

CURRICULUM VITAE

ANDREW BULMAN



POSITION : Director
NAME OF FIRM : UrbanEQ Consulting Engineers (Pty) Ltd
SPECIALISATION : Transportation Engineer & Planner
DATE OF BIRTH : 23 October 1971
NATIONALITY : South African
YEARS EXPERIENCE : 28

SUMMARY:

Andrew Bulman is a professionally registered transportation engineer with a master's degree in transportation planning and 28 years of experience in the fields of traffic & transportation engineering and planning. This includes more than 16 years' experience working for various government departments in the planning, service design, implementation, financing, and operational management of public transport systems, including bus, minibus-taxi and rail operations, but mainly specialising in BRT.

Andrew's key experience includes: Public transport system analysis and design, public transport operational planning, implementation and management, bus fleet management, public transport surveys, public transport financial and efficiency analysis, public transport infrastructure and facilities design, transportation feasibility studies, planning and operation of event transport systems, alternative energy bus feasibility studies, traffic engineering and project management.

Andrew has been a key team member responsible for the design and implementation of both the City of Cape Town and the City of Durban's BRT systems, including providing ongoing system planning, business viability assessment and operational management specialist input. Andrew has also been involved in operational and financial reviews of the City of Johannesburg, Tshwane, Port Elizabeth, George and Maputo's BRT systems in order to improve the operational performance of these systems.

In addition, he was the national team-leader responsible for the review of grant submissions for BRT systems made by 13 cities across South Africa. The review included assessing network plans and service designs for BRT systems for the 13 cities, monitoring implementation progress, and reviewing operational performance of BRT and bus operations.

Andrew has spent the last years working closely with various national and local government departments, such as the National Department of Transport, the World Bank, the City of Cape Town and the City of Durban, and has intimate knowledge of government procurement processes from both an internal and external perspective.

EDUCATION:

Qualification:	Institution:	Year Obtained:
MEng (Transportation)	University of Stellenbosch	2001
BSc (Eng) Civil	University of Cape Town	1994

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MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS:

- Registration as a Professional Engineer: Engineering Council of South Africa, 1999
PrEng Registration No: 990261
- Member of the South African Institute of Civil Engineering
Membership No: 091428

EMPLOYMENT RECORD:

From:	2020	to	Present
Employer:	Motion Consulting Engineers (Pty) Ltd		
Position held:	Director		
From:	2016	to	Present
Employer:	UrbanEQ Consulting Engineers (Pty) Ltd		
Position held:	Director		
From:	2002	to	2016
Employer:	GIBB (Pty) Ltd		
Position held:	Technical Executive and Sector Unit Manager Traffic and Transportation		
From:	2000	to	2001
Employer:	City of Cape Town		
Position held:	Transportation Planning Professional		
From:	1995	to	1999
Employer:	GIBB (Pty) Ltd		
Position held:	Project Engineer, Traffic and Transportation		

SELECTED PROJECT EXPERIENCE (Public Transport and BRT Projects)

PROJECT NAME:	ACCELERATING A MARKET TRANSITION IN SOUTH AFRICA: NEW MODELS FOR ELECTRIC BUS DEPLOYMENT
PERIOD:	From: May 2023 to December 2023
CLIENT:	C40 Cities Climate Leadership Group, Inc (Subcon to LOGIT)
SUMMARY:	This project comprised the preparation of a report evaluating the bus ownership and service provision models currently in use in five South African cities, namely, Johannesburg, Tshwane, Ekurhuleni, Cape Town and Durban. The report then proposed the most viable business and financial models that can support scaled deployment of electric buses in South Africa and to inspire other cities in the region.

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PROJECT NAME: **DETAILED OPERATIONAL AND BUSINESS CASE ASSESSMENT OF ALTERNATIVE ENERGY BUSES IN MYCITI PHASE 2A**

PERIOD: From: July 2023 to October 2023

CLIENT: City of Cape Town (Subcon to Zutari)

SUMMARY: This report provided a detailed operational and business case (financial) assessment for the adoption of three alternative energy bus technology options in the City of Cape Town's MyCiTi Phase 2. It investigated the detailed cost implications, infrastructure requirements, fleet management issues, operational considerations, financing options, and risk assessment for each option.

