出國報告（出國類別：國際會議）

2008 年第十五屆智慧型運輸系統（ITS）世界年會

服務機關：交通部公路總局
姓名職稱：卓明君科長
派赴國家：美國
出國期間：97.11.14-97.11.21
報告日期：98.1.21

目　　錄

壹、緣起與目的

為推廣智慧型運輸系統（Intelligent Transportation Systems, ITS）的應用及介紹相關領域之技術，由亞太、歐洲、美洲等地區智慧型交通組織發起的智慧型運輸系統世界年會，訂每年輪流選定主辦城市舉辦一屆，從 1994 年於法國巴黎舉辦第一屆世界年會開始，至本（15）屆由美國紐約市舉行。

第 15 屆智慧型運輸系統世界年會訂 2008 年 11 月 16 日至 20 日於美國紐約市 Jacob K.Javits 國際會議中心（Jacob K.Javits Convention Center）召開，大會內容包括行政會議、特別會議、技術會議、科學會議、互動會議、泛美 ITS 會議、IBEC 會議、年度會議、展覽展示、技術參訪、實地示範等。

本次大會主題：「ITS Connections：Saving Time.Saving Lives」，強調一個重要的目標，即提供世界運輸系統使用者一種新的安全（safety）、可靠（reliability）、便利(convenience)、可及(accessibility)及可供選擇(choice)的服務。

因應國內智慧型運輸系統（ITS）發展及用路人對即時路況交通資訊之需求日益劇增，本局從 97 年開始至 100 年共四年期間，辦理「省道道路交通資訊自動蒐集系統之建置與維運計畫」，針對省道一般路段及西濱快速公路（不包括 12 條東西向快速公路），依道路特性（例如易壅塞、易肇事路段，及城際、都會型、生活圈道路等），辦理省道即時路況交通資訊蒐集及控制系統工程，普設車輛偵測器（Vehicle Detector, VD）、閉路電視攝影機（Closed-Circuit Television, CCTV）及資訊可變標誌（Changeable Message Sign, CMS），並於五個區養護工程處成立交控中心，利用路側偵測設備收集即時車流資料，經由轄區交控中心進行資料分析研判後，透過資訊可變標誌及網際網路等管道將即時路況資訊提供用

路人作為行前及行駛中之參考。惟目前省道 ITS 之建置（包括即時交通資訊蒐集及監測系統、動態交通資訊顯示系統，及交通控制中心管理維運等方面）仍處起步階段，為吸取學習世界各國發展 ITS 經驗及蒐集 ITS 之產業應用，以作為本局推動省道相關交控系統建置之參考，故本局於本年度編列相關預算參與本屆 ITS 世界年會，由筆者奉派參加與會。

Jacob K.Javits 會議中心-ITS 年會現場註冊及報到處

筆者於 Jacob K.Javits 會議中心 ITS 展覽會場入口

貳、行程紀要

本（15）屆智慧型運輸系統世界年會訂 97 年 11 月 16 日至 97 年 11 月 20 日共 5 天在美國紐約市召開，含往返搭飛機時程，本次出國行程自 97 年 11 月 14 日起至 97 年 11 月 21 日止，共計 8 天，詳細行程如下。

日期	星期	行程	內容	備註
97.11.14	五	台北－紐約	去程	安格拉治轉機
97.11.15	六	紐約 Jacob K.Javits 會議中心	報到	
97.11.16	日	紐約 Jacob K.Javits 會議中心	1. 參加 ITS 世界年會開幕 2. 參觀 ITS 展覽場 3. 參訪紐約市聯合運輸管理中心	
97.11.17	一	紐約 Jacob K.Javits 會議中心	1. 參觀 ITS 展覽會場 2. 參訪紐約市聯合運輸管理中心	
97.11.18	二	紐約 Jacob K.Javits 會議中心	1. 參加「車輛與道路設施整合」(VII) 市區街道與高速公路展示 2. 參觀 ITS 展覽會場	
97.11.19	三	紐約 Jacob K.Javits 會議中心	1. 參加 ITS 世界年會研討會 2. 參觀 ITS 展覽會場	
97.11.20	四	紐約 Jacob K.Javits 會議中心	1. 參加 ITS 世界年會研討會 2. 參觀 ITS 展覽會場	
97.11.21	五	紐約－台北	返程	安格拉治轉機

參、會議展覽介紹

本（15）屆 ITS 世界年會主題為「ITS Connections：Saving Time.Saving Lives」，強調一個重要的目標，即提供世界運輸系統使用者一種新的安全（safety)、可靠（reliability)、便利（convenience)、可及（accessibility）及可供選擇（choice）的服務。

本屆年會透過會議研討、展覽展示、技術考察、大會交流活動，及實地示範方式，將智慧型運輸系統相關研究成果呈現給與會人員瞭解並親自體驗。

一、會議內容

在年會期間舉辦各種會議共 500 餘場，議題內容環繞各國在智慧型運輸系統推動發展之成果及所面臨之挑戰，會議依性質區分為全體會議、行政會議、特別會議、技術會議、科學會議、互動會議、泛美 ITS 會議、IBEC 會議、年度會議等項。（各會議討論議程表如附錄一）

（一）全體會議（Plenary Sessions）

共舉辦 3 場，讓與會者瞭解本屆 ITS 年會的重點，吸取 ITS 最新面臨的挑戰與機會，及 ITS 的政策及策略。

（二）行政會議（Executive Sessions）

共舉辦 17 場，由政府交通官員、主要組織和高級商務代表與會分享其在最新 ITS 的成就、問題和挑戰展望。

（三）特別會議（Special Sessions）

舉辦 59 場，由美洲、歐洲及亞太三個 ITS 地區代表所主持，藉由高層專家及決策者之論文發表，讓與會者能獲知國際間最佳實務經驗之即時新知及有價值之觀點，並進行深入的探討。

（四）技術會議（Technical Sessions）

舉辦近 150 場，由亞太、歐洲及美洲地區 ITS 方面之專家及學者發表約 580 篇論文，針對 ITS 通各方面的最新發展和應用進行發表和展示，以了解最新的智慧型運輸系統技術。

（五）科學會議（Scientific Sessions）

舉辦 30 場，由亞太、歐洲及美洲地區 ITS 方面之專家及學者共發表 57 篇 ITS 相關專業性論文。

（六）互動會議（Interactive Sessions）

舉辦 208 場，起源於第 11 屆名古屋世界年會，並被之後的世界年會傳承下來。發言人透過海報和現場展示，為參與代表展示其最新的成果和經驗，提供發言人與現場聽眾面對面直接進行充分交流和討論的平台。

（七）泛美 ITS 會議（PAN AMERICAN ITS Sessions）

舉辦 5 場特別會議，起源於 2004 年由阿根廷、巴西、加拿大、智利及美國等國 ITS 協會，為提升北、中、南美洲 ITS 組織之研究、教育及商業合作等目的所簽訂之備忘錄，每兩年舉辦一次會議，第 3 屆泛美 ITS 會議由美國 ITS 協會主辦，與本屆 ITS 世界年會一同舉辦，主題為拉丁美洲發展智慧型運輸系統之相關議題，會議採西班牙語發表並同時翻譯成英語。

（八）IBEC 會議（The International Benefits, Evaluation, and Costs Sessions）

舉辦 4 場，IBEC 工作組織成立於 2002 年由芝加哥舉辦之第 9 屆 ITS 年會。本會議將探討道路價值、運輸運費、天候變化，及特別事件等。

（九）年度會議（Annual Meeting Sessions）

針對美國公、私部門發展 ITS 成果舉辦 52 場教育會議。

二、展覽概述

本屆展覽涉及交通運輸、建設、通訊技術、汽車、能源等相關行業，以及智慧型運輸系統技術綜合應用領域。大會集中呈現智慧型運輸系統節省時間、節省生命的特點，展現智慧型運輸系統技術應用的發展趨勢。（參展廠商名單如附錄二）

展覽場內大型全彩 LED 看板

展覽會場中，大會主要規劃以下幾個展示區域：

（一）自動車輛輔助駕駛專區：仍以日系汽車製造廠商所開發之產品居多，除結合 ITS 所開發出提供行動不便者之交通運具外，並展示各家廠商在開發路況導航功能之成果，及因應單人運具所研發的未來車種。




（二）世界各國推廣 ITS 專區：呈現各國發展 ITS 之成果及政策，參展國家除了美國紐約州運輸部、紐約市運輸部、紐約市警察局、馬里蘭州等外，尚有日本、韓國、英國、法國、澳洲、義大利、挪威與下屆舉辦國瑞典等。

紐約市警察局展示區


紐約市運輸部展示區

（三）ITS 產業技術專區：會場除可看到 LED 節能號誌產品外，有關車輛偵測設備方面，多採車流影像進行交通資料收集及事件偵測功能，與道路交通信息通報系統（VICS)、車輛與道路設施整合系統 VII 示範展示等。

日本 VICS 系統模擬示範

美國 VII 系統示範

影像式偵測設備展示

影像式偵測設備裝設示範

即時旅行時間 LED 看板標誌

全彩 LED 標誌展示

三、技術考察

本屆 ITS 年會之技術考察，共規劃「紐約中央車站（Grand Central Terminal Revitalization)」、「紐約市聯合運輸管理中心（New York City Joint Transportation Management Center)」、「曼哈頓下城區重建（Lower Manhattan Rebuilds)」、「TRANSCOM 通訊中心（TRANSCOM Communications

Center)」、「林肯隧道公車專用道及港務局公車站 (Lincoln Tunnel Exclusive Bus Lane and Port Authority Bus Terminal)」、「紐澤西州交通管理中心 (New Jersey Statewide Traffic Management Center in Woodbridge)」、「紐約市緊急管理辦公室技術參觀和機關間事件管理示範 (New York City Office of Emergency Management Technical Tour and Inter-Agency Incident Demonstration)」、「紐約州運輸部資訊交通管理中心 (New York State Department of Transportation INFORM Traffic Management Center)」, 及「哈德遜谷交通管理中心 (Hudson Valley Traffic Management Center)」等九個自費行程, 另大會特別安排於紐約市區街道及高速公路各一處進行「車輛與道路設施整合系統 (Vehicle-Infrastructure Integration, VII)」之測試示範行程供與會者免費報名體驗, 並將會議中心旁之第 11 大道 (11th Avenue) 採時段性封閉, 以戲劇表演方式呈現車對車防衝撞系統、號誌違規警告系統、車輛自動駕駛系統等示範。

