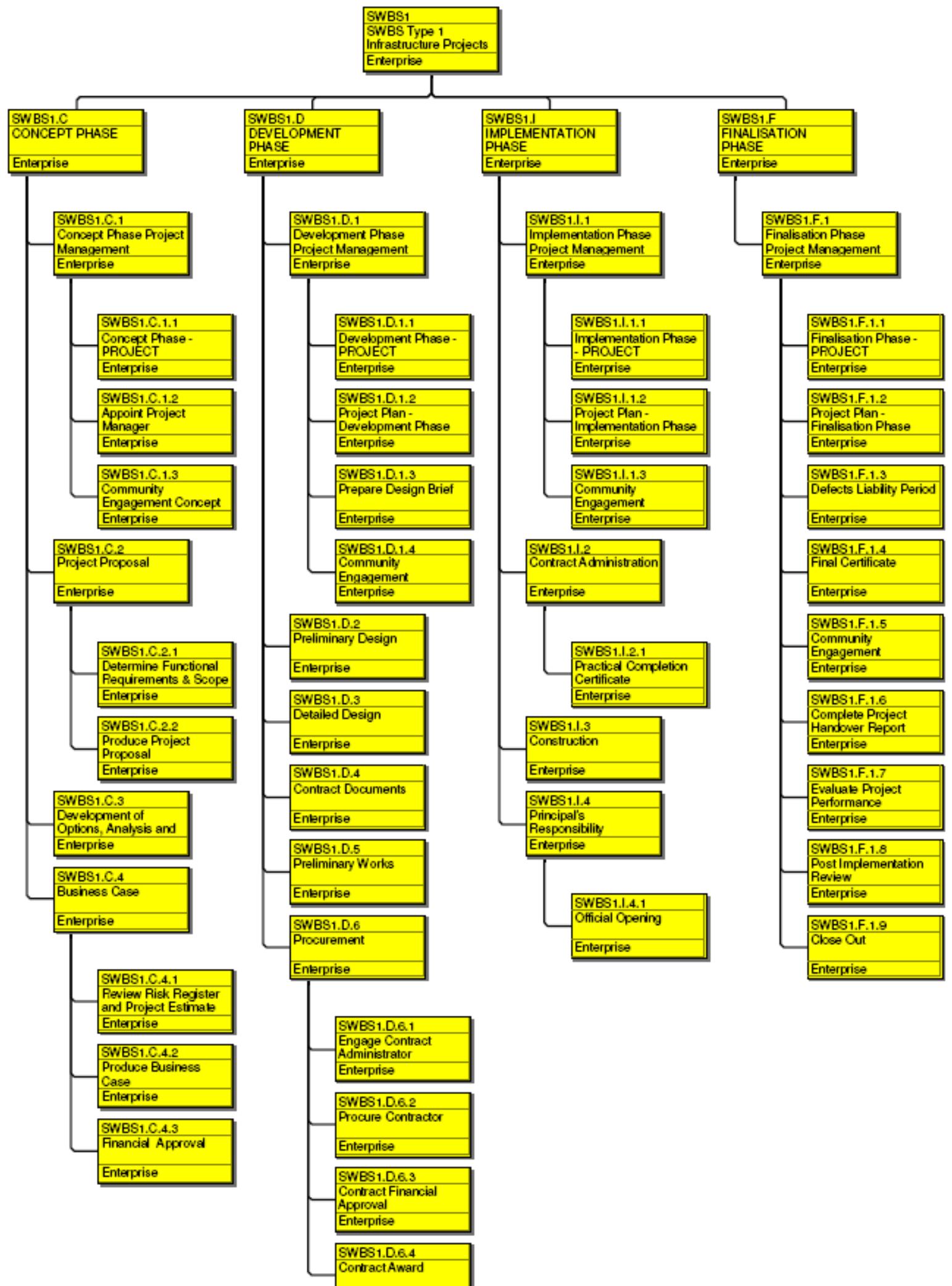
- project reviews likely to be coordinated by Program Development & Delivery (PD&D)

Type 3 Projects

The following characteristics are typical of type 3 projects:

- funding of the Concept Phase would most likely be through District allocations
- usually do not require an options analysis
- project team usually only one person – the project manager
- the project manager would normally have other projects and responsibilities
- would not normally have a steering committee
- should use templates R1001, R1005, R2003, R4003
- informal "by exception" reporting is common
- project reviews likely to be coordinated by the District Office

Attachment 2
Standard PM WBS for Infrastructure Projects
CHART VIEW (SUMMARY)



Attachment 3
Standard PM WBS Template for Infrastructure Projects
(WBS Levels)

Project: 060608/WBS-1 Pacific Motorway

CONCEPT PHASE
Concept Phase Project Management
Concept Phase – Project Management (General)
Appoint Project Manager
Community Engagement – Concept Phase
Project Proposal
Determine Functional Requirements & Scope
Produce Project Proposal
Development of Options Analysis and Recommendations
Develop Concept Planning Brief
Procure Concept Planning Consultant
Produce Options Analysis and Recommendations
Liaison with Principal
Contractor's Internal Project Management
Environmental Management
Public Consultation (Fixed Fee)
Public Consultation (Time Rate)
Traffic Counting & Analysis
Hydraulic Analysis
Geotechnical Investigation
Preliminary Pavement Design
Preliminary Bridge Foundation
Preliminary Geotechnical Analysis
Option Analysis & Report (R1002/R1004 - P2)
Risk Analysis & Record
Value Management Report
Comparative Cost Estimate
Road Safety Audit
Additional Option Analysis Requirements (if ordered)
Native Title
Cultural Heritage
Survey
Recommend Preferred Option

