行政院及所屬各機關出國報告
(出國類別：其它)

出席澳洲墨爾本第 23 屆智慧運輸世界大會暨台灣高鐵公司獲頒產業成就獎典禮

服務機關：交通部高速鐵路工程局

姓名職稱：徐榮崇組長

派赴國家：澳洲

出國期間：105 年 10 月 9 日~10 月 16 日止

報告日期：106 年 1 月 9 日

摘　要

有鑑於智慧運輸系統(Intelligent Transport System，簡稱 ITS)為交通部當前施政重點之一，利用我國優勢的電子、通信、資訊與感測技術，提升交通安全、改善運輸效率，並發展以科技、智慧管理的交通服務，朝向節能環保、綠色永續的目標邁進，進而促進相關產業發展，增加就業機會，提升國家經濟成長。本次交通部由王政務次長國材率領科技顧問室、所屬運輸研究所、公路總局及高公局等單位代表共同出席智慧運輸系統(ITS)世界大會 2016 年第 23 屆世界大會，了解各國智慧運輸相關技術與政策，對國內智慧運輸事業政策制定與推動、優化及永續發展有正面助益。另我國台灣高鐵公司以「台灣高鐵智慧運輸服務系統」榮獲「ITS 世界大會產業成就獎」殊榮，藉由出席大會頒獎典禮，共同分享台灣高鐵公司致力於智慧運輸服務優異表現之榮耀。此外，藉由實際瞭解墨爾本捷運及輕軌運輸系統現況及未來發展，尤其是輕軌捷運系統，對我國各都會區未來捷運建設之推動，應有參考價值及助益。

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壹、目的

智慧運輸系統(Intelligent Transport System 簡稱 ITS)世界大會 2016 年第 23 屆世界大會於 105 年 10 月 10 日至 14 日在澳洲墨爾本舉行,邀集國際系統整合業者、車廠、汽車電子、電子地圖應用業者及各國智慧運輸管理機關等單位參與，以智慧城市與智慧運輸發展議題為主，舉辦各項研討論壇、廠商產品展覽與展示，提供專家、業者交流智慧運輸有關交通科技最新知識的平臺。另我國台灣高鐵公司並以「台灣高速鐵路台灣高鐵智慧運輸服務系統」(包括智慧化列車運行管理、智慧化安全與應變管理、智慧化訂位購票服務、智慧化旅客服務及智慧化旅遊資訊服務等 5 項)榮獲「ITS 世界大會產業成就獎」殊榮，藉由出席大會頒獎典禮，共同分享台灣高鐵公司致力於智慧運輸服務優異表現之榮耀。

有鑑於智慧運輸系統(ITS)為交通部當前施政重點之一，利用我國優勢的電子、通信、資訊與感測技術，提升交通安全、改善運輸效率，並發展以科技、智慧管理的交通服務，朝向節能環保、綠色永續的目標邁進，進而促進相關產業發展，增加就業機會，提升國家經濟成長。本次交通部由王政務次長率領科技顧問室、所屬運輸研究所、公路總局及高公局等單位代表共同出席大會，了解各國智慧運輸相關技術與政策，對國內智慧運輸事業政策制定與推動、優化及永續發展有正面助益。

此外澳洲墨爾本軌道運輸系統發達，且有百年以上歷史，舉世聞名。利用此次機會，實際瞭解墨爾本捷運及輕軌運輸系統現況及蒐集未來發展相關資料，相信對我國各都會區未來捷運建設之推動，尤其是輕軌捷運系統，應有參考價值及助益。

貳、行程

交通部王政務次長國材率交通部所屬單位及機關，包括科技顧問室、公路總局運輸研究所、國道高速公路局及高速鐵路工程局等，前往澳洲墨爾本出席第 23 屆智慧運輸世界大會暨台灣高鐵公司獲頒「ITS 世界大會名人堂產業成就獎」授獎典禮。

本次赴澳洲墨爾本考察團員除交通部前述相關單位及獲獎人台灣高鐵公司外，另有經濟部及其所屬單位與機關、內政部警政署、臺北市政府及高雄市政府交通局、財團法人資訊工業策進會、工業技術研究院資通所、中華電信公司等產、官、學界百餘人率團出席大會，涵蓋台灣 ITS 建設、研發、技術、服務系統及各項產品產業廠商，共同參與並在場觀禮，見證台灣軌道產業高度智慧化卓越成就、領先國際的榮耀時刻。

台灣與會者共分為 A、B 兩團，交通部高速鐵路工程局徐組長榮崇參加之行程係 B 團，自 105 年 10 月 9 日起至 10 月 16 日止，共計 8 日，行程表詳表 2.1。

表 2.1 行程表

日期	行程摘要
10 月 9 日 (星期日)	去程(台北→墨爾本)
10 月 10 日 (星期一)	大會行程 • 高階政策圓桌會議 (High Level Policy RoundTable) • 大會開幕儀式 • 展覽開幕暨歡迎酒會
10 月 11 日 (星期二)	全日會議、技術參觀、展覽參觀 • Plenary Session 1-台灣高鐵公司接受表揚

日期	行程摘要
10/12 (星期三)	全日會議、技術參觀、展覽參觀 ・ 中華智慧運輸協會與澳洲 ITS 協會、紐西蘭 ITS 協會簽署 MOU (MOU ITS Taiwan & ITS Australia、ITS New Zealand) ・ 台灣論壇第一場次暨與香港 ITS 協會簽署 MOU (Taiwan Forum in Melbourne–1 & MOU with ITS Hong Kong)
10/13 (星期四)	全日會議、技術參觀、展覽參觀 ・ 台灣論壇第二場次暨與新加坡 ITS 協會簽署 MOU (Taiwan Forum in Melbourne–2 & MOU with ITS Singapore)
10/14 (星期五)	上午會議、技術參觀、展覽參觀 ・ 撤展 ・ 閉幕儀式
10/15 (星期六)	考察墨爾本市區輕軌捷運系統 返程(墨爾本→台北)
10/16 (星期日)	返程(墨爾本→台北)

參、過程

3-1 ITS 世界大會簡介

智慧運輸系統世界大會（ITS world congress）是場國際性的盛事，由亞太智慧運輸系統協會（ITS Asia-Pacific）、美國智慧運輸系統協會（ITS America）與歐洲智慧運輸系統協會（ITS Europe）等區域性的三大智能運輸組織於 1994 年聯合倡議而成立，於每年的秋季在歐洲、亞太地區和北美洲輪流舉辦，通常歷時 4 天至 5 天。其中除了第一屆大會稱為 ATT&IVHS 世界大會（ATT&IVHS world congress）外，均稱為智慧運輸系統世界大會，歷年各屆舉辦地點如下：

1st (1994) 巴黎	2nd (1995) 橫濱	3rd (1996) 奧蘭多
4th (1997) 柏林	5th (1998) 首爾	6th (1999) 多倫多
7th (2000) 杜林	8th (2001) 雪梨	9th (2002) 芝加哥
10th (2003) 馬德里	11th (2004) 名古屋	12th (2005) 舊金山
13th (2006) 倫敦	14th (2007) 北京	15th (2008) 紐約
16th (2009) 斯德哥爾摩	17th (2010) 釜山	18th (2011) 奧蘭多
19th (2012) 維也納	20th (2013) 東京	21th (2014) 底特律
22th (2015) 波爾多	23th (2016) 墨爾本	24th (2017) 蒙特婁
25th (2018) 哥本哈根	26th (2019) 新加坡	

(資料來源：維基百科)

ITS 世界大會由研討論壇、展覽、展示及技術參觀組成，提供了一個平台，使世界各地關心 ITS 發展的商業、政府和學術界人士得以聚集在一起，探討交通問題的解決之道、發展和擴大商業機會，研發和實際部署，並展示各自的成果。

台灣為符合世界潮流所趨，亦參考美國 ITS America、歐盟 ERTICO 及日本 ITS-Japan，成立「中華智慧運輸協會」(ITS Taiwan)，該協會為橫跨產、官、學、研之專責組織，以協調聯繫各部門之分工，期能達到台灣交通新境界。

3-2 2016 年墨爾本第 23 屆 ITS 世界大會

本次 ITS World Congress 2016 年澳洲墨爾本第 23 屆智慧型運輸系統世界大會於墨爾本會展中心(Melbourne Convention and Exhibition Centre)舉辦，本次大會之主題為：「ITS — Enhancing Liveable Cities and Communities」，圍繞智慧城市與智慧運輸發展議題進行，邀集了國際系統整合業者、車廠、汽車電子、電子地圖應用及各國智慧運輸管理機關等超過 300 個參展單位，如：IBM、Siemens、Ericsson、TOYOTA、HONDA、Toshiba、NEC、Mitsubishi、Fujitsu、DENSO、Wavetronix、TomTom、HERE、SGS、AISIN、Bosch 等國際大廠參與盛會，並舉辦各項研討論壇、展覽、展示及技術參觀等活動，期間自 105 年 10 月 10 日至 10 月 14 日，為期 5 天。

我國中華智慧運輸協會往年皆組團參展 ITS 世界大會，今年更將擴大組團陣容及參展規模，該協會本次參展三大目標分別為：增加台灣於國際 ITS 參與度、積極爭取國際 ITS 商機以及展現爭取 2022 年世界大會決心。

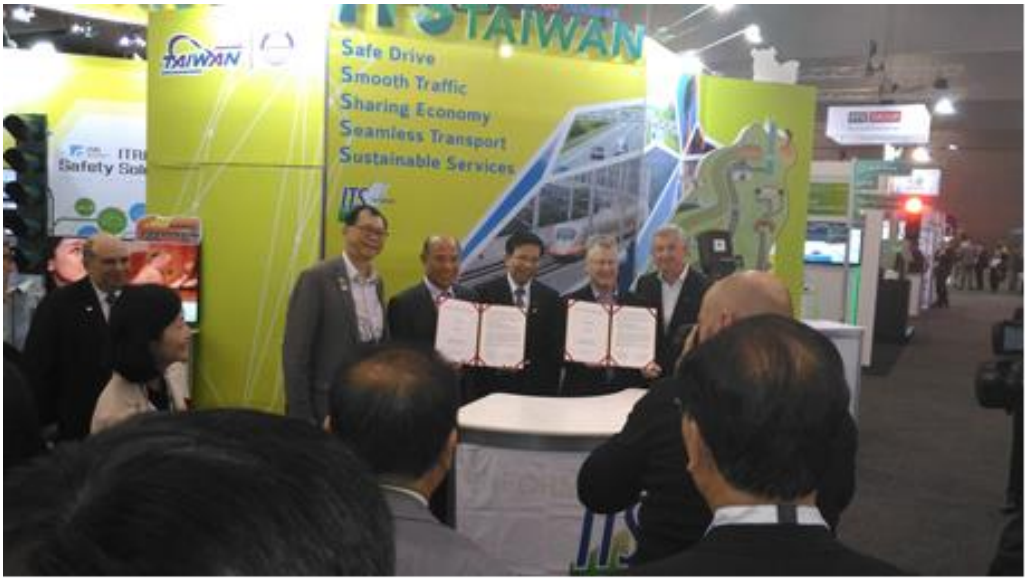

圖 3.1 交通部王政務次長見證中華 ITS 協會與澳洲、紐西蘭 ITS 協會簽署 MOU

本次大會除台灣高鐵公司以「台灣高鐵智慧運輸服務系統」榮獲「ITS 世界大會產業成就獎」之頒獎典禮外，重要活動項目概述如下：

3-2-1 研討會(Sessions)

大會開幕儀式於首日(105 年 10 月 10 日)下午 4 時舉辦，正式為 2016 年度 ITS 世界大會揭開序幕，開幕典禮主要由 ITS Australia 及澳洲政府代表三大區域的 ITS 協會：ITS Asia Pacific、ITS America 與 ERTICO 致歡迎詞，並由 Transurban 之執行長 Scott Charlton 先生進行主要演講，另典禮中亦安排頒發名人堂個人終身成就獎(hall of fame individual lifetime achievement award ITS)。

其後則依照歷屆大會慣例，設置多項會議和交流活動(大會議程如附件一、會議進行時間表如附件二)，謹就部分會議介紹如下：

1. 全體會議(Plenary sessions)：

   全體會議共計 4 個場次，分別於 10 月 11 日至 10 月 14 日，每日各舉行 1 場，由來自全球的高層官員以及產業龍頭，演講有關自動駕駛聯網車輛(automated and connected vehicles)、智能城市(smart cities)、連通性與大數據(connectivity and big data)以及運輸行動服務(mobility as a service)等主題之未來發展方向與挑戰。

2. 行政會議(Executive sessions)：

   行政會議共計 12 個場次，由來自全球各地的企業高階主管、官員和學者，針對政府和行業所面臨有爭議的 ITS 挑戰，分享他們的專業知識和看法，並提出涉及不同管轄範圍的議題和關鍵策略，期能在與政府的合作之下使產業創新。

3. 特別議題會議(Special interest sessions)：

   特別會議計 73 個場次，配合組織或個人的要求，設計為開放式論壇，以促進當前熱門主題的討論或辯論。

4. 科技/技術/商業會議(Scientific/Technical/Commercial sessions)：

   Scientific sessions 共舉辦 22 個場次、Technical sessions 有 93 個場次、Commercial sessions 則有 8 個場次，邀請國際以及當地的學者與產業專家演講有關 ITS 科技面、經濟面以及社會面之主題。