PROJECT NAME: **MAPUTO METROPOLITAN AREA URBAN MOBILITY PROJECT**

PERIOD: From: Jan 2023 to July 2024

CLIENT: World Bank

SUMMARY: Our role on this project is to advise the World Bank on the operational, fleet and financial aspects of the new BRT system being designed and constructed in Maputo, which is being funded by the World Bank. The project comprises the construction of a 20km busway with stations, supported by feeder and direct service routes, and implementation of operations with a fleet of 120 buses.

PROJECT NAME: **PROCUREMENT OF BRT BUSES FOR THE CITY OF CAPE TOWN**

PERIOD: From: Jan 2023 to Dec 2023

CLIENT: City of Cape Town (Subcon to Zutari)

SUMMARY: Assistance to the City of Cape Town's Fleet Department to develop a tender document and specification for the procurement of 45 x 18m diesel BRT buses.

PROJECT NAME: **PROVINCIAL SUSTAINABLE TRANSPORT PROGRAMME: ELECTRIC MBTS**

PERIOD: From: Mar 2023 to July 2023

CLIENT: Department of Transport and Public Works, Western Cape Government (subcon to Pegasys)

SUMMARY: This project comprised undertaking a full operational and financial assessment for the introduction of battery electric MBTs in the Western Cape.

PROJECT NAME: **HIGH-LEVEL OPTIONS ANALYSIS: FEASIBILITY STUDY OF ALTERNATIVE BUS TECHNOLOGIES FOR THE CITY OF CAPE TOWN**

PERIOD: From: Mar 2022 to July 2022

CLIENT: Public Transport Fleet Management, City of Cape Town

SUMMARY: This project comprised providing the City of Cape Town with an options analysis of alternative energy bus technologies that range from low carbon emission to zero-emission buses to assist the city with future fleet procurement decisions regarding MyCiTi buses.

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PROJECT NAME: **PROVISION OF PROFESSIONAL SERVICES: SYSTEM PLANNING**
PERIOD: From: March 2021 to February 2026
CLIENT: Transport System Planning, City of Cape Town (sub-con to ITS)
SUMMARY: The Senior Public Transport Operations Specialist on the team, providing key input into the preparation of the Integrated Public Transport Network (IPTN) Plan, undertaking a review of the MyCiTi's fare policy and assisting with various transport planning functions related to the future development of the MyCiTi network and project managing teams undertaking various tasks.

PROJECT NAME: **PROCUREMENT AND FINANCING GUIDELINES FOR SOOT-FREE BUS TECHNOLOGIES IN URBAN BUS FLEETS IN AFRICA**
PERIOD: From: Aug 2021 to Dec 2021
CLIENT: African Association of Public Transport (UATP) & United Nations Environment Programme (UNEP)
SUMMARY: This project developed a practical and user-friendly guideline that African cities can use to procure and finance soot-free urban bus fleets.

PROJECT NAME: **GREEN PROCUREMENT GUIDELINE FOR PURCHASE OF GOVERNMENT LAND TRANSPORTATION VEHICLES IN SOUTH AFRICA**
PERIOD: From: Apr 2020 to Nov 2021
CLIENT: National Department of Transport, South Africa supported by GIZ
SUMMARY: Conducted a financial and economic Cost-Benefit Analysis (CBA) and life cycle costing tool to assist decision-makers with the procurement of electric vehicles versus internal combustion engine vehicles. Assisted with drafting a green procurement guideline for the government vehicle fleet in South Africa.

PROJECT NAME: **PROVINCIAL SUSTAINABLE TRANSPORT PROGRAMME: BLUE DOT**
PERIOD: From: March 2020 to December 2022
CLIENT: Department of Transport and Public Works, Western Cape Government (sub-con to Pegasys)
SUMMARY: Provision of specialist public transport operational and financial expertise for the planning, development, implementation of the Blue Dot mini-bus taxi incentive scheme. The Blue Dot project was implemented to incentivise mini-bus taxi operators to improve behaviour and operational performance by paying an incentive in return for meeting certain goals and targets.

