

INVOLVEMENT BY DR KHALED ABBAS

IN

TRANSPORT & TRAFFIC PROJECTS

CONDUCTED

BY

**SNOWY MOUNTAINNS ENGINEERING CORPORATION (SMEC) -
AUSTRALIA**

(2005-2008)

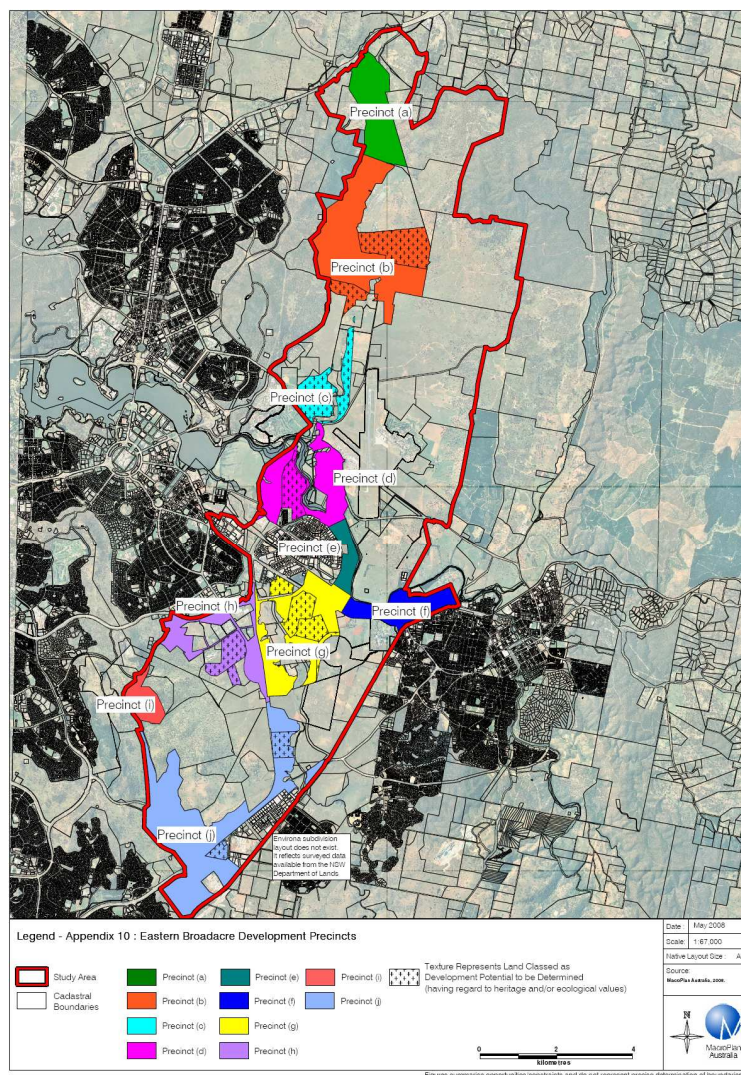
Eastern Broadacre Traffic and Transport Modelling (2008)

Client: Macroplan/ACT Planning and Land Authority

http://www.actpla.act.gov.au/_data/assets/pdf_file/0004/18283/6_EBPS_SMEC_EB_Traffic_and_Transport_Modelling_-_Final_Report.pdf

Services provided: Transport planning, Traffic Modelling, Intersection Analysis, Public transport

Macroplan is investigating the feasibility of the eastern edge of the ACT (from Majura through to Hume) for future employment generating developments. The purpose of this study is to assist Macroplan by undertaking a traffic and transport modelling exercise to provide advice on the implications to the study area (including on new road requirements). The specific objectives of this study was to conceptualise main road network connections to link the expected Eastern developments to the main Canberra road network, update SMEC strategic transport model to account for road network scenarios and land use changes within the study area, model road network performance in future years with expected Eastern Broadacre developments as well as other developments and finally assess the Level of Service (LOS) of road network links in light of generated traffic to identify potential road network deficiencies and public transport requirements



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Ahmed Al-Sergany (Traffic Engineer/Modeller)

Preparing NCA Case for Submission & Presentation at an Inquiry held by The Australian Federal Parliament's Joint Standing Committee on Public Works on 6 August 2008 Regarding Bridging of Kings Avenue over Parkes Way at Russell Roundabout, Canberra, Australian Capital Territory (2008)

<http://202.14.81.34/house/committee/pwc/canberraewrfitout/report/fullreport.pdf>

<http://www.aph.gov.au/house/committee/pwc/shanghaiexpo2010/report/appendixb.pdf>

Client: National Capital Authority

Services provided: Parliamentary Expert Witness

In August 2008 SMEC experts (Dr Khaled Abbas & Lindsay Jacobsen) were called upon to participate as Expert witness in an inquiry held by the Federal Parliament's Joint Standing Committee on Public Works. This involved assisting National Capital Authority in preparing its case for submission and presentation. In August 6th 2008 Dr Khaled Abbas made a presentation at the morning site tour to Parliament members of the inquiry. This was followed by the inquiry at the Australian Parliament where Dr. Khaled Abbas and Lindsay Jacobsen demonstrated to the Committee the traffic operability of the various options and responded to posed technical questions.



COMMONWEALTH OF AUSTRALIA

Proof Committee Hansard

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC
WORKS

Subcommittee

Reference: Bridging of Kings Avenue over Parkes Way at the Russell roundabout,
Canberra, Australian Capital Territory

WEDNESDAY, 6 AUGUST 2008

CANBERRA

CONDITIONS OF DISTRIBUTION

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BY AUTHORITY OF THE PARLIAMENT

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Key SMEC Personnel

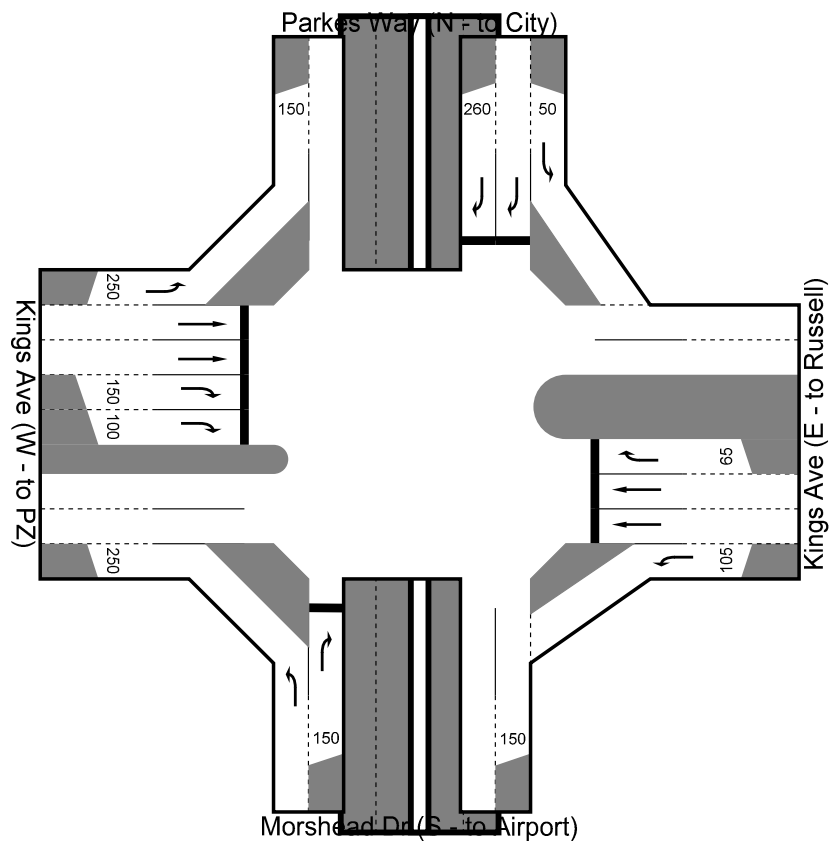
- **Dr. Khaled Abbas (Expert Witness- Project Manager/Transport & Traffic Specialist)**
- **Lindsay Jacobsen (Traffic Engineer/Modeller)**

Traffic Modelling and Analysis for Parkes Way – Kings Avenue Intersection Options (2008)

Client: National Capital Authority

Services provided: Traffic Modelling, Intersection Analysis

This project is meant to test the operability of a number of grade separation options for the Parkes way/ Kings Avenue intersection and to compare these options with a do nothing option. The two considered options are a tight diamond and a single point diamond. SMEC was provided with two configurations from Taylor Thomson Whitting (NSW) Pty. Ltd. SMEC has also explored an additional scenario of a grade separated roundabout. It has been shown that the Single Point Urban Interchange provides a significant performance improvement in both peaks compared to both the Do Nothing scenario and the Tight diamond Symmetrical design. The single point arrangement is also expected to operate at good levels of service if signalised pedestrian crossings were used during off-peak periods. While maintaining approximately the same area of road pavement, the addition of a second right turn lane on the Kings Avenue approach from Parliamentary Zone direction provides a measurable improvement to the average intersection delay. Level of Service of the Single Point Urban Interchange with the additional right turn lane is expected to operate at LOS D in the AM peak and C in the PM peak, in contrast to E in the AM peak and D in the PM peak for the Symmetrical SPUI design, and F in both peaks for the Do Nothing scenario. SMEC also notes that the design of the Parkes Way approach from city direction ought to take into consideration that deceleration and storage lanes are of sufficient length so as to minimise possibility of queues on this approach blocking the through Parkes way intended tunnel movement.



Key SMEC Personnel

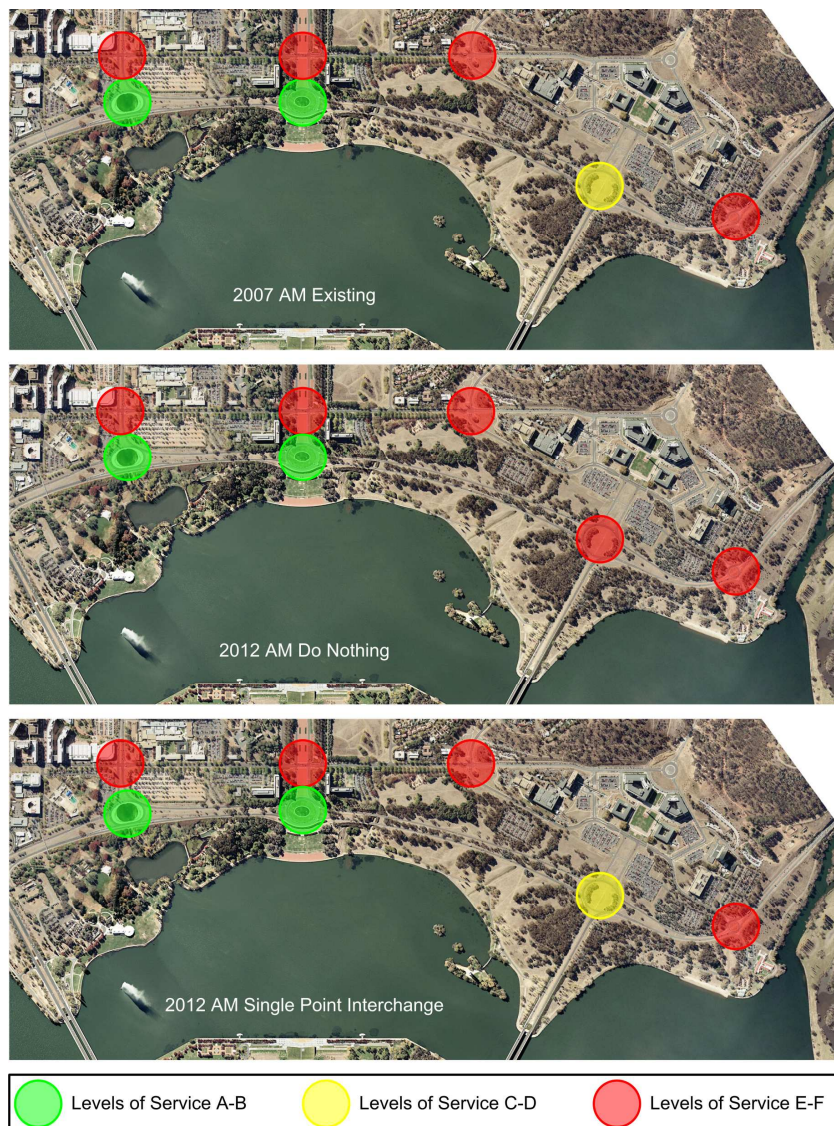
- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Modelling and Analysis of Parkes Way – Constitution Avenue Road Network in Light Kings Avenue Intersection Options (2008)

Client: National Capital Authority

Services provided: Transport planning, Traffic Modelling, Intersection Analysis

This study is concerned with calibrating a micro simulation Paramics based model for simulating 2007 AM network and traffic conditions. The study develops two future 2012 models. The study reports on network performance, urban arterial and traffic signals performance for the two modelled scenarios in 2012. This is meant to examine the road network operability in the context of expected land use developments including Anzac Park, ASIO, RSL and Defence office developments. Currently 97% of the demand is met within the AM peak period. With the increase in travel demand in 2012, it is expected that the network capacity will not be able to accommodate all the demand within the peak period which will cause peak spreading and degradation in levels of service. The Released Vehicles statistic demonstrates that the network comes under considerable stress with the Anzac Park, ASIO, RSL and Defence office developments in place. The Single Point Urban Interchange offers some relief from the increased traffic load.