Approved Recommended Option
Develop Preferred Option
Business Case
Review Risk Register and Project Estimate
Produce Business Case
Liaison with Principal
Contractor's Internal Project Management
Environmental Management
Public Consultation (Fixed Fee)
Public Consultation (Time Rate)
Traffic Counting & Analysis
Hydraulic Analysis
Geotechnical Investigation
Pavement Design Report
Bridge Foundation Report
Geotechnical Analysis and Report
Progressing Preferred Option Layouts
Risk Analysis & Record
Concept Estimate of Cost
Calculation of BCR (if ordered)
Road Safety Audit
Compile Business Case
Project Proposal Report (Federal Funded Projects)
Draft Project Plan
Additional Planning Requirements (if ordered)
Native Title
Cultural Heritage
Survey
Financial Approval
DEVELOPMENT PHASE
Development Phase Project Management
Development Phase – Project Management General
Project Plan – Development Phase
Prepare Design Brief
Community Engagement Development Phase

Preliminary Design
Procure Preliminary Design Consultants
Produce Preliminary Design
Liaison with Principal
Contractor's Internal Project Management
Public Consultation (Fixed Fee)
Public Consultation (Time Rate)
Traffic Counting & Analysis
Property Access
Hydraulic Analysis
Structural Assessment
Progressing Preferred Option Layouts
Public Utility Plant
Geotechnical Investigation
Geotechnical Analysis and Report
Pavement Design Report
Risk Mitigation and Record
Intelligent Transport Systems
Preliminary Estimate of Cost
Calculation of BCR (if needed)
Road Safety Audit
Disability Discrimination Audit
Project Plan
Project Proposal Report (Federal Funded Projects)
Planning Report
Native Title
Cultural Heritage
Survey
Detailed Design
Procure Detailed Design Consultants
Obtain Legislative Approvals and Permits
Produce Detailed Design
Liaison with Principal
Contractor's Internal Project Management
Environmental Management

Public Consultation (Fixed Fee)
Public Consultation (Time Rate)
Hydraulic Analysis & Design
Public Utility Plant
Lighting
Traffic Signals
Intelligent Transport Systems
Signs
Provision for Traffic and Sidetracks
Landscaping
Geotechnical Investigation Analysis & Report
Road Design & Drawings
Bridge Design & Drawings
Contract Documents
Risk Mitigation & Record
Calculation of BCR (if ordered)
Detailed Estimate of Cost
Detailed Estimate of Cost
Statutory Approvals
Design Development Report
Project Plan
Native Title
Cultural Heritage
Survey
Contract Documents
Produce Contract Documents
Pre-tender Financial Approval
Preliminary Works
Obtain Approval for Preliminary Works
Acquire Right of Way
Native Title
Resumptions
Procure Public Utility Plant (PUP) Services
Electricity
Telecommunications

Water
Sewerage
Procure Preliminary Works
Construct Preliminary Works
Procurement
Engage Contract Administrator
Procure Contractor
Contract Financial Approval
Contract Award
IMPLEMENTATION PHASE
Implementation Phase Project Management
Implementation Phase – Project Management (General)
Project Plan - Implementation Phase
Community Engagement Implementation Phase
Contract Administration
Practical Completion Certificate
Construction
Principal's Responsibility
Official Opening
FINALISATION PHASE
Finalisation Phase Project Management
Finalisation Phase – Project Management (General)
Project Plan - Finalisation Phase
Defects Liability Period
Final Certificate
Community Engagement - Finalisation Phase
Complete Project Handover Report
Evaluate Project Performance
Post Implementation Review
Close Out

Attachment 4
Standard PM WBS Template for
Infrastructure Projects (WBS Levels with Suggested
Activities/Triggers)

Project: 060608/WBS-1 Pacific Motorway	
CONCEPT PHASE	
Concept Phase Project Management	
Concept Phase – Project Management (General)	
Project Meetings	
Time/Cost/Quality Management	
Project Start	
Appoint Project Manager	
Appoint Project Manager - Concept Phase	
Community Engagement – Concept Phase	
Enter activities as required	
Produce Community Engagement Planner	
Community Engagement Planner Approval - Concept Phase	
Project Proposal	
Determine Functional Requirements & Scope	
Gather & Assess Current Information	
Determine Functional Requirements (Workshop)	
Gather Historical Data	
Define Background & Scope	
Produce Project Proposal	
Produce Preliminary Project Plan - Concept Phase	
Establish Risk Register	
Compile Draft Project Proposal for Comment	
Finalise Project Proposal	
Submit Project Proposal for Approval (including Project Plan)	
Approve Project Proposal	
Project Proposal Approved	
Development of Options Analysis and Recommendations	
Develop Concept Planning Brief	
Compile Concept Planning Brief	
Procure Concept Planning Consultant	
Call Tenders	
Tenders Close - Concept Phase	
Assess Tenders	

Obtain Financial Approval
Letter of Acceptance - Concept Phase
Finalise Concept Consultancy Contract
Produce Options Analysis and Recommendations
Compile Draft Options Analysis & Recommendations
Review Draft Options Analysis & Recommendations
Finalise Options Analysis & Recommendations
Liaison with Principal
Contractor's Internal Project Management
Environmental Management
Public Consultation (Fixed Fee)
Public Consultation (Time Rate)
Traffic Counting & Analysis
Hydraulic Analysis
Geotechnical Investigation
Preliminary Pavement Design
Preliminary Bridge Foundation
Preliminary Geotechnical Analysis
Option Analysis & Report (R1002/R1004 - P2)
Risk Analysis & Record
Value Management Report
Comparative Cost Estimate
Road Safety Audit
Additional Option Analysis Requirements (if ordered)
Native Title
Cultural Heritage
Survey
Recommend Preferred Option
Submit Recommended Preferred Option for Approval
Approved Recommended Option
Recommended Preferred Option - Approval (Milestone)
Develop Preferred Option
Develop Preferred Option/Analysis Report
Review Preferred Option/Analysis Report
Finalise Preferred Option/Analysis Report

