PUBLIC TRANSPORTATION GROUP
Committee Triennial Strategic Plan (TSP)

COMMITTEE NUMBER AND NAME:

Current: AP040, Major Activity Center Circulation Systems Committee
Proposed: AP040, Automated Transit Systems (ATS)

COMMITTEE CHAIRPERSON:

Dr. Rongfang (Rachel) Liu, AICP. PE
New Jersey Institute of Technology

TSP THREE-YEAR PERIOD:

April 15, 2012 to April 15, 2015

DATE PREPARED:

Original Submission: December 2011
Revised Submission: January 2013
Final Revised Submission: February 2013

BACKGROUND:

The Committee members and friends have engaged in long, deliberate, and in-depth discussions since the initiation of the current Triennial Strategic Plan (TSP) in 2011. Designated as the “Major Activity Center Circulation Systems Committee (AP040)”, the committee has been leading the way to define and shape the research agenda for transportation circulation systems in and around Major Activity Centers (MAC). Meanwhile, the committee also struggled to evaluate its position or relevance toward certain technologies, such as Automated People Movers (APM) and Personal Rapid Transit (PRT). These technologies, collectively referred to as Automated Guideway Transit (AGT) or Automated Transit Networks (ATN), are inherited in research interests of the committee members. The larger transportation community often turns to this committee for research development and project expertise related to the technologies mentioned above.

Given the rapid development in automated transportation systems such as automated highways, driverless cars, and automated transit systems, the AP040 committee members and friends believe that the historical experience, technical expertise, and professional network assembled and represented by this committee are critically important and will be better utilized if clear and precise identifications with automated transit technologies are recognized. Therefore, the committee would like to change its name to “**Automated Transit Systems (ATS)”.**

The new committee name clearly identifies its association with “automated transit systems”, which is consistent with other peer committees, such as Light Rail Transit or Bus Transit under the Public Transportation Group. The shortened committee name will require less explanation to newcomers or younger members. It may also appeal to the young generation of internet surfing and face-book sharing transit users and transportation professionals. Most importantly, the new name represents and highlights the scope of the committee, which is presented below.

COMMITTEE SCOPE:

The committee is concerned with the full spectrum of Automated Transit Systems (ATS), such as Automated Guideway Transit (AGT), moving walkways, ropeways, cable cars, COG railways, elevators, inclined railroads, and/or any other driverless transit systems. All functional aspects of Automated Transit Systems are considered, including planning, engineering, managing and servicing.

COMMITTEE OUTLOOK

Challenged by a number of critical issues, such as congestion, energy consumption, climate effects, and safety performance; transportation communities in the United States and around world are increasingly recognizing the need for alternative transportation beyond single occupancy vehicles (SOV) or conventional transit systems. Automated Transit Systems (ATS) are no longer limited to a few selected institutions or confined proximity of major activity centers (MAC). More and more communities in the United States, such as San Jose, Ithaca, Denver and Phoenix, are exploring the potential of automated transit systems in order to integrate their transportation and land use development. As evidenced by numerous applications overseas, operating efficiencies and safety improvements are within reach when human errors are minimized or eliminated via driverless technologies. Offering non-stop travel on demand, ATS is an attractive and clean alternative to private cars.

As MACs become increasingly pedestrian friendly while motorized movement, especially manually driven Single Occupancy Vehicles (SOV) are kept at a minimum, intermodal connection and coordination emerges as the focus of transportation systems, particularly multimodal coordination for MACs. Transit stations or hubs that accommodate multimodal technologies, connect diverse activities centers, and serve multiple trip purposes not only become desirable transportation facilities but also the epic culture and economic centers of the modern society. The increasing desirability of Transit Oriented Development (TOD), Smart Growth, New Urbanism and recent population shifts returning to the center cities may provide fundamental support for Automated Guideway Transit (AGT) implementations, which were unthinkable a couple of decades ago. AGT systems themselves are maturing and offer fundamental transportation paradigm shifts in service that could greatly enhance the mobility of MACs. Understanding the entire gamut of movement choices and

how they can assist with implementation of these goals can be explored in the following areas:

- Demographic, culture, and economic impact on travel behavior
- Planning, design, implementation and maintenance of automated transit technologies
- Temporal, spatial, and institutional issues associated with multimodal coordination
- MAC circulation and interactions

The list above is an illustration of the issues that the committee will be addressing in the years to come. The committee is currently developing research need statements, which will elaborate and provide a more complete listing of critical issues and topics.