Key SMEC Personnel

- Mal Dunning (Project Director)
- Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Modelling and Traffic Analysis of Proposed East-West Link (2008)

Client: Port Macquarie Hastings Council

[http://www.hastings.nsw.gov.au/resources/documents/0014387prelimroute Annexures D E F.pdf](http://www.hastings.nsw.gov.au/resources/documents/0014387prelimroute%20Annexures%20D%20E%20F.pdf)

Services provided: Transport planning, Traffic Modelling, Intersection Analysis

In the past SMEC was commissioned to investigate the options for an outer link road system for Port Macquarie. The outer link road system was to consist of a North-South link connecting the Oxley Highway near Area 13 to Hastings River Drive and an East-West link connecting the Oxley Highway to Ocean Drive. These links were intended to allow traffic to bypass the roads closer in to the CBD. The original SMEC study determined the option that provided the best traffic operability in relative terms. The SMEC study used the model of Port Macquarie that was generated as part of the Hastings Road Study in 2001. The model was not significantly updated but it was felt at that time that the model was sufficient to determine the best option in relative terms. As a result of this screening modelling exercise, the East-West link 3A/3/3D was recommended to be the option that provided better traffic operability. In this study, SMEC was commissioned to conduct a scoping modelling exercise for the East-West link option based on the work that had been carried out for the Area 13 and Sancrox Traffic Study. This required updating the Port Macquarie strategic transport model. The changes to the model included network changes, refined zoning for Area 13 & Sancrox, land use changes, new growth factors and recalibration of the origin/destination matrix based on traffic counts conducted between 2001 and 2006. This work is intended to provide a better indication of the traffic that will be expected to use the E-W link 3A/3/3D. These results will also be used in the generation of an Environmental Impact Statement.



Key SMEC Personnel

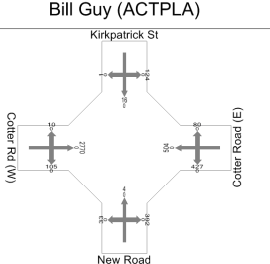
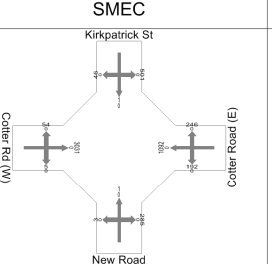
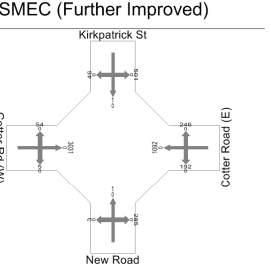
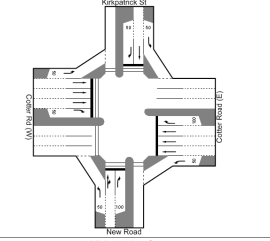
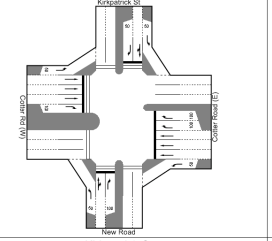
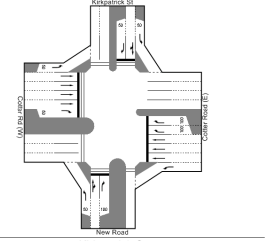
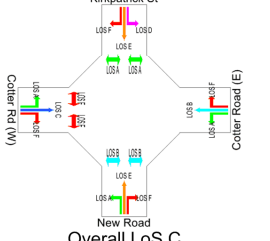
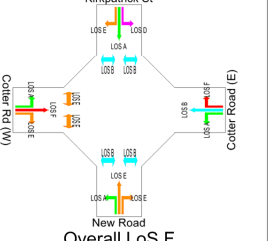
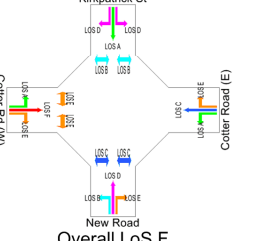
- Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)
- Josh Everett (Traffic Engineer/Modeller)

Modelling & Feasibility of North Weston Intersections (2008)

Client: ACT Procurement Solutions

Services provided: Transport planning, Traffic Modelling, Intersection Analysis, Feasibility Analysis

This project is concerned with developing a micro simulation Paramics model for modelling and testing two options for the three main intersections in North Weston mainly Streeton Drive/Cotter road, Kirkpatrick Street/Cotter Road/New Road and Streeton Drive/Unwin Place/Dixon Drive intersections. In addition the Cotter road configuration is also investigated. The study will conclude by conducting an economic appraisal to examine the feasibility of the considered options. The study concluded by recommending a preferred staged option.

	Bill Guy (ACTPLA)	SMEC	SMEC (Further Improved)
Turning Volumes			
Layout			
Level of Service	 Overall LoS C	 Overall LoS F	 Overall LoS F

Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)

Modelling Road Network Options Along Parkesway in Light of Russell Office Expansion (2008)

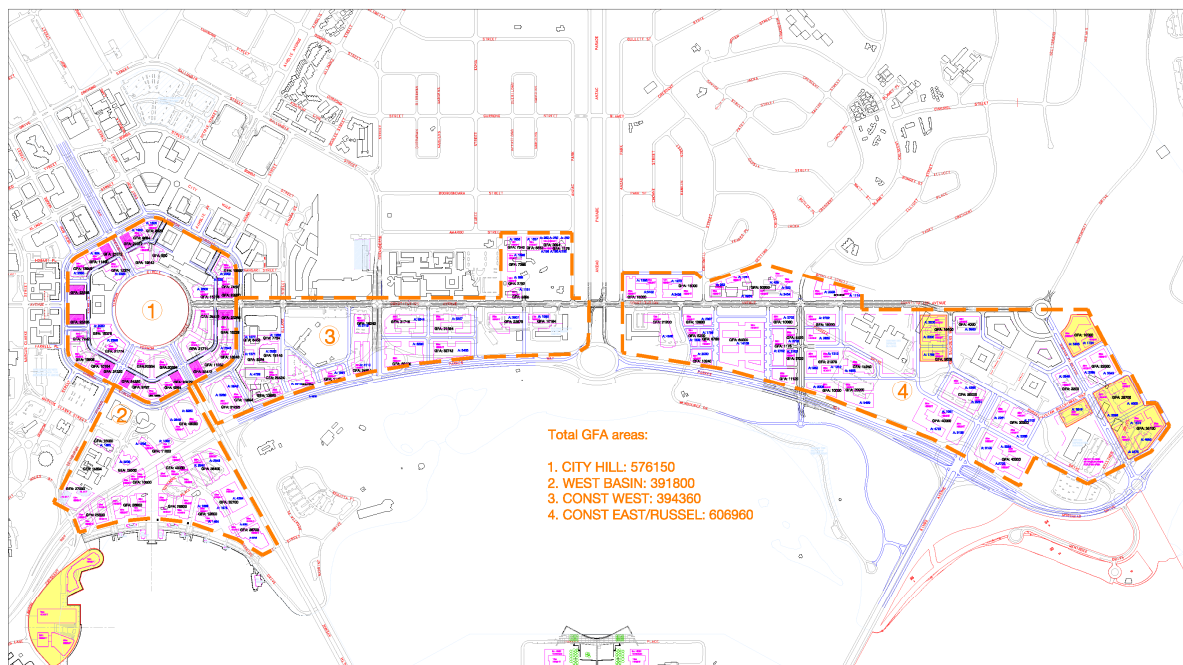
Client: National Capital Authority

Services provided: Transport planning, Traffic Modelling, Intersection Analysis

NCA received conceptual options of the road network proposed by Russell office expansion for review and comment. In this context, NCA requested that SMEC independently review, propose and model a number of alternative road network options for the three main intersections:

- Kings Avenue/Parkes way Intersection/Interchange
- Intended Blamey Crescent/Parkes way intersection and
- Intended Morshead drive/Sellhiem Avenue Intersection/Interchange

The investigation assumed that all other intersections remain as is. Such study was meant to be conducted for the year 2031 being the planning year used. It was also meant to take into consideration the expected developments in the area. The study involved developing a micro simulation Paramics model for modelling and testing intersection options for the three main intersections along Parkesway. The study concluded by recommending a preferred option.



2031

Key SMEC Personnel

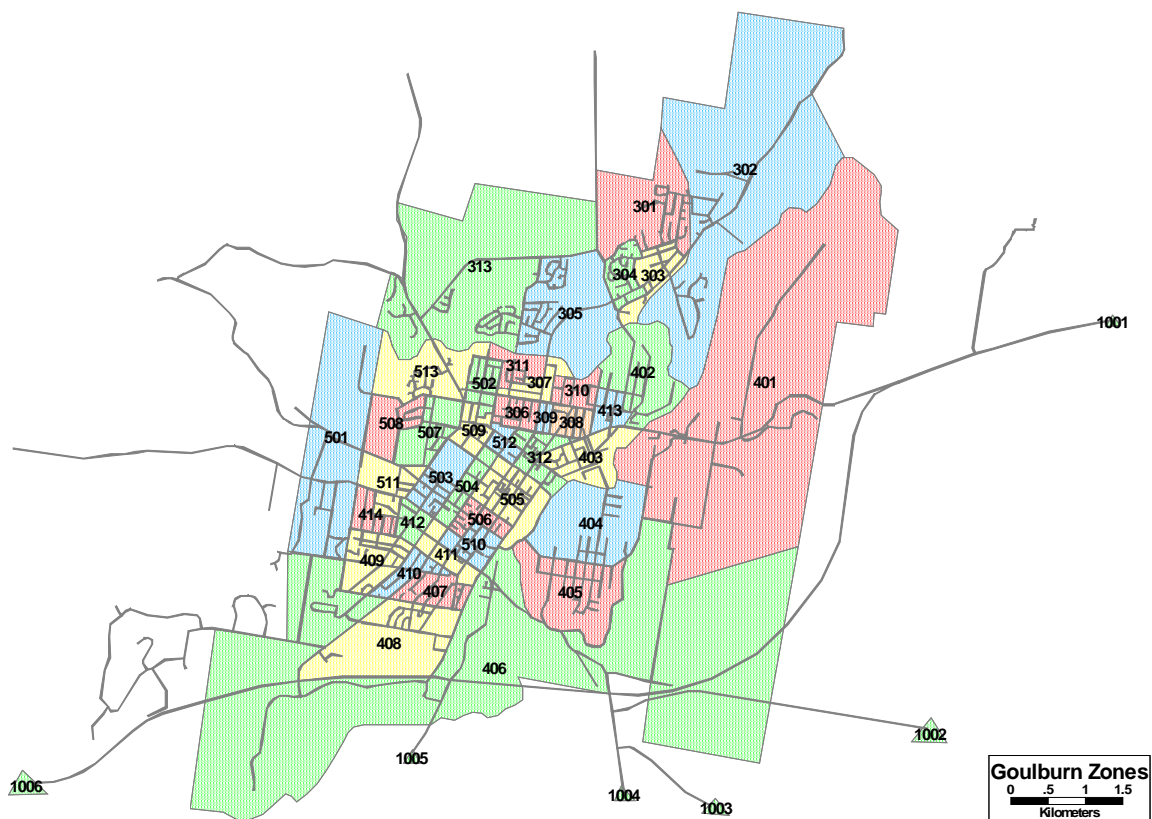
- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Southern Distribution Business Park Road Access Study (2008)

Client: Mariner (as sub consultant to BG&E Consulting Engineers - Sydney)

Services provided: transport planning, traffic modelling, intersection & midblock capacity analysis.

The Southern Distribution Business Park (SDBP) is planned to be built to the south of the Goulburn Bypass section of the Hume Highway that connects Sydney to Melbourne. This study is meant to develop a simple strategic model using TRACKS or Transcad to examine the distribution of the expected SDBP related employment traffic from/to Goulburn to/from the SDBP development. In addition the study aims to develop a micro simulation model using TRACKS or Paramics to examine the operability of the proposed network in light of any expected traffic diversions that may occur for trips entering/exiting Goulburn from the Hume highway. In particular the report seeks to demonstrate that the road infrastructure requirements are met by the provision of a two lane two bridge roundabout interchange between Bungonia Road and the Hume Highway with long acceleration/auxiliary lanes for the entry ramps.