Submit Preferred Option Analysis Report for Approval
Approve Preferred Option Analysis Report
Preferred Option Analysis Report - Approved
Business Case
Review Risk Register and Project Estimate
Review Concept Design Risks & Estimate (Workshop)
Produce Business Case
Compile Draft Business Case
Review Draft Business Case
Finalise Business Case
Submit Business Case for Approval
Approve Business Case
Business Case - Approved
Liaison with Principal
Contractor's Internal Project Management
Environmental Management
Public Consultation (Fixed Fee)
Public Consultation (Time Rate)
Traffic Counting & Analysis
Hydraulic Analysis
Geotechnical Investigation
Pavement Design Report
Bridge Foundation Report
Geotechnical Analysis and Report
Progressing Preferred Option Layouts
Risk Analysis & Record
Concept Estimate of Cost
Calculation of BCR (if ordered)
Road Safety Audit
Compiling Business Case
Project Proposal Report (Federal Funded Projects)
Draft Project Plan
Additional Planning Requirements (if ordered)
Native Title
Cultural Heritage

Survey
Financial Approval
Prepare Federal Stage 2 Approval
Submit Federal Stage 2 Approval
Federal Stage 2 Approval Period
Federal Stage 2 - Approved
DEVELOPMENT PHASE
Development Phase Project Management
Development Phase – Project Management General
Project Meetings
Time/Cost/Quality Management
Project Plan – Development Phase
Update Project Plan - Development Phase
Project Plan Approval - Development Phase
Prepare Incident & Traffic Management Plans
Review Incident & Traffic Management Plans
Review Risk Register
Prepare Design Brief
Review Concept Design
Prepare Registration of Interest
Compile Design Brief
Compile Supplementary Conditions of Supply
Community Engagement Development Phase
Update Community Engagement Planner
Community Engagement Planner Approval - Development Phase
Enter activities as required
Preliminary Design
Procure Preliminary Design Consultants
Call Tenders (Preliminary Design)
Tenders Close (Milestone)
Assess Tenders
Obtain Financial Approval
Award Contract (Milestone)
Finalise Preliminary Design Consultancy Contract
Produce Preliminary Design

Manage Preliminary Design Consultants
Review Preliminary Design, Project Estimate & Planning Report
Final Amendments to Preliminary Design, Project Estimate & Planning Report
Approve Preliminary Design Package
Preliminary Design Approved (Milestone)
Liaison with Principal
Contractor's Internal Project Management
Public Consultation (Fixed Fee)
Public Consultation (Time Rate)
Traffic Counting & Analysis
Property Access
Hydraulic Analysis
Structural Assessment
Progressing Preferred Option Layouts
Public Utility Plant
Geotechnical Investigation
Geotechnical Analysis and Report
Pavement Design Report
Risk Mitigation and Record
Intelligent Transport Systems
Preliminary Estimate of Cost
Calculation of BCR (if ordered)
Road Safety Audit
Disability Discrimination Audit
Project Plan
Project Proposal Report (Federal Funded Projects)
Planning Report
Native Title
Cultural Heritage
Survey
Detailed Design
Procure Detailed Design Consultants
Call Tenders
Tenders Close (Milestone)
Assess Tenders

Obtain Financial Approval
Award Contract (Milestone)
Finalise Detailed Design Consultancy Contract
Obtain Legislative Approvals and Permits
Obtain Statutory Approvals & Permits
Obtain PUP Relocation Approvals
Produce Detailed Design
Review Risk Register
Manage Detailed Design (Including Contract Documents)
Finalise Public Utility Plant Requirements
Review Detailed Design & Project Estimate
Final Amendments to Detailed Design & Estimate
Final Design - Approval (Milestone)
Liaison with Principal
Contractor's Internal Project Management
Environmental Management
Public Consultation (Fixed Fee)
Public Consultation (Time Rate)
Hydraulic Analysis & Design
Public Utility Plant
Lighting
Traffic Signals
Intelligent Transport Systems
Signs
Provision for Traffic and Sidetracks
Landscaping
Geotechnical Investigation Analysis & Report
Road Design & Drawings
Bridge Design & Drawings
Contract Documents
Risk Mitigation & Record
Calculation of BCR (if ordered)
Detailed Estimate of Cost
Detailed Estimate of Cost
Statutory Approvals

Design Development Report
Project Plan
Native Title
Cultural Heritage
Survey
Contract Documents
Produce Contract Documents
Review Contract Documents
Final Amendments to Contract Documents
Approve Detail Design Contract Documents
Stage 1 Scheme Release Documents
Pre-tender Financial Approval
Prepare Federal Stage 3A Approval
Submit Federal Stage 3A Approval
Federal Stage 3A Approval Period
Federal Stage 3A Approved
Preliminary Works
Obtain Approval for Preliminary Works
Recommend Preliminary Works
Preliminary Works - Approved (Milestone)
Acquire Right of Way
Native Title
Prepare 24KA
Final 24KA to Property Services (4 week Submission Period)
Annexure 7.1 Approved (Milestone)
Resumptions
Prepare Resumption Package
Submit Resumption Package to Property Services
Prepare Notice of Intention to Resume
Objection Period (Calendar Days)
Objection Hearings & Report
Submit Objections Hearing Report etc to Property Services
Prepare Proclamation Application
Submit Proclamation Application to Ministers Office (see notebook)
Ministerial Approval Period