筆者報名參加了「紐約市聯合運輸管理中心」的技術考察行程, 及兩項 VII 測試示範行程, 以下就參訪行程概述如下：

(一) 紐約市聯合運輸管理中心 (New York City Joint Transportation Management Center, JTMC)

剛成立於紐約長島市 (long Island city) 的一個聯合運輸管理中心, 主要由紐約市運輸部 (New York City Department of Transportation, NYCDOT)、紐約州運輸部 (New York State Department of Transportation, NYSDOT)、紐約市警察局 (New York City Police Department, NYPD), 及美國聯邦運輸部 (United State Department of Transportation) 等相關

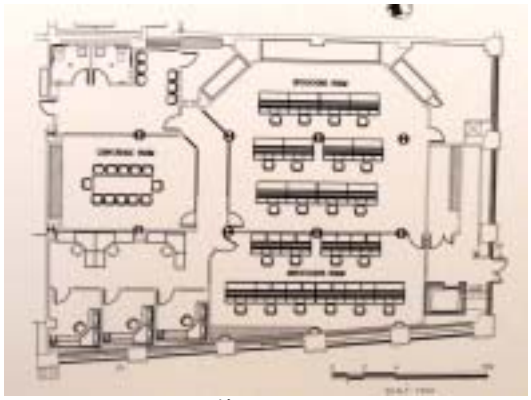
運輸單位聯合組成，每個單位在同一棟中心大樓分處不同辦公場所並負責不同管理業務，運輸部主要處理交通號誌運作及交通壅塞管理，警察局則主要負責事件通報處理。該中心目前已控制紐約市許多都市運輸走廊的智慧型運輸系統，為一個每週 7 天，每天 24 小時運作的交通管理中心。該中心建造花費 1600 萬美金，大部分經費係由美國聯邦政府負擔。其任務主要為處理紐約都會區每日之交通事件，減少世上許多高速公路的壅塞問題，並安全而有效地調動人員、機具，及提供即時資訊服務。

大約有 500 處攝影鏡頭佈設於紐約市的街道，將數位影像傳回該管理中心，而中心除了可以接收影像，並且可以調整鏡頭角度。中心的工程師可以從路側的偵測設備接收車輛行駛速率，以得知車輛行駛情形；這些資訊也可以用來產生不同顏色的都市數位地圖，以顯示主要幹道的行車速率，而這些車流地圖透過網際網路可供用路人上網或利用手機查詢。

此外，在中心的工程師亦可以透過中心操控市區 12,300 座一半以上之交通號誌。

該中心之運作主要由下列各項管理系統組成：

1. 高速公路管理系統（Freeway Management system, FMS）
2. 旅行者資訊系統（Traveler Information system, TIS）
3. 事件管理系統（Incident Management system, IMS）
4. 整合事件管理系統（Integrated Incident Management system, IIMS）
5. 先進式交通管理系統地圖（Advanced Traffic Management system Map, ATMS MAP）
6. 影像管理平台（Vedio Management Platform, VMP）

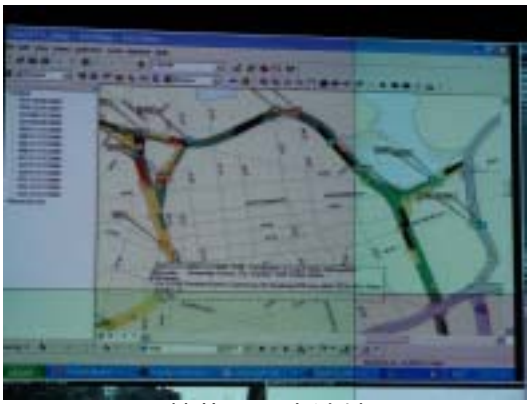


JTMC 佈設平面圖

JTMC 電視牆及操作電腦

NYCDOT 控制中心

NYCDOT 電視牆



JTMC 螢幕顯示車流地圖

JTMC 螢幕顯示路側即時資訊

JTMC 螢幕調閱 CCTV 畫面

JTMC 操作室

（二）車輛與道路設施整合系統（Vehicle-Infrastructure Integration, VII）

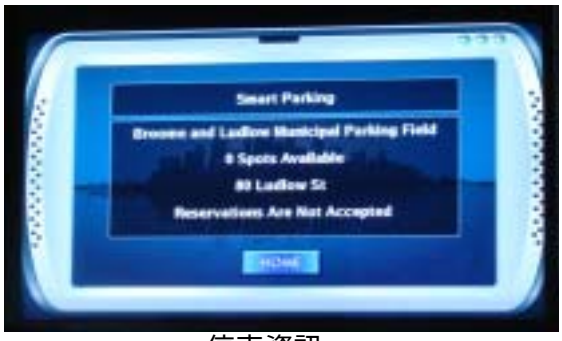
本次大會利用裝設於紐約市內及周圍測試平台（testbed）之特定短距通訊（Dedicated Short Range Communications, DSRC）設備，進行市區街道（city street）及高速公路（freeway）之 VII 測試示範，展示車輛與車輛（vehicle-to-vehicle）及車輛與路側（vehicle-to-roadside）的通訊技術與服務，如車內標誌系統（in-vehicle signing）、預警系統（warnings）、旅行者資訊（traveler information）及電子商務（e-commerce）等。與會者需搭乘大會指定已裝置特殊高科技設備之大客車行駛於測試街道上，透過車上 VII 設備及電視螢幕呈現駕駛者操作介面，提供與會者體驗美國在智慧型運輸系統發展之應用。

1.市區街道 VII 示範

係將測試平台建置於曼哈頓西側街道之一環狀測試路線。透過車載機設備於行經測試路線時，接收佈設於路側具特定短距通訊設備所傳送之即時路況訊息，主要提供資訊有車輛進入需收取擁擠費用區域之費率（congestion pricing）、收費站（tolling）、多種行旅及停車資訊（multimodal travel & parking information）、交通管理（traffic management）、商用車（commerical vehicles）等。

市區街道 VII 展示主題

進入收擁擠費用區資訊



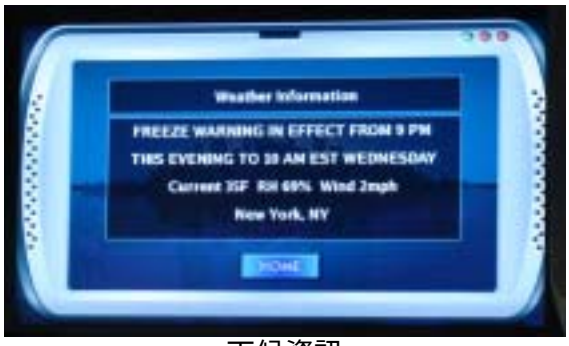
停車資訊

速限變動警示

路口紅燈倒數計時秒數

路口路燈倒數計時秒數

動態地磅超載告知



天候資訊

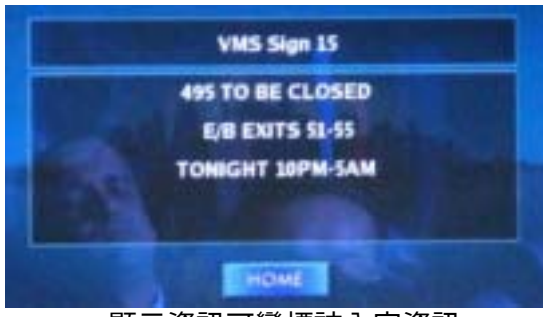
2.高速公路 VII 示範

係建置於長島快速道路長約五十英哩之高速公路測試平台。除展示市區街道 VII 之收費站、天候、飛機航班、號誌倒數計時、停車位等相關資訊外亦提供高速公路交流道出口指示資訊、旅行時間資訊、即時路況影像、交通量地圖顯示、出口匝道封閉資訊、路口轉向資訊、高乘載車道管制資訊、資訊可變標誌內容顯示等示範。

「皇后區-曼哈頓中城」隧道收費站資訊

即時交通狀況圖

高乘載車道相關警告資訊



顯示資訊可變標誌內容資訊

不同路徑旅行時間資訊

即時路況影像畫面

肆、紐約交通見聞

紐約是美國最大城市及第一大港，位於美國大西洋海岸的東北部，紐約州東南部，紐約市位於紐約州東南部，分為五個區域，分別是曼哈頓區（Mahattan)、皇后區（Queens)、布魯克林區（Brooklyn)、布朗克斯區（Bronx）和史泰登島區（Staten Island)。紐約市為美國最大、最擁擠的城市，亦為世界上最大的大型都會區所在，因此該市的交通流量十分龐大。每逢尖峰時段或假日，經常會有大量人潮、車潮流動於市中心曼哈頓內或五大區之間，經常導致市區內各重要幹道及重要的連外橋樑，出現交通阻塞的情形。

紐約市與其周邊地區的交通流量龐大，因此以紐約市為中心的紐約都會區也有著由各州政府獨自或互相合作成立的單位負責提供大紐約地區的交通需求。而相較於美國其他大部分都市（尤其是洛杉磯）以車代步的交通方式，紐約人主要是搭乘公車、地鐵及渡輪上下班，而其中，紐約地鐵是世界上最大的公共運輸系統之一。此外，目前亦有可以共通使用於紐約地鐵與公車之間的磁卡票證系統－MetroCard，係紐約市政府為了推廣大眾捷運交通而實施的乘客優惠制度。其中地鐵票價主要可分為單程票（per ride)、1 日通行證（one day fun pass)、7 天券（7-day unlimited ride）及 30 天券（30-day unlimited ride)，而單程票費用不分起迄站一律為 2 元美金；另公車票價一律 2 元美金。在 1997 年該卡當發行不久時，紐約大眾運輸系統的乘客人數就已經達到了 2700 萬人次。

