

About Engineering and Technology

Working in Engineering and Technology branch (E&T) is more than a job. It is becoming part of an industry leading technical team where dedicated, passionate professionals strive to excel. As part of E&T you will have the opportunity to be an industry leading specialist developing cutting edge technologies while providing direct technical support to the delivery of major transport infrastructure projects.

Whilst staying at the forefront of national and international best practice and facilitating relationships between industry and the Department of Transport and Main Roads’ (TMR), E&T ensures the department has access to the most advanced and cost-effective innovations.

As part of the Infrastructure Management and Delivery (IMD) Division and functioning as a centre of excellence, E&T provides specialist technical support to Program Delivery and Operations (PDO) and RoadTek to assist in delivering transport infrastructure across Queensland.



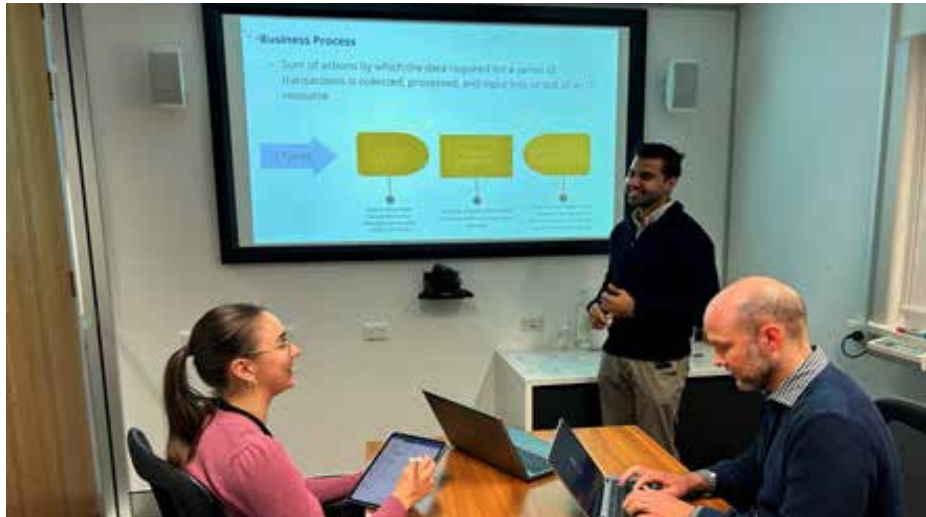
E&T Structure

Led by Chief Engineer, Dennis Walsh, E&T is comprised of five sections:

- Office of the Chief Engineer (Multi-Disciplinary Projects)
- Hydraulics, Design and Spatial
- Pavements, Materials and Geotechnical
- Safer Roads Infrastructure
- Structures

Each Section is headed by a Deputy Chief Engineer or an Executive Director and focuses on delivery and innovation in their area of expertise. E&T’s research and innovation focus ensures that new methods and technologies are embedded into the TMR business.

E&T provides access to industry leading technical specialists, opportunities for progression and career development whilst being on the forefront of technological advancement.



Office of the Chief Engineer

Multi-Disciplinary Projects

As the E&T liaison across IMD (PDO and RoadTek), our focus is to enhance customer experience and ensure smooth program delivery. We strategically develop forward programs to inform business and resource planning. Additionally, we play a crucial coordination role in major projects while nurturing the technical capabilities of E&T graduates and early career professionals through mentorship.

This area would suit Engineers and strategic planners specialising in cross functional project co-ordination and talent development.

Hydraulics, Design & Spatial

Road Design

Focuses on road geometric design governance for all aspects of safe systems road design, including road drainage, safety barrier guidelines and application. The central area for digital engineering and capture of infrastructure data, including BIM, CADD applications, design presentation procedures and Plan Room. Provides technical training development and delivery (within specialty of the Unit). Also undertakes noise management and landscaping related governance and advice. Participates in value/ risk engineering exercises, providing technical advice to transport infrastructure planning and design projects across the state with the intent of ensuring acceptability to departmental standards and adding value where possible.

This area would suit Engineers specialising in Civil Engineering, Mechanical Engineering (with an interest in Noise and Vibration), Environmental Engineering (with an interest in Noise and Noise Mitigation), or professionals with an asset data management background (digital data management).

Hydraulics and Flooding

Focuses on hydrologic / hydraulic studies in a range of areas including total road links, at the interface between TMR’s road and complex floodplains plus bridge site hydraulics.

This area would suit Engineers specialising in Civil or Environmental Engineering (with an interest in two-dimensional hydraulic modelling, flood estimation and forecasting, flood debris impacts, catchment delineation, climate change impacts, computational fluid dynamics, and fish passage in culverts).

Geospatial Technologies

Geospatial Technologies has expertise in position-based data and information. The Department relies heavily on this for making informed decisions in the context of location. Geospatial Technologies provides technical leadership and governance in the spatial science disciplines including surveying, remote sensing, GIS&T, cartography, geospatial information management. The team is also responsible for undertaking Native Title assessments and ensuring legislative compliance in relation to the Native Title Act. The Spatial Futures Program is a strategic project managed by Geospatial Technologies to uplift the quality and accessibility of spatial data.