Proclamation (Resumptions)
Procure Public Utility Plant (PUP) Services
Prepare Briefs & Obtain Quotes
New Activity
Electricity
Prepare Submission for ENERGEX to Prepare Proposal
ENERGEX Proposal Period
Formalise Agreement and Pay Fees for ENERGEX Design
ENERGEX Design - Received
Relocation Financial Authorisation Period
Construct ENERGEX Relocation Works
Finalise ENERGEX Relocation Contract
Telecommunications
Submission for Telstra to Prepare Proposal
Telstra Proposal Period
Formalise Agreement and Pay Fees for Telstra Design
Telstra Design - Received
Relocation Financial Authorisation Period
Construct Telstra Relocation Works
Finalise Telstra Relocation Contract
Water
Submission for Water Authority to Prepare Proposal
Water Authority Proposal Period
Formalise Agreement and Pay Fees for Water Authority Design
Water Authority Design - Received
Manage Design & Water Authority Relocation Works - do we need this row
Construct Water Authority Relocation Works
Finalise Water Authority Relocation Contract
Sewerage
Submission for Sewerage Authority to Prepare Proposal
Sewerage Authority Proposal Period
Formalise Agreement and Pay Fees for Sewerage Authority Design
Sewerage Authority Design - Received
Relocation Financial Authorisation Period
Construct Sewerage Authority Relocation Works

Finalise Sewerage Authority Relocation Contract
Procure Preliminary Works
Call Tenders (Prelim Works)
Tender Period (Prelim Works)
Tenders Close (Prelim Work)
Assess Tenders
Obtain Financial Approval
Award Contract (Preliminary Works)
Finalise Preliminary Works Contracts
Construct Preliminary Works
Manage Preliminary Works
Procurement
Engage Contract Administrator
Call Tenders (Contract Administration)
Tender Period (Contract Administration)
Tenders Close (Contract Administration)
Assess Tenders
Obtain Financial Approval
Appoint Contract Administrator
Procure Contractor
Industry Briefing
Call Registrations of Interest
Call Tenders (Construction Contractor)
Tender Period (Construction Contractor)
Tenders Period Closes (Construction Contractor)
Assess Tenders
Negotiate Contract Conditions
Prepare Recommendations Report
Approve Tender Recommendation
Contract Financial Approval
Obtain Financial Approval
Contract Award
Award Contract (Construction Contractor)
IMPLEMENTATION PHASE
Implementation Phase Project Management

Implementation Phase - Project Management (General)
Project Meetings
Time/Cost/Quality Management
Project Plan - Implementation Phase
Update Project Plan - Implementation Phase
Project Plan Approval - Implementation Phase
Community Engagement Implementation Phase
Update Community Engagement Planner
Community Engagement Planner Approval - Implementation Phase
Enter activities as required
Contract Administration
Manage/Monitor Construction Milestones
Wet Weather Allowance
Finalise Contract Administrator Contract
Finalise Construction Contractor Contract
Practical Completion Certificate
Issue Practical Completion Certificate (Milestone)
Construction
Construction Program
Construction Completion (without contingency)
Principal's Responsibility
Organise Principal's Materials
Set Up Site Office
Official Opening
Organise Official Opening
Official Opening (Milestone)
FINALISATION PHASE
Finalisation Phase Project Management
Finalisation Phase – Project Management (General)
Project Meetings
Time/Cost/Quality Management
Project Plan - Finalisation Phase
Update Project Plan - Finalisation Phase
Project Plan Approval - Finalisation Phase
Manage Project Plan - Finalisation Phase

Defects Liability Period
Monitor Defects Liability Period
Final Certificate
Issue Final Certificate (Milestone)
Community Engagement Finalisation Phase
Manage Community Engagement Finalisation Phase
Complete Project Handover Report
Confirm Completion, Receipt of Documentation, Maintenance Arrangements
Obtain as Constructed Drawings
Compile Handover Report
Approval of Handover Report
Evaluate Project Performance – suggest moving to next page
Evaluate Against Success Criteria
Prepare Completion Report
Review Completion Report
Approve Completion Report
Post Implementation Review
Conduct Post Implementation Review
Prepare Post Implementation Review Report
Approve Post Implementation Review Report
Close Out
Close Project Office
Close Project Files
Project Completion

Attachment 5
Standard PM WBS Template for
Infrastructure Projects
(with Descriptions and Guidance)

Project: 060608/WBS-1 Pacific Motorway

CONCEPT PHASE	<p>The concept phase is a three-stage project management process for investigating a customer's need and presenting a justification for satisfying that need as part of the organisation's program of work</p> <p>The trigger to proceed to the Development Phase is the approval of the Business case.</p>
Concept Phase Project Management	<p>Key activities include appointing the project manager and producing a preliminary project plan.</p> <p>Includes time spent on project meetings, management of time (e.g. project scheduler), cost and quality, appointing the project manager and preparing the Community Engagement Planer.</p>
Concept Phase – Project Management (General)	Activities include project meetings, scheduler's time, cost and quality management work.
Appoint Project Manager	Under the project management approach, responsibility for all project development tasks from project concept to completion is assigned to a single individual: the Project Manager. A dedicated project manager needs to be appointed for the project to be successful. The project manager plays a key role in any project and is responsible for conducting project activities according to applicable corporate and regulatory policies and procedures, within scope, quality, time and cost constraints. The project manager is also responsible to delivering required project outcomes that satisfy customers, stakeholders and users.
Community Engagement – Concept Phase	Involves communities and individuals/connection and interaction with government, in developing and implementing policies, programs and services. As the development of the RIP takes into account a total needs analysis, community engagement is essential to identify what is a priority for inclusion. Ongoing community engagement happens in all phases of the project.
Project Proposal	<p>Without a written Project Proposal, the project managers cannot be sure they understand the customer's expectations.</p> <p>The Project Proposal defines the problem and identifies the need for the project, establishing the expected functional outcome, including potential benefits based on the current state of knowledge and understanding. All types of</p>