5. 互動會議(Interactive sessions)：

Interactive sessions 共有 4 場次，作者透過動態快照口頭演講，輔以 e-posters 討論的形式來發表論文，提供聽眾與作者互動討論的機會。

6. IBEC 會議(International benefis, evaluation and costs sessions)：

由 IBEC 工作小組主導，提供國際性的論壇，讓參與者針對 ITS 技術成本效益的典範實務進行交流，例如：道路收費(road pricing)、智能貨運(Smart Freight)以及綠能 ITS(Green ITS)等主題之最佳實務成本效益分析。

上述會議依題目又可歸類為以下 8 大主題，各大主題項下之會議題目詳參附件三：

1. 自動駕駛車與合作 ITS (Automated vehicles and cooperative ITS)
2. 大數據的挑戰和機遇(Challenges and opportunities of big open data)
3. 環境可持續性(Environmental sustainability)
4. 未來航空和海運之運費(Future freight including aviation and maritime)
5. 行動應用程式(Mobile applications)
6. 政策、標準與協調(Policy, standards and harmonization)
7. 智慧城市和新城市交通(Smart cities and new urban mobility)
8. 車輛和網絡安全(Vehicle and network safety)

3-2-2 展覽(Exhibition)

本次 ITS 世界大會的展覽共有多達 321 個參展者，提供與會者見識各式各樣領先全球軌道交通技術之組織、聽取 ITS 最新發展、認識澳洲當地野生動物並與之互動之機會；此外，亦提供示範操作及技術性導覽，讓與會者親身體驗最新的 ITS 運輸工具及基礎設施，展覽會場平面圖如圖 3.2。

圖 3.2 展覽會場平面圖

其中，我國於會場中設置之臺灣館「ITS Taiwan」位於攤位 2109 號，係以 72 平方公尺的空間呈現「ITS Taiwan 5S：Safe•Smooth•Seamless•Sharing•Sustainable」之主軸，邀請包括交通主管部門、內政部警政署、工業技術研究院、台灣高鐵公司以及中華電信公司等單位參展，展現台灣 ITS 政策方向、城市 ITS 發展願景及 ITS 產業促進策略等三大展區；另有專屬會議室，開放台灣與會者登記使用，從展館展示到深入對談，提供台灣與會者更優質的展會促商空間。

圖 3.3 ITS Taiwan 台灣高鐵公司攤位前合影

圖 3.4 澳洲當地野生動物互動體驗

3-2-3 技術參訪(technical tours)

本次大會共規劃 18 條參訪路線供與會人員報名自費參加，分別由 Transurban、EastLink、VicRoads、Public Transport Victoria、Port of Melbourne Corporation、Melbourne Airport、RMIT University, Bundoora Campus、Swinburne University of

Technology, Hawthorn Campus、Monash University 以及 Telstra 等單位承辦，有關各路線規劃及簡要介紹如附件四。

3-2-4 台灣論壇(Taiwan Forum)

中華智慧運輸協會為宣傳台灣館，規劃兩場台灣論壇，分別於 105 年 10 月 12 日下午以及 105 年 10 月 13 日下午舉行，由交通部王政務次長國材代表致詞，並邀請各參展單位進行簡報。第一場台灣論壇議程如表 3.2：

表 3.2 台灣論壇第一場議程

Time	Schedule
14:00~14:30	**Registration**
14:30~14:40	**Welcome address** Dr. Kent K. T. Wang Political Deputy Minister, Ministry of Transportation and Communications, R.O.C.(Taiwan) Dr. YC Chang President, ITS Taiwan
14:40~15:00	**Taiwan ITS Way — 4S Model in Place** Dr. Sam Shen Director, System Integration Promotion Alliance (SIPA) Project Office, IDB, MOEA
15:00~15:40	**THSRC ITS Smart Railway Services System** Mr. Tommy Jen Manager, Operation Control Center Taiwan High Speed Rail Corporation
15:40~16:00	**Break**
16:00~16:40	**A Sustainable Business Model of RFID-based MLFF ETC & ERP** Mr. Richard Wu CTO & Vice President of Technology Division Far Eastern Electronic Toll Collection Co, Ltd.
16:40~17:20	**An IoT based ITS toward Intelligent Taiwan** Dr. Ming-Whei Feng Vice President and Director General Smart Network Systems Institute, Institute for Information Industry
17:20~17:30	**Discussion**

第二場台灣論壇議程如表 3.3：

表 3.3 台灣論壇第二場議程

Time	Schedule
14:00~14:30	**Registration**
14:30~14:40	**Welcome address** Dr. Kent K. T. Wang Political Deputy Minister, Ministry of Transportation and Communications, R.O.C.(Taiwan) Dr. Jason SK Chang EVP, ITS Taiwan and Director of World BoD Mr. Murphy Sun EVP, ITS Taiwan and Director of AP BoD
14:40~15:00	**ITS Development Plan 2017-2020** Mr. Chien-Pang Liu Engineer, Ministry of Transportation and Communications, R.O.C.(Taiwan)
15: 00~15:20	**Intelligent & Mobile Police** Mr. Chien-Lung Lin Senior Technical Specialist, National Police Agency, Ministry of the Interior, R.O.C.(Taiwan)
15:20~16:00	**Break**
16:00~16:20	**Development and Deployment of V2X Technology in Taiwan** Dr. Andy Jeng Deputy Manager, Industrial Technology Research Institute (ITRI), Taiwan
16:20~16:40	**Telecom Big Data Analysis for Traffic Planning** Mr. Tsung Yu Chen Data Analysis Director of Chunghwa Telecom , Taiwan
16:40~17:00	**Acer Smart Parking Solution** Mr. Scott Chow Technical Director, Acer Inc.
16:40~17:30	**Discussion**

3-3 台灣高鐵公司獲頒產業成就獎

3-3-1 獲獎項目

本次大會台灣高鐵公司以「台灣高鐵智慧運輸服務系統」榮獲「ITS 世界大會產業成就獎」殊榮。獲獎重點在 5 個子系統的智慧化運用的卓越表現：「智慧化列車運行管理」(Smart Train Operation)、「智慧化安全與應變管理」(Smart Safety & Emergency Management)、「智慧化訂位購票服務」(Smart Ticketing System)、「智慧化旅客服務」(Smart Passenger Service)、「智慧化旅遊資訊服務」(Integrated i-Traveling Information)(圖 3.5)。台灣高鐵公司透過運輸智慧科技，讓旅客從訂位購票開始，銜接乘車服務、營運安全、線上購物(T Shop)以及後續轉乘接駁，全程享受智慧運輸所帶來的便捷、舒適及安全的優質高鐵服務，本次獲獎顯示台灣智慧運輸(ITS)技術實力已深獲國際認同與肯定。

圖 3.5 台灣高鐵智慧運輸服務系統

1. 智慧化列車運行管理：整合列車即時資訊，提供圖像化資料並可交叉查詢，提升列車運行管理之效率；自行研發內部管理用之 App，提升運行管理效率，應變時，可即時回傳現場影像資訊，提升決策效率與品質。(圖 3.6)

圖 3.6 智慧化列車運行管理

2. 智慧化安全與應變管理：沿線佈設各項偵測設備，隨時偵測地震、強風、豪雨、邊坡滑動、坍方、落石及洪水等狀況，即時傳送警訊進行各項應變，確保行車安全；套疊各項地理及災害告警等動態資訊，協助防救災之整合與決策。(圖 3.7)

圖 3.7 智慧化安全與應變管理

3. 智慧化訂位購票服務：可透過站內、外通路，隨時、隨地訂位、取票；全球第一家可於台灣超過 10,000 家的便利商店購票，24 小時全年無休，台灣第一家提供一站式手機購票服務，大幅提高便利性。(圖 3.8)

圖 3.8 智慧化訂位購票服務

4. 智慧化旅客服務：首創即時列車座位資訊，優化查驗票流程，提供旅客優質乘車體驗，亦為國際首創結合驗票與旅客服務功能之 APP；在車站提供多媒體即時營運訊息、增加旅客能見度與曝光率，強化旅客溝通；T-EXPress App「訊息推播」功能，提供購票、產品優惠及列車最新運轉狀況等訊息，旅客即可在最快時間得知列車運行之最新消息。(圖 3.9)

圖 3.9 智慧化旅客服務

5. 智慧化旅遊資訊服務：整合觀光與休閒產業之資源，推出超過 990 種套裝行程；提供快捷公車及動態資訊系統，提供智慧化接駁轉乘資訊；與各接駁業者共同合作，節省候車成本，創造觀光效益。(圖 3.10)

圖 3.10 智慧化旅遊資訊服務

3-3-2　頒獎典禮

頒獎典禮於 105 年 10 月 11 日上午 9 時舉行，台灣高鐵公司由鄭執行長光遠代表受獎，交通部王政務次長國材也親自出席頒獎典禮，一同受獎(圖 3.11~3.13)，表達政府對智慧科技運用於交通運輸的支持與重視。鄭執行長光遠表示，高鐵自興建營運以來，漸進深化運用智慧運輸系統科技，創造快速、便捷、舒適的旅運服務，未來台灣高鐵公司更將運用大數據、物聯網等前瞻科技，打造「高鐵智慧運輸旅客服務雲」及「高鐵智慧運輸營運管理雲」等智慧運輸雲端科技，提升營運安全及服務品質，為旅客帶來「搭高鐵．更貼心」的全新感受。交通部王政務次長國材則表示，「智慧運輸」是蔡總統英文以及林院長全揭示智慧運輸、軌道運輸及寬頻網路的三大交通骨幹政策要項，台灣高鐵公司此次獲獎，突顯落實「智慧運輸」及「軌道運輸」二項重要政務之意義非凡，政府及整個台灣社會都樂見台灣高鐵公司榮獲此項世界級大獎的肯定，更希望未來積極推動台灣智慧運輸成為具有全球競爭力的產業，並將成功經驗與國際分享。

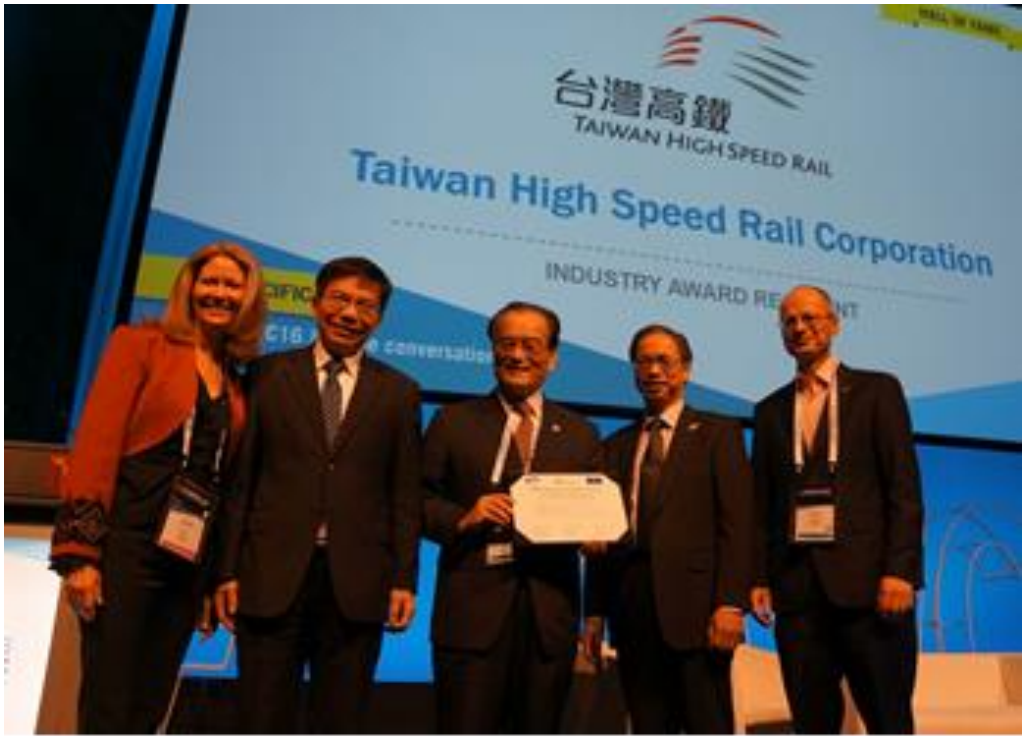

圖 3.11 台灣高鐵公司鄭執行長與交通部王政務次長一同受獎

圖 3.12 台灣高鐵公司「ITS 世界大會產業成就獎」獎狀

圖 3.13 台灣高鐵公司「ITS 世界大會產業成就獎」台灣代表團合影

3-4 墨爾本軌道運輸系統

墨爾本位於澳洲東岸維多利亞州南部的一座城市(圖 3.14、圖 3.15)，也是維多利亞州首府和最大城市，亦是澳洲人口排名的第 2 大城市，也是世界最佳宜居城市的首榜。大墨爾本坐落於菲利普港灣旁，一直往內陸伸延，面積達到 3,400 平方英哩（8,806 平方公里），是全球最廣大的都會區之一，都會區由墨爾本市及 31 個地方政府區域組成。中央商業區是整個大都會區的中心，人口約 20,000 人。中央商業區位處港灣的北端，亦即是雅拉河河口灣。市民大多數居住在中央商業區周邊，大都會區截止 101 年共有 425 萬人。墨爾本被譽為「澳洲的文化首都」，同時亦是全國的文化、商業、教育、娛樂、體育及旅遊中心。墨爾本在服飾、藝術、音樂、電視製作、電影及舞蹈等潮流文化領域引領澳洲，甚至於全球該領域範圍都具備一定的影響力。(資料來源：維基百科)