另由於紐約市境內河流港灣錯綜複雜，因此橋梁及隧道數量眾多，是其一大特色。這些橋梁及隧道對紐約的發展貢獻甚鉅，尤對四面環水的曼哈頓島來說更是如此，因為橋梁是民眾往來市中心（即曼哈頓）及郊區間的必經通道，隧道亦然。但每逢上下班尖峰時刻，橋梁和隧道反而變成了交通瓶頸。

除了都會區內交通發達之外，紐約市與全美各地的往來亦十分頻繁，透過發達、複雜的鐵公路網，紐約居民得以更快速、方便的往返全國各座都市。

以下即為在紐約市停留八天七夜有關當地交通建設的所見所聞，藉由照片實地的觀察，希能供未來國內檢討交通工程（標誌、標線、號誌等）設計、改善都市交通及發展 ITS 時之參考。

一、標誌

（一）高速公路

利用參加本屆大會舉辦高速公路 VII 示範行程，沿路拍攝從曼哈頓到皇后區的 495 號州際公路（Interstate 495，簡稱 I-495，又稱長島快速公路 Long Island Expressway），是一條位於美國紐約州境內的一條州際公路，亦為縱貫美國東岸 95 號州際公路的橫向支線，全線長 114.3 公里（71 英里），西自皇后區中城隧道西端起，貫穿紐約市的皇后區以及位於長島的納蘇郡與蘇福克郡，東至河頭鎮。

紐約 495 州際公路路線示意圖（引用 Google map 網站資料）

1.交流道入口前相關指示標誌

設於地方道路，用於指示進入之洲際公路交流道入口之標誌。第一面指示標誌內容為該州際公路路線編號（495 號）、洲際公路之名稱（如長島快速公路，L.I.Expressway）及距離（1/2 mile）；第二面指示標誌內容為路線編號（495 號）、方位及通往地名（西往紐約市 WEST New York、東往河頭鎮 EAST Riverhead）、方向箭頭；第三面標誌位於交流道入口鼻端適當位置處，標示該入口之路線編號、方位、地名及箭頭；另交流道入口路側亦設有路線方位指示標誌，內容標示「路線方位+路線編號+行車方向箭頭」。目前國內高速公路指示標誌，因初期係由美國顧問公司參與設計，故相關指示標誌均參照美國 MUTCD 作法佈設，惟近日因應國人用路習慣及需求而有所修改，如高速公路指引標誌除採標示「路線標號+高速公路+行車方向箭頭」外，另本局於轄管省、縣道往高速公路交流道入口前之指引標誌則採標示「路線編號+交流道名稱+行車方向箭頭」。

高速公路指示標誌

交流道可通往之地名方向指示標誌

地名方向指示標誌及路線方位指示標誌

2.交流道入口後相關指示標誌

設於交流道入口匝道進入主線後外側，先佈設「路線方位+路線編號」之路線方位指示標誌；下游路側佈設行駛最低速限及最高速限標誌，惟採方形白底黑字牌面設計，以文字說明速限行駛管制內容（如 MINIMUN SPEED 40/SPEED LIMIT 55），與國內採圓形之禁制標誌呈現方式不同；至於地名里程標誌部分，因本州際公路交流道間距過短，故幾乎無設置地名里程標誌，僅在第 39 號交流道下游路側看到一面且係標示終點之地名里程「Riverhead 50」；另於交流道匯入前之主線外側，則佈設匝道匯入之標誌，採菱形黃底黑字設計，其可利用標示圖案面積較國內採行警告標誌系統之三角形狀大，且箭頭形狀較粗而較易辨識。

路線方位指示標誌

最高及最低行駛速限標誌

地名里程標誌

匝道匯入標誌

3.高速公路出口相關標誌

因 495 號州際公路屬連繫州內紐約曼哈頓與皇后區長島之橫向幹道，且每隔一英里至少有一個交流道出口，故在沿線各交流道出口預告標誌多標示路街名或銜接之公路系統名稱，並離交流道出口前 1 mile 或 3/4 mile 即開始佈設第一道出口預告標誌，接著佈設 1/2 mile 出口預告標誌，及出口前之「↗」出口預告標誌，惟 1/2 mile 之出口預告標誌在不同交流道出口前卻有採「RIGHT LANE」或「1/2 MILE」之不同作法；交流道編號標誌則採序號方式編號（另美國其他高速公路交流道亦有採里程數編號者），並將出口編號標誌附掛於出口預告標誌右上方（面向行車方向）或正上方兩種作法；出口鼻端則佈設「EXIT」標誌，並直接將交流道編號標示於標誌內。

目前國內高快速公路之出口預告標誌，除進入高雄、台北都會區採標示路街名外，餘均標示出口連絡道銜接交通需求較大之兩處地名，並依文字型或圖形化之設計，從出口前兩公里開始佈設「出口 2 公里」、「右線」（出口前一公里），「↗」（出口前適當位置），或「2000m」、「1000m」、「不標示里程」（出口前適當位置）；另出口預告標誌右上方（面向行車方向）附掛黃底黑字之「交流道名稱標誌」，標示該交流道名稱及整公里編號；至出口鼻端亦採佈設「出口」標誌，且係將交流道名稱標誌附掛於出口標誌右上方。

此外，對於是否提供下一處交流道出口地名相關資訊部分，發現除幾處鄰近交流道於出口門架會提供下一處交流道出口預告標誌外，其他行經之交流道並未提供下一處交流道相關訊息之情形，與國內目前高快速公路交流道出口多會提供下一處交流道出口地名資訊之佈設方式不同。

第 35 號交流道第一道出口預告標誌

第 35 號交流道第二道出口預告標誌

第 35 號交流道第 3 道出口預告標誌

第 35 號交流道出口標誌

第 26 號交流道第 1 道出口預告標誌

第 26 號交流道第 2 道出口預告標誌

另在出口車道數較多且出口資訊較複雜而需特別指定車道行駛之系統交流道部分，則亦有採標繪車道數之圖形化出口預告標誌，如第 31 號系統交流道（junction）出口係銜接 Cross Is Parkway 通往北向之白石橋（Whitestone Br）與通往南向之甘迺迪機場（Kennedy Airport）兩個地

點，並僅限小客車行駛；另交流道編號為「31N-S」，係指該同一處交流道出口有兩個車道分別通往不同方向之地點。

至於同一個交流道編號於主線有兩處出口者，則採「編號 A」、「編號 B」作分別，如第 22A、22B 號交流道；另交流道僅單邊有出口者，則於編號加上該出口方向，如第 17W 號交流道。

第 22A、22B 號交流道出口

第 17W 號交流道出口

4.高乘載專用車道相關標誌

在 495 號州際公路上，有規劃搭載 2 人以上、大客車、機車等車種之高乘載專用車道（HOV Lane）管制之交通管理方式，且於管制起點上游即開始預告，並設有標誌標示提供實施高乘載專用車道之交流道編號範圍（HOV LANE/TO EXIT 37 AND EAST）及車輛進出 HOV LANE 的路段範圍。另高乘載專用車道僅於週一至週五的上午 6-10 時及下午 3-8 時兩個時段進行管制。

HOV Lane 1 1/2mile 預告標誌

HOV Lane 1mile 預告標誌

HOV Lane 1/2 mile 預告標誌

HOV Lane 1600ft 預告標誌、適用車種與實施範圍告示牌

HOV Lane1600ft 預告標誌與適用車種告示牌

HOV Lane 車道指示標誌、禁止跨越與違規處罰起點告示牌

允許進出 HOV Lane 範圍之指示標誌

允許車輛駛進 HOV Lane 指示標誌+右側來車標誌

允許 HOV Lane 車輛駛離往出口指示標誌+左側來車標誌

5.雷達測速告示牌

與國內一樣為提醒駕駛人前方有測速照相取締, 495 號州際公路之處理方式係於最高速限標誌內加上「SPEED CHECKED BY RADAR」, 而國內則於最高速限標誌下方附掛「前方測速照相」之警告性告示牌。

6.匝道速限標誌

大多附掛於最後一道出口預告標誌門架側桿柱, 以黃底黑字方式標示出口「EXIT」及速限值。國內係於高（快）速公路出口匝道之最高速限標

誌下方附掛「匝道限速」文字附牌說明。

7.其他禁制性標誌

採白底黑字方式設置，用以告知用路人管制措施，與國內禁制性告示牌採紅底白字設計不同。

外側路肩僅供緊急停車標誌

商用車或拖車禁行高乘載專用車道或左側（內側）車道

大貨車及大客車禁行左側（內側）車道標誌

8.出口匝道封閉方式

在布魯克林橋上看到 278 號州際公路有面出口匝道封閉的作法，即直接在既有指示標誌面上斜貼一條「CLOSED」黃底黑字的反光貼紙。

9.資訊可變標誌

在紐約 495 號州際公路上，並未於每個交流道出口前設置資訊可變標誌，反觀在高速公路 VII 示範路線中，車輛駕駛人可透過車上設備接收即時路況資訊。

顯示交流道出口封閉資訊

配合 HOV LANE 所設置之 CMS

（二）市區街道

本屆 ITS 年會舉辦地點係位於紐約市曼哈頓區內，為美國東部哈德遜河下游的一座島嶼，亦為紐約市市中心所在。整個曼哈頓島 (Manhattan Island)，被東河（East River）、哈林河（Harlem River）與哈德遜河（Hudson River，即發生於今年台灣時間 1 月 16 日全美航空 A320 客機因受鳥擊而安全迫降的地點）所環繞，為紐約市金融、商業中心，亦為世界著名的時尚、藝術、歌劇、建築、教育等重鎮。

曼哈頓的街道區分為大道（Avenue）和街（Street）兩種，大道為南北向，由東向西依序編號（中間穿插幾條非編號的大道），而唯一一條斜穿過曼哈頓的路是百老匯大道（Broadway Avenue）；街則為東西向，由南往北依序編號，其中第五大道將曼哈頓分為東區和西區，「東」或「西」的名稱在東西走向的街道中使用，如東 27 街(East 27th Street)，西休斯頓街

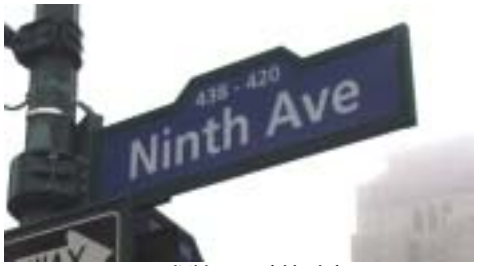
(West Houston Street)等。曼哈頓的街道，係以棋盤式規劃，惟自下城區（lower town）休斯頓街（Houston Street）以南的街道則非棋盤式走向，且未賦予編號而直接標示路名。