	<p>projects (1, 2 and 3) require a Project Proposal. It should be emphasised that the level of detail of the Project Proposal is commensurate with the size, complexity and cost of the project, to ensure that the preparation of the Project Proposal does not outweigh the actual cost of the project</p> <p>Includes time spent on determining the functional requirements and scope, producing the preliminary project plan and the actual development of the project proposal (including the risk register).</p>
Determine Functional Requirements & Scope	<p>Functional requirements and scope involve a comprehensive description of the intended purpose of the project. They detail the requirements and specifications for all elements of the intended delivery process. Requirements should be reviewed for purpose, necessity, feasibility and tolerances.</p>
Produce Project Proposal	<p>Producing the Project Proposal involves:</p> <ul style="list-style-type: none"> Accepting and initiating the project Understanding and articulating the need Conducting an initial stakeholder analysis and impact assessment Outlining the risks Providing a plan for the conduct of the options analysis and the submission of the business case Justifying why the organisation should proceed with this project Seeking the release of the required resources
Development of Options Analysis and Recommendations	<p>Project options must be identified and studied that will satisfy project goals, be cost effective, and avoid or minimise environmental and right of way impacts.</p> <p>The identification and development of options include the development of all plausible solution options, to enable a realistic options analysis and determination of a preferred option. This process includes addressing all issues identified in the design development process.</p> <p>Includes time spend on developing the Concept Planning Brief, procuring the concept planning consultant and the actual development of the options analysis and recommendations), including all the functional specification items needed to develop the Options Analysis and Recommendations(either by consultants or in-house)</p>

Develop Concept Planning Brief	A Concept Planning brief to the external/internal consultant needs to be developed, outlining the scope of works and in accordance with the supplementary conditions of supply.
Procure Concept Planning Consultant	This type of work should be procured in accordance with The Manual for the Engagement and Use of Consultants
Produce Options Analysis and Recommendations	<p>The completed Options Analysis is about:</p> <ul style="list-style-type: none"> - Reviewing the need for the project (Proposal Review) - Developing Options that satisfy the need and functional outcomes; - Ranking Options; - Reviewing link to strategic/business plans; - Identify probable delivery methods (for specialist consultant services and construction methods); - Recommending preferred option; and - Seeking approval to proceed to the Business Case. <p>The Options Analysis must address all issues to the extent needed to allow the preferred option established from the partially developed options developed to progress to the Business Case Phase.</p>
Liaison with Principal	
Contractor's Internal Project Management	
Environmental Management	
Public Consultation (Fixed Fee)	
Public Consultation (Time Rate)	
Traffic Counting & Analysis	
Hydraulic Analysis	
Geotechnical Investigation	
Preliminary Pavement Design	
Preliminary Bridge Foundation	
Preliminary Geotechnical Analysis	
Option Analysis & Report (R1002/R1004 - P2)	
Risk Analysis & Record	
Value Management Report	
Comparative Cost Estimate	

Road Safety Audit	
Additional Option Analysis Requirements (if ordered)	
Native Title	
Cultural Heritage	
Survey	
Recommend Preferred Option	Involves a thorough understanding of the customer's need and identifying, evaluating and selecting a preferred option from the partially developed options.
Approved Recommended Option	The objective of this task is to obtain agreement with the preferred option and approval to proceed and further develop the preferred option. The customer approves the preferred option.
Develop Preferred Option	The scope includes the preparation, review and approval of the options analysis report.
Business Case	<p>When preparing a business case, the first step is to review the project proposal and option analysis report to understand the need and required functional outcomes. Developing this clear understanding of the requirements will assist in the ongoing management of the project scope.</p> <p>The objectives of the Business Case are:</p> <ul style="list-style-type: none"> - Developing a justification for including the project in the RIP; - Assembling a handover package to facilitate the transition to the Development Phase; - Developing a draft project plan for directing and controlling project activities after the Business Case has been accepted; and - Developing a plan for the orderly termination of the project if the Business Case is not accepted. <p>The Business Case covers the work necessary to. :</p> <ul style="list-style-type: none"> - Prepare draft Project Plan, - Prepare Business Case, - Review and Approve, and - Prepare Handover Package. <p>It also covers the work required develop the preferred option to a level sufficient to support the submission of the Business Case.</p> <p>Includes time spent on reviewing the risk register, addressing all the functional specification items</p>

	(either by consultants or in-house), compiling / reviewing / finalising/ approving the Business Case, and obtaining financial approval. It is essential to follow proper processes established by the project's funding source when delivering RIP projects.
Review Risk Register and Project Estimate	Project Cost Estimates produced must possess a commensurate confidence level.
Produce Business Case	<p>Producing the Business Case is about:</p> <ul style="list-style-type: none"> - Finalising Scope Definition; - Finalising Project Budget; - Finalising Project BCR; -Preparing preliminary business requirements specification (Brief); - Preparing a draft Project Plan; - Preparing a Concept Estimate (Project Budget); - Justifying inclusion of the project in the RIP.
Liaison with Principal	
Contractor's Internal Project Management	
Environmental Management	
Public Consultation (Fixed Fee)	
Public Consultation (Time Rate)	
Traffic Counting & Analysis	
Hydraulic Analysis	
Geotechnical Investigation	
Pavement Design Report	
Bridge Foundation Report	
Geotechnical Analysis and Report	
Progressing Preferred Option Layouts	
Risk Analysis & Record	
Concept Estimate of Cost	
Calculation of BCR (if ordered)	
Road Safety Audit	
Compile Business Case	
Project Proposal Report (Federal Funded Projects)	
Draft Project Plan	
Additional Planning Requirements (if ordered)	

