

What's involved in building a road?

The condition and extent of our road network is a frequent conversation topic. However, some motorists may not realise there may be considerable lead time needed before roadworks begin. The process of building a new road or upgrading an existing road involves several steps.

Concept planning

In the concept stage, engineers, geologists, planners and environmental scientists work together to confirm the need for the project and to complete traffic, geotechnical, environmental, flooding and other studies as appropriate. A number of project options are usually developed (for example, possible locations for a new road or the work required to upgrade an existing road). The preferred solution is identified by assessing the available options against wide ranging criteria.

The concept stage can happen many years ahead of construction and may involve working with local government, other planning and environmental authorities, community and industry groups and in some cases, the Federal Government.

Detailed planning

Detailed planning can take between one and five years depending on the complexity of the project. During this stage, planners develop further details of the project such as the intersection layouts and locations for bridges and major culverts. Where required, environmental approvals are sought and if a project requires acquisition of land, the resumption process is usually initiated at this stage.

It is during the concept and detailed planning stages that planners consider factors such as the availability of suitable materials for the project and the impacts of the road proposal on nearby homes or businesses.

Design

Project design involves finalising all aspects of the road project and producing drawings and specifications for construction. Pavement and drainage designs are completed and details produced for signs and linemarking arrangements, landscaping treatments, bridges and culverts and electrical installations such as traffic signals and lighting. For a complex project, design may take up to two years.

Construction

Once a construction contract has been awarded, the first step is to clear the site. Topsoil is removed to provide a sound base for road embankment and is often stockpiled for later use in landscaping the site.

Pavements are laid in layers, either gravel, concrete or asphalt, with the depth defined by the design and depending on subsoil conditions and forecast traffic loadings.

Where road construction needs to occur near existing traffic, roadworkers erect appropriate signage, barriers, and where necessary, temporary sidetracks to ensure the safety of motorists and workers and to keep traffic moving. On a complex project, numerous changes to traffic arrangements may be needed during construction.

Even with the best planning, there are many reasons why road projects can be delayed. These include property resumptions, funding availability, environmental or other approval processes and during construction, weather conditions and the availability of equipment and materials.