Key SMEC Personnel

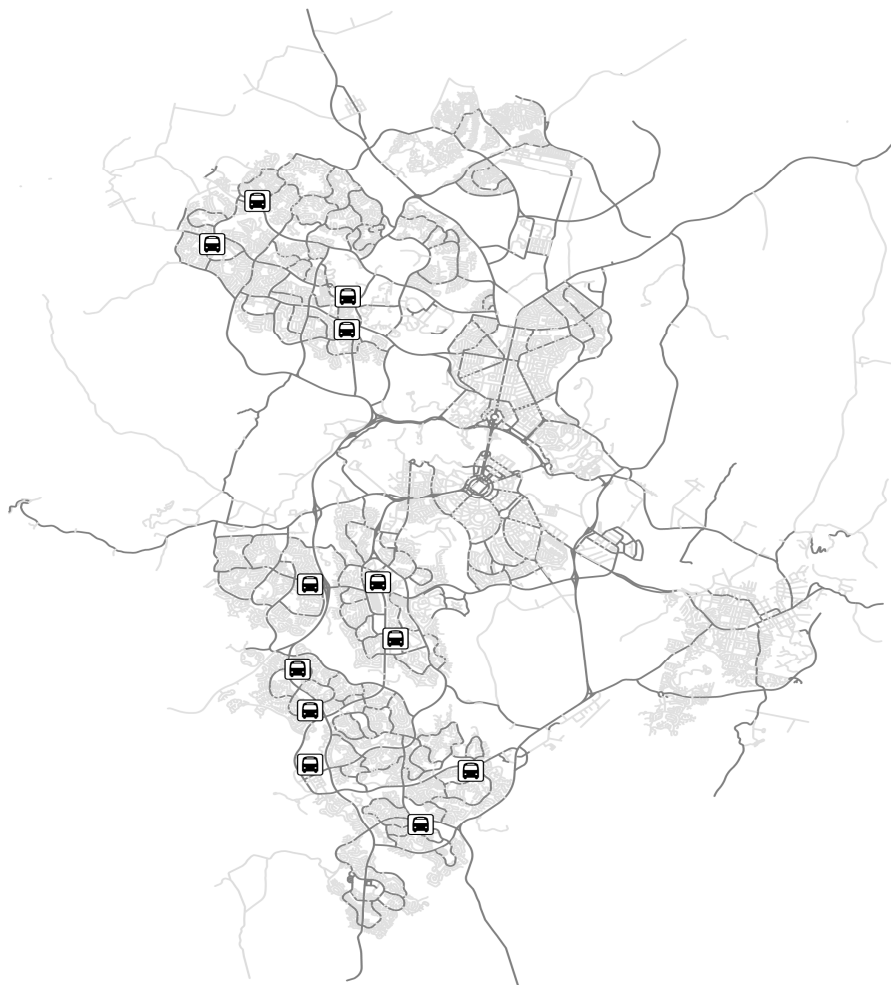
- Mal Dunning (Concept Designer & Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport/Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Ahmed Al-Sergany (Traffic Engineer/Modeller)

Park and Ride Strategy for the Australian Capital Territory (2007-2008)

Client: ACT Procurement Solutions

Services provided: parking analysis, site selection, policy review, transport planning and traffic modelling, strategy development

The main objective of the project is to develop a Park and Ride Strategy for the Australian Capital. This will entail establishing a set of goals and objectives, as well as supporting policies, for park & ride and bike & ride facilities that will guide their development and will contribute to the overall Territory objectives of achieving a sustainable transport system. The study will also identify the demand and size for potential park & ride facilities by 2031 through examining relevant market areas, anticipated future public transport service and cycling plans, growth areas, and application of an appropriate demand forecasting methodology. It will also identify the preferred locations of future park & ride facilities through the development and application of a set of area-specific and site-specific selection criteria. Finally, the study is meant to recommend a strategy for implementation, timing and costs of providing park & ride facilities.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Molonglo Roads Feasibility Study (2007-2008)

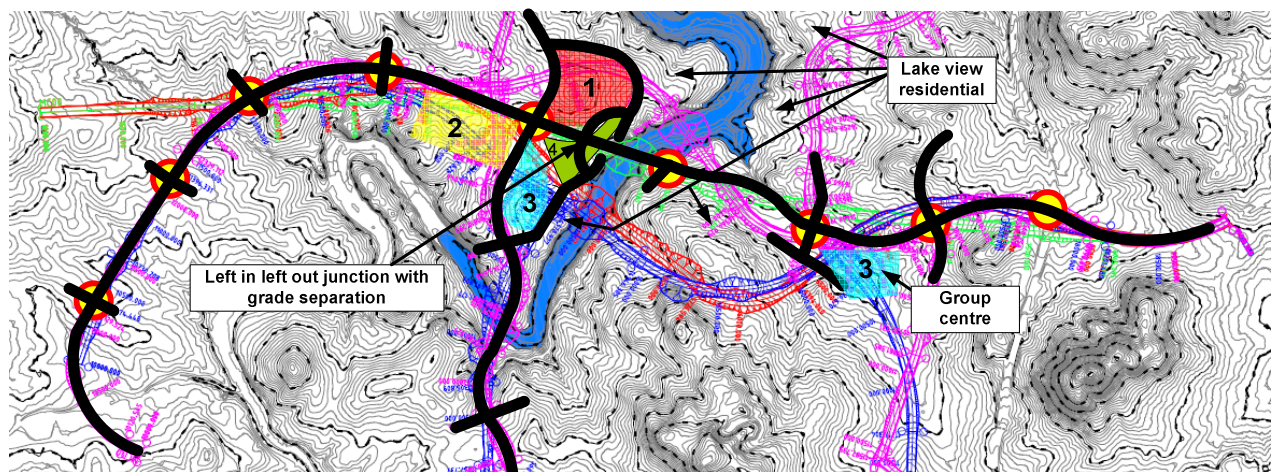
Client: ACT, Department of Urban Services

Services provided: Road Feasibility Study

This Study is conducted to determine the locations and details of roads, bridges and intersections throughout the proposed Molonglo Valley urban development area and identify upgrade requirements for existing roads and intersections that will service the new development considering engineering, environmental, urban design / planning and cost effectiveness requirements.

The most significant roads in the proposed Molonglo Road development area will be the north-south arterial which will connect Cotter Road in the south to Coulter Drive in the north as well as the East-West arterial, The study reviewed existing road alignment options as well as proposed a new set of options in light of steep terrain that exist over much of the site. Several criteria were considered in the determination of the preferred alignment. The north-south arterial is to be able to accommodate a future IPT in the median, and on road cycling, both of which make low gradients desirable. The north-south arterial is to provide access to the group centre and town centre sites for road vehicles and IPT. SMEC also provided information and facilitated discussions to assist in the selection of the group centre location.

SMEC was also involved in the calibration of a transport strategic model for Canberra that took into account the expected land use zoning of Molonglo development as well as the expected demography and urbanisation pattern. SMEC utilised this model to examine the regional accessibility of Molonglo to the Canberra road network and the expected traffic impacts. SMEC role also included identifying quality urban design requirements to guide future planning and design for the area (e.g. road crossings of Molonglo river within the Molonglo Valley area).



	Characteristics	Possible uses
1	Ridgeline and knoll with lake views	Group centre (terraced). School (earthworks for oval). Medium/high density residential.
2	Flat terrain	Group centre, school (incorporate water main easement). Bulky goods. Hardware. Residential.
3	Flatter land with limited or no lake views	Group/local centre. Bulky goods retailing. Hardware. Residential.
4	Accessible small sites, steep slopes (fill?)	Service station. Take away food. Emergency services.

Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Parliamentary Triangle Study (2006-2008)

Client: National Capital Authority

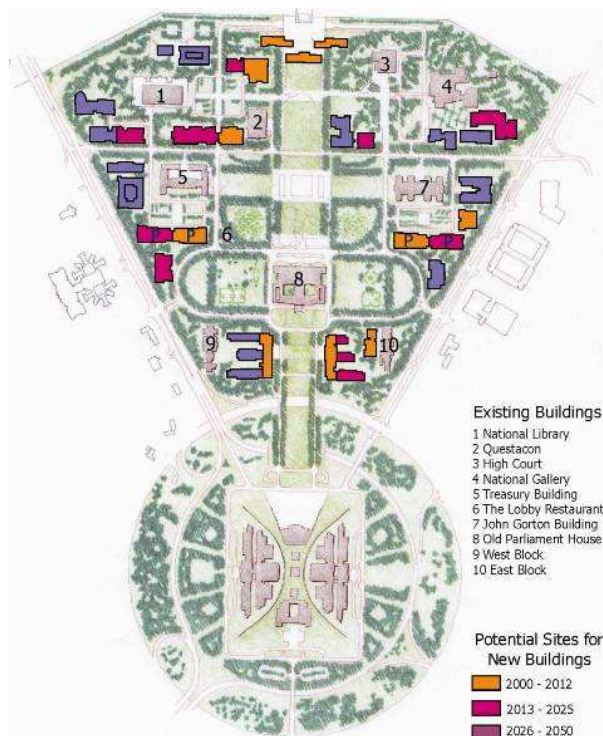
Services provided: parking analysis, transport planning and traffic modelling, concept design, intersection modelling, and intersection design.

This study involved three main components. The first is to review parking arrangements within the Parliamentary Zone as well as to assess the sufficiency of parking over the medium term. The second main component involved conducting a traffic study that involved strategic modelling and microsimulation modelling and analysis to assess the impacts of changes in the parliamentary Zone access arrangements. The third component is involves the preliminary design of the agreed access arrangements.

Details of the project include:

A parking review study involving identifying current and future parking issues in light of expected construction activities and conceptualising parking options. A traffic study involving calibrating a strategic transport model using TransCAD and utilising such model to examine the potential current and future impacts of road network modification options including entry point modifications, and establishing a legible road hierarchy in the Parliamentary Zone.

A microsimulation traffic study involving calibrating a PARAMICS micro simulation traffic model and utilising such model to examine the potential current and future traffic operational impacts of road network modification and access point modifications on major roads of the study area. This also includes intersection capacity analysis using aaSIDRA. Preliminary design involving conducting a preliminary intersection design to Final Sketch Plan (FSP) stage for the proposed King Edward Terrace/ Commonwealth Avenue and King Edward Terrace/ Kings Avenue intersections.



Key SMEC Personnel

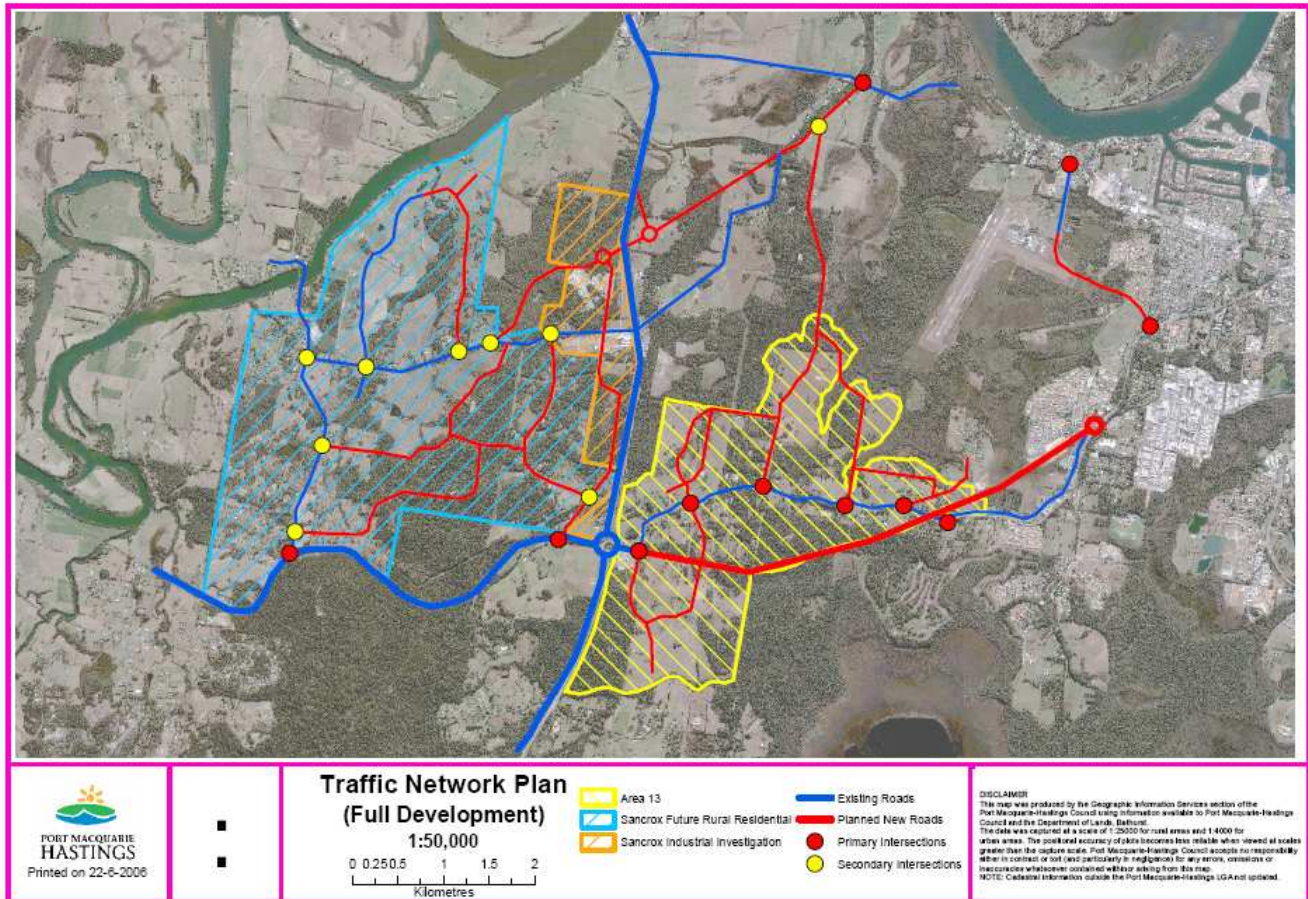
- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Area 13 & Sancrox Traffic Study (2006-2008)

Client: Port Macquarie-Hastings Council

Services provided: transport planning, traffic modelling and intersection analysis.

This study is concerned with developing a strategic transport model to examine a number of road network scenarios and land use changes involving Area 13 and Sancrox towards the west of Port Macquarie Hastings. This involves traffic prediction and LOS analysis of road network links and major intersections in light of examined scenarios. The study is also concerned with developing a strategic action plan for the undertaking of improvements to the road network within the study area



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Majura Parkway / Pialligo Avenue Options Review (2007)

Client: ACT Procurement Solutions

http://www.actpla.act.gov.au/_data/assets/pdf_file/0004/19651/Part_2_Majura_Parkway_Economic_Analysis_Report_2009-01-15_rev_5avA6939790.pdf

http://www.actpla.act.gov.au/_data/assets/pdf_file/0017/14057/Appendix_E_Economic_Analysis_Report.pdf

Services provided: traffic modelling, intersection analysis, economic appraisal

Traffic in the vicinity of the Canberra airport has increased over the last few years with the continuing growth in Gungahlin and increased employment at the airport. The roads in the vicinity of the airport play an important role for the ACT economy, the surrounding New South Wales (NSW) region and nationally given the importance of the Monaro Highway as a freight route connection to the Federal Highway. This study considered the road network improvement option to improve traffic flows on the road network in the area between Duntroon and the Canberra Airport. At this location five major arterials converge namely Majura Road, Pialligo Avenue, Monaro Highway, Fairbairn Avenue and Morshead Drive. The main objectives of this study are to conduct an economic analysis of the Pialligo Avenue alignment options. This study reflects up to date construction staging and construction cost estimates.