Native Title	
Cultural Heritage	
Survey	
Financial Approval	<p>Financial approval must be secured from a duly authorised expenditure officer with authority to incur the total amount of expenditure required. Responsibilities of authorised expenditure officers are detailed in respective department's Financial Delegation of Authority.</p>
DEVELOPMENT PHASE	<p>The Development Phase commences following the approval of the business case and the allocation of organisational resources. Key activities in this phase are: project administration, preliminary and detailed design, and establishing and awarding the contract.</p> <p>The objective of this phase is to set up the mechanisms for effective implementation and management of the project.</p> <p>The trigger to proceed to the Implementation Phase is the award of the main contract.</p>
Development Phase Project Management	<p>Key activities include the updating of the project plan for this phase, reviewing of the design brief, compilation of the Supplementary Conditions of Supply and updating the Community Engagement Planner.</p> <p>The project plan should be reviewed for this phase.</p> <p>Includes time spent on project meetings, management of time (e.g. project scheduler), cost and quality, appointing the project manager and updating the Project Plan, Community Engagement Planer and preparing the design brief.</p>
Development Phase – Project Management General	Activities include project meetings, scheduler's time, cost and quality management work.
Project Plan – Development Phase	Activities and tasks are conducted according to the Project Plan. The project manager monitors the project's progress against the schedule and plans to ensure activities remain on track. This management work may involve supervision of internal and outsourced/contracted resources, and the development and administration of various forms of contract.
Prepare Design Brief	A design brief needs to be developed and provided to the internal (in-house)/external

	consultant, outlining the extent of work needed and include clear deliverables.
Community Engagement Development Phase	Project stakeholders external to the project team need to be consulted to ensure that the project reasonably accommodates their needs, and that project development is not adversely affected by external issues. Community engagement takes place here to confirm and relay past decisions in previous phases, and understand and respond to impacts of road works in communities, including design, construction and maintenance. Ongoing community engagement happens in all phases of the project.
Preliminary Design	<p>The Preliminary Design Stage:</p> <ul style="list-style-type: none"> - finalises the technical solution developed during the Business Case; - finalises the resumption requirements and resumption documentation; - the Limited Access requirements and documentation; - reviews the Business Case compiled during the Concept Phase; and - re-justifies the project. <p>Includes time spent in procuring and managing the preliminary design consultants, addressing all the functional specification items (consultants or in-house), reviewing the preliminary design, project estimates and planning report and obtaining approval for the preliminary design package.</p>
Procure Preliminary Design Consultants	Preliminary Design can be developed internally (in-house) or by engaging an external consultant. Procurement of external consultants shall follow the procedures included in the Manual – Consultants for Engineering projects.
Produce Preliminary Design	The Preliminary Design documents all geometric design elements, including a preliminary estimate of the preferred design solution. Once the Preliminary Design has been completed (all major design components concluded, including major structures), together with a preliminary estimate, a recommendation is submitted to the client for approval. Approval authorises Preliminary Design to progress to the next stage of the project – the Detailed Design.
Liaison with Principal	C7523 Functional Specification – Preliminary Design (Manual - Consultants for Engineering Projects) describes, in detail, the work that
Contractor's Internal Project Management	
Environmental Management	

Public Consultation (Fixed Fee)	should be performed as part of each of these design/work elements.
Public Consultation (Time Rate)	
Traffic Counting & Analysis	
Property Access	
Hydraulic Analysis	
Structural Assessment	
Progressing Preferred Option Layouts	The Manual includes functional specification for Preliminary Design when an external consultant is engaged to perform the work. However, all the functional specification items must be addressed regardless if the work is performed by consultants or in-house.
Public Utility Plant	
Geotechnical Investigation	
Geotechnical Analysis and Report	
Pavement Design Report	
Risk Mitigation and Record	
Intelligent Transport Systems	
Preliminary Estimate of Cost	
Calculation of BCR (if needed)	
Road Safety Audit	
Disability Discrimination Audit	
Project Plan	
Project Proposal Report (Federal Funded Projects)	
Planning Report	
Native Title	
Cultural Heritage	
Survey	
Detailed Design	<p>The Detailed Design completes all design activities and finalises the scope, by providing a full schedule of work for estimating and construction purposes. This provides the final scope review before the development phase is completed. The Detailed Design completes the documentation so the construction tender contract can be called, assessed and let.</p> <p>The Detailed Design Stage is the final element in the preconstruction phase, and results in a design solution in the form of a set of construction contract documents to establish the construction contract.</p> <p>Includes time spent in procuring and managing the detailed design consultants, obtaining legislative approvals and permits, addressing all</p>

	the functional specification items (consultants or in-house), reviewing the risk register, finalising the public utility plant requirements and reviewing the detailed design and project estimate.
Procure Detailed Design Consultants	The design procurement involves negotiations on scope, schedule and fees that are fair to all parties, and to establish a suitable contract for the performance of the work. Scoping and negotiating the contract is an integral part of the project delivery process. When adequately performed, it enhances the efficiency of project management and delivery, and leads to better relationships between the parties. The Manual for the Engagement and Use of Consultants for engineering Projects addresses the specific requirements for consultant contracts for engineering projects.
Obtain Legislative Approvals and Permits	<p>Many entities and agencies require that permits be issued before a project can be constructed. These permits often require mitigation actions, so it is essential that potential permits be identified at the earliest stage.</p> <p>All the necessary legislative approvals and permits needed to deliver the project need to be identified and obtained (e.g. environmental permits, etc.) to comply with the legal obligations of the Department, in order to prevent breaches of legislation, policies and procedures.</p>
Produce Detailed Design	The detailed design includes engineering drawings and an electronic model for construction purposes. It also delivers final project schedules, estimates and all other construction contract documentation relevant to the type of contract proposed.
Liaison with Principal	C 7524 Functional Specification – Detailed Design (Manual - Consultants for Engineering Projects) describes, in detail, the work that should be performed as part of each of these design/work elements.
Contractor's Internal Project Management	
Environmental Management	
Public Consultation (Fixed Fee)	
Public Consultation (Time Rate)	
Hydraulic Analysis & Design	
Public Utility Plant	
Lighting	
Traffic Signals	
Intelligent Transport Systems	
Signs	
Provision for Traffic and Sidetracks	