As the leader in the field of Automated Guideway Transportation (AGT), Major Activity Center (MAC) Circulation, and intermodal coordination, this committee is poised to cement its leadership position, grow its technical capacity, and expand its reach to the professional and user community of Automated Transit Systems. Supported by a large number of committee members and friends from vast geographical locations and diverse organizations, the committee is most aware of movement issues in the international arena as well as advances occurring within the United States. The committee has a unique role to provide information related to ATS from around the world to decision makers and larger transportation communities. The committee also has a breadth of scope in its members that allows awareness of other emerging issues outside the committee's scope and the relationships between these new strategies, MACs and alternative forms of movement.

The emerging or reincarnation of urban Automated Guideway Transit (AGT) systems since their struggles in the 1970s brings great challenges and opportunities for our committee. Great challenges lie in the area of presenting the spectrum of AGT technologies in a realistic yet positive way despite a few isolated not so successful implementations Opportunities are plentiful as a wide spectrum of AGT technologies have been applied worldwide while the U.S. is serious lagging in implementing Automated Transit or PRT systems despite being a leader forty years ago.

To be fully prepared for the challenges and opportunities that are ahead, the committee has developed the following goals and objectives for the next three to seven years:

- Increase research and engage new researchers to the ATS field;

- Establish the committee as the "go to" place for ATS-related research and application issues;

- Working with the TRB Public Transportation Board, other committees and transit industry to bring AGT technology to a level playing field with other transit technologies.

- Create greater public awareness of the multiple choices now available for movement that can support better accessibility for all

- Promote the interconnections among multimodal transportation systems and diverse stake holders.

COMMITTEE PLAN:

In order to accomplish the goals and objectives presented earlier, it is critical to develop an implementation plan, with complete committee structures, clearly delineated functions and timelines, manageable tasks and tangible measures. The following plan will be revisited and revised in the next few years according to the goals and objectives accomplished and the effectiveness of each. Most of the following tasks will work in tandem to move the committee forward accomplishing more than one goal in particular.

Membership Strategies

Recognizing that the TRB committee is a largely volunteer organization, the committee has established various positions, which perform specific functions for the committee as shown in Table 1. The designated coordinators not only help reduce the load for the committee chair but also inject individual experiences and diverse perspectives in the ATS community.

Table 1. Committee Structure

Title	Person	Affiliation	Function
Chair	Dr. Rongfang (Rachel) Liu	New Jersey Institute of Technology	Facilitate committee program functions and administer activities
Secretary	Jennifer Flynn	University of South Florida	Maintain Committee meeting minutes and other records
Paper Review Coordinator	Dr. Meiwu An	St. Louis County Department of Highways	Coordinate and process annual paper review and session plan.
Research Coordinator	Shannon McDonald	University of Southern Illinois	Develop research need statements
Communication Coordinator	Dr. Yi Deng	Parsons Transportation Group	Develop and maintain committee website and disseminate information

This committee has great diversity in membership from international, regional, and various private, and academic sectors, as shown in Appendix 1. One of the potential strategies in membership growth is to recruit more government and transit personnel. Another equally important strategy is to attract more young or student members. Our strategy is to attract members not only from transit interests, but also from traditional highway interests that recognize the importance of automation in transport.