Key SMEC Personnel

- Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Athllon Drive Closure (2007)

Client: ACT Procurement Solutions

Services provided: Traffic Impact assessment, Traffic Modelling, Intersection Analysis

SMEC investigated the impact of closing a section of Athllon Drive in Tuggeranong to assist in the construction of the duplication of this section. It was found that with the closure of Athllon Drive, there will be significant levels of congestion along the main roads and intersections in the study area operating at or above capacity.



Key SMEC Personnel

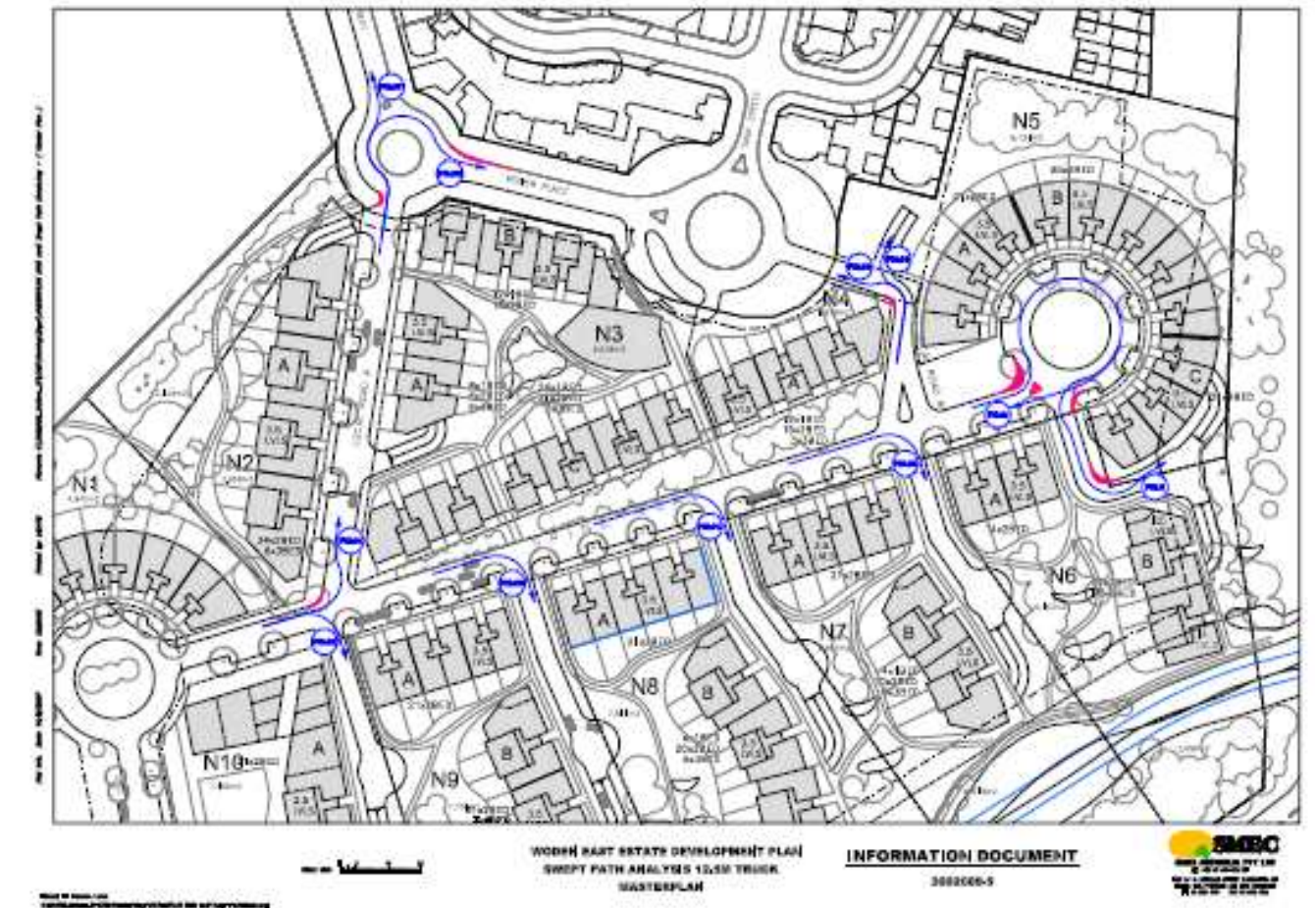
- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport/Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)

Woden East Development Concept Review of Master Plan (2007)

Client: Hindmarsh Property

Services provided: master Plan Review, Concept analysis, Road Design

SMEC experts attended regular EDP meetings and provided key conceptual comments in these meetings such as the removal of the link between east street and Mower Place to the neighbouring residential district . SMEC also conducted a conceptual review of the Master Plan for the proposed Woden East development Master plan. SMEC provided expert advice, in a general sense, on road cross-section and geometry, service vehicles turning templates and allowable slope of roads within blocks to collect garbage, street crossings from roads onto blocks, off street parking and traffic impacts on internal residential areas.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)

Intersection Analysis for North-West Link (2007)

Client: Austrlands Holdings

Services provided: intersection analysis

SMEC was requested to perform a series of intersection analysis on several junctions along North-West Link at Shell Cove, New South Wales. The purpose of this analysis is to understand how well these intersections operate under the latest geometric configurations.



Key SMEC Personnel

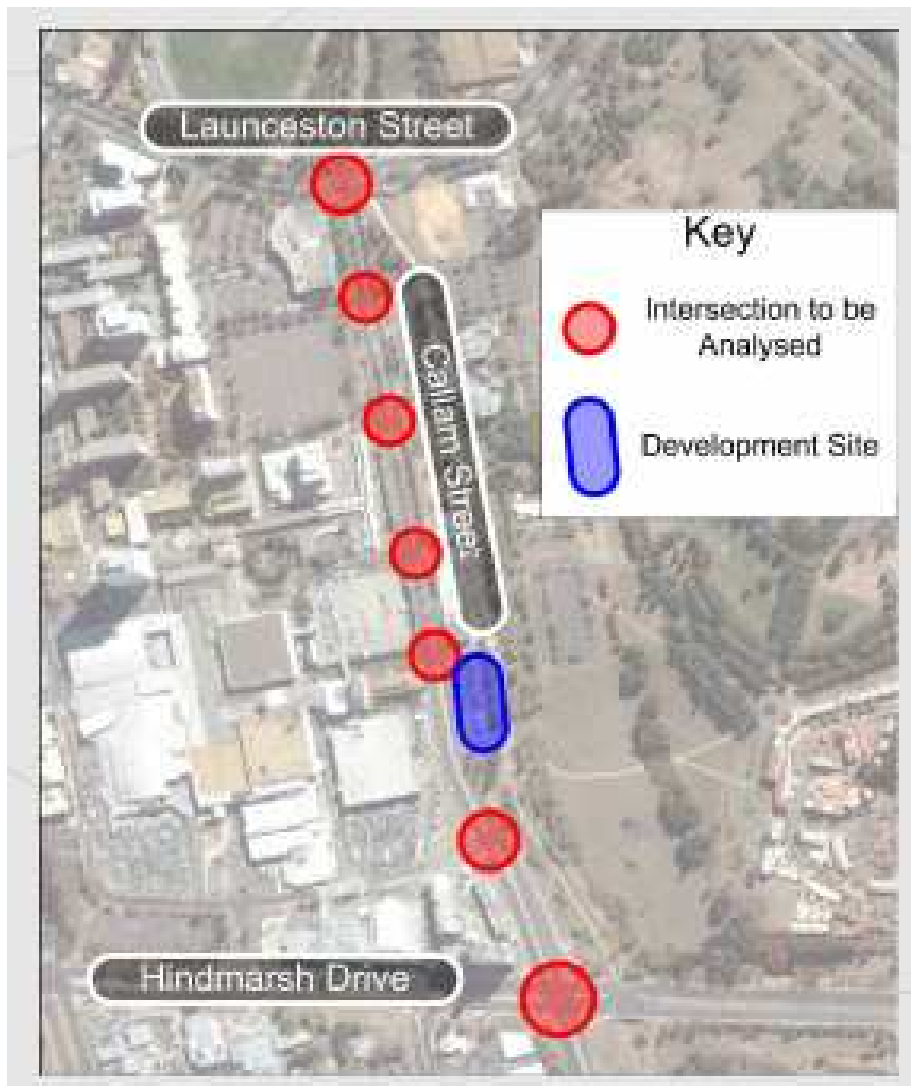
- Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)
- Mikhael Wong (Traffic Engineer/Modeller)

Callam Street Traffic Impact Assessment (2007)

Client: Hindmarsh Property

Services provided: Traffic Impact Assessment, Traffic Forecasting, Road Network Analysis, Intersection Analysis

A commercial development is planned for the corner of Callam Street and Wilbow Street in Woden. This study was concerned with conducting a Traffic Impact Assessment for the expected development towards the ultimate year of development. The study area includes all intersections along Callam Street. These will be analysed for the 2009 AM peak period (0800-0900) both with and without the development to determine the impact



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport/Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)

Gungahlin Drive – Wells Station Drive Intersection (2007)

Client: ACT Procurement Solutions (ACTPS)

Services provided: master Plan Review, Concept analysis, Road Design

SMEC reviewed the recommended upgrading of the Gungahlin Drive and Wells Station Drive intersection in 2011. This recommendation was part of the South Gungahlin Traffic Study (2005) carried out by SMEC. ACTPS requested that SMEC review the analysis of this intersection using current traffic counts and traffic predictions based on the EMME2 strategic transport model maintained by Territory and Municipal Services (TAMS).



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport/Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)

Humanities and Science Campus: Traffic Analysis of Master Plan Options (2007)

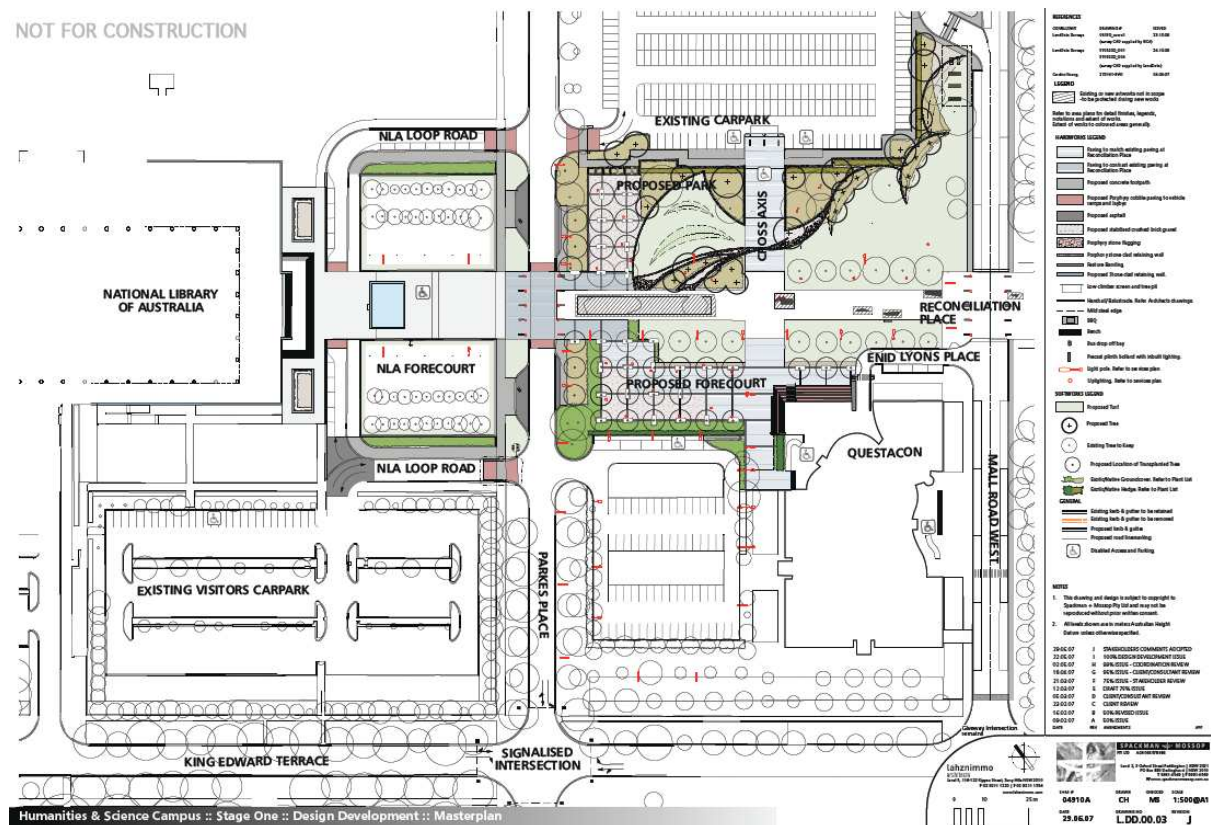
Client: National Capital Authority as subconsultant to Spackman & Mossop Landscape Architects

http://www.nationalcapital.gov.au/downloads/enhancing_and_maintaining/humanities_and_science/TrafficStudy_HSCTrafficReport.pdf

Services provided: Master Plan Review, Traffic Modelling and Analysis, Intersection Design

SMEC was requested by Spackman and Mossop Landscape Architects in Conjunction with Lahz Nimmo Architects (SMLN) and the National Capital Authority (NCA) to provide expert feedback on two master plan stages proposed for the Humanities and Science Campus adjacent to the National Library (NLA) and Questacon in Canberra, ACT. In this context, SMEC reviewed the two master plan stages as well as the current base situation. Different components of the master plan stages were examined in an effort to identify changes, advantages, limitations and recommendations. These were laid out in a table format. The recommendations were also drawn in a sketch format to show the difference between SMLN proposal and SMEC recommendation.

