

My name is Samantha Chapman and I would like to nominate for the 2019 AITPM Young Professional Award.

Undergraduate Degree

I graduated from a Bachelor of Civil Engineering (Honours) from the University of Tasmania in December 2018. During my degree I was awarded the Elvey Robertson Award for completing my studies with distinction and I also undertook a companion degree in a Bachelor of Philosophy offered to high achieving students. In my second year of university I was offered the opportunity to undertake summer placement at GHD in Hobart. Since then I completed two summer placements before joining the company as a full time graduate engineer in the Traffic and Transport team.

My first exposure to traffic engineering and transport planning was during my 2016 placement at GHD where I had the opportunity to work on the traffic management planning for the summer events season including the Taste of Tasmania, Sydney to Hobart and Australian Wooden Boat Festival. Since then I have completed a variety of projects in this field, including studying the transportation engineering unit at university as well as undertaking a transport research project for my final year honours thesis. I found myself drawn to the real-world applications of transport studies and the ability to use innovative solutions to improve efficiency.

For my thesis I studied the impacts of inner-city parking on the Hobart CBD road network. Hobart has a unique position in transportation engineering where residents expect a higher level of service, than typically accepted in larger cities. Compounding this, there are also limited public transport facilities and strong tendencies towards driving, and in particular single occupancy vehicle trips. My study looked at removing inner city parking from the CBD and the impact that this change would have on the networks performance. The AIMSUN transport modelling software was utilised to model the changes to parking availability using a Mesoscopic analysis. The transport model allowed me to inspect the changes to the network that would result from such a relocation under forced and unforced behavioural conditions. As an extension to my study I applied a growth rate to the base model to analyse how the changes performed under estimated future traffic volumes. The results confirmed the importance of combining parking options on the outskirts of the city and solutions, such as park and ride, with new CBD developments. I found that this combination of solutions was able to assist in ensuring that current traffic conditions did not deteriorate. My study received a High Distinction and was presented to the Department of State Growth, the Tasmanian road authority.

During my studies I undertook an internship with the Sustainability Internship Program for Students. During this placement I used my civil engineering studies to design a bicycle storage facility for the new Hedberg Campus for the University of Tasmania. This project faced constraints of limited space whilst having a large bicycle parking spaces requirement. As well as designing to standards (AS2890.3), it was important to follow university considerations for safety and security, the campus aesthetics and to create a design that utilised sustainable concepts. This was my first self-directed project and was a great experience to present my completed designs to the University and Hobart Council stakeholders.

Graduate Work

In my employment at GHD I have had some amazing opportunities to work on challenging projects in the transport field. I have completed numerous projects utilising the Launceston and Hobart traffic models developed in the AIMSUN software package. One project I assisted on, was looking at the ABC roundabout in Hobart. The ABC roundabout is a major signalised roundabout which provides links between the eastern and northern suburbs, with the CBD. I upgraded the existing Hobart

model to a hybrid model, to create a microsimulation pocket for assessment of the roundabout and for test signal arrangements and layout adjustments. The goal of the assessment was to increase safety and efficiency. The results showed the ability to achieve significant efficiency gains alongside safety improvements.

I have also used the Launceston model to assist in investigating a series of scenarios for managing changes in driver route choice resulting from planned university relocations. The scenarios included a second bridge crossing, converting key roads to dual lane carriageways, right turn bans, introduction of signalised intersections and phasing optimisation. With the use of the model the impacts of the relocation on the network were able to be predicted under current and estimated future growth scenarios. The network changes were able to be modelled under each of these conditions to provide recommendations for solutions which would minimise the impact on the Launceston road network of relocating the University.

On a smaller scale I have used the model of Kingston to look at route choice and driver behaviour in order to deter vehicles from a popular 'rat-run' route. Using the mesoscopic mode, with Frank and Wolfe route choice methodology, I was able to predict driver behaviours with a speed deterrent placed on the route to determine potential impacts of lowering the attractiveness of this route on the greater network.

As well as the AIMSUN software package, I have become proficient in the use of SIDRA intersection, AutoCAD, AutoTURN and ArcGIS. I have used these programs to undertake various Transport Impact Assessments and traffic studies and have enjoyed looking at the capability of such software. I also recently undertook Road Safety Audit training which provided valuable insight into road design practices and the importance of determining safety impacts at a concept level.

An exciting project, I recently had the opportunity to be involved in, is the traffic management planning for the Dark Mofo festival events. Dark Mofo is an annual music and arts festival held during the winter solstice which includes a number of events in and around the Hobart CBD and water front areas. For this event I worked on Traffic Management Plans. The events generate a high amount of pedestrian and vehicular traffic, as well as involving closures and restrictions on major roads. Events this year require temporary closure of a major arterial road, Davey Street, and a large number of pedestrians near the Tasman Highway. The additional challenge of these projects are the linkage of the many events and transport of people between events.

State Branch Committee

It would be a great privilege to sit on a State Branch Committee as a Young Professional representative. I am aware there is currently no dedicated Tasmanian branch however I believe having a Tasmanian representative would be greatly beneficial. I believe it would be highly rewarding to have the opportunity to connect with a broader network from other states and to learn from how different challenges and solutions apply to different states and territories. I would greatly welcome the opportunity to be a young professional representative for the AITPM committee.

I am someone who enjoys being highly involved, as shown through my participation in various committees and programs throughout my university studies, including being President of the Engineering Society and Chair of the Staff Student Liaison Committee in my final year of University. Alongside my primary degree in Engineering I undertook a Bachelor of Philosophy through which I participated in the Vice Chancellors Leadership Program. From this I learnt the value of connecting with and working with others in industry and taking opportunities such as joining the State Branch Committee.

AITPM 2019 National Traffic and Transport Conference

It would be a great opportunity to attend the AITPM 2019 National Traffic and Transport Conference, particularly so early in my career. Although I have begun to build my knowledge in the traffic and transport sector, I still have so much to learn and feel this could be a great educational experience for myself.

As a graduate I am constantly learning from those around me and would welcome the opportunity to attend the conference to hear from some industry leading speakers on topics surrounding traffic and transport. I am excited by new and developing concepts in the field such as Intelligent Transport Systems (ITS), shared use of transport networks and how we can use modelling software to test innovative transport solutions. I think it is especially important to my learning as a graduate to not only learn common practices through day to day work, but also to be exposed to advancements in the industry and how transportation needs of different parts of Australia and the globe are met. I believe this is why the opportunity to attend the 2019 conference would be beneficial to me in my career.