圖 3.14 澳洲行政區圖

圖 3.15 墨爾本市簡略圖

墨爾本鐵路系統於 1854 年開始正式運行，也是澳洲第一條鐵路。墨爾本軌道運輸系統包括城市軌道交通系統(Metro Trains Network)以及輕軌(電車)系統(Tram Network)。

3-4-1 捷運系統(Metro Trains Network)

目前擁有 15 條路線、總長 830 公里、218 個車站、210 組列車(每組 6 個車廂)、分為 5 個營運區段、每天運載逾 80 萬人次、每年運載量約 2.3 億人次，路網呈蜘蛛形狀(圖 3.16)，是世界上最為龐大的城市軌道交通系統之一，由墨爾本捷運公司(Metro Trains Melbourne，MTM）負責營運，員工逾 5,000 人。另政府正進行 50 個平交道立體化及市區捷運地下化工程相關規劃工作。

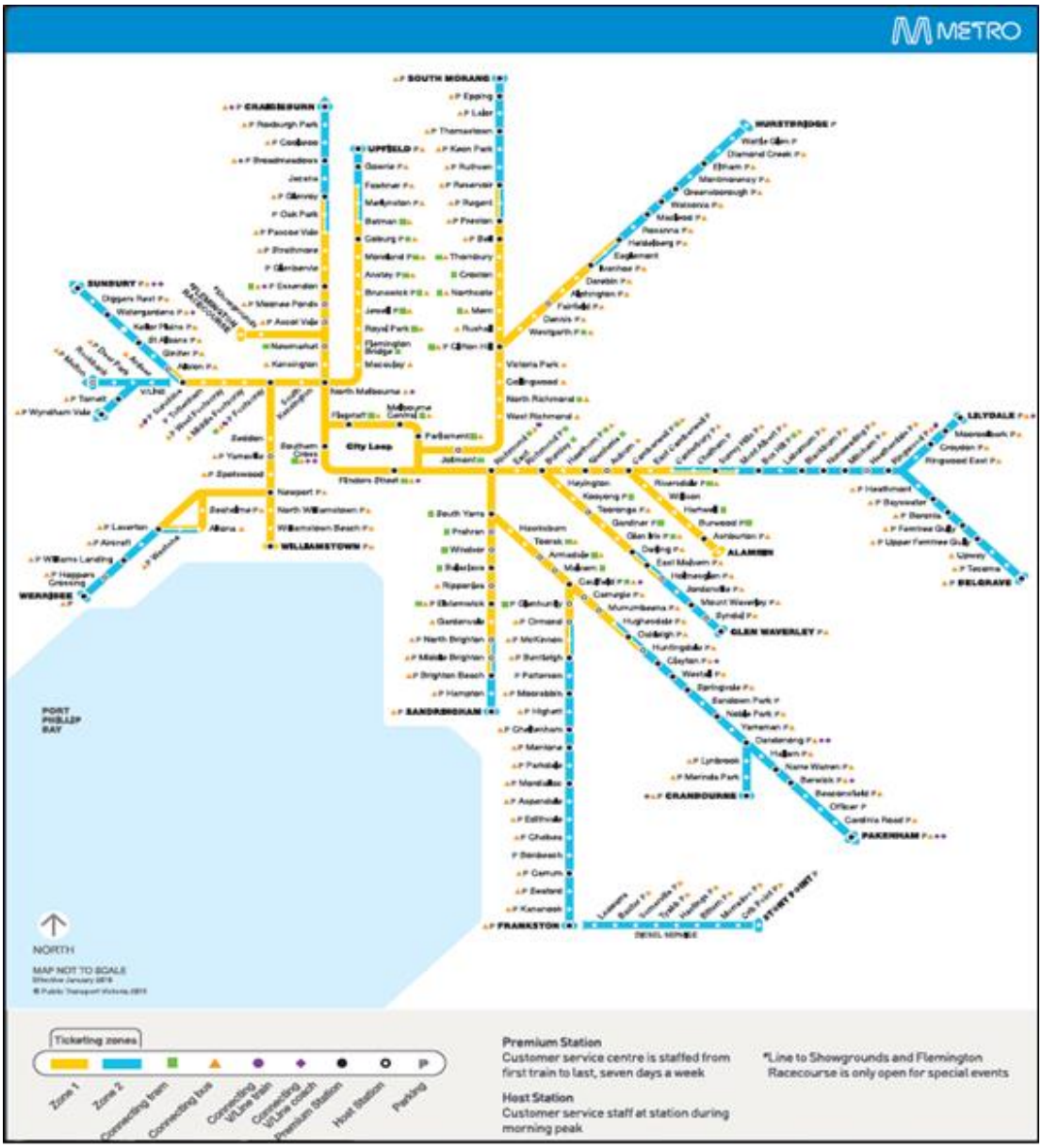

圖 3.16 墨爾本捷運系統路網圖

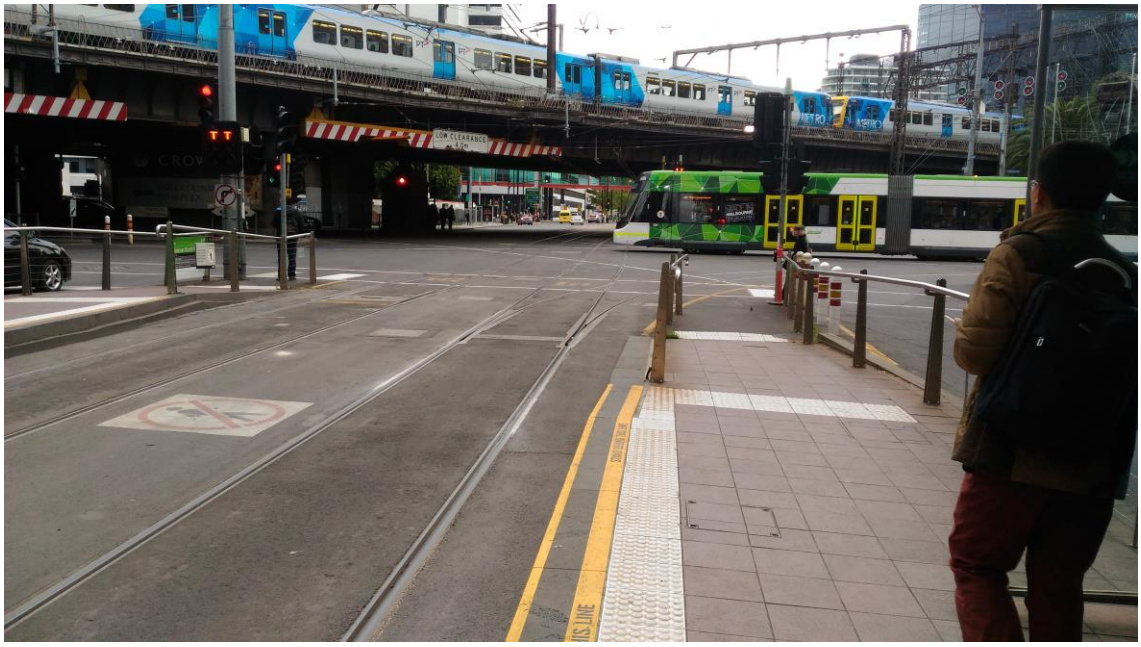

圖 3.17 墨爾本捷運列車 METRO 與輕軌電車

圖 3.18 墨爾本捷運南十字車站(Southern Cross Station)月台層(平面層)

值得一提的是，墨爾本捷運公司係由香港鐵路公司於 2009 年間與澳洲當地兩間公司（John Holland Pty Ltd 及 United Group Rail Services Ltd）所組成之合營公司，當中香港鐵路公司擁有 6 成股權，並於 2009 年 9 月 1 日與維多利亞州政府正式簽署專營權協議。合營公司於 2009 年 11 月 30 日正式接管墨爾本捷運的營運及維修工作，首期為期八年，並將該鐵路系統命名為「Metro」。(資料來源：維基百科)

圖 3.19 墨爾本捷運南十字車站(Southern Cross Station)地面二層入口

3-4-2 輕軌系統(Tram Network)

墨爾本擁有全球最為龐大的輕軌(電車)系統，長達 250 公里(圖 3.20)，該系統始於 1880 年代，亦是全球最古老的輕軌系統之一。系統為架空線饋電方式，電車數量超過 450 輛，在 28 條線路上營運，車站數量 1,761 個，部分路線並提供 24 小時服務，員工人數 2,000 餘人，每年服務超過 2 億人次的乘客。依據官方資料顯示，墨爾本輕軌系統每年貢獻之經濟價值(economic value)約 10 億美元、社會效益(social fabric)約 8.7 億美元以及與小汽車比較之環境破壞節省約 0.97 億美元。

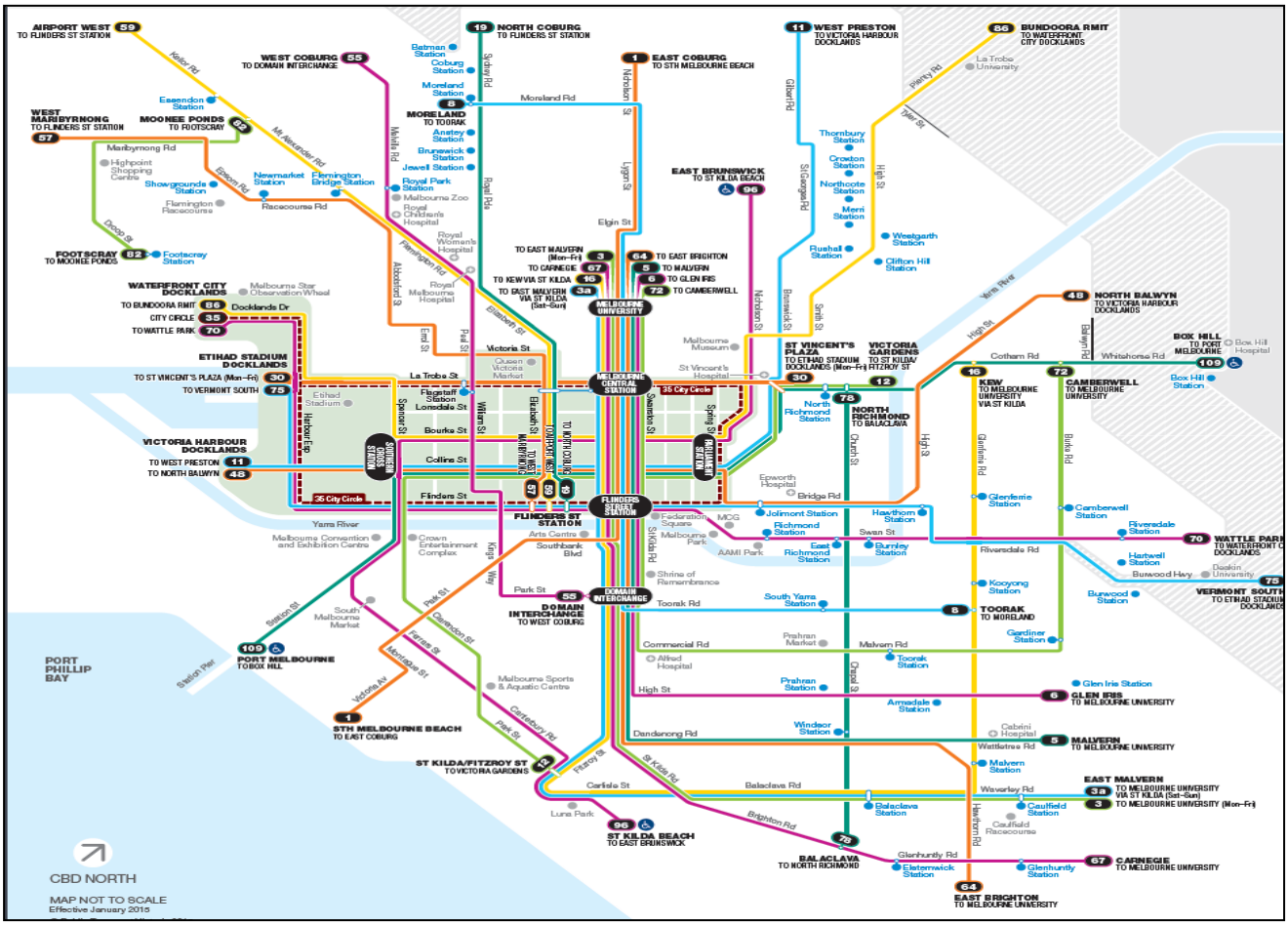

圖 3.20 墨爾本輕軌系統路網圖

墨爾本為有效吸引旅客於市中心購物並促進城市觀光，自 2015 年 1 月 1 日起推動於市中心區輕軌環線之範圍內(圖 3.21)搭乘輕軌一律免費，免費搭乘範圍內，包括墨爾本多處著名之觀光景點、購物中心及重要之活動中心。