PROJECT NAME: **PROVINCIAL SUSTAINABLE TRANSPORT PROGRAMME: COVID RED DOT**
PERIOD: From: March 2020 to December 2022
CLIENT: Department of Transport and Public Works, Western Cape Government (sub-con to Pegasys)
SUMMARY: Provision of specialist public transport operational and financial expertise for the planning, development, implementation of the Red Dot mini-bus taxi

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schemes. The Red Dot project was set up to provide MBT transport support to hospital staff during the COVID-19 pandemic.

PROJECT NAME: **PROVINCIAL SUSTAINABLE TRANSPORT PROGRAMME: LEARNER TRANSPORT**

PERIOD: From: April 2020 to July 2020

CLIENT: Department of Transport and Public Works, Western Cape Government (sub-con to Pegasys)

SUMMARY: Analysis of the Western Cape learner transport database in order to advise the WCG how learner transport should operate under COVID-19 restrictions, which limited the occupancy on buses. Resulted in a revised contract being signed with the operators, confirming new operating procedures and guaranteeing a minimum payment under COVID lockdown protocols.

PROJECT NAME: **PROVISION OF PROFESSIONAL SERVICES: BUSINESS PLANNING**

PERIOD: From: December 2019 to November 2027

CLIENT: Transport Business Planning Department, City of Cape Town (sub-con to Zutari)

SUMMARY: The Senior Public Transport Operations Specialist for Cape Town's Business Planning branch, providing critical input to develop business plans, guide the development of the IPTN and undertaking system analysis, cost modelling, business case investigations, vehicle fleet specification reviews, design business parameters to inform BRT contracts, developing business strategies and providing other ad-hoc support. This involved working directly with the City's Systems Planning, AFC & APTMS, Industry Transition, Infrastructure, Operations, Network Management and Urban Development branches. The focus includes reviewing IPTN plans, infrastructure designs and service design, feasibility and business case assessment for green energy buses and development of parameters to inform system design and technical and business elements of contracts with BRT operators, specifically for the Phase 1, Phase 2A and N2 Express contracts for the Cape Town network. Responsibilities include programme and project management of small, focussed teams.

PROJECT NAME: **ASSIGNMENT OF URBAN PASSENGER RAIL TO THE WESTERN CAPE PRE-FEASIBILITY STUDY**

PERIOD: From: October 2019 to April 2020

CLIENT: Provincial Government Western Cape (sub-con to Pegasys)

SUMMARY: The Senior Public Transport Operations Specialist on the team providing input and analysis on the rail pedestrian demand patterns, operational statistics, ticket sales data and interpreting future demand modelling data provided from the City of Cape Town's EMME model.

PROJECT NAME: **TECHNICAL SUPPORT TO THE CITY OF CAPE TOWN'S MYCITI OPERATIONS DEPARTMENT**

PERIOD: From: October 2010 to September 2019

CLIENT: Transport for Cape Town, City of Cape Town

SUMMARY: Core team engineer in bringing Phase 1 of Cape Town's MyCiTi (BRT) system into operation, done in the context of integrating existing public transport operators (including informal operators) into the new system. As an indication of scale, statistics of Cape Town's operational BRT services (Phase 1 and N2 Express) are provided below:

- Passenger journeys per average weekday – 70 000
- Number of peak vehicles - 225
- Number of MyCiTi routes - 40
- Bi-directional dedicated lanes - 31.4 kms
- Number of MyCiTi closed stations – 42
- Drivers employed - 500

Providing operational support to City of Cape Town officials to establish the BRT system including vehicle fleet procurement, development of operational KPIs, bus timetable development, invoice verification, contractual advice, AFC, APTMS and system analysis. Following operationalisation of the services, provided ongoing support to performance management, operations management and improvement of bus services to improve efficiency of operations, including revision of timetables and routes. Specific tasks undertaken include the planning and project management of passenger and bus surveys over a number of years, analysis of passenger utilisation and operational performance data, fuel consumption analysis, operational budget preparation and vehicle kilometre projections.

As part of this support project, I lead a task from January to June 2018 that developed parameters for the development of a commissioning and testing programme, as well as institutional considerations for an electric bus pilot project involving 11 x 12m BYD electric buses for the City of Cape Town.