Pavements, Materials & Geotechnical

(Section located in Bulwer Island)

Pavements, Research, and Innovation

Is TMR’s central area of expertise for many road pavement materials (e.g., asphalt, unbound pavements, plant mixed stabilised pavements, bituminous binders, sprayed seals, coloured surface treatments, high friction surface treatments), the use of recycled materials in pavements and the selection and design of road surfacings and new road pavements.

PR&I also deals with asphalt contractor prequalification, mix registrations (for asphalt and stabilised materials), lead a number of NACOE research projects related to pavements, represent TMR on the national Austroads Pavement Task Force and provide advice about heavy vehicle pavement impacts.

This area would suit Engineers specialising in Civil Engineering with a general interest in roads, including in road construction, road pavements and use recycled materials in road pavements.

Geotechnical Section

Geotechnical Section conduct all geotechnical related works including geotechnical design/review, technical governance, geotechnical investigation, geotechnical instrumentation and monitoring, slope risk management and quarry material assessments and registration.

This area would suit Engineers specialising in Civil or Geotechnical Engineering, Geology Engineering and those with Applied Sciences Degrees.

Pavements Rehabilitation

Focuses on improving the functional or structural condition of pavement while using some or all of its existing structure. Pavement Rehabilitation Unit is the department’s centre of expertise and technical excellence to support practical and affordable rehabilitation design solutions. This includes pavement investigations, design review, concrete bridge deck wearing surfaces, pavement and subgrade stabilisation/recycling, plant-mixed foamed bitumen and geosynthetics for all subgrades, asphalt and sprayed seals.

This area would suit Engineers specialising In Civil Engineering (with pavement rehabilitation design experience).

Materials Laboratory Services

Materials testing is critically important for ensuring that road infrastructure is built to specifications, to ensure the useful life of road assets is maximised, repair and maintenance costs are minimised, and road network safety is preserved.

Safer Roads Infrastructure

Safer Roads

Develop, support, and facilitate road infrastructure improvements that minimise harm (Safe System Principles) and maximise reductions in Fatal and Serious Injury crashes on Queensland roads.

This area would suit Engineers specialising in Civil (recommended), Electrical, Mechanical or Environmental Engineering.

Cooperative and Automated Vehicles

The cooperative and automated vehicle initiative (CAVI) is unpacking the potential benefits of new vehicle technology on road safety. CAVI is delivering a number of pilot projects including the Cooperative and Highly Automated Driving Pilot, connected transport project, and Connected Motorcycle Rider Project whilst also operating and integrating connected infrastructure and systems. The objectives are to validate the safety, demonstrate the technology to the public, grow TMR and industry’s readiness and encourage new partnerships. The current program focusses on accelerating CAV deployment through national harmonisation, data improvements, and infrastructure and systems deployment.

This area would suit Engineers specialising in Traffic, Electrical, Mechatronics, and Data and Systems Engineering, and Information Technology including Cyber Security.

Traffic Engineering

Focuses on developing, maintaining, and assisting with the application of technical standards, guidelines and specifications relating to traffic engineering including signage, line marking, vulnerable roads users and temporary traffic management.

This area would suit Engineers specialising in Civil Engineering or any other engineering discipline with an interest in traffic and transport.

Road Safety Programs

Consists of Data Analysis, the Targeted Road Safety Program and Safer Speeds and is responsible for the management of three main programs; the Camera Detected Offence Program in conjunction with the Queensland Police Service, the Automatic Number Plate Recognition Program and the Weigh in Motion Program. Road Safety Programs oversees the coordination, procurement and delivery of civil works associated with the Camera Detected Offence Program, including the new Mobile Phone/ Seatbelt cameras. Road Safety Programs also provides data analysis and state-wide reporting for road crash, registration, licensing and infringement and heavy vehicle monitoring data.

Structures

Structures Management

Provides strategic direction and leadership to support Districts in the management of their structural assets. This team looks after structural inspections, carries out permit and heavy vehicle access management, and develops engineering solutions for rehabilitation maintenance works. The team also conducts research, manages structural data systems and develops technical documentation that support asset management functions.

This area would suit Engineers specialising in Civil Engineering, data analytics.

Structures Construction Materials

Oversees professional advice, research, development, and engineering reviews on structural designs focussing on steel and concrete materials and components to TMR. A key function of this team is to ensure appropriate standards of quality and safety are achieved while maintaining cost effectiveness. The section also manages material standards and specifications and undertakes audits of registered suppliers and approved products.

This area would suit Engineers specialising in Civil Engineering.

Structures Design, Review and Standards

Provides structural engineering services to support TMR in the delivery of its bridge projects. The team is made up of structural engineers and drafters, and they carry out designs, analysis and technical reviews of structural engineering deliverables on behalf of TMR as the ultimate asset owner. The team develops and maintains a range of technical documents, such as standard drawings and the Design criteria, for bridges and other structures.

This area would suit Civil Engineers specialising in Structures.