圖 3.21 墨爾本市中心區輕軌系統免費搭乘範圍

墨爾本輕軌系統約有 75%屬 B 型及 C 型路權，與道路車輛共享路權，而類似的路網在歐洲僅約有 25~35%；平均站距約 290 公尺，與歐洲輕軌平均站距約 400 公尺似嫌過短；旅行時間中約有 17%花在停等交通號誌，而在歐洲僅佔 2.4%。因此，為使墨爾本輕軌系統能達到世界級服務水準，維多利亞州政府已投入 11 億美元辦理升級計畫，以改善系統可及性(accessibility)、容量(capacity)、可靠度(reliability)及安全性(safety)等，包括購買 50 輛新世代 E-Class 的低底盤電車(後又追加預算 2.74 億美元再增購 20 輛)、更新兩座電車維修廠設備、車站可及性改善(level access stops，提供年長、行動不便及嬰兒車與輪椅使用者無障礙設施，已有 390 個車站完成改善以及電力供應設施設備增設與升級等工程。

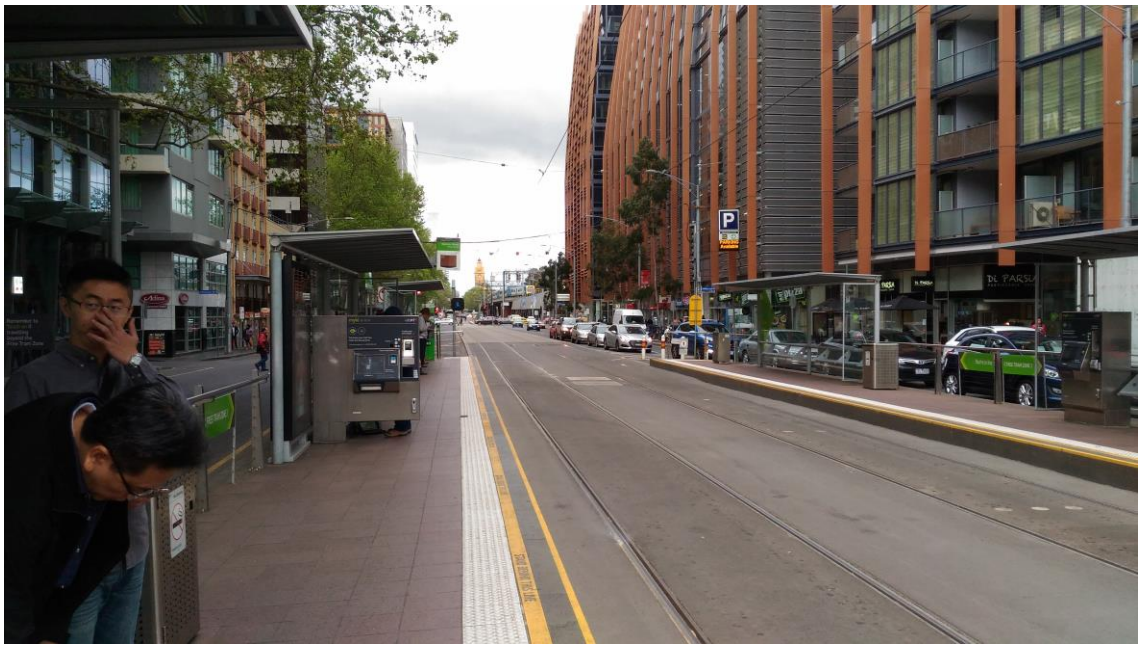

圖 3.22 墨爾本市中心區輕軌車站

圖 3.23 墨爾本市中心區輕軌電車與道路車輛

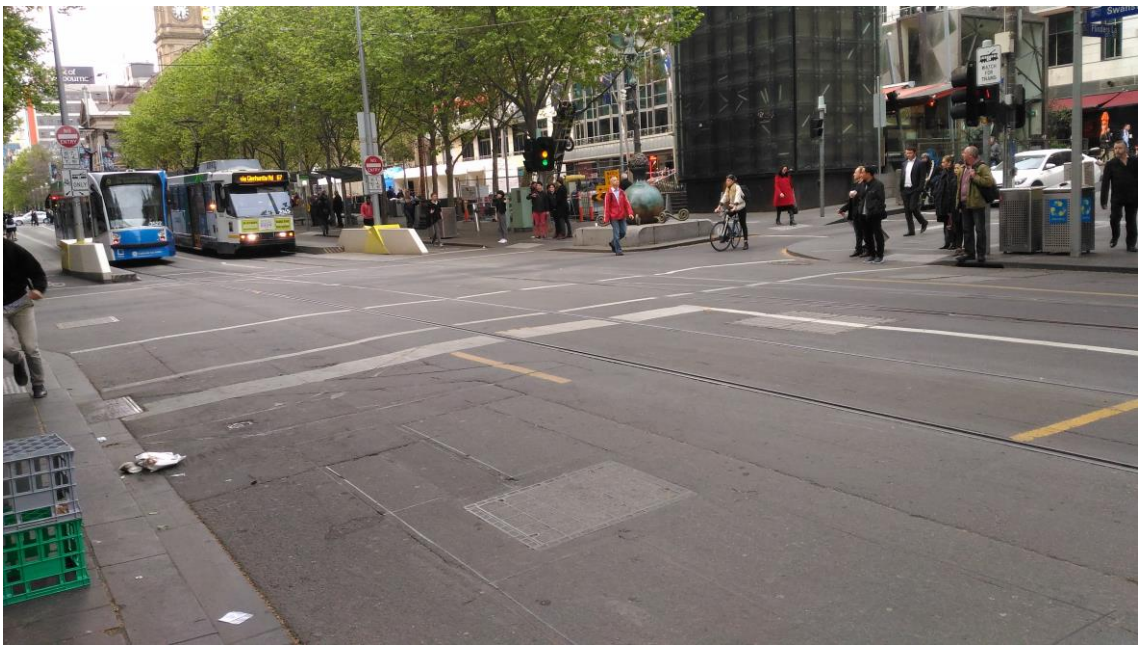

圖 3.24 墨爾本市中心區輕軌電車於路口停等

圖 3.25 墨爾本市中心區輕軌電車穿越路口

圖 3.26 墨爾本市中心區輕軌電車行駛於路段

肆、心得與建議

一、 目前交通部與運研所推動辦理「公共運輸行動服務(MaaS, Mobility as a Service)」之發展應用，期建構一個無縫、及戶的多元運具整合系統，透過大眾與私人運輸、公共自行車、乘車共享、手機付費停車…等，乃至未來自動駕駛計程車等方式，減少私人運具使用，我國具備資通訊基礎建設普及、公共運輸基礎建設與開放資料通透之優勢，惟藉由參與本次大會了解，MaaS於世界各國仍處於概念發展實驗階段，建議我國仍需多方汲取各國經驗，導入建置合宜之系統，以有效降低私人運具使用，提升公共運輸使用率。

二、 在自動化、智慧化之趨勢下，利用先進的管理決策、通訊及自動控制等技術，將可讓訊息的收集處理更有效率，藉由物聯網(internet of things)與大數據(big data)應用，讓軌道運輸系統革新升級，確保軌道服務品質、行車安全，並提升營運管理之效益。高鐵自興建營運以來，漸進深化運用智慧運輸系統科技，創造快速、便捷、舒適的旅運服務，建議未來台灣高鐵公司更將運用大數據、物聯網等前瞻科技，打造「高鐵智慧運輸旅客服務雲」及「高鐵智慧運輸營運管理雲」等智慧運輸雲端科技，提升營運安全及服務品質，為旅客帶來「搭高鐵．更貼心」的全新感受。

三、 墨爾本輕軌捷運系統發展已逾百年歷史，為使系統設施設備能與時俱進更新，達到世界級服務水準，澳洲政府已投入 11 億美元辦理升級計畫，以改善系統可及性(accessibility)、容量(capacity)、可靠度(reliability)及安全性(safety)等。我國輕軌捷運系統正處於發展階段，對於與道路路權共享之 B 型及 C 型路權交通號誌優化、友善的車站設計以及系統型式之選擇，墨爾本輕軌捷運經驗值得借鏡。

四、 我國於軌道營建管理、營運維修及服務管理已累積豐富經驗且績效卓著，如台北捷運及高速鐵路系統，目前配合工程產業全球化政策，為擴大軌道產業輸出，建議可蒐集香港鐵路公司參與投資墨爾本捷運過程及營運維修績效相關資料，以為參考。

附件

附件一

23RD ITS WORLD CONGRESS 2016 MELBOURNE

10 - 14 October 2016
Melbourne Convention and Exhibition Centre

www.itsworldcongress2016.com

Program at a Glance

Subject to change

OPEN TO THE PUBLIC FOR:
Exhibition Hall, Schools Program, Melbourne Conversations Sessions

Sat 8

Hackathon

SUN 9 Oct

Hackathon

Registration (2.30pm - 8pm)

MONDAY 10 October 2016

Registration (7am - 8pm)

Speaker Ready Room (10am - 5.30pm)

Exhibitor / Schools Move In (7am - 2pm)

SolarCar Move in (1.30-4pm)

Australian Automotive Research Centre Technical tour (8.30am - 3pm)

Opening Ceremony (4pm - 5.30pm)

Exhibition

Welcome Reception and official Exhibition Opening (5.30pm - 8.30pm)

TUESDAY 11 October 2016

Registration (8am - 7pm)

Speaker Ready Room (8am - 5.30pm)

Plenary Session 1 (9 - 10.30am)

Schools programs (10.30am - 2pm)

Break

Congress sessions

Lunch (12.30-2pm)

Congress sessions

Break

Congress sessions

Animals 10-11am

Exhibition (8.30am - 7pm)

Animals 3-4pm

Demonstrations:Bus Schedule (8.30am - 6.30pm)

Technical tours (8.30am - 5pm)

WEDNESDAY 12 October 2016

Registration (8am - 7pm)

Speaker Ready Room (8am - 5.30pm)

Plenary Session 2 (9 - 10.30am)

Schools programs (10.30am - 2pm)

Break

Congress sessions

Lunch (12.30-2pm)

Congress sessions

Break

Congress sessions

PUBLIC Melbourne Conversation #1 (6pm - 7.30pm)

Animals 10-11am

Exhibition (8.30am - 7pm)

Animals 3-4pm

Demonstrations: Bus Schedule (8.30am - 6.30pm)

Technical tours (8.30am - 5pm)

THURSDAY 13 October 2016

Registration (8am - 6pm)

Speaker Ready Room (8am - 5.30pm)

Plenary Session 3 (9 - 10.30am)

Schools programs (10.30am - 2pm)

Break

Congress sessions

Melb Conversation #2

ITS Diversity Rec'ptn

Lunch (12.30-2pm)

Congress sessions

Break

Congress sessions

Gala Dinner (6.30pm - midnight)

Animals 10-11am

Exhibition (8.30am - 6pm)

Animals 3-4pm

Demonstrations: Bus Schedule (8.30am - 6.30pm)

Technical tours (8.30am - 5pm)

FRIDAY 14 October 2016

Registration (8am - 4.30pm)

Speaker Ready Room (8am - 4.30pm)

Schools programs (10am - 1pm)

Congress sessions

Break

Congress sessions

Melb Conversation #3

Lunch (12-1pm)

Congress sessions

Plenary Session 4 (2.30 - 3.30pm)

Closing Ceremony (3.45 - 4.45pm)

ITS Australia Awards Presentation Night Dinner / WC BOD Closing Dinner (6.30pm - 11pm)

Demonstrations: Bus Schedule (8am - 3.30pm)

Technical tours (8.30am - 12.30pm)

Animals 10-11am

Exhibition (8am - 2pm)

Exhibitor Move Out

Exhibition Hall Dismantle

MON 17 Oct

SYDNEY NSW Technical tour

BRISBANE QLD - Technical tour

TUE 18

BRISBANE QLD - Technical tour (optional Day 2)

附件二

SESSIONS AT A GLANCE

As at August 2016 - Subject to change

Sessions

- Plenary sessions
- Executive sessions
- Special Interest sessions
- Technical/Scientific/ Commercial sessions
- Interactive sessions
- International Benefits, Evaluation and Costs (IBEC) sessions
- Associated Meetings and Stakeholder Workshops

Session topics

- Automated Vehicles and Cooperative ITS — *Topic sponsored by VicRoads*
- Challenges and Opportunities of Big Open Data — *Topic sponsored by RACV / Intelematics*
- Environmental Sustainability
- Future Freight including Aviation and Maritime
- Mobile Applications
- Policy, Standards and Harmonisation
- Smart Cities and New Urban Mobility — *Topic sponsored by Traffic Technologies Ltd.*
- Vehicle Network and Safety — *Topic sponsored by Transport Accident Commission*

SUNDAY 9 OCTOBER

0900 - 1700	**Associated Meeting** Federation of European Highways and Research Laboratories (FEHRL) General Assembly *Clarendon Room A*

MONDAY 10 OCTOBER

0730 - 1030	**Associated Meeting** ITS Safety and Sustainability Focus Group *MR 105*
0800 - 1200	**Associated Meeting** AASHTO International Day *MR 109*
0900 - 1530	**Associated Meeting** FOT-Net Data International Workshop: Data sharing and re-use in Field Operational Tests *MR 103*
1100 - 1230	**Associated Meeting** Committee for Melbourne *MR 105*
1245 - 1545	**IBEC AGM (1515 – 1545 hours)** International Benefits Evaluation Community (IBEC) workshop on connected and automated mobility *MR 205*
1330 - 1530	**High Level Policy Roundtable** *MR 219/220*
1600 - 1730	**Opening Ceremony** *Plenary Hall 2*

