



## FEEDLOT DESIGN AND CONSTRUCTION

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# 48. Project management

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## Introduction

The function of project management is a relatively recent development as a specialist role in its own right. Consulting engineers have traditionally undertaken the project management function as part of their professional service to lot feeders. Lot feeders also have traditionally undertaken many of the brief development, communication and management activities now undertaken by a project manager.

In general terms, project management means the process of managing a construction project through all the stages (i.e. from the initial concept to the final completion including, overall planning, coordination, the appointment of consultants, deciding on project delivery method, preparation of design and specifications, tendering and the construction work and project close-out). This may be done in a variety of ways as outlined in *Section 45 – Feedlot construction delivery*.

The project management delivery method is aimed at meeting a lot feeder's requirement to produce a functionally and financially viable project. The functions performed by a project manager typically include the design, or procurement of the design on behalf of the lot feeder; the construction or procurement of the construction on behalf of the lot feeder; and, in particular instances, other activities including site selection, site acquisition, permit approvals, advertising of the project, project administration and/or other activities which might otherwise need to be performed by the lot feeder.

The essential feature of project management is that services offered are management services rather than the construction works. However, the on-site construction works will also need to be managed – usually by the construction contractor. Typically, the services provided by the construction contractor are restricted to construction activities rather than design activities or site acquisition, but they also include engaging subcontractors on behalf of the lot feeder.

## Project management objectives

The objectives of project management are to

- undertake the necessary activities to support successful project delivery
- implement various operations through proper coordination and control of planning, design, estimating, contracting and construction of the entire process.

## Mandatory requirements

Compliance with

- relevant Commonwealth, state and local authority codes, regulations and relevant Australian standards as applicable to conditions of contract, tendering, project and risk management.
- legal obligations to provide for the health and safety of workers within work health and safety regulations and legislation (Work Health and Safety Act 2011/Work Health and Safety Regulations 2011).
- licences, consent, permits, approvals and requirements of organisations having jurisdiction over the construction work.

## Possible solutions

On large or complex construction projects, an independent project manager can be an advantage, particularly where non-standard delivery methods such as construction management are employed, to ensure the lot feeder's interests are maintained. Alternatively, the lot feeder may wish to manage the project but must be aware of the risks and obligations of this role.

The following describes the project management activities necessary in most reasonably sized construction projects. The decision as to who undertakes these activities, the need for a specialist project manager and the particular activities assigned to them are decisions to be made for each project.

### Scope

The scope of the project must be clearly defined. The typical services that the project manager can provide include

- overseeing the development of the project brief, ensuring it covers the purpose of the project
- ensuring that all relevant stakeholders have provided appropriate input into the development of the project brief
- ensuring that the stakeholder/s sign off on the project brief
- ensuring that all works required to complete the project are listed, with a clear understanding of who undertakes the work, including any items to be procured by the lot feeder
- collation of project requirements including the brief, budget, time frames and standards for the project team
- identifying any constraints or conditions that will impact on the project delivery.

### Procurement

The typical services the project manager provides include

- Selection, in consultation with lot feeder, of the appropriate project delivery method (e.g. traditional lump sum, design/construct)
- Management of the selection of engineering and other consultants as required
- Ensuring that all required disciplines and specialist advisers are included in the project team
- Ensuring that the appropriate contracts are executed between lot feeder and consultants
- Processing the contract progress payments to the construction contractor and/or consultants
- Advising on requirements and timing of materials and services to be provided by the lot feeder or other parties, and ensuring that they are built into project programs
- Ensuring that feasibility study reports, preliminary drawings and design drawings are completed, coordinated, checked and signed off at appropriate times
- Management of the tender call, tender recommendation and contractor engagement process; ensuring that contract documents are prepared and signed

- Coordination and management of the various contractors and suppliers so the work proceeds in a timely and efficient manner where all contractors are given access to the site when reasonably required
- Advising on-site inspection requirements from consultants and ensuring appropriate site meetings and inspections are undertaken, and that appropriate instructions are given to the construction contractor
- Ensuring that variations and contract instructions are made on a timely basis
- Management of project completion and handover process
- Management of dispute resolution, contract defaults and liquidations.

### Cost

Project costs must be managed. The typical services that the project manager provides include

- Reviewing and managing of project budget and cost estimates
- Ensuring that cost issues are flagged early and discussed with all stakeholders
- Management of variations and extension of time expenditure
- Processing contract payments to contractors
- Managing strategies to maintain the project budget when cost pressures arise.

### Contract management and administration

A construction project, irrespective of the delivery method, requires good contract administration to manage formation of contracts, contractual agreements, cost control, payments and variations, final accounts, commissioning, handover, defects rectification, claims and disputes and final financial close of the project. Poor management in any of these aspects leads to unnecessary claims and disputes and eventually higher construction costs.

The purpose of contract management and administration is to

- Manage the delivery of a capital project and associated work in accordance with the executed contract documents
- Ensure the construction contractor fulfils their responsibilities, duties and outcomes in accordance with documented requirements, the contract itself, and statutory requirements
- Ensure that the construction contractor is properly and promptly paid for works suitably carried out
- Ensure that subcontractors to the construction contractor are paid properly and promptly for works suitably carried out
- Avoid and resolve construction disputes
- Ensure that defects are suitably rectified
- Ensure that the correct procedures are followed for variations or a change in orders
- Ensure that charges for non-contracted construction services are authorised and promptly paid.

Contract administration is a specialised skill, and it is common practice for a lot feeder to appoint or delegate the responsibility for contract administration to a person who is then the lot feeder's representative.

All parties should be aware of their technical, legal and financial obligations and responsibilities as failure to do so may involve disruptive and costly compensation claims.