PROJECT NAME: **PROVISION OF PROFESSIONAL SERVICES: BUSINESS DEVELOPMENT**

PERIOD: From: September 2015 to August 2019

CLIENT: Transport for Cape Town, City of Cape Town (sub-con to Pegasys & GIBB)

SUMMARY: The Senior Public Transport Operations Specialist for Cape Town's Business Planning Transport branch, providing critical input to develop business plans and undertake system analysis, cost modelling, business case investigations, vehicle fleet specification reviews, design business parameters to inform BRT contracts, develop business strategies and provided other ad-hoc support. Through the business planning process, working directly with the City's Systems Planning, Industry Transition, Infrastructure, Operations, Network Management and Urban Development functions. The focus areas included a review of IPTN plans, infrastructure designs and service design, and development of parameters to inform system design and technical and business elements of contracts with BRT operators, specifically for the Phase 2A and N2 Express contracts for the Cape Town network. Specific investigations undertaken include best practice bus depot design review, double decker bus vs articulated bus feasibility analysis, electric bus feasibility analysis, busway infrastructure, station and stop design / operational analysis, surveys of passenger utilisation and fare usage patterns and analysis of the

data etc. In addition, the preparation of annual grant applications to National Government was undertaken.

PROJECT NAME: OPERATIONS AND BUSINESS PLANS FOR THE GO!DURBAN BRT SYSTEM
PERIOD: From: February 2019 to June 2019
CLIENT: eThekweni Transport Authority (ETA) (sub-con to HATCH)
SUMMARY: Assistance with the development of the operations and business plans for the roll-out of the C3 corridor on the GO!Durban BRT system, based on the approved IPTN plan. This included preparing the detailed passenger timetable and bus operations schedule, and the financial plan. General assistance to the ETA for operational roll-out readiness of the service was also provided.

PROJECT NAME: PROVISION OF PROFESSIONAL SERVICES: CONTRACT MANAGEMENT
PERIOD: From: January 2017 to January 2020
CLIENT: Transport for Cape Town, City of Cape Town (sub-con to VZA)
SUMMARY: Assistance to Transport for Cape Town: Contract Management to provide general transportation engineering, contractual and operational technical support in the development of public transport contracts. Includes input to contracts for the Cape Town BRT system, as well as support to analysis of data to assist in performance monitoring of BRT operations.

PROJECT NAME: OPERATIONAL REVIEW OF THE NELSON MANDELA BAY IPTN SYSTEM
PERIOD: From: June 2018 to June 2021
CLIENT: Nelson Mandela Bay Municipality (sub-con to GIBB)
SUMMARY: Operational and financial review of the performance of the pilot IPTN service in Port Elizabeth with recommendations of operational changes and budget updates to improve the operation and financial feasibility of the service. This included analysis of operational data to determine the performance of the system and benchmarking of KPIs against other City's systems.

PROJECT NAME: NATIONAL TREASURY CITY SUPPORT PROGRAMME: PTNG GRANT REVIEW
PERIOD: From: August 2017 to December 2018
CLIENT: World Bank and National Treasury (sub-con to GIBB)
SUMMARY: Assistance to the Department of Transport (DoT) in South Africa and World Bank for the development of a new Public Transport Network Grant application template, including advice on how to monitor implementation progress and operational performance of BRT and bus operations. Analysis and review of the grant submissions from 13 cities for funding of planning, implementation and operation of bus systems, and advice to the DoT on grant allocations. Included review and high-level assessment of IPTN plans and service designs for BRT systems and assessment of performance indicators for operational systems, resulting in guidance to Cities on how to improve their IPTN plans.

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PROJECT NAME: **NATIONAL TREASURY CITY SUPPORT PROGRAMME: BUS RAPID TRANSIT**
PERIOD: From: October 2015 to December 2016
CLIENT: National Treasury
SUMMARY: Assistance to the Cities of Johannesburg and Tshwane to analyse and improve the operational efficiencies of their Bus Rapid Transit (IPTN) systems. This included planning and executing extensive and wide-ranging surveys of bus operations and passenger demand, and analysis of the data in order to determine the performance of the system and recommend improvements that could be made.