TUESDAY 11 OCTOBER

0900 - 1030	**Plenary Session I** Automated and Connected Vehicles *Plenary Hall 3*																						
1030 - 1100	Break																						
1100 - 1230	**ES01** Advancing the deployment of automated vehicles - the roles of government *Plenary Hall 3*	**Stakeholder Workshop** The future of transport - will we use carrot, stick or machine to ensure good behaviour? *MR 204*	**SIS01** Keeping cities liveable, using ITS to ensure service levels meet customer expectations *MR 210*	**SIS11** Visualize a truly multimodal managed mobility system for your Smart City *MR 211*	**SIS03** Telematics and Big Data – How do we make big data meaningful? *MR 212*	**SIS04** Regulation as an enabler for posivite transportation change *MR 213*	**SIS05** Securing Your Digital Community in a Hostile Cyber World *MR 219*	**SIS07** How slow-moving government processes might respond to rapid transformative technologies *MR 220*	**TP01** Analyses of V2X Environments *MR 207*	**TP02** Communication Protocols and Methods *MR 208*	**TP03** Applications and Visualization of Big Data in Public Transit, Car Sharing and Parking *MR 209*	**TP04** Traffic Signal Control 1 *MR 216*	**TP05** Better Efficiency with Traveler Information *MR 217*	**TP06** Communications Technology *MR 218*	**SP01** Innovative Solutions to Reduce Congestion *MR 104*	**SP02** Predictive Analytics *MR 103*	**TP07** Future Freight including Aviation and Maritime -The Use of Automated Vehicles on Long-Haul Freight Corridors *MR 102*	**TP08** ITS Communications -Multiple Methods, Multiple Considerations *MR 101*	**TP09** Preventative and Active Safety Systems *MR 203*	**IS01** ITS Technical Interactive Session 1 *Level 1 Foyer*	**Associated Meeting** Spatial Workshop: Location technologies for ITS *MR 109*	**Stakeholder Workshop** Unlocking the insights in your Big Data with location-based analytics *MR 105*	Navigating the threat to car companies posed by the "Big 5" New Mobility players': How can OEMs transform themselves to not just survive, but to thrive in the future (1200 - 1245 hours) *Exhibition Auditorium*
1230 - 1400	Break																						Lear Corporation Session (1245 - 1330 hours) Getting ready for 2035 - One Network Traffic Management (1330 - 1400 hours) *Exhibition Auditorium*
1400 - 1530	**ES02** Advancing the deployment of automated vehicles - the roles of industry *Plenary Hall 3*	**IBEC session 1:** Developments in Benefits, Evaluation and Costs of Road Charging *MR 204*	**SIS06** The role of ITS in a collaborative economy: Towards user-orientated pricing and the gamification of mobility *MR 210*	**SIS28** Utilizing probe data will create the future of ITS *MR 211*	**SIS08** A whole-of-system system approach to aviation system modernisation *MR 212*	**SIS09** Insights for Performance Measurement: 5 min to the last 5 years *MR 213*		**SIS13** ITS and the Digital City - Disruptive Technologies and the New Reality *MR 220*	**TP10** Automated to Manual Driving Transition *MR 207*	**TP11** Cooperative ITS Applications *MR 208*	**TP12** Better Traffic Management from Big Data *MR 209*	**TP13** Traffic Signal Control 2 *MR 216*	**TP14** Integrated payment systems *MR 217*	**TP15** Efficient Urban Transport Systems *MR 218*	**SP03** Mapping and Routing *MR 104*	**SP04** Transport Data Issues *MR 103*	**TP16** Future Freight including Aviation and Maritime -The Use of ITS to Drive Freight Efficiency and Sustainability *MR 102*	**TP17** ITS Standards and Architecture -Guiding the Way to Successful Future Deployments *MR 101*	**TP18** Safety of Vulnerable Road Users *MR 203*	**IS02** ITS Scientific Interactive Session 2 *Level 1 Foyer*	**Associated Meeting** User-Centric Transport Using ITS *MR 109*		
1530 - 1600	Break																						
1600 - 1730	**ES03** Realising the safety and mobility benefits of automated vehicles and cooperative ITS systems *Plenary Hall 3*	**IBEC session 2:** Potential benefits of Mobility as a Service and what is already proven? *MR 204*	**SIS12** Using traffic signal priority to maximise safety and minimise congestion for all *MR 210*		**SIS14** Strategy of Practical Implementation of V-I Cooperative Systems for Traffic Accident Avoidance *MR 212*	**SIS15** Advanced technologies in operation and maintenance of ITS facilities *MR 213*		**Stakeholder Workshop** Transport analytics from the trenches, uncovering insight from across the industry *MR 220*	**TP19** Automated Vehicle Applications *MR 207*	**TP20** Deployment Scenarios for Automated Vehicle *MR 208*	**TP21** Enhancing Safety through ITS -What is the data telling us? *MR 209*	**TP22** Transportation Management Centers *MR 216*	**TP23** Ensuring Safety and Efficiency for Vulnerable Road User *MR 217*	**TP24** Improving Arterial with Better Data/ Algorithm *MR 218*	**SP05** Positioning and V2X Communication *MR 104*	**SP06** Facilities and Traffic Modelling *MR 103*	**TP25** Future Freight including Aviation and Maritime - The Use of ITS to Optimise Freight Movements and Improve Efficiency and Productivity *MR 102*	**TP26** Policy, Standards and Harmonization -Government Role in Realizing Sustainable Outcomes 1 *MR 101*	**TP27** Speed Advice and Monitoring *MR 203*		**Associated Meeting** ITS Development and Deployment in Developing Countries in the Asian Region *MR 109*	**Stakeholder Workshop** Real World Application of ITS Standards *MR 105*	

WEDNESDAY 12 OCTOBER

0700 - 1000	**Associated Meeting** Port of the Future *MR 109*																						
0900 - 1030	**Plenary Session II** Smart Cities *Plenary Hall 3*																						
1030 - 1100	Break																						MaaS - The Future Of Transport? *Exhibition Auditorium*
1100 - 1230	**ES04** Realising the promise of Big and Open Data - practical trade-offs between benefits, costs, security and privacy *Plenary Hall 3*	**SIS18** Traffic sensing by various manners *MR 204*	**SIS19** Lessons Learned in Deploying Cooperative Systems *MR 210*	**SIS16** What is the role of government in the deployment of ITS? *MR 211*	**SIS20** Evaluation and standardisation of connected and automated road transport *MR 212*	**SIS21** Impact Assessment of Automated Driving Systems on Energy Consumption and CO2 Emissions *MR 213*	**SIS22** Big Data, driving integrated transport services *MR 219*	**SIS23** Parking - a driver for change? *MR 220*	**TP28** DSRC vs LTE -Comparative Analyses *MR 207*	**TP29** Map Technologies *MR 208*	**TP30** Enhancing the Driver Experience with Better Data *MR 209*	**TP31** Urban Mobility *MR 216*	**TP32** Improving Public Transport *MR 217*	**TP33** Incident Management *MR 218*	**SP07** V2X Applications *MR 104*	**SP08** Evaluation of Traffic Signals *MR 103*	**TP34** Opportunities and Challenges around Freight Management from an ITS Perspective *MR 102*	**CP01** Environmental Sustainability and Logistics *MR 101*			**Associated Meeting** National Co-Ordination in Australia for the Deployment and Management of Automated Vehicles *MR 109*		
1230 - 1400	Break																						Optimising Public Transport: A Data Driven Approach (1300 - 1330 hours) TeamArrow – The Road to Prohelion (1330 - 1400 hours) *Exhibition Auditorium*
1400 - 1530	**ES05** The role of ITS in mitigating climate change and delivering green transport *Plenary Hall 3*	**SIS24** Signal optimisation for connected vehicles, must we sacrifice adaptivity to achieve predictability? *MR 204*	**SIS25** Accelerating ITS Deployment by Creating a More Diverse Workforce *MR 210*	**SIS26** Digital Infrastructure for Automated Vehicles: challenges and international collaboration *MR 211*	**SIS27** Novel C-ITS applications and mobility services for Smart Cities *MR 212*	**Stakeholder Workshop** Challenges and opportunities facing the deployment of automated vehicles *MR 213*	**SIS29** Roles of data analytics and transportation modelling for fast-changing urban infrastructure *MR 219*	**SIS30** Mobility as a Service - user centric integrated transport services *MR 220*	**TP35** Human Machine Interface for Cooperative ITS *MR 207*	**TP36** Methodologies to Implement Cooperative ITS *MR 208*	**TP37** How Traffic Big Data Fuels Traveler Information and Situational Awareness *MR 209*	**TP38** Urban Public Transport *MR 216*	**TP39** Integrated Traffic Management *MR 217*	**TP40** ITS for Demand Response Transport *MR 218*	**SP09** Collision Avoidance *MR 104*	**SP10** Impact of Technologies on Travel Demand *MR 103*	**TP41** Environmental Sustainability -How Will Alternative Fuel Vehicles Contribute to a Long-Term Sustainable Outcome 1 *MR 102*	**TP42** Making Safer Corridors using the Digital Revolution *MR 101*	**TP43** Technology Innovation and Development *MR 203*	**Grand Challenges** *Level 1 Foyer*	**Stakeholder Workshop** How will Artificial Intelligence and Cognitive impact Urban Mobility *MR 109*	**Stakeholder Workshop** Quality of Traffic Information *MR 105*	
1530 - 1600	Break																						

Sessions

Plenary sessions · Executive sessions · Special Interest sessions · Technical/Scientific/ Commercial sessions · Interactive sessions · International Benefits, Evaluation and Costs (IBEC) sessions · Associated Meetings and Stakeholder Workshops

Session topics

Automated Vehicles and Cooperative ITS — *Topic sponsored by VicRoads*
Challenges and Opportunities of Big Open Data — *Topic sponsored by RACV / Intelematics*
Environmental Sustainability
Future Freight including Aviation and Maritime
Mobile Applications
Policy, Standards and Harmonisation
Smart Cities and New Urban Mobility — *Topic sponsored by Traffic Technologies Ltd.*
Vehicle Network and Safety — *Topic sponsored by Transport Accident Commission*

1600 - 1730	**ES06** The use of connected vehicles and data exchange in Freight and Logistics, including aviation and maritime *Plenary Hall 3*	**SIS31** Ensuring the long term viability of ITS decision-support tools *MR 204*	**SIS32** Tri-lateral Automation in Road Transportation WG: achievements and next challenges *MR 210*	**SIS33** Deployment challenges on automated truck platooning *MR 211*	**SIS34** Connect2Car: Connectivity and Autonomy – will there be a winner? *MR 212*	**SIS35** Radio-communication technologies for automated driving *MR 213*	**SIS36** Enabling interaction between traffic management and mobility services *MR 219*	**SIS37** Location Intelligence, ITS and Smart Cities *MR 220*	**TP44** Improving Automated Vehicle Performance *MR 207*	**TP45** Pilots of Cooperative ITS *MR 208*	**TP46** ITS Operations and Big Data *MR 209*	**TP47** Weather Information Presents Opportunities and Challenges for Big Data *MR 216*	**TP48** ITS Planning *MR 217*	**TP49** Mobility as a Service *MR 218*	**SP11** Network Safety *MR 104*	**SP12** Integrated Transport System *MR 103*	**TP50** Environmental Sustainability -How Will Alternative Fuel Vehicles Contribute to a Long-Term Sustainable Outcome 2 *MR 102*	**CP02** Sensing and Human Machine Interface *MR 101*	**SIS64** Knowledge and understanding of urban freight distribution and service trips *MR 203*			**Stakeholder Workshop** Safety challenges for automated vehicles *MR 105*	
1730 - 1930	**Melbourne Conversation I** Driverless Cars and Road Safety: What will this mean for you? *Clarendon Auditorium, Melbourne Convention and Exhibition Centre*																						