### Quality control

Quality control is essential to provide and deliver an agreeable project outcome. Typically, the construction contractor is responsible for checking each subcontractor's conformance to design drawings, design documents, material specifications and/or erection/installation requirements.

Should non-conformances be found, the construction manager must notify the subcontractor(s) involved that corrective work is required and follow up until all work is completed satisfactorily. However, a project manager may be allocated this role.

Basic concepts of quality control from a project manager's perspective are

- Ensuring that the lot feeder's quality standards are articulated and understood by consultants
- Managing the quality standards required from consultants and contractors.

### Risk

The lot feeder and project manager should identify all project risks and prepare plans to minimise them.

### Schedule

A clearly defined project schedule is critical to the success of a construction project. This includes a clear recognition of the tasks of work, the proper order of their appearance on the job, correct duration of work, complete resources allocation to tasks and a clear purchasing and delivery register. Key project management activities comprise

- Planning and establishing the project program and identifying key strategic activities
- Monitoring and updating the program as required, flagging the timely provision of materials and services from other parties
- Management of the project team
- Advising on strategies to maintain the project program when delays are evident.

### Communication

A key ingredient in all successful construction projects is clear, efficient and effective communication between all participants. Good communication does not automatically occur on construction projects but must be nurtured from project inception through handover. The lot feeder, construction contractor and consultants must set the stage for effective project communication during initial contract negotiations and teamwork discussions.

Basic concepts of coordination and cooperation, as summarised below, can foster continuing effective communication throughout the project.

- Establishing and managing the consultative mechanisms including project meeting regimes and reporting processes.
- Establishing and managing the approval mechanisms for various signoff requirements and identifying those with appropriate authority.
- Advising on and managing government and statutory approvals.
- Convening reporting meetings with stakeholders as appropriate.
- Preparation of regular progress reports on project issues, including costs relative to budget and progress relative to program.
- Ensuring that all team members understand their roles and responsibilities and ensuring their ongoing commitment to the project.

### Workplace health and safety

Health and safety of all participants in the project is a crucial area to manage. Building and construction activities by their inherent nature are high risk. The construction contractor, subcontractors and their workers face risks from hazards that must be managed to prevent injuries, illness and deaths.

Various state and Commonwealth regulations outline how workplace health and safety risks from certain hazards must be managed, and the responsibilities and duties for managing health and safety on the project site. Typically, the regulations cover

- entity responsible for workplace health and safety
- construction safety plans
- work method statements for high risk construction activities
- general and site-specific induction of personnel
- housekeeping practices
- safety of plant provided for common use
- excavations (including trenches)
- working at heights (including work on roofs, from ladders and trestle ladder platforms and work to erect or dismantle scaffolding)
- protecting the public and workers from falling objects
- amenities.

It is mandatory to have policies and procedures in place for a construction project to minimise the risk of death, injury or illness for those people working on or visiting the site.

### Practical completion and handover

The handover of a project to the lot feeder at the end of construction is a very important stage of the project management process and key to the operational success of the project.

The contract will define the stage at which the project is at practical completion and handover is to occur. A well organised, efficient and effective transfer of information from project works to the lot feeder is essential at this stage.

The handover of a project usually involves the issue of a Certificate of Practical Completion. Typically, the Certificate of Practical Completion should not be issued, and the project should not be handed over, until the following activities (if contracted) have been undertaken or fulfilled.

- Connection and commissioning of all plant and equipment, systems and all testing data and reports made available, and the operation and maintenance manuals supplied.
- Licences, certifications and registrations required by relevant workplace standards, building acts or any other legislation provided.
- Defect liability period (DLP) maintenance management processes put in place and confirmed by the lot feeder.
- Training sessions successfully held to the satisfaction of operational managers in each field of expertise.
- As-constructed or as-removed information has been supplied. As-constructed information is required to allow a smooth transition from project to actual use or occupation. As-constructed information includes schedules of equipment, technical data and manufacturer's technical literature including operation and performance information on individual plant and equipment, copies of certifications and warranties, all test results, maintenance schedules and complete as-built drawings in digital (ACAD) format and list of suppliers.

Once the Certificate of Practical Completion has been accepted, the post construction phase commences. It is not uncommon for construction projects to remain active for several months while equipment continues to be purchased or work is accomplished under other contracts to complete the work on the project.

### Post construction

The lot feeder, project manager and/or construction contractor monitor the project during the defects liability period. The project manager or lot feeder is responsible for managing construction contractor callbacks following contract completion. As defects in the work are discovered, the construction contractor is notified. The project manager investigates the issue, notifies the contractor if corrective action is required and works with the lot feeder and construction contractor to coordinate access and scheduling for the work.

As the defects liability period nears completion, the project manager confirms that all the defects work requests have been completed. Typically, a post occupancy inspection is held with the lot feeder, project manager and construction contractor prior to the end of the defects liability period.

As-constructed information is supplied and held as reference for future development. Final completion occurs when all required as-constructed documentation is provided, defects work completed and all payments made to the construction contractor.

## Quick tips

- Every construction project requires a process of managing all its stages. Project management is sometimes overlooked or put low on the priority list when setting up a project.
- The lot feeder may wish to project manage the project. However, the lot feeder must be aware of the risks and obligations of this role.
- On large or complex construction projects, an independent project manager can be an advantage.
- Contract administration is a key element of project management that needs to be performed either by the lot feeder or the project manager.
- Safety must be the one constant that is built in all planning, design, bidding, and implementation of each project.

## Further reading

Standards Australia, 2002, AS 4915-2002 Project Management – General Conditions, Standards Australia, Canberra, ACT.

Standards Australia, 2002, AS 4916-2002 Construction Management – General Conditions, Standards Australia, Canberra, ACT.