SMEC was also requested by SMLN and the NCA to undertake a traffic study as part of Spackman & Mossop team to conduct a Design and Development Phase Study for the Humanities and Science Campus Square. The main objective of this study is to examine the traffic impacts of changes in the proposed Master Plan Stages 1 and 2 for the Humanities and Science Campus Square. This is meant to identify any traffic, circulation or safety issues that may arise out of the suggested Master Plan Stages and to recommend solutions.



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- Mal Dunning (Project Director)
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- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

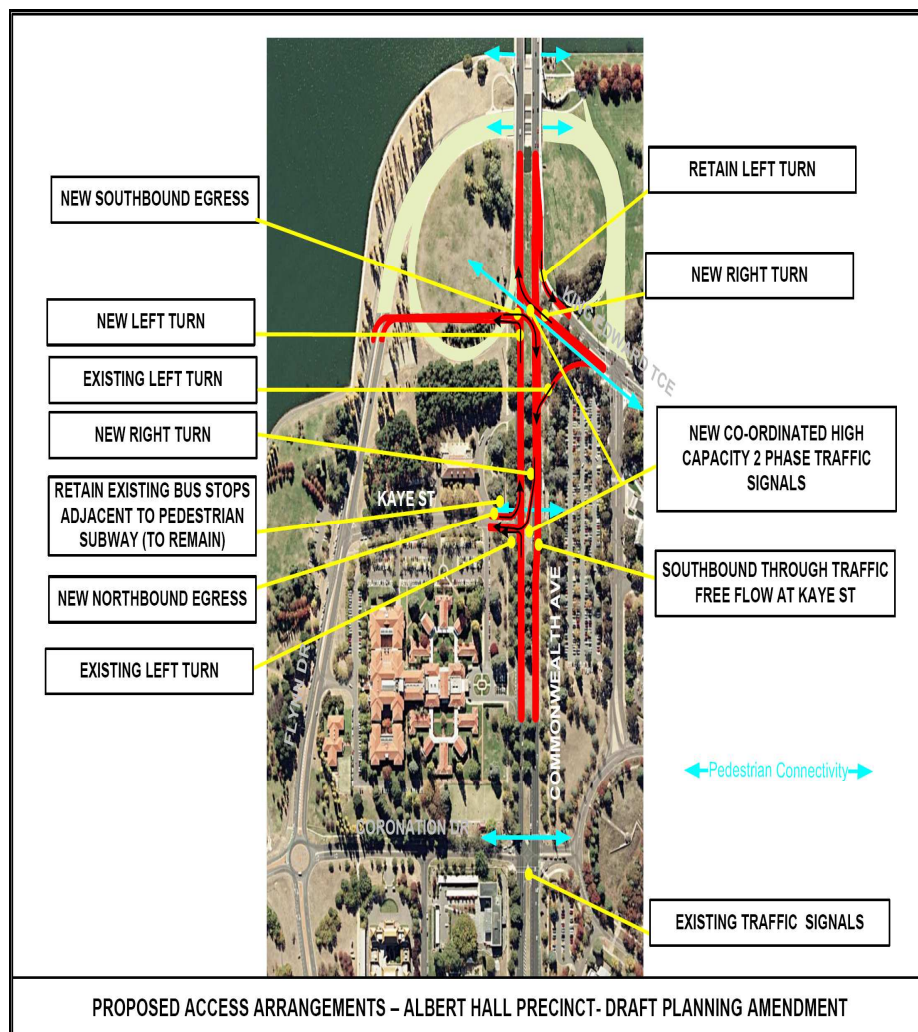
Road Access Arrangements – Albert Hall Precinct (2007)

Client: National Capital Authority

http://www.nationalcapital.gov.au/downloads/planning_and_urban_design/draft_amendments/Road_Access_Arrangement_Albert%20Hall_Precinct_%20120407.pdf

Services provided: transport planning and traffic modelling, concept design, intersection modelling

This study proposed several options for new access arrangement for the Albert Hall Precinct along Commonwealth Avenue. These were modelled, analysed, compared and evaluated. Such process led to the recommendation of a preferred option. This option includes the introduction of a new 4 leg intersection at Commonwealth Avenue/King Edward Terrace/ New Albert Hall Access road with 2 phase signal control. This is accompanied by introducing a new signaled 2 phase T intersection at Kaye street/Commonwealth Avenue to provide a recognisable access to the Albert Hall Precinct from both north and southbound carriageways of Commonwealth Avenue.



Key SMEC Personnel

- Mal Dunning (Project Director)
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- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

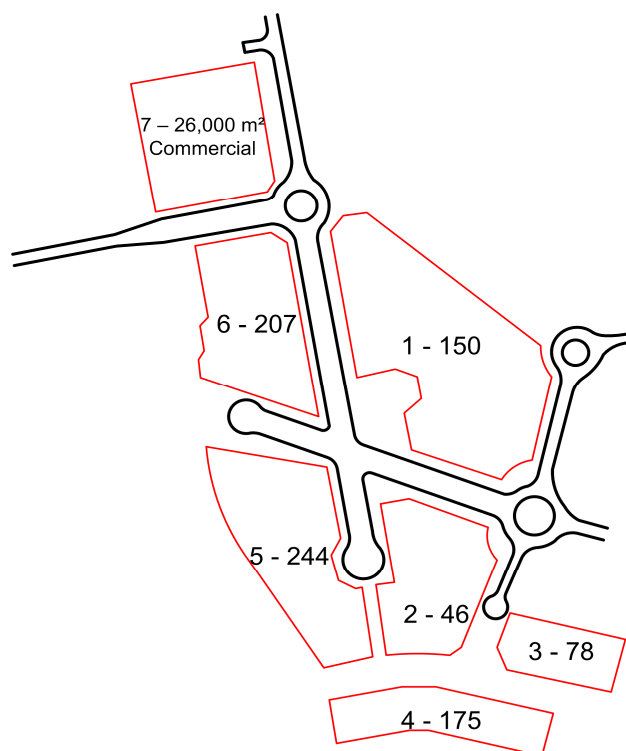
Wooden East Traffic Impact Assessment (2007)

Client: Land Development Agency

Services Provided: Traffic Impact Assessment, Traffic Forecasting, Road Network Analysis, Intersection Analysis

The LDA asked SMEC to review a previous traffic study undertaken by SMEC in light of revised land-use and updated network plans. This involved taking new traffic counts to allow for intersection analysis in a larger and more detailed study area than previously analysed. The tasks involved were:

- Use SMECs' TransCAD model to determine origins and destinations for traffic entering and leaving the study area.
- Manually assign the traffic through the internal network based on entry and exit points as determined in TransCAD
- undertake intersection analysis for all internal intersections to determine required capacity
- undertake intersection analysis for nearby external intersections to determine impact of existing facilities
- Make recommendations on network layouts and land-use based on optimum traffic performance and manageable impact on existing facilities.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport/Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

Crace Infrastructure Forward Design (2007)

Client: ACT Procurement Solutions

Services: Design of Road Intersections with associated landscaping and traffic management, removal of old and design of new sewer systems,

The project entails the design of three intersections, the elimination of the Palmerston Sewer Pump Station and approximately 350 m of gravity sewer. The main elements of the project include:

- Design and documentation of three intersection – a roundabout on Gundaroo Drive, a roundabout on Nudurr Drive and a tee intersection on Nudurr Drive
- Associated landscaping components
- Forecasting turning movements and examining future performance of optional layouts for a third T intersection from Crace devotement into Nudurr Drive
- Traffic control devices and temporary traffic management for all intersections
- Call tenders, tender evaluation, and Superintendence during Construction for the intersection works
- Remove the existing Palmerston Sewer Pump Station
- Design and documentation of a gravity sewer to drain the southeast corner of Palmerston to the new trunk sewer in Gungaderra Creek floodway



Key SMEC Personnel

- Mal Dunning (Project Director)
- Chris Daly (Project Manager)
- Trevor Ferris (Chief Road Designer)
- **Dr. Khaled Abbas (Transport & Traffic Specialist, Principal Transport Planner)**
- Mick Lyons (Traffic Engineer)
- Alan Briscoe (CAD Manager)

Hobart Travel Demand Model (2006-2007)

Client: Department of Infrastructure, Energy and Resources (DIER)

Services provided: Literature Review, Developing a generic Architecture for Travel Demand Modelling, Professional Training

Travel Demand Modelling (TDM) is required as an aid in the strategic level decision making for infrastructure in Tasmania State. The TDM will enable forecasting of Hobart road network traffic volume and characteristics (e.g. travel speed, mode share) when applied against future scenario changes and forecasts. This study has two main linked components. The first component is meant to produce a generic conceptual architecture for a Travel Demand Model (TDM), while the second component is meant to apply such conceptual architecture to develop (calibrate, validate) a TDM for Hobart region. This document is mainly concerned with the first component.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

National Travel Behaviour Change Project –Phase C Evaluation, ACTPLA (2006-2007)

Client: ACT Planning and Land Management as sub consultant to IMIS

Services provided: transport planning, household and car diary design, conducting surveys, data verification and coding

This study is concerned with conducting an independent evaluation of the ACT household based travel behaviour change project - the TravelSmart ACT Households Project. This involved conducting a comprehensive, independent before and after evaluation of the effectiveness of the Travel Smart program undertaken by a different consultant where approximately 11,000 households in the Belconnen area of the ACT were targeted for intervention during the program. This independent evaluation is supported by comprehensive, 7-day before and after household travel and activity diaries for 420 households in target and control groups and is executed during 2006 and 2007 by SMEC. The study required the development, administration and coding of complex self-administered household and travel activity surveys for over 2,500 households which included all persons over the age of 5 years. The information gathered from the survey responses formed the basis of the database. Initial contact was made with respondents via telephone interviews

ACT Travel Survey **HOUSEHOLD INFORMATION** In confidence

SMEC Australia is conducting this Travel and Household Survey on behalf of ACT Planning and Land Authority.

As part of this survey, we are running a competition to give 5 households who complete both Household and Travel Forms, a chance to win one of FIVE \$100 gift vouchers for a shop of your choice at Belconnen Mall. If you would like to enter this competition, please answer the following question and fill in your contact details.

Competition Question:
What is your nominated travel day? _____

Name: _____ Phone Number: _____

SURVEY INSTRUCTIONS

1. Please fill in this form first.
2. Complete this form for every person who usually lives here, as well as anyone staying overnight on the night before your nominated Travel Day.
3. Please **ONLY** fill in a form for people over 5 years of age.
4. If you have any concerns or questions about this survey, please telephone Anona Graham (SMEC Australia) on 6280 7533.

All information gathered in this survey will be treated in confidence and used only for the purposes for which it was collected.

Please tick the squares and write in the blank spaces

Your Travel Day is...

HOUSEHOLD INFORMATION

A household is

- * all people who usually live at this address - even if they are away from home on your given Travel Day, plus
- * anyone else staying here on the night before the Travel Day.

A household can be just one person.

NOW START HERE:

How many people stayed in this household including yourself, on the night before your travel day?

Key SMEC Personnel

- **Dr. Khaled Abbas (Project Manager/Transport & Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Anona Graham (Travel Survey Specialist)

Traffic Impacts on Newcastle Street Due to Section 48 – Stage 1A Development (2006-2007)

Client: Canberra Capital Airport Group as sub Consultant to Mallesons Stephen Jaques

Services provided: Master Plan Review, Traffic Impact Assessment, Traffic Modelling and Analysis, Intersection Analysis

This study examines the potential impact of section 48 – stage 1A development on Newcastle Street towards the development side as well as the impact on Newcastle/Collie/Barrier Streets intersection. In this context, SMEC has examined the current and future performance of Newcastle Street in the vicinity of the Canberra Avenue/Hindmarsh Drive/Newcastle Street intersection as well as the performance of Newcastle/Collie/Barrier Streets intersection. The future examination was done for two scenarios the first is the without section 48 – stage 1A scenario and the second is with section 48 – stage 1A scenario.