THURSDAY 13 OCTOBER

0900 - 1030	**Plenary Session III** Connectivity and Big Data - Challenges in capturing, securing and connecting big data *Plenary Hall 3*																					
1030 - 1100	Break																					**School students presentations:** Autocar programming challenge, Solar car challenge, Young students design your future (1030 - 1130 hours) *Exhibition Auditorium*
1100 - 1230	**ES07** Using smart nomadic devices safely to enhance personal mobility *Plenary Hall 3*	**SIS38** ITS Connectivity – A future with 5G and Satellite *MR 204*	**SIS39** Cooperative Systems - Stakeholder Contribution and Cooperation *MR 210*	**SIS40** Automated vehicle pilots: challenges for data collection and sharing *MR 211*	**SIS41** Innovation for livable cities utilizing autonomous driving technology and IoT Big Data *MR 212*	**SIS42** Smart Roads - Where to next? *MR 213*	**SIS43** Positioning Challenges for Automotive Safety Systems & Solutions *MR 219*	**SIS44** Changes in Modeling for the New Mobility: Planning Challenges for Future Transportation *MR 220*	**TP51** Policies and Regulations for Automated Vehicle *MR 207*		**TP53** Mobile Sensing, Open Data and Data from Probes to Address Mobility Issues *MR 209*	**TP54** Advanced Driver Assistance and Support Systems *MR 216*	**TP55** Connected Mobility *MR 217*	**TP56** Modelling Methodologies 1 *MR 218*	**SP13** Road Safety *MR 104*	**SP14** Motorway Management 1 *MR 103*	**TP57** Environmental Sustainability -Initiative to Promote Sustainable Environmental Outcomes *MR 102*	**CP03** Mobility as a Service and Connected ITS *MR 101*	**IBEC Committee Meeting** *MR 203*	**ISO3 ITS Technical Interactive Session 3** *Level 1 Foyer*		**Stakeholder Workshop** Public Transport Victoria Stakeholder Workshop *MR 105*	
1230 - 1400	**ITS Diversity Presentations** *ITSA exhibition stand*																						
1230 - 1400	Break																						**Melbourne Conversation II** Smart Transport – Smart City: Making streets better places for people (1200 - 1330 hours) *Exhibition Auditorium*
1400 - 1530	**ES08** Modifying regulatory frameworks to boost mobility innovations *Plenary Hall 3*	**SIS45** Harnessing the Economic, Societal and Environmental Benefits of Road User Charging *MR 204*	**SIS46** Certification of automated road vehicles: challenges ahead *MR 210*	**SIS47** Automated Transport Systems: How far are we? *MR 211*	**SIS48** Integrated Payment = Improved Mobility *MR 212*	**SIS49** Procurement of Real-Time Traffic Data based on FCD *MR 213*	**SIS50** Innovative applications of ITS for road freight productivity and safety *MR 219*	**SIS51** Data-Driven: Connecting Cars for Smarter Cities *MR 220*	**TP58** Positioning Technology and Techniques *MR 207*	**TP59** Securing the Cooperative Vehicle *MR 208*	**TP60** Platforms, the Cloud and Issues Related to Data Sharing and Exchange *MR 209*	**TP61** Human Factors and Driver Behaviour 1 *MR 216*	**TP62** Modelling Methodologies 2 *MR 217*	**TP63** Motorway Management 2 *MR 218*	**SP15** Vehicle Sensing and Bicycle Recognition *MR 104*	**SP16** Multi-modal Transport *MR 103*	**TP64** Environmental Sustainability -Use of Bicycles *MR 102*	**CP04** Safety 1 *MR 101*	**IBEC session 3:** Evaluation of connected and increasingly automated vehicles *MR 203*		**Associated Meeting** The Truly Integrated Transport System for Logistics *MR 109*	**Stakeholder Workshop** Australian EV Case Studies - Trends over the last 5 years *MR 105*	Traffic Technologies around the world (1430 - 1500 hours) A vision for a secure, connected future through Cooperative Intelligent Transport Systems (C-ITS) (1500 - 1530 hours) *Exhibition Auditorium*
1530 - 1600	Break																						
1600 - 1730	**ES09** Capitilisng on the internet of things *Plenary Hall 3*	**SIS52** C-ITS for optimizing transport and logistics of goods *MR 204*	**SIS74** Future Managed Motorway Infrastructure in the context of Digital Disruption *MR 210*	**SIS53** Data fusion of collecting public and private data during disaster mitigation *MR 211*	**SIS54** Management of mobility demand through ITS: the real challenge for Smart Cities *MR 212*	**SIS55** Global view on challenges in measuring CO2 reduction benefits from ITS *MR 213*	**SIS56** Image-recording-type driving event video recorder (DR) technology ensuring automated driving *MR 219*	**SIS57** Smart Intelligent Traffic Intersections– Evaluating Challenges of Big Data for Smart Cities *MR 220*	**TP65** Public Acceptance of Automated Vehicle *MR 207*	**TP66** Testing and Certification of V2X *MR 208*	**TP67** Safety and Security Issues for Big Data *MR 209*	**TP68** Human Factors and Driver Behaviour 2 *MR 216*	**TP69** Road User Charging 1 *MR 217*	**TP70** Parking *MR 218*	**SP17** Energy Efficiency *MR 104*	**SP18** Public Transport Analysis *MR 103*	**TP71** Environmental sustainability -Use of Existing Infrastructure and Systems to Drive Improved Environmental Outcomes *MR 102*	**CP05** Safety 2 *MR 101*	**IBEC session 4:** Effects of automated driving to reduce accidents and fatalities - the cost/benefit perspective *MR 203*				

FRIDAY 14 OCTOBER

0830 - 1000	**ES10** Mobility as a service *Plenary Hall 3*	**Special Session of ITS-WC 2016 Melbourne:** Cross-linking APEC Internet of Vehicles Symposium and MMC 2016 Exhibition *MR 204*	**SIS58** Traveller Information - Meeting Increasing Customer Expectations *MR 210*	**SIS59** Traffic State Estimation using Various Sensing Data *MR 211*	**SIS60** Managed Motorways - Adapting the Melbourne Concept for U.S. Applications *MR 212*	**SIS61** Pro-active Network and Incident Management *MR 213*	**SIS62** IoT, the technology trend disruptive technologies in transport *MR 219*	**SIS63** Real-world ITS Architectures: Benefits, Challenges and Solutions *MR 220*	**TP72** Using Cooperative ITS to Enable Automated Vehicle *MR 207*		**TP74** The Impact of Big Data on ETC and for Expressway Management *MR 209*	**TP75** Maximizing Safe Network Operation *MR 216*	**TP76** Road User Charging 2 *MR 217*	**TP77** Roadside ITS Infrastructure *MR 218*	**SP19** Environmental Sustainability *MR 104*	**SP20** Traffic Simulations *MR 103*	**TP78** Policy, Standards and Harmonization -Government Role in Realizing Sustainable Outcomes 2 *MR 102*	**CP06** Public Transport *MR 101*		**ISO4** ITS Technical Interactive Session 4 *Level 1 Foyer*		**Stakeholder Workshop** Road certification criteria for autonomous vehicles *MR 105*	
1000 - 1030	Break																						
1030 - 1200	**ES11** Integrating physical and digital transport infrastructure to create smart cities *Plenary Hall 3*		**SIS65** Traffic Signal Control Systems for 4th Generation *MR 210*	**SIS66** Start-ups disrupting mobility *MR 211*	**SIS67** Targetting road trauma: how far can ITS take us towards zero? *MR 212*			**Road Charging Roadmap** - Taking the first steps. Part 1 *MR 220*	**TP79** V2I for Automated Driving *MR 207*	**TP80** Vehicle Localization and Navigation *MR 208*	**TP81** Transit Riders and Bicycles, Enhancing their Experience using Data *MR 209*	**TP82** Optimal Network Management 1 *MR 216*	**TP83** Road User Charging 3 *MR 217*	**TP84** Network Travel Management *MR 218*	**TP85** Generating Travel Information via Bluetooth, ETC and Other Crowd Sourced Data *MR 104*	**SP21** Transport Modelling *MR 103*	**TP86** Policy, Standards and Harmonization -ITS Policy Roadmap, Government and Industry Perspective *MR 102*	**CP07** Tolling and ePayment *MR 101*				**Stakeholder Workshop** The TfNSW future transport roadmap *MR 105*	
1200 - 1300	Break																						**Melbourne Conversation III** End of Car Ownership: How will we get around? (1130 - 1300 hours) *Exhibition Auditorium*
1300 - 1430	**ES12** Smart and automated public transport enabling livable cities and improved mobility *Plenary Hall 3*	**SIS68** Automated Vehicles: Kangaroo caught in the headlights *MR 204*	**SIS69** Accelerating ITS deployment: Industry and Policy compatibility *MR 210*	**SIS70** Advances on innovative EV Charging Technologies *MR 211*	**SIS71** ITS Development and Whole Of Life Asset Management *MR 212*	**SIS72** Exploiting cloud and big data technologies for ADAS and Digital Cartography *MR 213*	**SIS73** ITS for Global Mega Events *MR 219*	**Road Charging Roadmap** - Taking the first steps. Part 2 *MR 220*	**TP87** V2X Enabled Automated Vehicle Applications *MR 207*	**TP88** Automated Truck Platooning *MR 208*	**TP89** Using Big Data to Better Assess an Agency's Infrastructure and Assets *MR 209*	**TP90** Optimal Network Management 2 *MR 216*	**TP91** Road User Charging 4 *MR 217*	**TP92** Safety through ITS and Queue Management *MR 218*	**TP93** Keeping Drivers Better Informed using Mobile Applications *MR 104*	**SP22** Human Factors *MR 103*		**CP08** Traffic Management *MR 101*	**SIS17** Future mobility and Mobility as a Service, moving from ownership to access? *MR 211*			**Stakeholder Workshop** A vision for a secure, connected future through Cooperative Intelligent Transport Systems (C-ITS) *MR 105*	
1430 - 1530	**Plenary session IV** Mobility as a service *Plenary 3*																						
1545 - 1645	**Closing Ceremony** *Plenary 3*																						

附件三

SESSION TOPICS

AUTOMATED VEHICLES AND COOPERATIVE ITS

Topic sponsored by vicroads

- **ES01:** Advancing the deployment of automated vehicles – the roles of government
- **ES02:** Advancing the deployment of automated vehicles – the roles of industry
- **SIS14:** Strategy of Practical Implementation of V-I Cooperative Systems for Traffic Accident Avoidance
- **SIS17:** Future mobility and Mobility as a Service, moving from ownership to access?
- **SIS19:** Lessons Learned in Deploying Cooperative Systems
- **SIS20:** Evaluation and standardisation of connected and automated road transport
- **SIS26:** Digital Infrastructure for Automated Vehicles: challenges and international collaboration
- **SIS28:** Utilizing probe data will create the future of ITS
- **SIS33:** Deployment challenges on automated truck platooning
- **SIS34:** Connect2Car: Connectivity and Autonomy – will there be a winner?
- **SIS35:** Radiocommunication technologies for automated driving
- **SIS38:** ITS Connectivity – A future with 5G and Satellite
- **SIS39:** Cooperative Systems - Stakeholder Contribution and Cooperation
- **SIS40:** Automated vehicle pilots: challenges for data collection and sharing
- **SIS42:** Smart Roads - Where to next?
- **SIS43:** Positioning Challenges for Automotive Safety Systems & Solutions
- **SIS47:** Automated Transport Systems: How far are we?
- **SIS56:** Image-recording-type driving event video recorder (DR) technology ensuring automated driving
- **SIS68:** Automated Vehicles: Kangaroo caught in the headlights
- **TP01:** Analyses of V2X Environments
- **TP02:** Communication Protocols and Methods
- **TP10:** Automated to Manual Driving Transition
- **TP11:** Cooperative ITS Applications
- **TP19:** Automated Vehicle Applications
- **TP20:** Deployment Scenarios for Automated Vehicle
- **TP28:** DSRC vs LTE -Comparative Analyses
- **TP29:** Map Technologies
- **TP35:** Human Machine Interface for Cooperative ITS
- **TP36:** Methodologies to Implement Cooperative ITS
- **TP44:** Improving Automated Vehicle Performance
- **TP45:** Pilots of Cooperative ITS
- **TP49:** Mobility as a Service
- **TP51:** Policies and Regulations for Automated Vehicle
- **TP58:** Positioning Technology and Techniques
- **TP59:** Securing the Cooperative Vehicle
- **TP65:** Public Acceptance of Automated Vehicle
- **TP66:** Testing and Certification of V2X
- **TP72:** Using Cooperative ITS to Enable Automated Vehicle
- **TP79:** V2I for Automated Driving
- **TP80:** Vehicle Localization and Navigation
- **TP87:** V2X Enabled Automated Vehicle Applications
- **TP88:** Automated Truck Platooning
- **SP01:** Innovative Solutions to Reduce Congestion
- **SP03:** Mapping and Routing
- **SP05:** Positioning and V2X Communication
- **SP07:** V2X Applications
- **SP22:** Human Factors

CHALLENGES AND OPPORTUNITIES OF BIG OPEN DATA

Topic sponsored by RACV Intelematics

- **ES04:** Realising the promise of Big and Open Data – practical trade-offs between benefits, costs, security and privacy
- **SIS03:** Telematics and Big Data – How do we make big data meaningful?
- **SIS05:** Securing Your Digital Community in a Hostile Cyber World
- **SIS09:** Insights for Performance Measurement: 5 min to the last 5 years
- **SIS18:** Traffic sensing by various manners
- **SIS22:** Big Data, driving integrated transport services
- **SIS31:** Ensuring the long term viability of ITS decision-support tools
- **SIS41:** Innovation for livable cities utilizing autonomous driving technology and IoT Big Data
- **SIS49:** Procurement of Real-Time Traffic Data based on FCD
- **SIS53:** Data fusion of collecting public and private data during disaster mitigation
- **SIS57:** Smart Intelligent Traffic Intersections–Evaluating Challenges of Big Data for Smart Cities
- **SIS59:** Traffic State Estimation using Various Sensing Data
- **SIS71:** ITS Development and Whole Of Life Asset Management
- **TP03:** Applications and Visualization of Big Data in Public Transit, Car Sharing and Parking
- **TP12:** Better Traffic Management from Big Data
- **TP21:** Enhancing Safety through ITS -What is the data telling us?
- **TP30:** Enhancing the Driver Experience with Better Data
- **TP37:** How Traffic Big Data Fuels Traveler Information and Situational Awareness
- **TP46:** ITS Operations and Big Data
- **TP47:** Weather Information Presents Opportunities and Challenges for Big Data
- **TP53:** Mobile Sensing, Open Data and Data from Probes to Address Mobility Issues
- **TP60:** Platforms, the Cloud and Issues Related to Data Sharing and Exchange
- **TP67:** Safety and Security Issues for Big Data