本屆 ITS 年會舉行場所 Jacob K.Javits 國際會議中心係位於紐約市的第 11 大道及 34 街路口，所以筆者選擇鄰近位於第 7 大道及 33 街路口的飯店住宿，往返會議中心約需 15 分鐘之步行時間。以下就行走於紐約市區街道所拍攝之交通相關設施照片提供淺見。

曼哈頓島之街道示意圖（引用 Jacob K.Javits 國際會議中心網站）

1.路街名標誌

紐約市區街道上看到的指示標誌以路街名標誌為主，每個路口均佈設完備而清楚，在市區只要知道目的地所在位於哪一條大道（Ave）或街（St），便可以尋每路口路街名標誌的指示前往。經現場勘查，紐約市區的路街名標誌材質有兩種形式，一為內照式牌面，另一種為反光式鋁鈑牌面；至牌面顏色則有採綠底白字、藍底白字或棕底白字設計，且部分牌面會加上「自由女神」圖案、建築物圖案，甚至於中國城附近的路街名標誌還附註中文雙語內容等，可說是非常多元而因地制宜。



內照式牌面（藍底）

反光式牌面（綠底）並有自由女神圖案

中國城附近採中文雙語標示

棕底白字標示且前方加註圖案

棕底白字路街名標誌

2.路線方位指示標誌

在紐約市第 12 大道通往紐約州 9A 號公路的路口，設有路線方位指示標誌，由上而下依序分別為「方位+編號+行車方向」。

另在紐約市區 34 街路口亦設有通往 495 號州際公路的路線方位指示標誌，因屬間接通達，故在路線方位指示標誌上方再加上「TO」牌面以示區別。

3.公車專用道標誌及標線

利用外側車道規劃公車專用道，並以彩色（紅棕色）舖面與一般車道作明顯區隔。標誌內容除說明為「BUS LANE」外，並說明管制時段（7AM-7PM）及星期天數（MON-FRI），惟又重複提醒用路人該車道屬「BUES ONLY」；至標線除與車道採單白實線繪設外，並於專用車道上標繪「BUS ONLY」。

4.緊急車輛車道標誌及標線

佈設於中間車道，當消防車、救護車等車輛需於緊急救難使用時，該車道需保持淨空。

5.自行車道相關標誌

6.注意行人標誌

採螢光黃底黑字設計，通常設於學校附近的行人穿越道，其夜間反光辨識效果佳。

7.單行道標誌

由於紐約市區街道屬棋盤式設計，適合在街道容量不足及市區不易拓寬的情形下，採單行道（ONE WAY）之交通管制措施，紐約市區街道路口即可普遍看到實施單行道管制之標誌。

8.其他標誌

在紐約市區可以看過一些想當然爾的標誌牌面，不厭其煩地告知用路人須遵守交通規則，如右轉車道必須右轉、等待行人號誌、紅燈停等。

9.施工相關設施

施工區之標誌採菱形橙底黑字設計，工區速限亦採橙底黑字標示，並設有 LED 標誌車顯示施工相關封閉車道資訊，惟工區終點之標誌採方形設計，並有交通錐、交通筒、預鑄混凝土護欄、拒馬等相關交維設施；另有告示用路人行經工區未減速時將罰兩倍的州法律規定。

另在紐約市下城區一處施工區上游，可看到一部 LED 資訊可變標誌車，顯示前方車道平移需減速之動態資訊。

二、標線（Marking）

1.分向限制線

紐約高速公路及市區道路之分向限制線均採黃色實線標繪，至車道線則採白虛線標繪，與國內相同。

紐約 495 號州際公路

紐約市區街道

2.行人穿越道線

紐約市區的行穿線間距及寬度不一，亦有採標繪兩條實線或在行穿線加白邊線等作法。

3.自行車道標線

有採楔形箭頭或一般箭頭導引騎乘自行車者行駛方向或橫跨馬路。


採楔形箭頭導引自行車路線


自行車及溜冰者共用車道圖案標字


採白虛線與一般車道區隔


人行道上之自行車道指引方式

4.高乘載專用車道標線

靠近專用車道上游先標繪一段雙白虛線，專用道起點開始標繪雙白實線與一般車道區隔，並於車道上標繪菱形圖案。另允許車輛單邊匯入或匯出路段，則於可跨越車道之一側採白虛線標繪。

HOV LANE 前 1/2 mile 預告時車道線仍維持正常

高乘載專用車道起點前 1600ft 時則開始出現雙白點虛線

進入 HOV LANE 之後採雙白實線與一般車道區隔

HOV LANE 採菱形標繪專用車道

HOV LANE 於可匯進之路段採單實單虛標線處理

三、號誌（Signal）

1.行人專用號誌

採「禁止通行手勢」與「行人」左右併排之兩種圖案燈號。由於紐約市區常見行人「紅燈」時仍跨越馬路，甚至交通警察在現場指揮交通時也逕闖紅燈，故可發現在行人專用號誌旁附掛「WAIT FOR WALK SIGNAL」牌面以提醒路人遵守號誌行走。另於中國城附近的號誌路口，亦有設置牌面說明如何配合號誌行走。

中國城號誌路口標誌

2.行車管制號誌

紐約市區的號誌多採直立式懸掛於車道上方，由上而下依序為紅、黃、綠三種顏色，另部分路口號誌與路燈採共桿設計。

3.自行車專用號誌

4.紅燈預警號誌

布魯克林橋西端進城處為一彎道，故在轉彎進入路口號誌前方設有菱形黃底黑字之「RED SIGNAL AHEAD」LED 警告標誌;另下方附掛一面「CYCLISTS STOP AHEAD」用以告示騎乘自行車之用路人在前方需停車。

四、交控設備

在曼哈頓街道可見與路燈或號誌共桿之交控設備，有採車道式及路側式佈設。

五、大眾運輸系統

1.地鐵（Subway）

紐約市的地鐵路網複雜，距網站資料顯示，紐約地鐵自 1904 年 10 月開始營運至今已有一百年的歷史，目前共有 468 個車站，其中 277 個地下車站，153 個高架車站，總長 230 英哩。地鐵上有廣播系統及路線圖，惟無台北捷運的 LED 顯示看板。另紐約地鐵分為快車（Express）及慢車（Local）兩種，差別在於快車只停靠大站，慢車則每站停靠；另筆者曾坐過一班前往下城區終站的地鐵，需在前一站下車改坐同列車的後幾節車廂始能繼續前行的經驗，或是聽說有些列車會臨時機動調整停靠站，惟紐約人好像也已思空見慣。

行動不便者之電梯地鐵入口

地鐵過卡入口處

地鐵月台

車廂及月台欄杆

2.公車

紐約 MTA 公車(Metrobus)依行駛不同行政區而各有不同路線編號，如曼哈頓區為 M、布魯克林區為 B、皇后區為 Q、布朗克斯區為 Bx、史泰登島區為 S 等英文字開頭搭配數字編號，而各路線在尖峰時刻也有分僅停大站的 Limited 快速公車。另 MTA 公車在上下班時間，還有所謂的快速通勤公車，路線編號以 X 開頭。根據網站顯示，平均每天有 5800 輛公車載著 2.01 萬人次的乘客，行走於 200 多條的慢車線及 301 條的快車線上。

六、街道家具（Street Furniture）

1.公車候車亭

紐約市街道的公車候車亭看板，提供作為廣告商業用途，至各公車之行駛路線相關資訊則由路旁靠近公車站牌之直立式簡易候車亭提供。

3.報紙販賣機

2.街道導覽圖

4.公用座椅

5.飲水機

中央公園旁之飲水機

伍、心得與建議

綜觀本屆 ITS 年會於紐約展示美國在推動市區街道與高速公路「車輛與道路設施整合系統（Vehicle-Infrastructure Integration, VII）」示範成果，透過車輛對車輛間（vehicle-to-vehicle）與車輛與路側（vehicle-to-roadside）通訊技術與服務，著實體驗到智慧型運輸系統對生活帶來的便利與進步，透過即時多元資訊充分的提供，節省車輛駕駛者尋找停車位的時間，以及選擇最佳行駛路徑而避開塞車之苦，進而減少車輛行駛或停等所排放之廢氣，達到節能減碳之目的。

本局從去（97）年初經行政院核准同意辦理「省道即時路況資料蒐集系統及維運計畫」共四年（97-100 年）期程經費，故從去年開始先從 6 條國道易壅塞路段之省道替代道路建置路側設備，即車輛偵測器（VD）與閉路電視攝影機（CCTV）共 76 組，並於建置完成後透過本局網站提供用路人上網點選觀看即時路況資訊（5 分鐘平均車流資料與即時影像畫面）。更為了提供本局管理省道未來交控發展之方向與策略，本局亦於去年成立省道交控之規劃設計案，並於去年底選出優勝廠商完成決標，預計民國 100 年前於省道一般路段及西濱快速公路（12 條東西向快速公路之交控系統由國道高速公路局建置與管理），依道路特性（例如易壅塞、易肇事路段，及城際、都會型、生活圈道路等），辦理省道即時路況交通資訊蒐集及控制系統工程，佈設路況資料收集設備（車輛偵測器與閉路電視攝影機）及資訊可變標誌等，並於本局 5 個轄區工程處成立交控中心，建置交通資訊蒐集系統及事件管理系統，完成交通資訊資料庫之分析與管理，整合本局既設及建置中相關交通控制系統設施，以省道路段平均每 10 公里設置一組車流偵測設備之密度為目標。（約 466 組 VD+CCTV、150 處 CMS、5 處交控中心）

未來本局 5 個交控中心，其功能主要有交通資訊收集系統、用路人資訊系統、隧道交通監視及控制系統，以及事件管理系統（例如：壅塞、事故、道路封閉、天候不良…等）。透過完善的即時路況資訊服務，提供民眾省道路網即時路況資訊（車流資料、路況影像）以利行前規劃，並在道路可能發生壅塞、事故等特殊情況時，即時發現並主動警示監視人員，以利機動採取適當之應變措施。