All future traffic analysis was based on traffic levels in 2011 reflecting a population in Canberra and Queanbeyan of 382,000 as reported by ACTPLA. The assessment is meant to include the impact of the proposed section 48 development – stage 1A which is not specifically included in the 2011 ACTPLA EMME2 transport planning model forecast.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport/Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

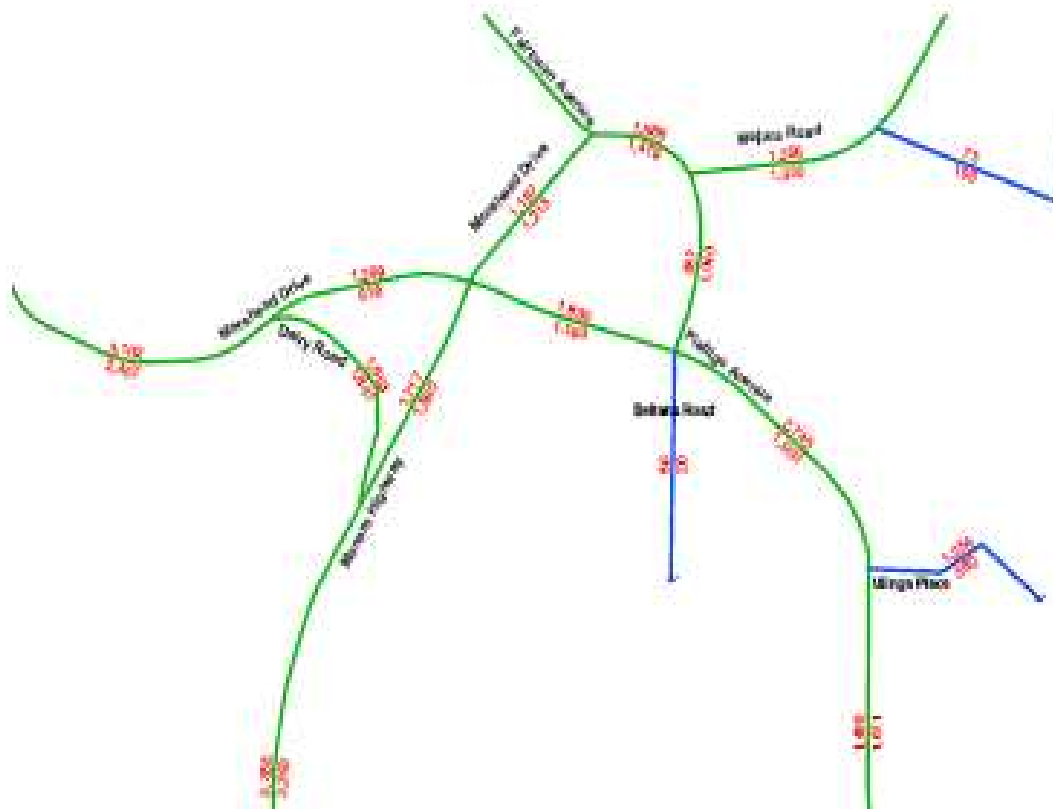
Pialligo Road Network in Light of Section 48 Stage 1A Future Development (2006-2007)

Client: Canberra Capital Airport Group as sub Consultant to Mallesons Stephen Jaques

Services provided: Master Plan Review, Traffic Impact Assessment, Traffic Modelling and Analysis, Intersection Analysis

The development of Section 48 Stage 1A development is planned for construction on the Eastern corner of Canberra Avenue/Newcastle Street/Hindmarsh Drive intersection within the ACT suburb of Fyshwick.

SMEC conducted this study of the Pialligo road network in light of Section 48 Stage 1A future development. SMEC has examined the future performance of the Pialligo road network for two scenarios, the first being the existing (or “base case”) configuration and the second with Section 48 Stage 1A, both in a projected 2011 PM peak period. The examination of each scenario involved midblock flows as well as the performance of the intersection of Monaro Highway, Morshead Drive and Pialligo Avenue. This was achieved by updating and running the SMEC strategic transport model of Canberra for the two scenarios. In running the second scenario the expected trips to be generated as a result of Section 48 Stage 1A were computed using the RTA NSW developed trip generation principles (RTA, 2002.) These trips were then distributed and assigned to the network using the SMEC Strategic Transport Model for Canberra.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport/Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)

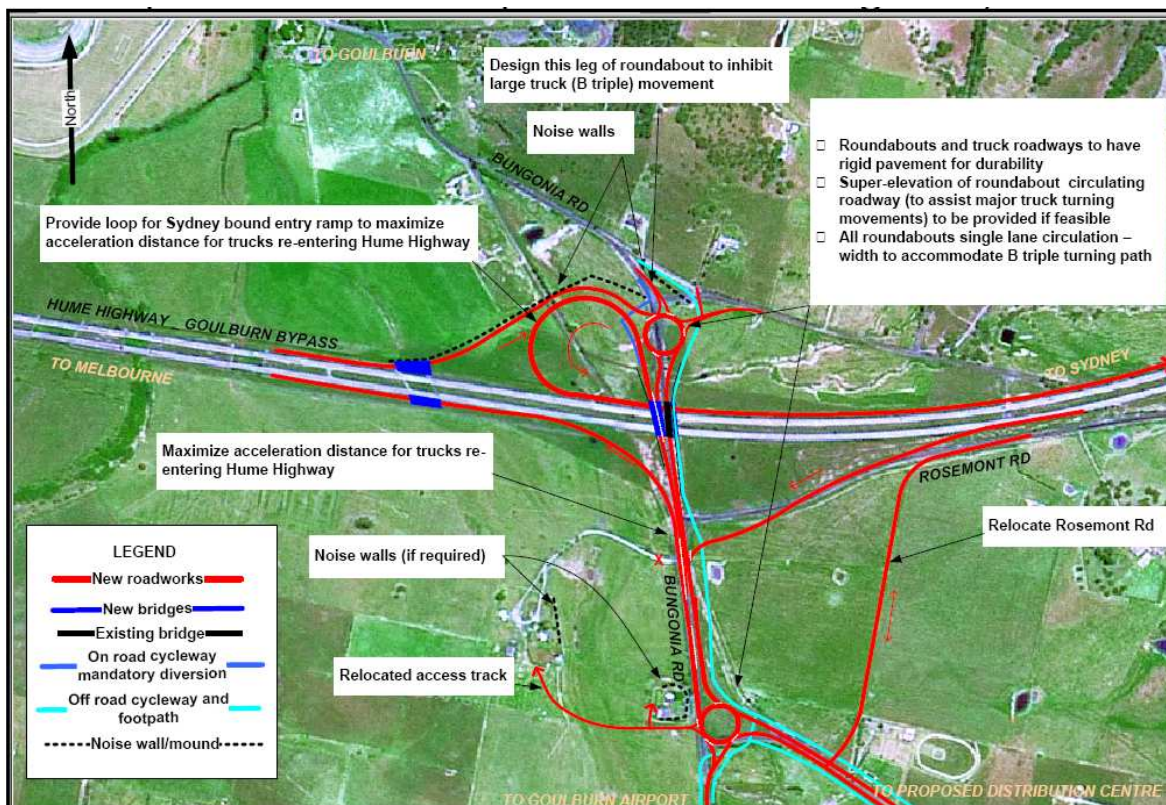
Traffic Impact Assessment of Goulburn Southern Distribution Business Park (2006)

Client: Mariner (as sub consultant to BG&E Consulting Engineers - Sydney)

http://site.sdh.net.au/pdf/appendix/Appendix_J_Traffic_Impact_Assessment_Main_Report.pdf

Services provided: concept design, traffic impact assessment, intersection and midblock capacity analysis.

The Southern Distribution Business Park (SDBP) is planned to be built to the south of the Goulburn Bypass section of the Hume Highway that connects Sydney to Melbourne. The gross floor area for this development is expected to be approximately 1,000,000m². As part of the development application for the SDBP, SMEC was tasked with the concept design of access to the new business park, and determining the impact of the additional traffic on the Hume Highway and surrounding local roads. The concept design consisted of a new service interchange for the proposed development on the Hume Highway (Goulburn Bypass). Twelve options were considered, and a semi-direct option selected to optimise truck safety, maximize truck merging speed on re-entering the Highway, minimise environmental effects (noise, visual impact), retain elements of the existing road system for local travel, and minimize unwanted diversion of Goulburn traffic from the existing Bypass interchanges. In the traffic impact assessment, vehicle, land use and employment data was collected from the client and the RTA and future compiled into future projections. Future options with and without the proposed development were assessed using Highway Capacity Manual methods and aaSIDRA for intersection analysis.



Key SMEC Personnel

- Mal Dunning (Concept Designer & Project Director)
- **Dr. Khaled Abbas (Project Manager/Transport/Traffic Specialist & Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)
- Nick Rudland (Traffic Engineer/Modeller)

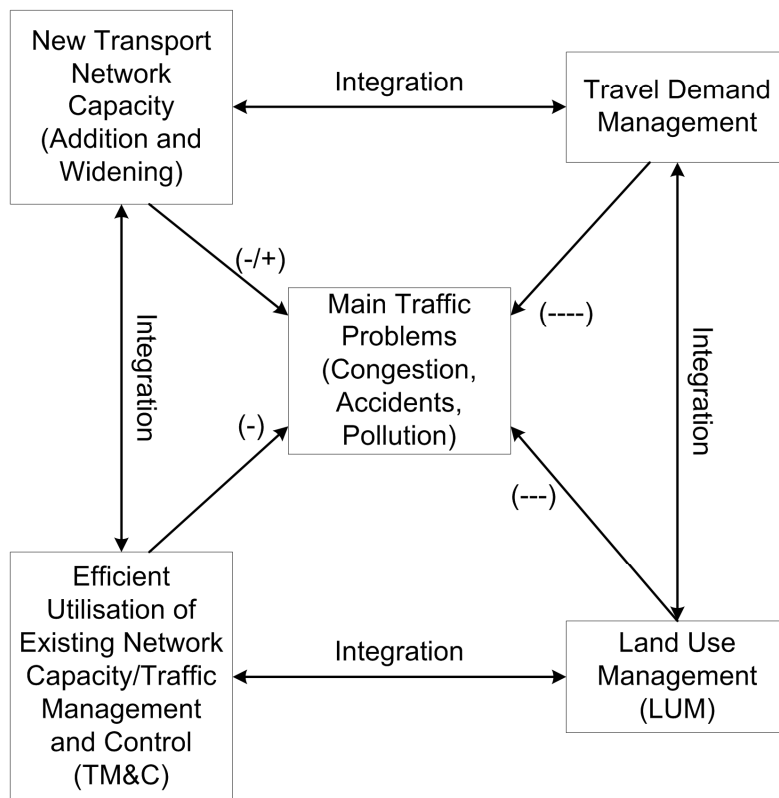
Institutional Development Study for Highway Department: Congestion Management and Parking Strategy (2006)

Client: Government of Tamil Nadu, India

This component of the study is concerned with preparing a report on Congestion Management and Parking Strategy. The main objectives of this report were to present objectives, components and interactions of the transport and traffic systems as well as to identify generic traffic problems. The report presents a classification of main causes of traffic problems as well as identify, categorise and compare the main strategies adopted for relieving the generic traffic problems of congestion, accidents and environmental degradation. In addition, the report presents the various network supply based polices and measures directed towards relieving traffic problems identifying and categorising the various Travel Demand Management policies and measures, Parking Management policies and measures. The report concludes with reviewing the applicability of the various traffic relief measures.

Network Supply Based Strategies

Demand Based Strategies



Key SMEC Personnel

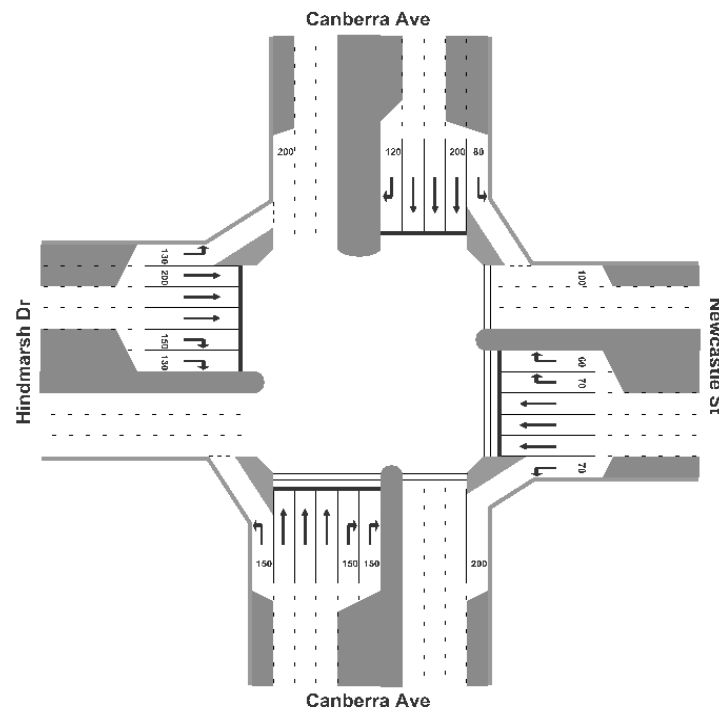
- ***Dr. Khaled Abbas (Transport & Traffic Specialist & Principal Transport Planner)***

Review of Traffic Impact Assessment Section 48 Traffic Review Stage 1A - Ratio Report (2006)

Client: Canberra Capital Airport Group

Services provided: Master Plan Review, Traffic Impact Assessment, Traffic Modelling and Analysis, Intersection Analysis

This study reviewed and examined the Traffic Impact Report for the proposed DFO Shopping Centre and Bulky Goods Centre development on Section 48 Fyshwick, prepared by Ratio Consultants Pty Ltd for Austexx Developments Pty Ltd in April 2006. This review was meant to note whether the appropriate standards and guidelines relating to traffic generating developments and parking were followed. In particular, the review examined the impact of the proposed stage 1A development on the Canberra Avenue/Hindmarsh Drive/ Newcastle Street intersection.