- **TP74:** The Impact of Big Data on ETC and for Expressway Management
- **TP81:** Transit Riders and Bicycles, Enhancing their Experience using Data
- **TP89:** Using Big Data to Better Assess an Agency's Infrastructure and Assets
- **SP02:** Predictive Analytics
- **SP04:** Transport Data Issues

ENVIRONMENTAL SUSTAINABILITY

- **ES05:** The role of ITS in mitigating climate change and delivering green transport
- **SIS21:** Impact Assessment of Automated Driving Systems on Energy Consumption and CO2 Emissions
- **SIS55:** Global view on challenges in measuring CO2 reduction benefits from ITS
- **SIS70:** Advances on innovative EV Charging Technologies
- **TP41:** Environmental Sustainability -How Will Alternative Fuel Vehicles Contribute to a Long-Term Sustainable Outcome 1
- **TP50:** Environmental Sustainability -How Will Alternative Fuel Vehicles Contribute to a Long-Term Sustainable Outcome 2
- **TP57:** Environmental Sustainability -Initiative to Promote Sustainable Environmental Outcomes
- **TP64:** Environmental Sustainability -Use of Bicycles
- **TP71:** Environmental sustainability -Use of Existing Infrastructure and Systems to Drive Improved Environmental Outcomes
- **SP17:** Energy Efficiency
- **SP19:** Environmental Sustainability
- **CP01:** Environmental Sustainability and Logistics

FUTURE FREIGHT INCLUDING AVIATION AND MARITIME

- **ES06:** The use of connected vehicles and data exchange in Freight and Logistics, including aviation and maritime
- **SIS07:** How slow-moving government processes might respond to rapid transformative technologies
- **SIS08:** A whole-of-system system approach to aviation system modernisation
- **SIS50:** Innovative applications of ITS for road freight productivity and safety
- **SIS52:** C-ITS for optimizing transport and logistics of goods.
- **SIS64:** Knowledge and understanding of urban freight distribution and service trips
- **TP07:** Future Freight including Aviation and Maritime -The Use of Automated Vehicles on Long-Haul Freight Corridors
- **TP16:** Future Freight including Aviation and Maritime -The Use of ITS to Drive Freight Efficiency and Sustainability
- **TP25:** Future Freight including Aviation and Maritime - The Use of ITS to Optimise Freight Movements and Improve Efficiency and Productivity
- **TP34:** Opportunities and Challenges around Freight Management from an ITS Perspective

MOBILE APPLICATIONS

- **ES07:** Using smart nomadic devices safely to enhance personal mobility
- **TP42:** Making Safer Corridors using the Digital Revolution
- **TP85:** Generating Travel Information via Bluetooth, ETC and Other Crowd Sourced Data
- **TP93:** Keeping Drivers Better Informed using Mobile Applications

POLICY, STANDARDS AND HARMONIZATION

- **ES08:** Modifying regulatory frameworks to boost mobility innovations
- **SIS04:** Regulation as an enabler for positive transportation change
- **SIS16:** What is the role of government in the deployment of ITS?
- **SIS25:** Accelerating ITS Deployment by Creating a More Diverse Workforce
- **SIS32:** Tri-lateral Automation in Road Transportation WG: achievements and next challenges
- **SIS46:** Certification of automated road vehicles: challenges ahead
- **SIS63:** Real-world ITS Architectures: Benefits, Challenges and Solutions
- **SIS66:** Start-ups disrupting mobility
- **SIS67:** Targetting road trauma: how far can ITS take us towards zero?
- **SIS69:** Accelerating ITS deployment: Industry and Policy compatibility
- **TP08:** ITS Communications -Multiple Methods, Multiple Considerations
- **TP17:** ITS Standards and Architecture -Guiding the Way to Successful Future Deployments
- **TP26:** Policy, Standards and Harmonization -Government Role in Realizing Sustainable Outcomes 1
- **TP78:** Policy, Standards and Harmonization -Government Role in Realizing Sustainable Outcomes 2
- **TP86:** Policy, Standards and Harmonization -ITS Policy Roadmap, Government and Industry Perspective

SMART CITIES AND NEW URBAN MOBILITY

Topic sponsored by traffic technologies ltd

- **ES09:** Capitalising on the Internet of Things
- **ES10:** Mobility as a service
- **ES11:** Integrating physical and digital transport infrastructure to create smart cities
- **ES12:** Smart and automated public transport enabling livable cities and improved mobility
- **SIS01:** Keeping cities liveable, using ITS to ensure service levels meet customer expectations
- **SIS06:** The role of ITS in a collaborative economy: towards user-oriented pricing and the gamification of mobility
- **SIS11:** Visualize a truly multimodal managed mobility system for your Smart City
- **SIS12:** Using traffic signal priority to maximise safety and minimise congestion for all
- **SIS13:** ITS and the Digital City - Disruptive Technologies and the New Reality
- **SIS23:** Parking - a driver for change?
- **SIS24:** Signal optimisation for connected vehicles, must we sacrifice adaptivity to achieve predictability?
- **SIS27:** Novel C-ITS applications and mobility services for Smart Cities
- **SIS29:** Roles of data analytics and transportation modelling for fast-changing urban infrastructure
- **SIS30:** Mobility as a Service - user centric integrated transport services
- **SIS36:** Enabling interaction between traffic management and mobility services
- **SIS37:** Location Intelligence, ITS and Smart Cities
- **SIS44:** Changes in Modeling for the New Mobility: Planning Challenges for Future Transportation
- **SIS45:** Harnessing the Economic, Societal and Environmental Benefits of Road User Charging
- **SIS48:** Integrated Payment = Improved Mobility
- **SIS51:** Data-Driven: Connecting Cars for Smarter Cities
- **SIS54:** Management of mobility demand through ITS: the real challenge for Smart Cities
- **SIS58:** Traveller Information - Meeting Increasing Customer Expectations
- **SIS60:** Managed Motorways - Adapting the Melbourne Concept for U.S. Applications
- **SIS61:** Pro-active Network and Incident Management
- **SIS62:** IoT and Connected Automation: disruptive trends in transport
- **SIS65:** Traffic Signal Control Systems for 4th Generation
- **SIS73:** ITS for Global Mega Events
- **TP04:** Traffic Signal Control 1
- **TP05:** Better Efficiency with Traveler Information
- **TP06:** Communications Technology
- **TP13:** Traffic Signal Control 2 and Integrated Payment Systems
- **TP14:** Integrated Payment Systems
- **TP15:** Efficient Urban Transport Systems
- **TP22:** Transportation Management Centers
- **TP23:** Ensuring Safety and Efficiency for Vulnerable Road User
- **TP24:** Improving Arterial with Better Data/Algorithm
- **TP31:** Urban Mobility
- **TP32:** Improving Public Transport
- **TP33:** Incident Management
- **TP38:** Urban Public Transport
- **TP39:** Integrated Traffic Management
- **TP40:** ITS for Demand Response Transport
- **TP48:** ITS Planning
- **TP55:** Connected Mobility
- **TP56:** Modelling Methodologies 1
- **TP62:** Modelling Methodologies 2
- **TP63:** Motorway Management 2
- **TP69:** Road User Charging 1
- **TP70:** Parking
- **TP76:** Road User Charging 2
- **TP77:** Roadside ITS Infrastructure
- **TP83:** Road User Charging 3
- **TP84:** Network Travel Management
- **TP91:** Road User Charging 4
- **TP92:** Safety through ITS and Queue Management

- **SP06:** Facilities and Traffic Modelling
- **SP08:** Evaluation of Traffic Signals
- **SP10:** Impact of Technologies on Travel Demand
- **SP12:** Integrated Transport System
- **SP14:** Motorway Management 1
- **SP16:** Multi-modal Transport
- **SP18:** Public Transport Analysis
- **SP20:** Traffic Simulations
- **SP21:** Transport Modelling
- **CP02:** Sensing and Human Machine Interface
- **CP03:** Mobility as a Service and Connected ITS
- **CP06:** Public Transport
- **CP07:** Tolling and ePayment
- **CP08:** Traffic Management

VEHICLE AND NETWORK SAFETY

Topic sponsored by

TAC TRANSPORT ACCIDENT COMMISSION

- **ES03:** Realising the safety and mobility benefits of automated vehicles and cooperative ITS systems

  Session sponsored by

  EastLink Time better spent.

- **SIS15:** Advanced technologies in operation and maintenance of ITS facilities
- **SIS72:** Exploiting cloud and big data technologies for ADAS and Digital Cartography
- **TP09:** Preventative and Active Safety Systems
- **TP18:** Safety of Vulnerable Road Users
- **TP27:** Speed Advice and Monitoring
- **TP43:** Technology Innovation and Development
- **TP54:** Advanced Driver Assistance and Support Systems
- **TP61:** Human Factors and Driver Behaviour 1
- **TP68:** Human Factors and Driver Behaviour 2
- **TP75:** Maximizing Safe Network Operation
- **TP82:** Optimal Network Management 1
- **TP90:** Optimal Network Management 2
- **SP09:** Collision Avoidance
- **SP11:** Network Safety
- **SP13:** Road Safety
- **SP15:** Vehicle Sensing and Bicycle Recognition
- **CP04:** Safety 1
- **CP05:** Safety 2

附件四

TECHNICAL TOURS AND DEMONSTRATIONS

Option to attend the Technical Tours and Demonstrations programs are available to Full-Time and Day Registered Delegates. Bookings for the demonstrations is available via the congress app.

If you wish to book to go on a technical tour please visit the registration desk to purchase tickets for available tours.

BOOKING FEE:

Technical Tours: AUD50 per tour
Demonstration: included with Full-Time or Day Registration

TECHNICAL TOURS

Buses will depart from the Clarendon Street end of the MCEC, unless otherwise indicated. Please arrive at this entrance 15 minutes prior to departure and wait inside by the designated signage for your escort to your bus.

Safety Precaution: Closed shoes must be worn for all tours.

Who Can Attend: Full-Time and Day Registered Delegates, pre-bookings and payment required. Tickets would have been provided with your name badge. Please have these ready as you board your bus.

Demonstrations and Technical Tour Lounge: Located in the exhibition hall near Door 10, here you can find the tour listing and bus schedule, as well as make any demonstration bookings. You should see staff at the Registration Desk in the main foyer to place new technical tour bookings and make a payment or cancellation.

Technical tours and demonstrations are subject to change and for the most update to date information and schedules please download the congress app or visit the official congress website.

1 CityLink: Go behind-the-scenes at one of the world's first fully electronic toll roads

Join Transurban road managers to take an up close look at the workings of CityLink, one of Melbourne's most sophisticated, fully managed motorways. Opened in 1999, CityLink was one of the world's first fully electronic toll roads. Today, millions of trips are made across the 22 kilometre (14 mile) motorway each year. This tour will provide a unique opportunity to see first-hand the ITS systems and equipment in place across CityLink's roadside network, operations, maintenance and in the Operations Centre.

Organisation: Transurban

Schedule:
Wednesday 12 October 2016 1330 – 1700 hours
Thursday 13 October 2016 1330 – 1700 hours

Cost: AUD50 incl GST

2 EastLink is Melbourne's Newest and Safest Fully Electronic Tollway: Operations, Traffic Control and Maintenance Facilities

Opened in 2008, EastLink is Melbourne's most recent fully electronic tollway. EastLink is 39km long and carries approximately 250,000 vehicles per day, with its design and operations making it the safest freeway in Melbourne. EastLink is also renowned for: twin 1.6km tunnels to protect an environmentally sensitive valley; 480 hectares of landscaping with 4 million native trees, shrubs and plants; wetlands that treat road run-off rainwater; distinctive architecture; public artworks and the EastLink Trail shared use path. This tour will include a drive on EastLink and through an EastLink tunnel, and a visit to the EastLink Operations Centre.

Organisation: EastLink

Schedule:
Wednesday 12 October 2016: 0830 – 1200 hours
Thursday 13 October 2016: 0830 – 1200 hours

Cost: AUD50 incl GST

3 Smart Work Zones and the Construction of Managed Motorways

This tour will provide an on road tour of Smart Work Zones in practice and presentation on the future direction of Smart Work Zones in the form of temporary ITS devices to manage traffic during roadworks and inform road users of travel conditions. Participants will also view a demonstration of the VicRoads Project Traffic Events Centre used to remotely manage major traffic events during roadworks construction, inspect temporary ITS devices and be provided a presentation on the construction of Managed Motorway works from development to commissioning.