	<p>Landscaping</p> <p>Geotechnical Investigation Analysis & Report</p> <p>Road Design & Drawings</p> <p>Bridge Design & Drawings</p> <p>Contract Documents</p> <p>Risk Mitigation & Record</p> <p>Calculation of BCR (if ordered)</p> <p>Detailed Estimate of Cost</p> <p>Detailed Estimate of Cost</p> <p>Statutory Approvals</p> <p>Design Development Report</p> <p>Project Plan</p> <p>Native Title</p> <p>Cultural Heritage</p> <p>Survey</p>
Contract Documents	<p>The appropriate type of contract documentation will depend on the type of delivery system adopted (refer to the MRPDS Manual). Contract documents are to be prepared in accordance with Main Roads Standards (Supplementary Conditions of Contract and Supplementary Specifications may be required), and include the certified design plans and specifications, which must be prepared to high standards of accuracy and completeness. All federally funded projects must conform to AusLink requirements. Other projects must comply with their respective funding source's processes and requirements.</p> <p>Includes time spent in producing/reviewing contract documents and obtaining the pre-tender financial approval.</p>
Produce Contract Documents	<p>Includes preparing the invitation documentation, calling/receiving/evaluating tenders, conducting contract negotiation, obtaining approval to award contract, and preparing the contract documentation. For high risk projects, Main Roads has implemented a system for pre-qualification – Major Works Prequalification System (MWPS) of organisations, which seek to tender for road infrastructure projects to minimise the risk of not meeting the project objectives.</p>

Pre-tender Financial Approval	<p>It is essential to follow proper financial approval processes established by the project's funding source when delivering RIP projects (e.g. If the project is federally funded, the Federal Stage 3A approval needs to be prepared, submitted and approved).</p>
Preliminary Works	<p>Includes approval for preliminary works, right-of-way acquisitions (native title, resumptions) utility services relocation requirements (electricity, telecommunications, water, etc.), and procurement and construction of preliminary works.</p> <p>Includes time spent in obtaining approval for preliminary works, acquiring right of way (Native Title, Resumptions), procuring Public Utility Plant (PUP) services (electricity, telecommunications, water, sewerage, etc.), and procuring/managing the construction of preliminary works.</p>
Obtain Approval for Preliminary Works	The project manager needs to discuss the necessary preliminary works to be undertaken (what they are, extent of the work, etc.) for the delivery of the project with the customer and sponsor of the project. The customer and sponsor approve the Preliminary Works
Acquire Right of Way	A more detailed assessment of utility services relocation requirements must be undertaken at the preliminary design stage. ROW acquisitions occur during the preparation of the detailed design to ensure the project will be constructed during the RIP timeframe.
Native Title	<p>Defining the area for Native Title evaluation must ensure that all land that may be affected by the project is identified.</p> <p>The completed land acquisition must:</p> <ul style="list-style-type: none"> - provide adequate land for construction of the project; - modify existing access limitation to meet the proposed arrangements; and - reflects policy <p>Access Limitation must::</p> <ul style="list-style-type: none"> - provide Main Roads with adequate access control over the road. <p>The Native Title Contact Officer can provide advice on Native Title assessment and information on the Native Title Work Procedures.</p>

Resumptions	A resumption package needs to be prepared and submitted to Property Services. The process includes the preparation of the "Notice of Intention to Resume", objection period, objection hearings and report, preparation of proclamations applications and Ministerial approval.
Procure Public Utility Plant (PUP) Services	<p>Alterations/relocations of PUP can be one of the most expensive components of a road construction project.</p> <p>The location and size of all such services must be determined early in the process, to allow appropriate adjustments in the proposals to minimise the cost involved. Relevant authorities must be consulted to obtain accurate information.</p>
Electricity	Includes submissions to the service providers for proposals, formal agreements, payment of fees, design and relocation works and financial authorisations.
Telecommunications	
Water	
Sewerage	
Procure Preliminary Works	According to the extent of the preliminary works to be carried out, the process could involve a simple approval of a works order. However, if the project requires extensive preliminary works it may involve a full tender process.
Construct Preliminary Works	The actual construction of the preliminary works.
Procurement	<p>Involves the engagement of a Contract Administrator (tender), procurement of Contractor (tender), financial approval and the award of the contract.</p> <p>Includes time spent in engaging the contract administrator, procuring the construction contractor and obtaining financial approval.</p>
Engage Contract Administrator	The Contractor Administrator is the Departmental nominated staff officer or an external consultant, who is responsible for the day to day administration of any Contracted Works. The Contractor Administrator; if required, in liaison with the Manager or his delegate, can select sub contractors who can demonstrate that they have the capability to safely undertake the contracted works
Procure Contractor	The procurement of contractor involves industry briefing, call for registration of interest, tenders and tender assessments.
Contract Financial Approval	Financial approval needs to be obtained in accordance with the appropriate financial level of