Key SMEC Personnel

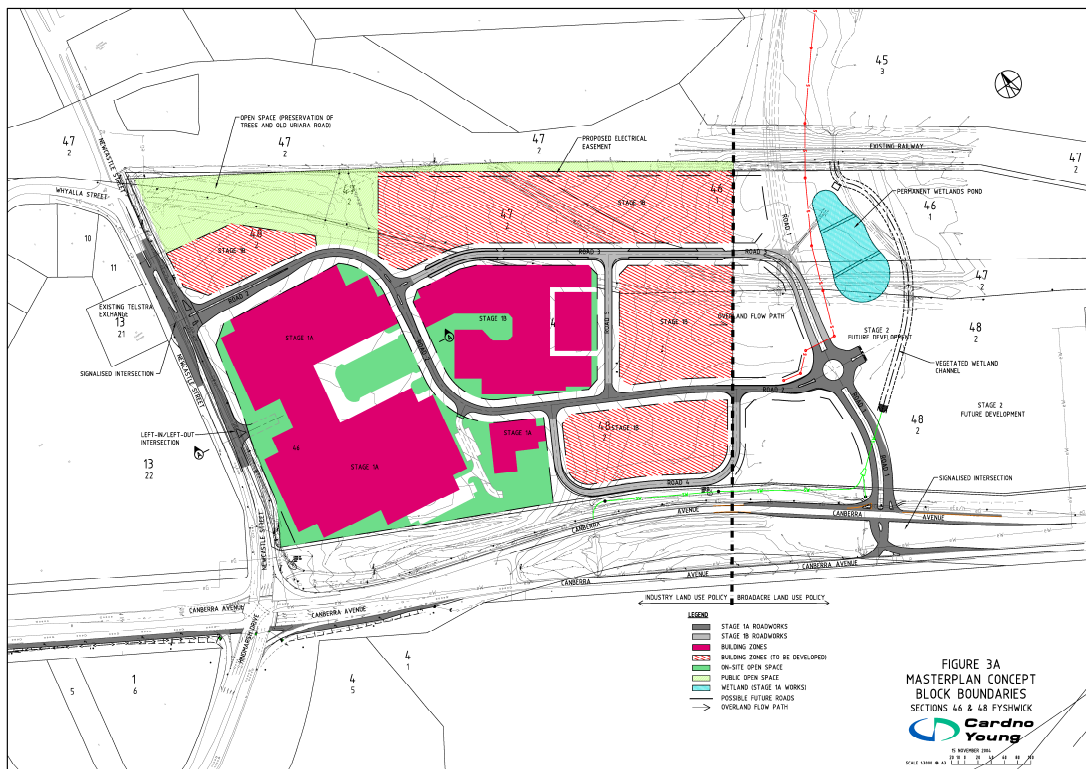
- Mal Dunning (Concept Designer & Project Director)
- Tim Hahn (Project Manager)
- **Dr. Khaled Abbas (Transport & Traffic Specialist & Principal Transport Planner)**

Review of Proposed DFO Shopping Centre Development Consistency with Preliminary Assessment & Traffic Impact Study (2006)

Client: Canberra Capital Airport Group

Services provided: Master Plan Review, Traffic Impact Assessment, Traffic Modelling and Analysis, Intersection Analysis

This study examined the Scott Wilson Traffic Impact Study (January 2005) for the proposed Section 48 development at Fyshwick. The objectives of this review were to ensure the adequacy of the traffic impact assessment (TIA) with the preliminary assessment (PA) produced by Land Development Agency (LDA) as well as to review the impact of the development on the surrounding road network and particularly the nearby signalised intersection of Canberra Avenue/Hindmarsh Drive/Newcastle Street as well as on Newcastle Street.



Key SMEC Personnel

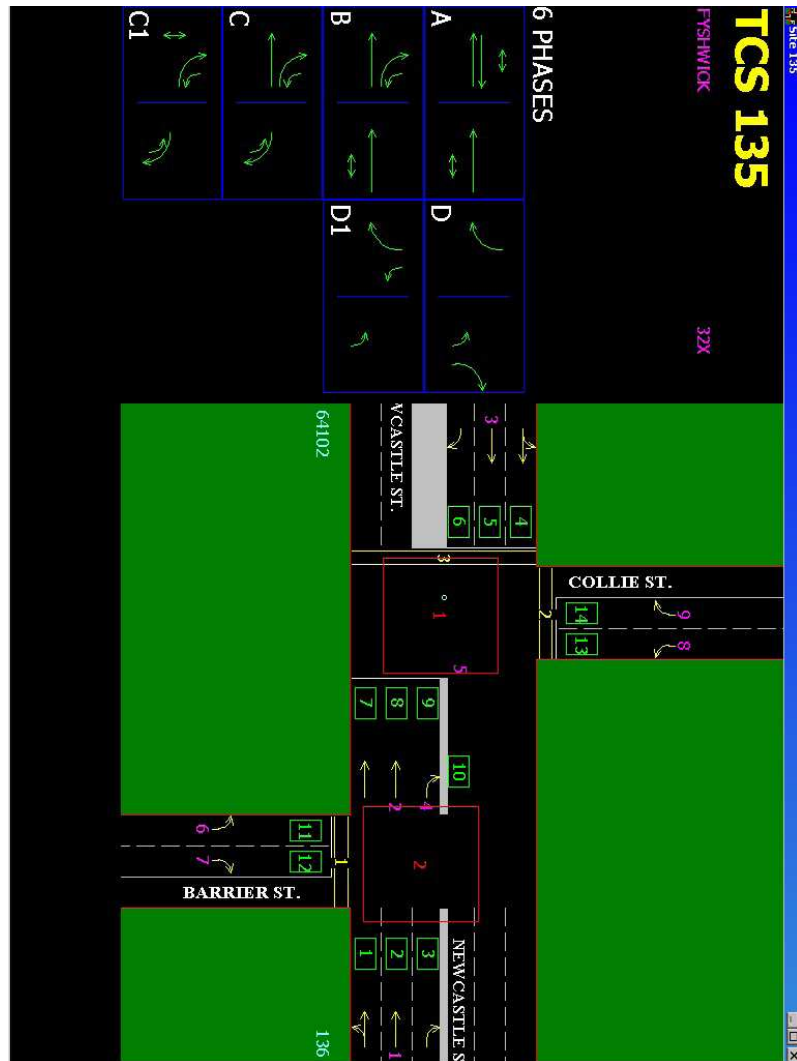
- Mal Dunning (Concept Designer & Project Director)
- Tim Hahn (Project Manager)
- Dr. Khaled Abbas (Transport & Traffic Specialist & Principal Transport Planner)

Traffic Impacts on Newcastle Street Due to Local Developments (2006)

Client: Canberra Capital Airport Group

Services provided: Traffic Impact Assessment, Traffic Modelling and Analysis, Intersection Analysis

SMEC has examined the future performance of Newcastle/Collie/Barrier Streets intersection based on traffic levels in 2011 reflecting a population in Canberra and Queanbeyan of 382,000. The assessment is also to include the impact of proposed developments in Fyshwick not specifically included in the 2011 model forecast, namely Section 48 – stage 1 and a proposed extension of the Bunnings store



Key SMEC Personnel

- Mal Dunning (Concept Designer & Project Director)
- Tim Hahn (Project Manager)
- **Dr. Khaled Abbas (Transport & Traffic Specialist & Principal Transport Planner)**

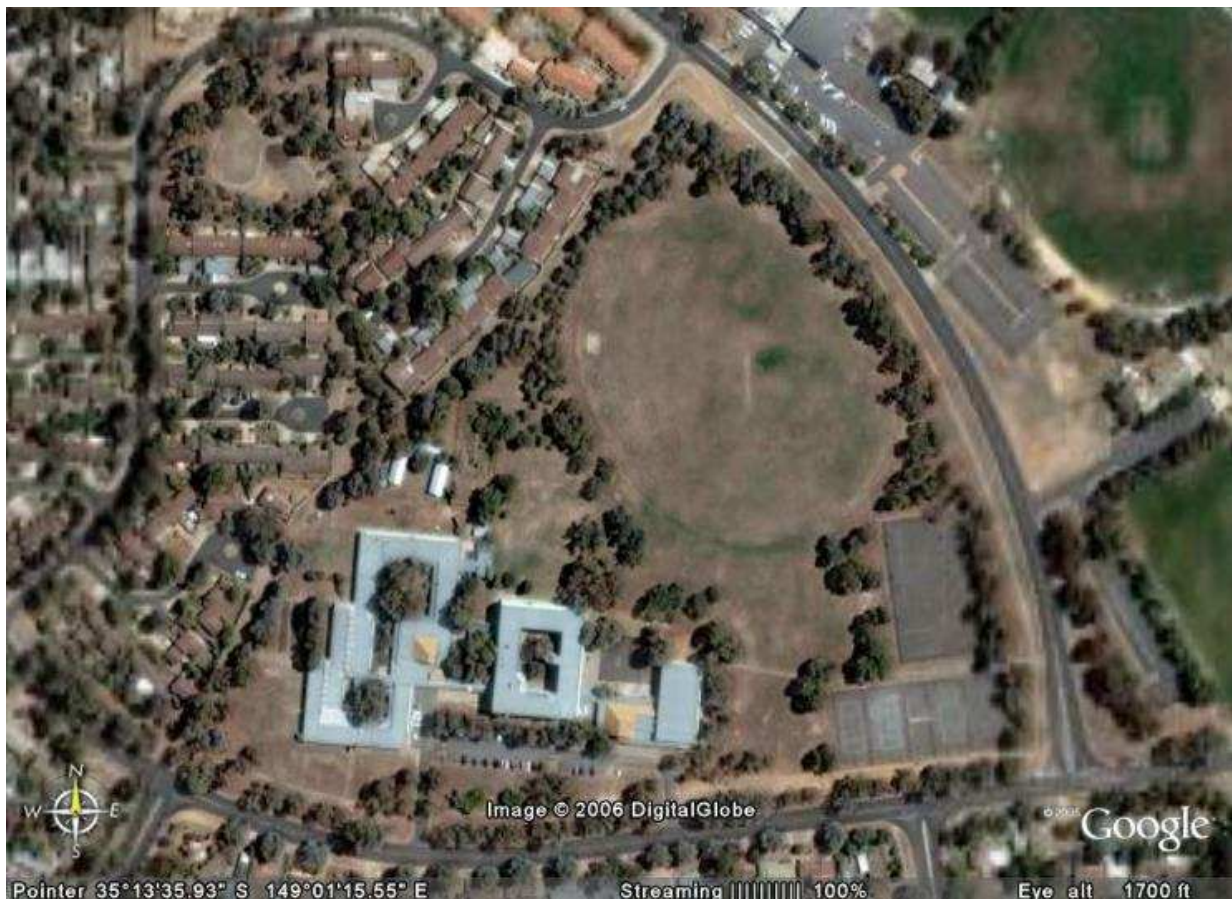
West Belconnen Regional School TIA (2006)

Client: ACT Procurement Solutions (Department of Education and Training)

Services Provided: Traffic Impact Assessment, Traffic Forecast, Intersection design and Analysis, Carpark Design

The existing Ginninderra High School is marked for demolition and a new school is planned to be built on the site. SMEC was asked to evaluate Master Plans with regard to traffic impact on existing facilities and also to evaluate various carpark designs for capacity and safety. The tasks undertaken were:

- Conduct traffic counts around the area to determine current traffic flows
- analyse traffic generation at schools in the ACT to determine traffic generation rates
- predict traffic generation for the new school
- predict traffic origins and destinations based on school enrolment patterns
- design and analyse intersections required by the school for capacity and safety
- analyse intersections in the area to determine traffic impacts
- make recommendations on preferred Master Plan based on analyses.



Key SMEC Personnel

- **Dr. Khaled Abbas (Transport & Traffic Specialist & Principal Transport Planner)**
- Anona Graham
- Josh Everett (Traffic Engineer and Modeller)

Canberra Airport Access Study (2006)

Client: Canberra Capital Airport Group

Services provided: transport planning, traffic modelling and intersection analysis.

This project examined the impact of introducing a second access to the airport. It involved updating SMEC's Canberra TransCAD network to 2006, to include future works and land use to match the test years. Once this was done the network was calibrated around the Airport for a close fit to recent vehicle counts. aaSIDRA was used to assess the performance of the new intersection in various configurations and for various years.

The project involves the planning and design of new access options to the proposed upgraded airport terminal - the planning and design of the duplication of arterial roads leading to the airport. This involves using PARAMICS and aaSIDRA to optimise traffic arrangements.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Transport & Traffic Specialist & Principal Transport Planner)**
- Nick Rudland (Traffic Engineer/Modeller)

Batemans Bay Bypass (2006)

Client: Eurobodalla Shire Council

Services: Road works of route section 1 of the Surf Beach Bypass, Pedestrian cycle Bridge in Surf Beach Avenue spanning the bypass road. Sewer Rising Main along part of the road corridor.

This is a large project involving all aspects of building a highway bypass. It includes a traffic component concerned with estimating turning movement counts at key intersections for the intended bypass. This is followed by level of service analysis for different intersection configurations and reporting on the most appropriate configuration from a traffic operational point of view.



Key SMEC Personnel

Dan Reeve (Project Director)

- Chris Daly (Project Manager)
- Peter Masterson (Bridge Engineer)
- Kristen Howard (Documentation Engineer)
- **Dr. Khaled Abbas (Transport & Traffic Specialist, Principal Transport Planner)**
- Josh Everett (Traffic Engineer/Modeller)

Kings Highway (2006)

Client: Department of Urban Services, Roads ACT

Services Provided: Detailed Survey of the site, a Design Options Study, Preparation of the Preliminary Sketch Plan (PSP), Preparation of a Preliminary Assessment and Development Application, Economic Analysis.

This project is to upgrade a section of the Kings Highway that has a very high accident rate. The project objectives are as follows:

Complete the design (to Conceptual Design Stage) of the agreed geometric improvements, pavement widening and pavement rehabilitation works of the ACT section of the Kings Highway

Perform a detailed engineering survey of the site.

Perform a Design Options Study involving a review of previous studies, Preliminary Environmental Assessment, and Geometric Improvements Options.

Prepare a Concept Design Report entailing an Environmental Assessment, Public Consultation of stakeholders, and prepare a Design Report incorporating a whole life economic analysis for each of the project options. This included Preliminary Sketch Plans (PSP).

Conducting an economic feasibility study for the geometrical and structural improvements of three sections along Kings Highway. This is meant to assist in prioritizing improvement work in case of budget constraints i.e. to determine which section is more viable to start with.