另與國道高速公路局及地方縣市政府交控中心，透過 XML 格式進行資訊交換，建立交通管理系統資料交換平台，以達成即時交通資料收集與資訊發布；並就緊急事件管理與應變措施，建置事件自動偵測系統（如長 1 公里以上之隧道）。

此外，省道路側所收集之交通資訊，亦可提供車輛之車載機接收公路即時資訊，作為用路人於行程中選擇最適路徑參考。另透過省道普遍建置之路側車流偵測設備，期收集較完整之即時交通資料以進行路網旅行時間預測。

惟省道係屬銜接國道與都市地方道路之幹線路廊，多為開放性公路系統，容易受外在環境因素影響，無國道完全封閉路權之交通控制，亦無都市街道之號誌化路網管理，但卻也是不可或缺的一個環節。而省道車輛偵測器之佈設地點，將決定所收集之交通資料是否具代表性與正確性，故本局在未來佈設車輛偵測器時，將商請技術顧問公司召開專家學者座談會以吸取各方專業經驗與建議，並納入後續建置車輛偵測器之佈設原則。另未來省道 ITS 將發展到何種程度，而交控中心又該如何定位，是否兼負緊急應變中心功能及一天 24 小時運作等，亦將是本局從公路建設邁向先進式交通管理服務（ATMS）所需面臨的課題。

附錄一：大會討論議程表

SATURDAY, NOVEMBER 15	
8:00 A.M. – 5:00 P.M.	Delegate and Exhibitor Registration
9:00 A.M. – 5:00 P.M.	Traveller Information Services Association Information Day
SUNDAY, NOVEMBER 16	
8:00 A.M. – 5:00 P.M.	ITS Systems Engineering Around the World: Delivering High-Quality Products on Time and on Budget
8:00 A.M. – 5:00 P.M.	IBEC Workshop: Vehicle Infrastructure Integration/Vehicle Infrastructure Cooperation: Dream or Reality and How to Tell the Difference – A Workshop in Four Parts
8:00 A.M. – 6:00 P.M.	Delegate and Exhibitor Registration
12:00 P.M. – 5:00 P.M.	ITS America's State Chapters Council Meeting and Chapter Strengthening Workshop
5:00 P.M. – 6:00 P.M.	Opening Ceremony Reception
6:00 P.M. – 8:00 P.M.	Opening Ceremony "An Evening of Broadway" – Sponsored by: Mercedes Benz
MONDAY, NOVEMBER 17	
7:30 A.M. – 6:00 P.M.	Delegate and Exhibitor Registration
8:00 A.M. – 5:00 P.M.	City Streets VII Demonstration & Freeway VII Demonstration
8:30 A.M. – 10:00 A.M.	ITS America Business Meeting & Best of ITS Awards
9:00 A.M. – 11:00 A.M.	Grand Central Terminal Revitalization Technical Tour
9:00 A.M. – 11:30 A.M.	New York City Joint Traffic Transportation Management Center Technical Tour
10:00 A.M. – 3:00 P.M.	11th Avenue Theater Demonstrations
10:30 A.M. – 12:00 P.M.	Ministerial Plenary: Transportation Policy for a Better World
12:00 P.M. – 2:00 P.M.	Grand Central Terminal Revitalization Technical Tour
12:30 P.M. – 1:30 P.M.	Lunch in the Exhibit Hall
12:30 P.M. – 6:30 P.M.	VII Transportation Management Center of the Future
12:30 P.M. – 6:30 P.M.	EXHIBIT HALL OPEN
1:00 P.M. – 3:30 P.M.	New York City Joint Traffic Transportation Management Center Technical Tour
1:00 P.M. – 4:00 P.M.	Lower Manhattan Rebuilds Technical Tour
1:15 P.M. – 4:00 P.M.	TRANSCOM Communications Center Technical Tour
1:30 P.M. – 3:00 P.M.	11th Avenue Theater Show
1:30 P.M. – 3:00 P.M.	■ ES01: Advancing the Economy Through Cooperative Rail Freight Transport □ SS01: Next Generation Digital Maps □ SS02: Performance-Based Decision Making □ SS03: ICT for Cooperative, Energy-Efficient Traffic Management □ SS04: Congestion Pricing and Urban Mobility □ SS05: Intersection Safety Through Vehicle-Infrastructure Cooperation ■ TS01: Regional/National Traveler Information ■ TS02: Changes in the World's Navigation Systems ■ TS03: Probe Data Collection: Part 1 ■ TS04: Traffic Simulation: Part 1 ■ TS05: Evaluation of ITS Systems: Part 1 ■ TS06: ITS Systems and Strategies in New York City ■ TS07: Detection and Information Systems ■ TS08: Using Technology to Locate Parking in Urban Areas ■ TS09: Modern Traffic Management ■ TS10: VII Tests and Effects ■ TS11: Vehicle Safety Systems for Highway Applications ■ TS12: Speed Management and Enforcement ■ SC01: Public Transport Operations ■ SC02: Collision Avoidance: Part 1 ■ IBEC01: Using ITS to Manage Travel During Mega-Events: Lessons from Experience ■ AM01: NYCWiN: New York City Secure Wireless Network ■ AM02: The State of Transportation in Your District ■ AM03: Effective Institutional Architecture for ITS in the 21st Century ■ AM04: Transit Traveler Information Systems: Deployment and Developments in North America ■ AM05: National ITS Architecture and Standards: Evolution and Support
1:30 P.M. – 5:00 P.M.	Interactive Session 1
3:30 P.M. – 5:00 P.M.	■ ES02: Financing ITS and the Transport Infrastructure: Policy for Mobility □ SS06: The Role of ITS Technologies in Energy Conservation and Emissions Reductions □ SS07: Active Management Strategies for Freeway Operations □ SS08: Customer Expectations for Public Transport Information Services: Can We Deliver? □ SS09: Regional ITS Progress in Asia Pacific Region: Part 1 □ SS10: Consistent Traffic and Traveler Information Applications and Services Across Technologies ■ TS13: Freight ■ TS14: Traffic Control Planning and Operation ■ TS15: Saving Lives Through Collision Warning and Avoidance Systems ■ TS16: Traveler Information: Part 1 ■ TS17: Transit Signal Priority ■ TS18: Data Collection Archiving and Processing ■ TS19: Smart Design and Infrastructure ■ TS20: Ecodriving: Part 1 ■ TS21: Lessons Learned from Electronic Payment Systems: General Navigation Satellite Systems ■ TS22: Emerging Technologies for Pedestrians and Cyclists: Part 1 ■ TS23: Local Goals Master Plans ■ TS24: Incident Detection and Management ■ SC03: VII Infrastructure ■ SC04: Congestion Management ■ IBEC02: Is Technology the Answer to Reducing Congestion and Greenhouse Gases? ■ AM06: International Activities of Key U.S. Organizations: FTA, FHWA, ITSA, USCS ■ AM07: Meeting the Future Mobility Needs of an Aging Population ■ AM08: Interoperability, Integration, and Cooperation on ITS Applications: Part 1 ■ AM09: Aftermarket Integration of Radio and Safety Equipment for Vehicles ■ AM10: Session to be Announced
5:00 P.M. – 6:30 P.M.	Welcome Reception and First-Time Delegate Orientation in Exhibit Hall