	delegation.
Contract Award	Refers to the date the contract is awarded to the Construction Contractor.
IMPLEMENTATION PHASE	<p>This phase covers the activities necessary to produce, test and commission project deliverables in accordance with the project plan. Key activities in this phase include: managing the construction contract, issue of the Practical Completion Certificate and the official opening.</p> <p>The Community Engagement Planner should be updated and the project plan reviewed for this phase.</p> <p>Includes time spent on project meetings, management of time (e.g. project scheduler), cost and quality, and updating the Project Plan/Community Engagement Planer.</p>
Implementation Phase Project Management	<p>This phase covers the activities necessary to produce, test and commission project deliverables in accordance with the project plan. Key activities in this phase include: managing the construction contract, issue of the Practical Completion Certificate and the official opening.</p> <p>The Community Engagement Planner should be updated and the project plan reviewed for this phase.</p> <p>Includes time spent on project meetings, management of time (e.g. project scheduler), cost and quality, and updating the Project Plan/Community Engagement Planer.</p>
Implementation Phase – Project Management (General)	Activities include project meetings, scheduler's time, cost and quality management work.
Project Plan - Implementation Phase	Includes updating, monitoring and managing the project plan, engagement and communication, managing project changes, controlling and reporting progress, revising/updating/re-submitting Preliminary and Detailed Design and review progress.
Community Engagement Implementation Phase	Community engagement takes place here to confirm and relay past decisions in previous phases, and understand and respond to impacts of roads works in communities, including design, construction and maintenance.
Contract Administration	The output of this activity is a formal project control structure and the major objectives are to establish and confirm the mechanisms and the people to facilitate project management. It

	<p>Includes time spent by the Superintendent's (and Superintendent's representative and inspectors) in managing the construction contract, preparing the design and construction contractors performance report, finalising contracts and issuing the Practical Completion Certificate.</p>
Practical Completion Certificate	<p>The Practical Completion Certificate is that stage in the execution of the work, under the Contract, when the works are complete, except for minor omissions and defects. The Practical Completion Certificate can only be issued when all the required tests have been carried out, required documents and certificates have been provided and the Contractor has done everything required as a condition precedent to practical completion.</p> <p>Also, the "As Constructed Drawings" need to be obtained, as the ARMIS system needs to be accurately updated accordingly to reflect changes in the road network, including change in ownership. In addition to "As Constructed Drawings", new assets must be added to the inventories in the information systems, and decommissioned or demolished assets archived.</p>
Construction	<p>Includes the Construction program provided by the Contractor and the Project Manager's time spent in managing/monitoring the construction milestones</p>
Principal's Responsibility	<p>Includes the Principal's (or representative's) time spent in organising the Principal's materials, setting up the site office, organising the official opening and so on.</p>
Official Opening	<p>Depending on the magnitude of the project, an official opening must be organised and the relevant dignitaries invited to the opening ceremony. AusLink and DoTaRS requirements need to be considered for all federally-funded projects.</p>
FINALISATION PHASE	<p>The three main activities in this phase are: handover, evaluation of project performance and closing out the project. The project plan should be reviewed for this phase.</p> <p>Includes time spent on project meetings, management of time (e.g. project scheduler), cost and quality, and updating the Project Plan/Community Engagement Planer. It also includes time for monitoring the Defects Liability Period, issuing the Final Certificate, completing the Project Handover Report, evaluating project performance, conducting Post Implementation</p>

	Review and closing out the project office and files.
Finalisation Phase Project Management	<p>This phase covers the activities necessary to produce, test and commission project deliverables in accordance with the project plan. Key activities in this phase include: managing the construction contract, issue of the Practical Completion Certificate and the official opening.</p> <p>The Community Engagement Planner should be updated and the project plan reviewed for this phase.</p> <p>Includes time spent on project meetings, management of time (e.g. project scheduler), cost and quality, and updating the Project Plan/Community Engagement Planer.</p>
Finalisation Phase – Project Management (General)	Activities include project meetings, scheduler's time, cost and quality management work.
Project Plan - Finalisation Phase	Includes updating, monitoring and managing the Project Plan, engagement and communication, managing project changes, controlling and reporting progress, any revision/updating/re-submission.
Defects Liability Period	The Defect Liability Period commences on the date of Practical Completion. It is the responsibility of the contractor to repair defects, which are attributable to the faults of the contractor, which occur within a specified period after the practical completion of works.
Final Certificate	The Final Certificate is issued within 14 days after receipt of the contractor's Final Statement (sets out the details of all claims made by the Contractor which have not been settled or otherwise resolved). In the certificate, the final amount due to the Principal to the Contractor and vice-versa is certified.
Community Engagement - Finalisation Phase	In this phase, it is important to engage customer and stakeholder to ensure that all their concerns are identified and addressed. This is also the last practical opportunity for the customers to voice their views.
Complete Project Handover Report	<p>Includes confirmation of project completion, receipt of documentation, maintenance arrangements and the actual preparation of the handover report.</p> <p>It also includes the preparation of the Consultant/Contractor Performance Final Report, which must be completed within 2 weeks of completion of any resulting infrastructure. The</p>

	aim of these reports is to provide a final assessment
Evaluate Project Performance	Includes the evaluation of the project against the success criteria and the preparation of the Project Completion Report.
Post Implementation Review	The Post Implementation Review focuses on outcomes either at program or project level. The review is an organisational activity to evaluate the outcomes generated by the project/ program in relation to the original need, and identifies lessons for improving organisational processes and procedures.
Close Out	These activities cover the tasks associated with closing down the project office, including administrative and financial closure. This is the phase of a project that ensures that all project activities are completed to a stage of acceptance by the client, as well as achieving financial and administrative close-out.