Key SMEC Personnel

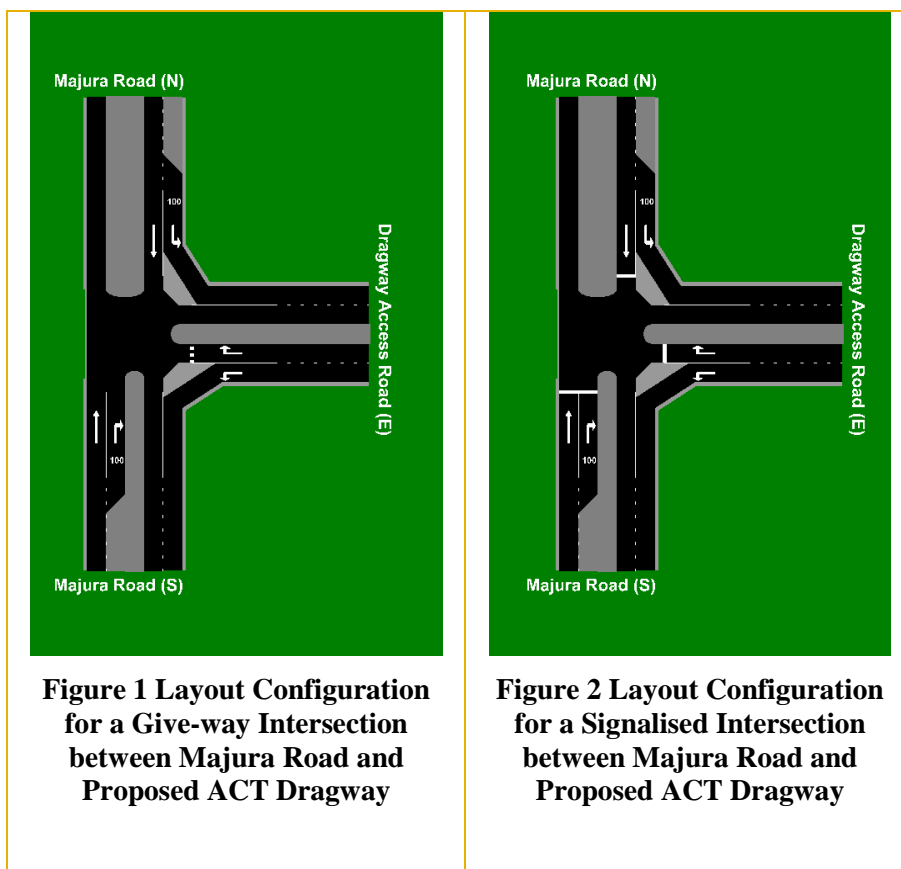
- Mal Dunning (Project Director)
- Craig Sutton (Project Manager)
- **Dr. Khaled Abbas (Transport/Traffic Specialist, Principal Transport Planner & Economist)**
- Nick Rudland (Traffic Engineer/Modeller)

Concept Design and Preliminary Assessment Consultancy for ACT Dragway (2006)

Client: ACT Procurement Solutions

Services: environment/traffic/heritage/geotechnical/ecology/pavement design/safety/utilities

SMEC was commissioned to prepare a Preliminary Assessment (PA) for the proposed ACT dragway on block 51 Majura to identify potentially major impediments or detrimental issues which may affect the acceptability, viability, and budgeted cost of the project. Issues covered include: Financial - the cost of certain engineering works / Noise – comprehensive noise modelling / Pavement – design and cost / Ecology - preliminary assessment of fauna and flora / Contaminated Land – an initial search of possible contaminated sites / Drainage – including stormwater and pollution control / Geotechnical – depth and type of rock, cost implications, risk of ‘acid sulphate’ rock / Heritage – both Indigenous Australian and European / Traffic – access and egress, safety / Track Alignment – including sun glare and solar orientation / Safety - fire and emergency services / Air quality – modelling possible particulate and gaseous poll / Utilities – gas, electricity, potable water, stormwater, sewage, communications.



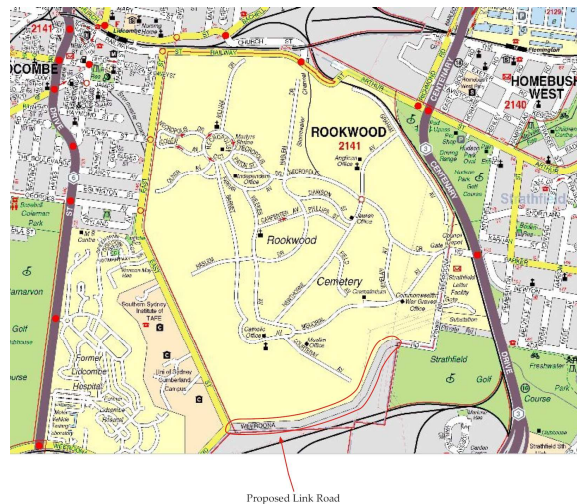
Key SMEC Personnel

- Mark Barrett (Project manager)
- Aaron Dunne/James Bramwell (Environment)
- David Clarkson
- **Dr. Khaled Abbas (Transport & Traffic Specialist, Principal Transport Planner)**

Lidcombe Town Centre Studies (2006)

Client: Auburn Council – Sydney - Australia

Undertaking the assessment of the Lidcombe Town Centre Studies to provide for the preparation of a Town Centre Development Control Plan (DCP). Assessments include traffic and transport assessment. The project also involves consultation and identification of a preferred development scenario for the next 30 years.



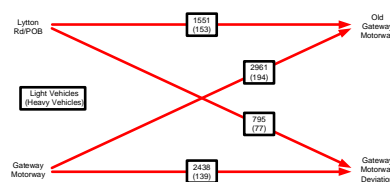
Key SMEC Personnel

- (Project Director)
- **Dr. Khaled Abbas (Transport & Traffic Specialist, Principal Transport Planner)**

Gateway Upgrade Project (2006)

Client: Main Roads, Queensland

Assessing level of service for Gateway bridge with entry and exit ramps both for the northbound and south bound directions. This was compared to the level of service computation for an alternative option for Gateway Bridge. This option involves a northbound bypass lane.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Transport & Traffic Specialist, Principal Transport Planner)**
- Mick Lyons (Traffic Engineer)
- Alan Briscoe (CAD Manager)
- Nick Rudland (Traffic Engineer/Modeller)

Pialligo Avenue Upgrade – Airport Access (2005-2006)

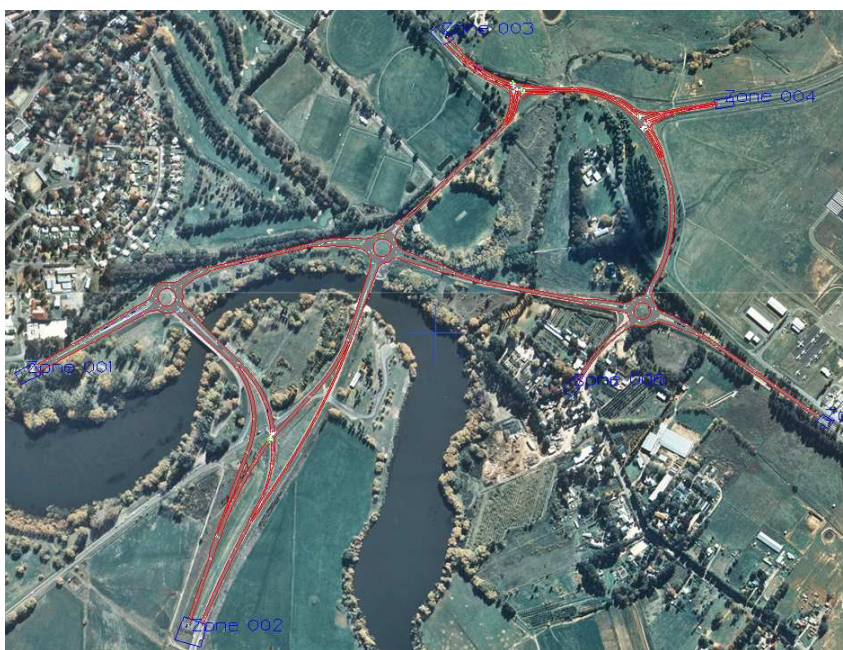
Client: Procurement Solutions

Services provided: transport planning, stakeholder consultation, concept design, preliminary design, detail design, PARAMICS modelling, cost estimation, economic analysis, tender specifications, superintendence, safety auditing

The Pialligo Avenue Upgrade was developed in parallel with planning for the future connection between the Monaro Highway and the proposed Majura Parkway. Options for Parkway routes either side of the Royal Military College's historic No. 1 Oval were being considered using the Majura Parkway TransCAD model. While a decision on the route of the Parkway has not yet been taken, the duplication of Morshead Drive and Pialligo Avenue is compatible with either Parkway option. This independence arises from the Parkway vertical alignment being above Morshead Drive/Pialligo Avenue for both Parkway options. In addition, intersection layouts on Morshead Drive and Pialligo Avenue are compatible with future interchange options. SCATS loop count data was available for the signalised intersections of Fairbairn/Morshead and Fairbairn/Majura. Future traffic volumes were generated using TransCAD

A range of different short term and long term options were modelled in PARAMICS to evaluate the impact on the traffic of duplications, turn restrictions and signalling one or more of the roundabouts. The possibility of signal metering on of the roundabouts was also considered. Detailed analysis of each intersection for each option was performed in aaSIDRA so that queue data could be documented and as verification of the PARAMICS.

Based on this analysis a PSP was prepared detailing a road layout that would lower congestion through the network while fitting the prescribed budget. The study involves a micro simulation traffic modelling and an economic appraisal of a range of road network improvement options prior to finalising the Preliminary Sketch Plan submission for the duplication of Pialligo Avenue.



Key SMEC Personnel

- Mal Dunning (Project Director/Concept Designer)
- Steve Baker (Project Manager/Bridge Engineer)
- Trevor Ferris (Senior Road Designer)
- **Dr. Khaled Abbas (Transport & Traffic Specialist, Principal Transport Planner & Economist)**
- Mick Lyons (Traffic Engineer/Safety Specialist)
- Nick Rudland (Traffic Engineer/PARAMICS Modeller)
- Craig Sutton (Pavement Engineer)

Hastings Roads & Traffic Study (2000- 2006)

Client: Port Macquarie-Hastings Council

http://www.hastings.nsw.gov.au/resources/documents/0014387prelimroute_Annexure_C.pdf

http://www.hastings.nsw.gov.au/resources/documents/Outer_Link_Council_Report_18_12_06_Attachment3_Pages_86-170.pdf

http://www.hastings.nsw.gov.au/resources/documents/Outer_Link_Rd_ERM_Final_Report_Part3_of3.pdf

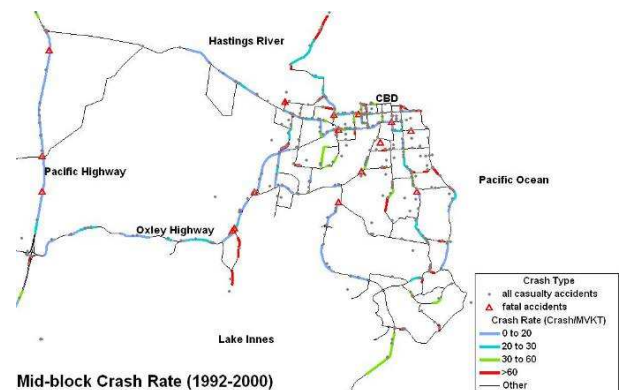
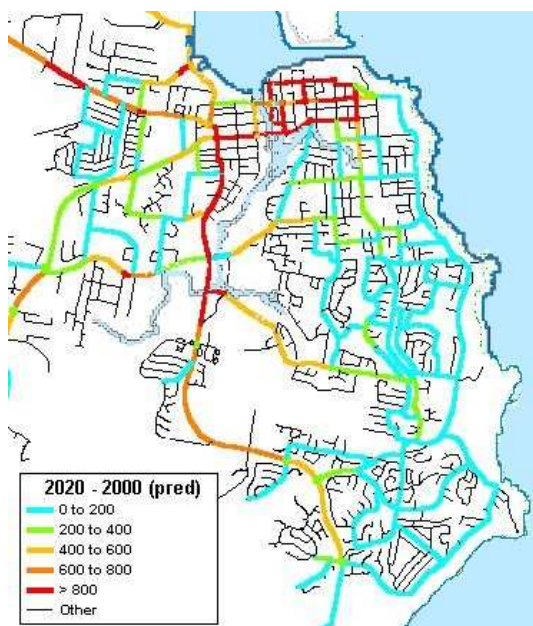
Services provided: transport planning, stakeholder consultation, concept design, strategic modelling, pedestrian movement, safety, intersection analysis.

This study included an assessment of the future needs for the whole Hastings road network for the next 20 years. The project involved:

- Stakeholder review; collection and collation of extensive traffic data;
- Integration of population, retail, commercial and industrial forecasts; assessment of the impacts of the Hastings Urban Growth Strategy on network needs;
- Development of a GIS network model using TransCAD; review of accident histories; and
- Development and creation of a prioritised implementation plan.
- Assessment of alternative ring road alignments in terms of Level of Service and changes in travel time.

This model has since been updated for use in several different projects for the Port Macquarie-Hastings council including assessments of road networks in new development and traffic impact studies for these developments along with evaluating the benefit of several more environmentally acceptable ring road alternatives.

Most recently the Port Macquarie model has been revisited to assess the impacts of the proposed Thrumster development on proposed intersections along the existing Oxley Highway using aaSIDRA. The aim is to determine a timeline for the construction of the Oxley Highway Bypass.



Key SMEC Personnel

- Mal Dunning (Project Director)
- **Dr. Khaled Abbas (Transport & Traffic Specialist & Principal Transport Planner)**
- Anona Graham (Community Consultant)
- Nick Rudland (Traffic Engineer/Modeller)
- Lindsay Jacobsen (Traffic Engineer/Modeller)
- Josh Everett (Traffic Engineer/Modeller)