PROJECT NAME: **TECHNICAL SUPPORT TO THE CITY OF CAPE TOWN'S MYCITI BUSINESS DEVELOPMENT DEPARTMENT**
PERIOD: From: September 2013 to September 2015
CLIENT: Transport for Cape Town, City of Cape Town
SUMMARY: On Phase 1, Andrew was the lead consultant for a route-by-route analysis of passenger volumes and bus scheduling, which resulted in a redesign of key elements of the bus network and rescheduled operational timetables to optimise services, reduced costs and improve revenue, balancing the supply of services against actual passenger demand volumes. This required planning and executing detailed surveys and analysis of the MyCiTi operations across the network in order to maximise efficiencies and reduce expenditure. This included an assessment of profitability for each route based on patronage, revenue and operating costs for peak and off-peak periods, followed by recommended interventions accompanied by quantified potential cost savings for each intervention and an assessment of feasibility. The revised network and operational timetables were implemented successfully.

ADDITIONAL PROJECT EXPERIENCE (Public Transport Projects)

PROJECT NAME: **BUSINESS PLAN FOR THE CAPE WINELANDS DIAL-A-RIDE SERVICE**
PERIOD: From: February 2019 to October 2020
CLIENT: Cape Winelands Municipality (sub-con to GIBB)
SUMMARY: Assistance with the development of an operational and business plan for the introduction of a new Dial-a-Ride public transport service for people with disabilities.

PROJECT NAME: **eTHEKWINI COMPREHENSIVE INTEGRATED TRANSPORT PLAN**
PERIOD: From: October 2016 to October 2018
CLIENT: eThekweni Transport Authority (sub-con to RHDHV)
SUMMARY: Preparation of the Contracted Public Transport Services component of the Public Transport Plan including the IPTN plan. This included an operational and financial assessment of the current contracted bus services in the City and a description of how these will be transformed into a new Integrated Public Transport Network with BRT operating as the primary network system.

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PROJECT NAME: **2010 FIFA WORLD CUP**
PERIOD: From: 2009 to 2010
CLIENT: FIFA 2010 Local Organising Committee
SUMMARY: Contracted to the 2010 FIFA Local Organising Committee for ten months as the Venue Transport Coordinator for Cape Town. Responsible for the operation of all transport services provided for the teams, staff, media and VIP guests including all parking facilities and access to the Cape Town Stadium precinct.

PROJECT NAME: **2010 FIFA WORLD CUP - DETAILED TRANSPORT OPERATIONS PLANNING**
PERIOD: From: 2006 to 2009
CLIENT: City of Cape Town
SUMMARY: Responsible for the programme and project management of a multi-disciplinary team that conceptualised and developed the transport operations plan for the 2010 WC for the City of Cape Town. Included bus shuttles, parking, VIP routes, rail, park 'n rides, signage, marketing and transport information for visitors

PROJECT NAME: **CLAREMONT PUBLIC TRANSPORT INTERCHANGE**
PERIOD: From: 2006 to 2008
CLIENT: City of Cape Town
SUMMARY: Design of a new Public transport interchange including taxi rank and bus terminus. Project leader of the multi-disciplinary team responsible for the planning, conceptual design, detailed design, tendering and construction of the new taxi rank and bus terminus. This included regular liaison with both the bus and taxi operators and design of the operational system and MBT routes.

PROJECT NAME: **CAPE TOWN AIRPORT RAIL LINK**
PERIOD: From: 2006 to 2006
CLIENT: South African Rail Commuter Corporation (SARCC)
SUMMARY: Internal reviewer of the study undertaken to determine the technical and financial feasibility of constructing a rail link between Cape Town International Airport and the Cape Town CBD.

PROJECT NAME: **ANALYSIS OF RAILWAY STATION PASSENGER GATES**
PERIOD: From: 1998 to 1998
CLIENT: South African Rail Commuter Corporation (SARCC)
SUMMARY: Survey and modelling of passenger flows in rail stations through access control gates to determine the number of gates required and impact of different technologies.