Organisation: VicRoads

Schedule:
Tuesday 11 October 2016: 1330 – 1700 hours
Wednesday 12 October 2016: 1330 – 1700 hours
Thursday 13 October 2016: 0830 – 1200 hours
Friday 14 October 2016: 0830 – 1200 hours

Cost: AUD50 incl GST

4 Managed Motorway Operation: Largest managed motorway network in Australia

Melbourne operates 100km of managed motorways consisting of 76 metered ramps and is the largest managed motorway network in Australia carrying approximately 220,000 vehicles per day. This tour involves a trip along the Monash Managed Motorway experiencing the operation of Melbourne's longest Managed Motorway. During the trip participants will be given the opportunity to experience and monitor the ramp metering operation using a customised tablet in real time, the opportunity to understand the University of Crete ramp metering algorithm parameters and operational functionality, including integration with the STREAMS freeway management system, freeway data stations, and the lane use management system, plus an overview of the dynamic speed limit algorithm used to control vehicle speeds along the managed motorway network to minimise flow traffic break down.

Organisation: VicRoads

Schedule:
Wednesday 12 October 2016: 0900 – 1230 hours
Thursday 13 October 2016: 0900 – 1230 hours

Cost: AUD50 incl GST

5 VicRoads Traffic Management Centre and using SmartRoads to Achieve Improved Network Performance

VicRoads is the state's primary Road Authority and is responsible for the operation of approximately 22,000 km of declared roads in Victoria. The Melbourne metropolitan road network has around 3,500 km of arterial roads and approximately 3800 set of traffic signals, also 100km of managed motorways. VicRoads Traffic Management Centre (TMC) monitors the declared road network and handles over 250,000 calls each year. This tour will provide insight into its operation, monitoring techniques, and various tools available to operators. VicRoads has also developed a smarter way to manage the increasing number of trips on roads so that Victoria remains a great place to live. 'SmartRoads' is an approach that manages competing interests for limited road space by giving priority use of the road to different transport modes at particular times of the day. By deciding which modes have priority on which roads, Melbourne's road network can work better for everyone. This tour will demonstrate how this works.

Organisation: VicRoads

Schedule:
Wednesday 12 October 2016: 1330 – 1630 hours
Thursday 13 October 2016: 1330 – 1630 hours

Cost: AUD 50 incl GST

6 Public Transport Control Centres – Yarra Trams and Metro Trains

Get an insight into Melbourne's key metropolitan public transport control centres for metro trains and the world's largest tram network. Yarra Trams Operations Centre is based at Tram Hub, a 'depot for people' in the heart of the CBD. It brings the power and operations centres into the same room for the first time in 110 years of Melbourne's electric trams. Controllers monitor 250 kilometres of double track – 75% of which is shared with motor vehicles – as more than 400 trams deliver 35,000 services each week. Trams operate 20 hours a day, with 24-hour services on six lines on weekends as part of the city's Night Network. To improve customer service, a customer information team is based in the Operations Centre to provide real-time updates through digital and on-network channels. The centre handles over 300,000 calls per year as Yarra Trams enables half a million passenger trips each day.

Organisation: Public Transport Victoria

Schedule:
Tuesday 11 October 2016: 1400 – 1700 hours
Wednesday 12 October 2016: 0930 – 1230 hours
Thursday 13 October 2016: 1400 – 1700 hours
Friday 14 October 2016: 0930 – 1230 hours

Cost: AUD50 incl GST

7 Port of Melbourne: Operations Control Centre and Hydrographic Survey Boat

Visit the Port Operations Control Centre which provides Melbourne Vessel Traffic Services (VTS). Melbourne VTS manages and coordinates safe and efficient movement of 3,000 vessel visits per year through the southern part of Port Phillip and the Heads. It also acts as a key focal point for incident and emergency responses management. Tour will take delegates onboard the survey boat to showcase the Dynamic Under Keel Clearance (DUKC) movements and demonstrate enhanced navigation safety and mitigate groundings risks within port channels. The hydrographic survey is important for anchoring, dredging, structure construction, pipeline and cable routing and fisheries habitat. Featured will be the multi-beam echo sounder technology in hydrographic survey to enhance navigation safety.

Organisation: Port of Melbourne Corporation

Schedule:
Tuesday 11 October 2016: 0930 – 1200 hours

Cost: AUD50 incl GST

8 Melbourne Port System Tour: Enhancing Future Freight Productivity with ContainerChain

Visit the Port of Melbourne's Port Education Centre, located on the bank of Melbourne's Yarra River. The purpose-built facility is one of the vantage points where visitors can experience a passing ship up close as backdrop during the overview briefing with regards to the application of Containerchain, a web-based software to manage park operations, enhance gate access efficiency and yard processes, eliminate vehicle congestion. See the recently launched the 'eGate' app for smartphones and tablets, connecting the container truck drivers with empty container parks and other parts of container logistics supply chain operators. The site visit will demonstrate how future freight technology innovation developed by Melbourne companies, is providing the logistics efficiency solutions through online truck bookings, paperless gate control, automated truck arrival processing, automated container surveys, real-time container status management and forklift work allocation. Tour will also include an onsite visit to Melbourne's newest container terminal site.

Organisation: Port of Melbourne Corporation

Schedule:
Tuesday 11 October 2016: 1400 – 1630 hours

Cost: AUD50 incl GST

9 Managing Traffic in an Airport Environment

With almost 33 million passengers a year, Melbourne Airport is the gateway for international and domestic air travel and is Australia's second busiest passenger airport and leading air freight exporter. In order to meet the growing demand for air travel, AUD10 Billion will be invested over the next 20 years to expand and enhance the airport's infrastructure. Melbourne Airport owns, maintains, and operates 32 km of road network, accessing two key freeways, in addition to operating 24,000 bay car parks. The ITS infrastructure and deployment at the airport is the solution to ensure the road network operates efficiently for over 65,000 vehicles accessing the various passenger and freight cargo terminals each day, providing a key priority for the Parking and Ground Transport team. This tour will provide participants with a site visit of recent infrastructure developments at Melbourne Airport and discuss ways in which this airport is deploying the use of ITS solutions to improve the traffic flow within the airport environment.

Organisation: Melbourne Airport

Thursday 13 October 2016: 1330 – 1630 hours

Cost: AUD50 incl GST

10 Aerospace, Automotive and Manufacturing Laboratory Showcase at Royal Melbourne Institute of Technology (RMIT)

RMIT University is a global university of technology and design, focused on creating solutions that transform the future for the benefit of people and their environments. This tour will include a visit to cutting edge laboratory facilities, research and technology in Aerospace, Automotive and Manufacturing field at RMIT University. The Wackett Aerospace Research Centre is internationally renowned in aerospace related science and technology research and has a vast range of world class facilities including airspace and flight simulators, unmanned aircraft and wind tunnels, whilst the Automotive and Green Engines Research Facility supports leading-edge experiments on propulsion and engine performance management and alternative fuels for advanced and more efficient internal combustion engines.

Organisation: RMIT University, Bundoora Campus

Schedule:
Tuesday 11 October 2016 0830 – 1230 hours

Cost: AUD50 incl GST

11 Factory of the Future, Smart Structures and Research-Led Innovation at Swinburne University of Technology

Swinburne University of Technology supports innovative, leading-edge research with outstanding research facilities. This tailored tour will give you a behind the scenes look at Swinburne's technology labs, including the only Smart Structures Research facility in the southern hemisphere, the Electric Vehicles development facility, the award-winning advanced manufacturing research facility, as well as the Aviation Lab and Flight Simulator.

Organisation: Swinburne University of Technology, Hawthorn Campus

Schedule:
Thursday 13 October 2016 0830 – 1230 hours

Cost: AUD50 incl GST

12 Future Immersive Digital Environments for Transport and Collaboration, including the CAVE2, Woodside Innovations Centre and Institute of Rail Technology

This tour explores the future of immersive digital environments for Transport and Collaboration. Includes visit to The Monash CAVE2, an immersive hybrid 2D and 3D virtual reality environment, showcasing Monash's leadership in the data visualisation domain, accelerating research across a range of disciplines including engineering, science and medicine. A visit to the Woodside Innovations Centre, focused on researching industry-wide technology innovation will demonstrate how big data, immersive analytics and rapid proto-typing are changing the industry. The tour also includes a visit to the Institute of Railway Technology (IRT), the premier track and vehicle railway research centre in Australia, and one of the main technology service providers to heavy haul railway operations.

Organisation: Monash University

Schedule:
Tuesday 11 October 2016 0830 – 1300 hours

Cost: AUD50 incl GST

13 Telstra Customer Insight Centre – Gain, share and develop insights

Telstra is Australia's largest telecommunications provider and the Telstra Customer Insight Centre is where you can gain, share and develop insights and experience a new way to engage customers, leading to more rewarding relationships. From the moment you enter the new Customer Insight Centre, you'll find yourself immersed in an environment that takes collaboration to a completely new level, combining interactive spaces with the latest trends in innovation such as mobility trends, Internet of Things, Telstra Health, Connected Transport, Smart Home and Smart Cities. This tour will provide delegates with a deeper and more consultative understanding of how Telstra's technology extends far beyond products and services.

Organisation: Telstra

Schedule:
Thursday 13 October 2016 1430 – 1630 hours

Cost: AUD50 incl GST

14 Telstra Global Operations Centre - Central management of Telstra's network across Australia

Telstra is Australia's largest telecommunications provider. Officially opened in August 1999 and globally recognised as the first centre of its type, Telstra's leading edge Global Operations Centre now manages the operation of Telstra's fixed and mobile telecommunications networks, high speed internet options and broadcast television to support Telstra's and customers' diverse range of products and services, both domestically and internationally. Telstra's Australian and international customers have access to more than 230 countries and territories via a network of interconnected digital gateway exchanges and major satellite earth station complexes. This tour will provide a unique opportunity to showcase the integration of future technologies.

Organisation: Telstra

Schedule:
Thursday 13 October 2016 1000 – 1200 hours

Cost: AUD50 incl GST

PRE-CONGRESS:

15 Heavy Vehicle Automation: New research and technologies for Road-Trains, B-Doubles and Prime Movers

Developments in Prime Mover and trailers will be demonstrated on a 4.2-kilometre highway circuit with participants able to travel in the cabin of the vehicles on display. As well as new technologies there will also be Road Trains and B-Doubles operating, as the challenges for these larger vehicles are unique to Australian traffic conditions and pose particular problems for autonomous vehicle operation. New developments by Robert Bosch will be demonstrated with live displays on the 6.2 hectare skid pan of the Dynamic Handling Facility. Military vehicle developments will be demonstrated on the Vehicle Design and Validation area, adjacent to the highway circuit by Rheinnmattell. The Australian Automotive Research Centre (AARC) at Anglesea in Victoria is Australia's largest independently owned proving ground, covering 1,000 hectares and has over 100 kilometres of track of varying grades and surfaces, providing test facilities for many of the world's leading automotive and defence businesses. A tour of the facility will include demonstration of vehicles operating in autonomous and semi-autonomous modes.

Organisation: Australian Automotive Research Centre (AARC)

Schedule:
Monday 10 October 2016 0830 – 1500 hours
The tour will depart and return from the MCEC.

Cost: AUD50 incl GST

POST-CONGRESS:

16 Electronic Lane Control System (ELCS) on Sydney Harbour Bridge

National Heritage Listed Sydney Harbour Bridge, known by the locals as the 'Coathanger', uses the Electronic Lane Changing System (ELCS) to control flow for eight lanes of bridge traffic. With more than 160,000 vehicle movements per day, the bridge is managed remotely from the TMC by dedicated SHB traffic controllers. ELCS integrates the use of electronic overhead signage, automatic movable medians and in-pavement lighting to adjust traffic direction an average of five times per day in four different configurations. Roads and Maritime Services led the design of the ELCS which uses German componentry and programmable logic controller operating on two new fibre optic networks with dual redundant servers. The ELCS system won the 2015 PACE Zenith innovation award for the Transport, Power and Infrastructure category. This tour will include visit and presentation in the Transport Management Centre and guided site visit to the bridge.

Organisation: Roads and Maritime Services NSW

Schedule:
Monday 17 October 2016 1100 – 1500 hours
THIS IS A POST-CONGRESS TOUR IN SYDNEY, NSW

The tour will commence at the RMS Transport Management Centre, 25 Garden Street, Eveleigh (Sydney), New South Wales

Cost: AUD50 incl GST – TOUR ONLY (travel to Sydney, accommodation and other costs are own arrangements and expense)

17 Multi-Modal ITS in Metropolitan Brisbane

The tour will include visits to key transport research institutions (including the Queensland University of Technology), travel on road, tunnel and public transport networks to see ITS field deployments, and first-hand exposure to the operation of transport management centres in Brisbane. It will conclude with a reception event at Brisbane City Hall with keynote speakers. For half of the day, there will be two separate options to choose from: the traffic management option will include a bus trip around the Brisbane motorway network to see in action the technologies used to actively manage traffic and enable efficient, safe and informed journeys; or the public transport option which will provide a tour of state-of-the-art intermodal facilities at the Roma Street Station bus-rail interchange and the new rail control centre. Delegates will be shown real-time traveller information services and systems, and electronic payment technologies.

Organisations: Hosted by the Queensland Department of Transport and Main Roads and Brisbane City Council on behalf of the ITS16 Queensland Pavilion Consortium

Schedule:
Monday 17 October 2016, 0900 – 1800 hours
THIS IS A POST-CONGRESS TOUR IN BRISBANE, QLD

Optional extra day, one-to-one meetings with local ITS experts:
Tuesday 18 October 2016

The tour will commence at Mineral House, 41 George Street, Brisbane, Queensland.

Cost: AUD50 incl GST – TOUR ONLY (travel to Brisbane, accommodation and other costs are own arrangements and expense)