



LUCY MAO

TRAFFIC ENGINEER

BEng (Civil & Environmental, MAITPM)

YEARS IN TRANSPORT INDUSTRY

- 2 years

EDUCATION & MEMBERSHIPS

- Diploma of Engineering
- Bachelor of Engineering (Civil and Environmental)
- AITPM Member

KEY SKILLS

- SIDRA Modelling
- Traffic Engineering
- Project Management

REFEREES

Pam Andritsakis

Director Business Services
Be Engineering Solutions Pty Ltd
T: 0413 648 704

Hyeyoung Ghang

Senior Traffic Engineer
City of Playford
T: (08) 8256 0187

PROFESSIONAL PROFILE

I joined Be Engineering Solutions (BEES) in early 2020 as an Intern Traffic Engineer and now I'm part of our 7-person Traffic Engineering team. I have a keen interest in traffic, transport planning and design, and traffic modelling. I have been fortunate to be involved in a variety of projects to develop my understanding and application of Australian Standards and Austroads Guidelines. I have acquired extensive exposure, training and involvement in projects that have provided me with sound knowledge and experience in traffic investigations and assessments, traffic and crash data analysis, development of concept and detailed designs, and traffic modelling. I have also worked on secondment in local governments and have gained a good understanding of governance and community expectations regarding traffic and parking concerns on local road networks.

As part of developing my career, I joined AITPM in 2021, to build my professional networks and learn from experts in the field of traffic and transport. In continuing my development, I am submitting my nomination for the 2022 AITPM Young Professional Award as, I believe attending the AITPM National Conference will be a unique opportunity to hear presenters share their expert knowledge. I am also excited at the opportunity to expand my professional networks, meet industry experts and other young professionals, and broaden my exposure to innovative traffic and transport systems, challenges and solutions.

PASSION IN TRAFFIC

I remember my first question to my employer on the first day I started my journey was 'what is traffic?'. He said traffic is everything you see moving on roads (pedestrians, cyclists, cars, buses, trucks etc). It's interesting that I hadn't given it much thought and, after two years of working in this field, I am excited to be actively involved in traffic and my understanding and appreciation of how people move around motivates me to develop safer road environments for all road users.

My ever-increasing understanding of traffic is that quite simply it affects everyone, every day and we generally move around believing all roads are safe. Major projects such as a highway design through to installation of a yellow 'No Stopping' line require skills to investigate, assess existing conditions, consider standards and guidelines, and allow for human error in design, installation or removal of a traffic device. A good traffic design is not just about fulfilling a client's needs but should also provide benefits to a community and improve road safety for all road users.

I am inspired by traffic and transport professionals who work tirelessly to provide safe environments and improve how we move around our communities and, I feel privileged that I am able to apply my professional knowledge in traffic and contribute to our society. I also have so much more to learn and excited to be on this journey.

INVOLVEMENT WITH THE AITPM, SA BRANCH

I joined AITPM SA branch in 2021 and have enjoyed attending technical seminars and YP social events. AITPM provides a great platform for young professionals to build relationships and networks, meet with other YPs with the same passion in traffic and transport, and expand our skills and knowledge through sharing experiences with senior traffic and transport specialists. In the future, I would also like to be part of AITPM SA Branch committee and encourage more YPs to join and see the value of being a member.

PROJECT EXPERIENCE AND LEARNINGS

2021 - Golden Grove Road Upgrade Project - Stage Two - Bus Priority Treatments (Project Value: \$30M)

The Department for Infrastructure and Transport (DIT) was improving public transport travel along Golden Grove Road by adding bus priority treatments at four intersections including:

1. Golden Grove Road / The Grove Way / Yatala Vale Road
2. Grenfell Road / Golden Grove Road
3. Milne Road / Golden Grove Road
4. North East Road / Modbury Avenue / Golden Grove Road

Be Engineering Solutions was engaged to conduct traffic modelling for the project and I was part of the internal team. Led by our Senior Traffic Modeller, my role, responsibility and tasks for each intersection included:

- Used SIDRA INTERSECTION software to establish existing intersection performance level for public transport and general traffic.
- Undertook site investigations during AM and PM peak periods to observe and record general traffic patterns, driver behaviours, queue lengths and traffic light phase times.
- Calibrated the models to the observed and recorded conditions.
- Assisted in the design process by assessing performance impacts of proposed schemes on public transport and other road users under existing and future demands.
- Assisted in the refinement and development of alternate schemes where required.
- Prepared the Traffic Analysis and Modelling Reports documenting results of all the traffic analysis and modelling for the modelled intersections.

This project was my first experience in traffic modelling and with guidance from the Senior Traffic Modeller. I understood the importance of improving public transport efficiencies, to encourage more people to choose travelling by bus than car. Conducting site observations, recording accurate information and analysing data to assess current conditions and future demands, increased my awareness and technical skills of traffic movements along priority transport corridors.

We encountered various difficulties throughout the modelling and design process such as site constraints and contradictory requests from stakeholders. I am proud to have been part of the project which resulted in intersection upgrades that are accessed by high volumes of traffic, have improved public transport efficiency and patronage is incrementally increasing.



Kalyra Road Traffic Calming Conceptual and Detailed Design

Kalyra Road in Belair has an undulating profile with a road gradient greater than 10%. Following concerns raised by the local community regarding vehicle speeds, City of Mitcham was seeking an appropriate Local Area Traffic Management scheme to reduce speeds, therefore improve road safety for motorists travelling along the road. My role for this project included:

- Conducting a desktop review including analysis of crash data, traffic data and previous reports.
- Undertaking a traffic investigation study and prepared a study report detailing existing conditions and issues, comparing traffic calming device options and applied a multi criteria assessment matrix to recommend appropriate treatments.
- Assisted in the development of conceptual and detailed design of the preferred option (road cushions), to reduce vehicle speeds and improve road safety.
- Prepared a Traffic Impact Statement (TIS) detailing the proposed treatment, impacts and compliance with the *DIT Part 2 – Code of Technical Requirements*.

This project assisted me to develop my technical understanding of traffic calming devices, their application on local roads and conformity with relevant standards.

Burnside Primary School Safety Review

Following concerns raised by local residents and parents from the school, the City of Burnside was seeking a road safety review of the road network, at and around the school. Led by the Senior Traffic Engineer, my role included:

- Meeting with Council representatives and School Principal to understand the issues and prioritise the safety concerns.
- Conducted site investigations of pedestrian and vehicle movements at adjacent roads and observed the operation of existing pedestrian actuated crossings (PAC) and emu crossing, during AM and PM peak school times.
- Prepared a report identifying the high and low safety risk issues and recommending solutions to improve road safety for all road users, especially for young children.

My learnings included the importance of conducting good site observations, accurate recording of information and reporting to Council and the school. Through the site observations at a school, I gained an understanding that children's behaviour can be unpredictable, and the importance of providing safer road environments, complemented by road safety education in schools, are vital to children developing good road safety habits.

Golden Fields Adventure Playground Car Park Design (Project Value: \$1.5M)

The City of Tea Tree Gully received grant funding from the State Government to develop a new Adventure Playground at Golden Fields Reserve including a new car park and access driveway to service the new playground. My role for the project included:

- Conducted a site investigation at the proposed car park area and two proposed access points, to understand existing conditions and expected traffic movements.
- Assisted with preparation of the new car park design plan in accordance with Australian Standards.
- Prepared comprehensive traffic impact statements to document the traffic management and safety improvements for both vehicles and pedestrians and the impacts identified for each access option.

Through the project, I learnt that listening and understanding a client's objective was important to develop a good design, considerate of all known and unknown factors. Designing for easy, safe enter and exit the car park at low speeds, considerate of people walking within the car park was important, to reduce the risk of crashes within the car park and at the access points.