TUESDAY, NOVEMBER 18

8:00 A.M. – 9:45 A.M.	Lincoln Tunnel Exclusive Bus Lane and Port Authority Bus Terminal Technical Tour
8:00 A.M. – 5:00 P.M.	City Streets VII Demonstration & Freeway VII Demonstration
8:00 A.M. – 5:00 P.M.	Delegate and Exhibitor Registration
8:30 A.M. – 10:00 A.M.	■ ES03: Telematics Potential: Building a Telematics Community ■ ES04: Global eSafety □ SS11: ITS Research and Development Collaboration □ SS12: Evaluating the Effectiveness of Active Safety Systems □ SS13: Progress of Cooperative Systems in Different Regions □ SS14: Software-Defined Radio for ITS □ SS15: Carbon Foot-Printing ■ TS25: Traveler Information and Traffic Prediction: Part 1 ■ TS26: Transit Traveler Information: Part 1 ■ TS27: Speed Management Emphasis on Behavior ■ TS28: ITS Architecture – National Plant Management ■ TS29: Ecodriving: Part 2 ■ TS30: Distance-Based Charging ■ TS31: Technologies for Vulnerable Users: Part 1 ■ TS32: Communications for VII: Part 1 ■ TS33: ITS Financing ■ TS34: Weather Systems: Part 1 □ SC05: Traffic Surveillance □ SC06: Navigation Systems and Real-Time Content □ SC07: Social, Economic, and Special Needs Aspects of Designing Traveler Information Systems ■ PAITS01: Project ITS Evaluation: The Latin American Perspective ■ AM11: International ITS Safety and Security Programs ■ AM12: 700 MHz: What Kind of Wireless Communication Networks Are Available for Use Today? ■ AM13: Innovations in Transferring Knowledge
8:30 A.M. –12:00 P.M.	Commercial Vehicle and Freight Mobility (CVFM) Forum: Fleet First: What Will be the Future for Commercial VII? Public Transportation (PT) Forum: Showcasing Transit ITS in North America Traveler Information (INFO) and Transportation Systems Operations and Planning (TSOP) Forums: Data, Data, Everywhere: Time to Stop and Think About How Data, VII, and Operations Fit Together
9:00 A.M. – 11:00 A.M.	Grand Central Terminal Revitalization Technical Tour
9:00 A.M. – 11:30 A.M.	New York City Joint Traffic Transportation Management Center Technical Tour
9:00 A.M. – 1:00 P.M.	New Jersey Statewide Traffic Management Center in Woodbridge Technical Tour
10:00 A.M. – 1:30 P.M.	Interactive Session 2
10:00 A.M. – 3:00 P.M.	11th Avenue Theater Demonstrations
10:00 A.M. – 6:00 P.M.	EXHIBIT HALL OPEN
10:30 A.M. – 12:00 P.M.	■ ES05: Cooperative Systems for Saving Lives ■ ES06: Building Momentum for ITS Deployment – What Does the Future Hold? □ SS16: Technology for User Fees □ SS17: Functional Safety Requirement Standards for ITS □ SS18: Satellite Communication at the Service of ITS □ SS19: Electronic Speed Enforcement/Control ■ TS35: ITS Architecture Technical Aspects ■ TS36: Sustainable Transportation ■ TS37: Road Pricing – Policy and Strategy ■ TS38: Technologies for Vulnerable Users: Part 2 ■ TS39: VII Safety Systems: Part 1 ■ TS40: Vehicle to Vehicle Communications ■ TS41: CCTV Applications ■ TS42: Operational Performance ■ TS43: Disaster Management – Planning and Response: Part 1 ■ TS44: Data Security and Privacy □ SC08: Important Aspects of Driver Assistance □ SC09: Travel Time Information Systems □ SC10: Real-Time Content and Location-Based Services ■ PAITS02: ITS in Urban Traffic: The Americas Experience ■ AM14: ITS and the Next Surface Transportation Act: Part 1: Congressional, U.S. Department of Transportation, and Industry Perspectives ■ AM15: Human Machine Interface for Vehicle Infrastructure Integration ■ AM16: ITS and Public Safety – What-ifs? ■ AM17: Architecture and Standards – The U.S. Department of Transportation Update Report
12:00 P.M. – 1:30 P.M.	VII Transportation Management Center of the Future
12:00 P.M. – 1:30 P.M.	Lunch in the Exhibit Hall – Sponsored by: Quixote
12:00 P.M. – 2:00 P.M.	Grand Central Terminal Revitalization Technical Tour
1:00 P.M. – 3:30 P.M.	New York City Joint Traffic Transportation Management Center Technical Tour
1:00 P.M. – 5:00 P.M.	New York City Office of Emergency Management Technical Tour and Inter-Agency Incident Demonstration
1:30 P.M. – 3:00 P.M.	11th Avenue Theater Show
1:30 P.M. – 3:00 P.M.	□ SS20: Freight Transport Agenda □ SS21: Best Practices for Clearing and Managing Incidents and Breakdowns □ SS22: Expanding the ITS World Through Internet Technology □ SS23: Overcoming Barriers to ITS Deployment □ SS24: Accident Causation and Impact Assessment □ SS25: Safe and Efficient Use of Nomadic Devices ■ TS45: Transit Traveler Information: Part 2 ■ TS46: Systems Engineering: Part 1 ■ TS47: Traffic Management for Fuel Efficiency ■ TS48: Congestion Charging: Part 1 ■ TS49: VII Deployment Issues ■ TS50: ITS Communications: Part 1 ■ TS51: Design and Deployment for TMCs and Communications Systems ■ TS52: Urban Operations ■ TS53: Continuing Education for ITS Professionals: University and Public Sector Activities ■ TS54: Evaluation of ITS Systems: Part 2 ■ TS55: User Needs – Models and Behavior □ SC11: Travel Time Estimation Procedures: Part 1 □ SC12: Measuring Driver Behavior □ SC13: Infrastructure and Traffic Management Modeling and Simulation: Part 1 ■ PAITS03: Public Transportation as a Challenge and Success for Latin America ■ AM18: Annual Meeting Plenary Session: U.S. Department of Transportation Programs Update ■ AM19: Vehicle Communications ■ AM20: Moving to Interoperable Emergency Communications ■ AM21: Non-Urban VII
2:00 P.M. – 5:30 P.M.	Interactive Session 3
3:30 P.M. – 5:00 P.M.	■ ES07: Addressing Non-Technical Barriers to Cooperative ITS: A Look at the Issues ■ ES08: Strategic Implementation of Next Generation Communications for ITS □ SS26: Electric Drive: Linking Vehicles to the Grid □ SS27: Smart Parking Management: Trucks and Transit □ SS28: Development of Communications Technologies for Vehicle Safety □ SS29: Public Transport Information Services □ SS30: Integrated Systems Management: Focus on the Users □ SS31: Improving Traffic Information and Traffic Management by Monitoring and Predicting Travel Time and Traffic Intensity ■ TS56: Systems Engineering: Part 2 ■ TS57: ITS and the Environment ■ TS58: Automated Traffic Enforcement Regulations and Technologies ■ TS59: Weather Systems: Part 2 ■ TS60: Electronic Toll Collection ■ TS61: General Navigation Satellite System: Applications for Congestion Pricing and Toll Collection

continued on next page

3:30 P.M. – 5:00 P.M.	■ TS62: ITS Communications: Part 2 ■ TS63: Communications for VII: Part 2 ■ TS64: Operation and Safety of Tunnels ■ TS65: Operational Planning ■ TS66: Disaster Management – Planning and Response: Part 2 ■ TS67: Procurement of ITS Systems	■ SC14: Commercial Vehicle Safety: Part 1 ■ SC15: Infrastructure and Traffic Management Modeling and Simulation: Part 2 ■ AM22: Intentions and Realities of ITS Public Safety Applications ■ AM23: ITS and the Next Surface Transportation Act: Part 2: A Look Forward	■ AM24: Policy Issues Relating to Integration of ITS Projects ■ AM25: The "Tipping Point": How Do We Convince State DOTs to Invest in ITS Deployments?
5:30 P.M. – 7:30 P.M.	International Benefits, Evaluation, and Costs (IBEC) Working Group Reception		
5:30 P.M. – 8:00 P.M.	International Reception at New York Transit Museum hosted by ITS New York		
6:00 P.M. – 9:00 P.M.	Grand Central Terminal Reception hosted by ITS Connecticut		
WEDNESDAY, NOVEMBER 19			
8:00 A.M. – 10:00 A.M.	Safety Plenary: Looking at Transportation Safety in New Ways		
8:00 A.M. – 5:00 P.M.	City Streets VII Demonstration & Freeway VII Demonstration		
8:00 A.M. – 5:00 P.M.	Delegate and Exhibitor Registration		
9:00 A.M. – 11:00 A.M.	Grand Central Terminal Revitalization Technical Tour		
9:00 A.M. – 1:00 P.M.	New Jersey Statewide Traffic Management Center in Woodbridge Technical Tour		
10:00 A.M. – 3:00 P.M.	11th Avenue Theater Demonstrations		
10:00 A.M. – 6:00 P.M.	EXHIBIT HALL OPEN		
10:30 A.M. – 12:00 P.M.	■ ES09: Public Transport Policy □ SS32: Driving Profits for the Freight Business Through Sustainable Logistics □ SS33: The Social Implications of ITS Data Collection □ SS34: ITS Cooperation and Integration in Trade Corridors Leading to Marine, Airport, and Border Crossing Gateways □ SS35: Innovation in the Use of DSRC/RFID □ SS36: Will CALM Save Lives? The Proof Is in the Implementation □ SS37: Status Report on Field Operational Test Programs □ SS38: ITS as a Critical Infrastructure: Improving Security with ITS	■ TS68: Traffic Signal Control Strategies ■ TS69: VII Safety Systems: Part 2 ■ TS70: Traveler Information: Part 2 ■ TS71: Multimodal Public Transport ITS ■ TS72: Congestion Charging: Part 2 ■ TS73: ITS System Planning and Development ■ TS74: Emission Reduction and Vehicle Technology ■ TS75: VII Technology: Part 1 ■ TS76: Variable Message Signs ■ TS77: Inter-Agency Coordination in Traffic/Incident Management ■ TS78: Disaster Management and Information Management ■ TS79: Innovative ITS Contracting Procedures	■ SC16: Collision Avoidance: Part 2 ■ SC17: Commercial Vehicle Safety: Part 2 ■ AM26: Session to be Announced ■ AM27: Congestion Mitigation Program Status Report ■ AM28: Experiences/Developments with ITS in Public Transportation ■ AM29: Surface Transportation Weather Information Systems and Applications
10:30 A.M. – 6:00 P.M.	VII Transportation Management Center of the Future		
12:00 P.M. – 1:30 P.M.	Lunch in the Exhibit Hall		
12:00 P.M. – 2:00 P.M.	Grand Central Terminal Revitalization Technical Tour		
1:00 P.M. – 4:00 P.M.	New York State Department of Transportation INFORM Traffic Management Center Technical Tour		
1:30 P.M. – 3:00 P.M.	11th Avenue Theater Show		
1:30 P.M. – 3:00 P.M.	■ ES10: The Politics and Sociology of ITS Communications ■ ES11: System Management Policy for Successful Transport Corridors □ SS39: Cooperative Vehicle-Infrastructure Systems for Traffic Safety □ SS40: Innovations in Public Transport ITS for Mobility-Impaired Persons □ SS41: Standardizing Map Data Delivery to Driver Assistance Systems: Status and Challenges Ahead □ SS42: Mobility in Cities	■ TS80: Commercial Vehicle Enforcement Strategies ■ TS81: Integrated Corridor Management ■ TS82: Adaptive Traffic Signal Control ■ TS83: E-call and Automatic Crash Notification ■ TS84: Driver Behavior Analysis ■ TS85: Traveler Information: Part 3 ■ TS86: Paratransit Systems ■ TS87: Route Guidance and Navigation ■ TS88: Electronic Toll and Pricing Systems: Privacy and Security Issues	■ SC18: Pricing Policy and Payment Systems ■ SC19: Technologies That Enable Operations ■ PAITS04: Chilean Urban Road Concession System ■ AM30: U.S. Commercial Vehicle Operations Spotlight ■ AM31: Rural ITS: Practical ITS Solutions ■ AM32: Traffic Management Systems in New York City ■ AM33: Filling the Data Gap: Part 1: Probe and Floating Car Data Applications
1:30 P.M. – 5:00 P.M.	Automotive Technologies and Consumer Electronics (ATCE) Forum: Vehicle Communications Demonstration Homeland Security and Public Safety (HSPS) Forum: ITS for Transportation and First Responder Safety Policy, Evaluation, and Advocacy (PEA) Forum: Global Climate Change Forecast for the National Transportation System: A "Perfect Storm" Forming Research, Integration, Training, and Education (RITE) Forum: "ITS and Sustainability"		
1:30 P.M. – 5:00 P.M.	Interactive Session 4		
2:00 P.M. – 5:00 P.M.	Lower Manhattan Rebuilds Technical Tour		
3:30 P.M. – 5:00 P.M.	■ ES12: Overcoming Barriers to ITS Deployment ■ ES13: PIARC/FISITA Task Force on Intelligent Cooperative Systems □ SS43: Vehicle Automation □ SS44: Regional ITS Progress in Asia Pacific Region: Part 2 □ SS45: Automated Driving of Heavy Trucks in Dedicated Truck Lanes □ SS46: Passenger Information in Rail Transport	■ TS89: Effective Weigh-in-Motion ■ TS90: Intermodal Freight: Part 1 ■ TS91: Incident Detection for Road Traffic Management ■ TS92: Integrated Sensors, Software, and Platforms for Traffic Signal Control ■ TS93: Evaluation of Vehicle Safety Applications ■ TS94: Can Anything be Done for Lack of Driver Attentiveness? *continued on next page*	■ TS95: Traveler Information: Part 4 ■ TS96: Public Transport Technology ■ TS97: Human Vehicle Interface and Human Factors