PROJECT HISTORY (Other Major Transport Projects):

PROJECT NAME: V&A WATERFRONT TRANSPORT MASTER PLAN
PERIOD: From: 2012 to 2013
CLIENT: V&A Waterfront
SUMMARY: Five-year update to the transport master plan including road management, parking analysis, public transport service assessment and NMT facility design

PROJECT NAME: TWO RIVERS URBAN PARK
PERIOD: From: 2012 to 2013
CLIENT: Provincial Government Western Cape
SUMMARY: Transport planning for the development of 1,000,000 m² sustainable development adjacent to the Black River in Cape Town. Included innovative ways of reducing traffic congestion and improving sustainable use of transport infrastructure

PROJECT NAME: BAYSIDE SHOPPING CENTRE – TRANSPORT AND TRAFFIC ENGINEERING INPUT TO THE EXPANSION OF BAYSIDE SHOPPING CENTRE IN TABLE VIEW
PERIOD: From: 2008 to 2013
CLIENT: Acucap Properties
SUMMARY: A number of TIA's to support development applications, conceptual design of parking and road infrastructure

PROJECT NAME: NEWLANDS RUGBY STADIUM – TRANSPORT FEASIBILITY STUDY FOR THE REDEVELOPMENT OF NEWLANDS RUGBY STADIUM
PERIOD: From: 2012 to 2013
CLIENT: WPRFU
SUMMARY: Preliminary transport assessment of the feasibility of the development of the Newlands Rugby Stadium. Assessment of future traffic demand, assessment of possible entrance points and calculation of parking requirements

PROJECT NAME: CULEMBORG QUARTER – TRANSPORT PLANNING
PERIOD: From: 2007 to 2012
CLIENT: Culemborg Investment Properties (Pty) Ltd
SUMMARY: Detailed TIA for the development of a 200 000 m² GLA inner-city multi-use facility including integration with the local road, NMT & IPTN networks.

PROJECT NAME: NO 1 SILO BUILDING, V&A WATERFRONT
PERIOD: From: 2008 to 2010
CLIENT: V&A Waterfront

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SUMMARY: Transportation engineering services for the development of the 5 Green Star office building including successfully preparing the Green Star application report for the transport component of the submission

PROJECT NAME: **TRAFFIC ENGINEERING SUPPORT TO THE CITY OF CAPE TOWN**
PERIOD: From: 2011 to 2016
CLIENT: City of Cape Town
SUMMARY: General support to the functions performed by the City's Traffic Engineering department. Undertaking speed surveys, speed hump investigations, billboard application analysis, intersection conceptual designs and traffic signal designs

PROJECT NAME: **FESTIVAL MALL – TRANSPORT PLANNING FOR THE UPGRADE OF A REGIONAL SHOPPING CENTRE IN GAUTENG**
PERIOD: From: 2009 to 2011
CLIENT: Acucap Property Limited
SUMMARY: TIA for the extension and upgrade of a regional shopping centre. Included trip generation, intersection analysis, conceptual design and parking analysis.

PROJECT NAME: **NUCLEAR ONE TRANSPORT STUDY**
PERIOD: From: 2007 to 2012
CLIENT: Eskom
SUMMARY: Transport specialist study at three locations as part of EIA process for the proposed Nuclear One power plant

PROJECT NAME: **GREATER KOMMETJIE/SUN VALLEY REGIONAL - TRANSPORT IMPACT ASSESSMENT AND BULK CONTRIBUTION STUDY**
PERIOD: From: 2009 to 2011
CLIENT: JBB Properties
SUMMARY: Regional TIA for development in the area over a 10-year period including roads master planning, detailed TIA and calculation of future development contributions to fund the construction of infrastructure.

PROJECT NAME: **GARDEN ROUTE MALL - TRANSPORT IMPACT ASSESSMENT**
PERIOD: From: 2009 to 2011
CLIENT: Torbell Holdings (Pty) Ltd
SUMMARY: TIA for the development of a new regional shopping centre in George

PUBLICATIONS & PAPERS:

- MyCiTi Integrated Rapid Transit System “*It is not just about the bus*”, SAICE Civil Engineering Magazine, September 2013
- Above paper presented at SATC, July 2014

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- *“Can BRT be operated sustainably in South Africa?”* Paper presented to the National South African Transport Conference on 8 July 2015.
- *“The BRT / Taxi Hybrid Model”* Presentation at the UATP Conference – 20-22 Oct 2015.
- *“WHAT HAPPENS WHEN THE 12-YEAR BUS RAPID TRANSIT CONTRACTS COME TO AN END?”* Paper presented to the National South African Transport Conference in July 2023.