3:30 P.M. – 5:00 P.M.	SC20: Incident Detection and Management SC21: Speed Management PAITS05: ITS on Latin American Highways	AM34: Congestion and Rerouting Information for Commercial Vehicles AM35: Vehicle-Based Safety and Guidance Technologies for Transit Buses	AM36: Filling the Data Gap: Part 2: Multimodal Management and Operations AM37: Real-life Data Integration Applications Across Jurisdictions
6:00 P.M. – 9:00 P.M.	Night in Times Square at ESPN Zone		
THURSDAY, NOVEMBER 20			
8:00 A.M. – 11:30 A.M.	Hudson Valley Traffic Management Center Technical Tour		
8:00 A.M. – 2:00 P.M.	City Streets VII Demonstration & Freeway VII Demonstration		
8:00 A.M. – 3:30 P.M.	Delegate and Exhibitor Registration		
8:30 A.M. – 10:00 A.M.	ES14: Harmonizing Vehicle Regulation and the Effect on ITS ES15: Environmental and Climate Challenges for ITS SS47: Benchmarking Urban Transport Systems Performance SS48: Communication Technologies for ITS SS49: Cooperative Systems in Regional Traffic Management Activities SS50: A Cross-Border Strategic Alliance to Enhance Mobility SS51: E-payment: A Building Block for a Sustainable Road Transport System	TS98: Monitoring and Security of Hazardous Goods Movement TS99: Intermodal Freight: Part 2 TS100: Corridor Monitoring and Management TS101: Traffic Control Innovations TS102: Advances in Vehicle-Based Sensors TS103: How Technology Addresses Driver Drowsiness TS104: Traffic Information TS105: Probe Data Collection: Part 2 TS106: ITS Standards TS107: Modal Environment Studies TS108: Electronic Pricing and Toll Systems: Policy and Strategy	TS109: VII Technology: Part 2 SC22: Probe Data Collection SC23: ISC System Evaluations IBEC03: The Results and Impact of Road Pricing AM38: U.S. Department of Transportation VII Initiative Update AM39: Vehicle/Infrastructure Coordination or Integration for Transit Buses AM40: Where Are We Today in Adaptive Traffic Controls? AM41: Recent Advances in Traveler Information Technology
9:00 A.M. – 11:00 A.M.	Grand Central Terminal Revitalization Technical Tour		
9:00 A.M. – 12:00 P.M.	New York State Department of Transportation INFORM Traffic Management Center Technical Tour		
9:30 A.M. – 1:00 P.M.	Interactive Session 5		
9:30 A.M. – 2:00 P.M.	EXHIBIT HALL OPEN		
10:00 A.M. – 2:00 P.M.	VII Transportation Management Center of the Future		
10:00 A.M. – 3:00 P.M.	11th Avenue Theater Demonstrations		
10:30 A.M. – 12:00 P.M.	ES16: Successes and Challenges for Managing Market-Based Transport Demand ES17: ITS Vision 2030 SS52: Innovative Congestion Mitigation Efforts in Major Urban Areas SS53: Next Generation Telematics SS54: Global Safety Initiatives SS55: Regional ITS Strategic Plans TS110: Truck Parking Systems TS111: Regional Level Local Goods Movement TS112: Traffic Monitoring	TS113: Social and Economic Impacts on Vehicle Safety Systems TS114: Traveler Information and Traffic Prediction: Part 2 TS115: ITS Architecture: U.S.-Based Experience TS116: Environmental Policy TS117: Emerging Technologies for Pedestrians and Cyclists: Part 2 TS118: VII Safety Systems: Part 3 TS119: Monitoring Information TS120: Truck Tolling Applications TS121: Communications for TMCs	SC24: Workforce and Training in ISC SC25: Vehicle to Vehicle Communications SC26: Traffic Signals IBEC04: Safe Freight Transport AM42: Aging Infrastructure: What's Needed to Enable and Deploy Smart Infrastructure? AM43: Research Update – Domestic and International AM44: ITS for Rural Transit AM45: Innovative ITS Programs Across the U.S.
12:00 P.M. – 1:30 P.M.	Lunch in the Exhibit Hall		
12:00 P.M. – 2:00 P.M.	Grand Central Terminal Revitalization Technical Tour		
1:30 P.M. – 3:00 P.M.	11th Avenue Theater Show		
1:30 P.M. – 3:00 P.M.	SS56: Opportunities for International Cooperation on Cooperative Vehicle-Infrastructure Systems SS57: Automatic Crash Notification SS58: Safety and Security in Daily Life SS59: The New ITS Generation TS122: Freeway Management TS123: Traffic Simulation: Part 2 TS124: Technology to Improve Motorcycle Safety TS125: Traveler Information and Traffic Prediction: Part 3 TS126: Public Transport Fleet Management: New Technologies	TS127: Digital Mapping for Safety Applications TS128: Floating Car Data Collection for Incident Detection TS129: VII Safety Systems: Part 4 TS130: Demand Management – National Initiatives TS131: How Vehicle Telematics Changes Society TS132: Payment Systems Using DSRC and RFID Technology TS133: ITS Infrastructure TS134: Vehicle Safety Systems for Rural and Urban Applications TS135: Evaluation of ITS Systems: Part 3	TS136: Local Goods Regional Level TS137: Coordination and Use of CCTV SC27: Traffic Control and Management SC28: Travel Time Estimation Procedures: Part 2 SC29: Non-Motorized and Motorized Safety Impacts and Interventions SC30: VII Communications AM46: Interoperability, Integration, and Cooperation on ITS Applications: Part 2 AM47: Progress of Vehicle Infrastructure Integration (VII) Efforts AM48: Truck Parking AM49: Rural ITS Showcase
3:30 P.M. – 5:00 P.M.	Closing Plenary: ITS and Sustainable Mobility		

附錄二：參展廠商名單表

3rd Dimension	A-D Technologies
AAEON Systems, Inc.	AARP
ACS	ACS-Lite
Actelis Networks	Activu Corporation
Adaptive Micro Systems Inc.	AECOM
AEG MIS GmbH	Aesys Inc.
Airaya Corporation	Aisin AW Co., Ltd.
Aisin Seiki Co. Ltd	Alcatel-Lucent
Aldis Inc.	Alpha Technologies Ltd.
American Signal Company	American Traffic Solutions
Applanix Corporation	APTA
ASIM/Xtralis	ASTI Transportation Systems, Inc.
Atlantic Scientific Corporation	Atlas Traffic Management Systems LLC
Aventura Technologies	Barco
Berkeley Transportation Systems	Booz Allen Hamilton
Bosch Security Systems	Boschung America, LLC
Brintex	Byers Engineering
California PATH	Camera Lowering Systems
CASE Systems, Inc.	Cellint Traffic Solutions
Central Nippon Expressway Company Limited (NEXCO Central)	Christie Digital Systems
Chrysler	CITILOG
CitySync	CLARY Corporation
Clever Devices Ltd.	Cohu Electronics Division
Communications Network	Connekt/ITS Netherlands
Connekt/ITS Netherlands: ARS T&TT	Connekt/ITS Netherlands: DHV
Connekt/ITS Netherlands: Dutch Ministry of Transport	Connekt/ITS Netherlands: Flanders Investment and Trade
Connekt/ITS Netherlands: IBM Netherlands	Connekt/ITS Netherlands: Intertraffic Worldwide Exhibitions
Connekt/ITS Netherlands: Siemens Netherlands	Connekt/ITS Netherlands: Skymeter Corporation
Connekt/ITS Netherlands: Telematics Cluster / ITS Belgium	Connekt/ITS Netherlands: TNO Mobility
Connekt/ITS Netherlands: Vialis	Consensus Systems
Continental	Control Specialists Company

Core Tec Communications	Cornet Technology, Inc.
Coval Systems, Inc.	Daktronics, Inc.
Data Display USA	Davin Optronics, Inc.
Delcan Corporation	Delta Digital Video
DENSO	Digital Traffic Systems Inc.
Dunn Engineering Associates, PC	EarthCam, Inc.
Eberle Design Inc.	Ecology & Environment, Inc.
Econolite Control Products Inc.	Effective Control Transport Inc.
ELECTRONIC TRAFIC, S.A. - GRUPO ETRA	Emerson Network Power
ENCOM Wireless Data Solutions, Inc.	ERTICO – ITS Europe
ESRI Inc.	EtherWAN Systems Inc.
FIA Foundation - eSafetyAware	Fiber Connections, Inc.
Florida Department of Transportation	Fortran Traffic Systems, Ltd.
Forum 8 Co., Ltd.	Fujitsu Limited
Fujitsu Ten Limited	General Dynamics
GeoDecisions	GEWI
Global Traffic Technologies	Hellman Electric
Hi-Tech Solutions	Hitachi Ltd.
HNTB	Honda Motor Co., Ltd.
I-95 Corridor Coalition	Ibeo Automobile Sensor
Icone Products LLC	ICx Transportation Group
Image Sensing Systems, Inc. / EIS	Imago
iMPath Networks, Inc.	IMSA International Municipal Signal Assn.
Inex/Zamir	Intelligent Devices, Inc.
Intelligent Mechatronic Systems	International Fiber Systems, Inc
International Road Dynamics (IRD)	InTranS Group, Inc.
Iteris, Inc.	ITS America's TMC of the Future
ITS Australia	ITS Austria: ANTTS Telematics Network
ITS Austria: Austriatech GMBH	ITS Austria: EFKON AG
ITS Austria: ITS Vienna Region	ITS Austria: Swarco Central Services GmbH
ITS Congress Association	ITS Florida
ITS France	ITS France: ASFA
ITS France: Cityway	ITS France: Egis Mobilité
ITS France: French Ministry of Ecology, Energy, Sustainable Development and	ITS France: i-Trans

Spatial Planning	
ITS France: ITS Bretagne	ITS France: Mayalys
ITS France: NEAVIA Technologies	ITS France: Nomadic Solutions
ITS France: Nomadic Solutions	ITS France: Systra
ITS in Scandinavia/Stockholm 2009	ITS in Scandinavia/Stockholm 2009: Bombardier
ITS in Scandinavia/Stockholm 2009: City of Stockholm	ITS in Scandinavia/Stockholm 2009: GreenCargo
ITS in Scandinavia/Stockholm 2009: Info 24	ITS in Scandinavia/Stockholm 2009: ITS Denmark
ITS in Scandinavia/Stockholm 2009: ITS Finland	ITS in Scandinavia/Stockholm 2009: ITS Norway
ITS in Scandinavia/Stockholm 2009: ITS Sweden	ITS in Scandinavia/Stockholm 2009: ITS World Congress
ITS in Scandinavia/Stockholm 2009: KAPSCH	ITS in Scandinavia/Stockholm 2009: Logica
ITS in Scandinavia/Stockholm 2009: National ITS Post Graduate School	ITS in Scandinavia/Stockholm 2009: NetPort Karlshamn
ITS in Scandinavia/Stockholm 2009: Norwegian Public Roads Administration (NPRA)	ITS in Scandinavia/Stockholm 2009: Q-Free ASA
ITS in Scandinavia/Stockholm 2009: SAAB	ITS in Scandinavia/Stockholm 2009: SCANIA
ITS in Scandinavia/Stockholm 2009: SENSYS	ITS in Scandinavia/Stockholm 2009: SINTEF
ITS in Scandinavia/Stockholm 2009: Sweco	ITS in Scandinavia/Stockholm 2009: Swedish National Rail Administration
ITS in Scandinavia/Stockholm 2009: Swedish Road Administration	ITS in Scandinavia/Stockholm 2009: Vinnova
ITS in Scandinavia/Stockholm 2009: Volvo	ITS in Scandinavia/Stockholm 2009: WSP Group
ITS International	ITS Italy
ITS Italy: ATAC	ITS Italy: Gruppo Elda Ingegneria
ITS Italy: Mizar	ITS Italy: Powersoft
ITS Italy: Sodi Scientifica	ITS Japan
ITS Korea	ITS Spain
ITS State Chapters	ITS State Chapters: ITS Alaska
ITS State Chapters: ITS Maryland	ITS State Chapters: ITS Michigan

ITS State Chapters: ITS Midwest	ITS State Chapters: ITS Minnesota
ITS State Chapters: ITS Tennessee	ITS State Chapters: ITS Texas
ITS UK	
ITS France: Nomadic Solutions	ITS France: Systra
ITS in Scandinavia/Stockholm 2009	ITS in Scandinavia/Stockholm 2009: Bombardier
ITS in Scandinavia/Stockholm 2009: City of Stockholm	ITS in Scandinavia/Stockholm 2009: GreenCargo
ITS in Scandinavia/Stockholm 2009: Info 24	ITS in Scandinavia/Stockholm 2009: ITS Denmark
ITS in Scandinavia/Stockholm 2009: ITS Finland	ITS in Scandinavia/Stockholm 2009: ITS Norway
ITS in Scandinavia/Stockholm 2009: ITS Sweden	ITS in Scandinavia/Stockholm 2009: ITS World Congress
ITS in Scandinavia/Stockholm 2009: ITS World Congress	ITS in Scandinavia/Stockholm 2009: KAPSCH
ITS in Scandinavia/Stockholm 2009: Logica	ITS in Scandinavia/Stockholm 2009: National ITS Post Graduate School
ITS in Scandinavia/Stockholm 2009: NetPort Karlshamn	ITS in Scandinavia/Stockholm 2009: Norwegian Public Roads Administration (NPRA)
ITS in Scandinavia/Stockholm 2009: Q-Free ASA	ITS in Scandinavia/Stockholm 2009: SAAB
ITS in Scandinavia/Stockholm 2009: SCANIA	ITS in Scandinavia/Stockholm 2009: SENSYS
ITS in Scandinavia/Stockholm 2009: SINTEF	ITS in Scandinavia/Stockholm 2009: Sweco
ITS in Scandinavia/Stockholm 2009: Swedish National Rail Administration	ITS in Scandinavia/Stockholm 2009: Swedish Road Administration
ITS in Scandinavia/Stockholm 2009: Vinnova	ITS in Scandinavia/Stockholm 2009: Volvo
ITS in Scandinavia/Stockholm 2009: WSP Group	ITS International
ITS Italy	ITS Italy: ATAC
ITS Italy: Gruppo Elda Ingegneria	ITS Italy: Mizar
ITS Italy: Powersoft	ITS Italy: Sodi Scientifica
ITS Japan	ITS Korea
ITS Spain	ITS State Chapters

ITS State Chapters: ITS Alaska	ITS State Chapters: ITS Maryland
ITS State Chapters: ITS Michigan	ITS State Chapters: ITS Midwest
ITS State Chapters: ITS Minnesota	ITS State Chapters: ITS Tennessee
ITS State Chapters: ITS Texas	ITS UK
ITS UK: Arup	ITS UK: Atkins
ITS UK: BitWise RT Ltd.	ITS UK: Capita Symonds
ITS UK: Department for Transport	ITS UK: Emtelle
ITS UK: Essential Viewing Ltd.	ITS UK: Findlay Irvine Ltd.
ITS UK: Highways Agency	ITS UK: IBI Group
ITS UK: innovITS	ITS UK: Invisible Heating
ITS UK: ITIS UK	ITS UK: Mapflow
ITS UK: Mott MacDonald	ITS UK: Mouchel
ITS UK: Napier University, Transport Research Institute	ITS UK: Roads Service Northern Ireland
ITS UK: Scottish Development International	ITS UK: Techspan Systems
ITS UK: Transport for London	ITS UK: Transport Research at Scottish Universities
ITS UK: Transport Research Laboratory	ITS UK: Transport Scotland
ITS UK: Transport Wales	JAFA Technologies, Inc.
Japan Digital Road Map Association (DRM)	Jupiter Systems
Kapsch TrafficCom AG	Kimley-Horn and Associates, Inc.
KLD Associates, Inc.	Kostal North America
Laird Technologies	Laser Technology, Inc.
Local Agency Pavilion: Connecticut Department of Transportation	Local Agency Pavilion: Connecticut Transit
Local Agency Pavilion: Metropolitan Transportation Authority	Local Agency Pavilion: New Jersey Department of Transportation
Local Agency Pavilion: New Jersey Transportation Planning Authority	Local Agency Pavilion: New York City Department of Transportation
Local Agency Pavilion: New York State Department of Transportation	Local Agency Pavilion: Port Authority of New York and New Jersey
Local Agency Pavilion: TRANSCOM	LogicTree Corporation
Lufft	Magnetic Automation Corporation
Mapflow	Mark IV
Matrox Graphics, Inc.	MaxCell Group
McCain, Inc.	Measurement Devices Ltd. (MDL)

Measurement Specialties, Inc.	Mercedes-Benz RDNA, Inc.
Meridian Environmental Technology, Inc.	Meridian Technologies, Inc.
MetroCount USA, Inc.	MG Squared Lowering Systems
MG Squared Structures	Mitsubishi Electric Corporation
Mitsubishi Heavy Industries	Mobile Mark, Inc.
Motorola	Moxa Technologies, Inc.
Multidyne Video & Fiber Optic Systems	National Center for Atmospheric Research
NAVTEQ	NEC Corporation
New York City DOT	New York State Department of Transportation
NEXCOM	Nissan Motor Co., Ltd.-R
Noblis	Oak Ridge National Laboratory
Oki Electric Industry Co., Ltd.	OMJC Signal, Inc.
Open Roads Consulting Inc.	Optelecom-NKF
Orlando CVB	Panasonic
PBS&J	Peek Traffic
Peiker Acustic Inc.	Phoenix Contact
PIPS Technology	Prescient Group, LLC
PTV America, Inc.	Quick Eagle Networks
Quixote	Raytheon
RedSpeed International Ltd.	RHP International
RuggedCom, Inc.	Safe To Ride, Inc.
Satellic Traffic Management GmbH	Savari Networks LLC
Sensata Technologies	Sensys Networks, Inc.
SES America	Siemens
Simrex Corporation	SIRIT Inc.
Skyline Products, Inc.	Solari Corp.
Southwest Research Institute	Spot Devices
STEGO, Inc.	STMicroelectronics
Stratagen Systems	Strategic Mapping Inc.
Strategic Telemetry Inc.	Sumitomo Electric Insutries Ltd.
Telegra, Inc.	Telematics Wireless
Teleste Video Networks	Telvent Farradyne, Inc.
TESCO Controls	The Institution of Engineering and Technology
The Israel Export & Int'l Cooperation Institute	Thinking Highways

Times Microwave Systems	TomTom International NV
Toshiba Corporation	Toyota Motor Corporation-R
Toyota Tsusho Electronics Corporation	Traffic Technologies, Inc.
Traffic Technology International	TrafficCast International Inc.
Trafficland. Inc.	Traficon USA
TransCore	Transdyn
Transport Business International	Transportation Management & Engineering
TSS -Transport Simulation Systems	Tyco Electronics
U.S. Department of Transportation	Ubiqlink
Universal Traffic Management Society of Japan (UTMS)	University of Michigan Transportation Institute
URS Corporation	Vaisala Inc.
Vehicle Information and Communication System Center (VICS)	Ver-Mac
Verizon Wireless	Versilis Inc.
Videolarm, Inc.	Volkswagen Group of America
VOLVO	Wavetronix, LLC
Zenrin Co., Ltd	