The committee plans to increase the membership representation from young members, government employees, and other stakeholders of various ATS applications. The following practices will be implemented in next few years:

- Invite more students to attend Committee Meetings
- Mentor young members to develop research papers
- Sponsor local government employees to the TRB Annual meetings

Research Development

The committee has a unique role as it serves in the position to provide information from around the world to decision makers and other transportation communities on the emerging importance of various ATS technologies and MAC circulation issues. The committee is most aware of movement issues in the international arena as well as advances occurring within the United States. The committee also has a breadth of scope in its members that allows awareness of other emerging issues outside the committee's scope and the relationships between these new strategies, ATS and alternative forms of movement.

The committee will shape and define the research agenda by developing well-conceived research problem statements, in collaboration with other TRB committees and other organizations. These research problem statements will be placed in the TRB Research Needs Statements database and made available to the broad community so that the field is continuously defining and updating the critical issues and needs.

The Committee will initiate, participate, and encourage in-depth research in the areas of ATS technologies, their implementation and acceptance by transportation industry and traveling public, and their impact on land use, urban development, and social & economic issues. Many committee members and friends have directly involved and participated in research projects related to the scope of the Committee. The committee has sponsored or co-sponsored various TCRP and ACRP problem statements in the areas of APM, PRT and ATS technologies and their applications. An example of TCRP problem statement is included in Appendix 2. The Committee will continue to interact with transit, airport and other transportation communities to contribute our expertise in the research projects of ATS and MAC circulation systems.

The committee has great success in organizing and co-sponsoring annual meeting sessions, “spot light” sessions, and workshops. For example, the committee co-organized a Sunday workshop in 2011: The Big Picture: Total Transportation Connectivity--Integrating Transportation Technologies to Create Seamless Mobility Solutions for Livable Communities. This workshop helps practitioners and researchers understand emerging movement technologies such as personal rapid transit, bicycles, electric vehicles, and new communication systems electronic–wireless) for carpooling, car sharing, bike sharing, and parking interconnection. More sustainable communities can be created by distributing quality right-sized mobility services across an urban region and by providing multiple transportation options for passenger trips. The well received Sunday workshop prompted a double session the following year on the topic of intermodal coordination.

Building on the success of the Sunday workshop, the committee has organized a back to back double session on “Working together: Multiplying efficiency by modal efficacy”. The “spot lighted” double session not only received support from multiple committees both within and outside of Public Transportation Group, it also attracted wide range audiences. It is our first step to bring the ATS into the same play field as other conventional transit systems.

Detailed committee activities are included in Appendix 1. The committee will continue to develop and issue joint calls for papers, co-organize TRB Sunday Workshops and special and regular sessions dedicated to cross-cutting themes, and prepare research needs statements in collaboration with other committees. The committee also plans to initiate discussions and special organizational meetings with other TRB committees/task forces and national/international associations to conduct specialty conferences, workshops, and seminars on various topics over the next three to seven *years.*

Outreach Effort

This committee has a website (http://trb.ap040.org/) and maintains an email list to convey important issues among committee members and friends. The Committee also plans to explore alternative ways to communicate with wider audiences. The intense use of social media by younger generations may be another outlet for the committee to reach new members and spread the concept of AGT technologies and efficient and effective circulation systems.

The Committee will try to coordinate with the American Society of Civil Engineers (ASCE) to participate or co-sponsoring APM conferences. The Committee also plans to reach out to Universities, the American Planning Association (APA), American Public Transport Association (APTA) and other organizations to share the new knowledge and exchange ideas.

AP040 Committee has maintained close formal and informal relationships with many different committees with TRB. They include, but are not limited to:

- AP010: Transit Management and Performance
- AP020: Emerging and Innovative Public Transport and Technologies
- AP025: Public Transportation Planning and Development
- AP045: Intermodal Transfer Facilities
- AP050: Bus Transit Systems
- AP065: Rail Transit Systems
- AP070: Commuter Rail Transportation
- AP075: Light Rail Transit
- AP085: Ferry Transportation
- AHB60: Highway/Rail Grade Crossings
- AR010: Intercity Passenger Rail
- ABJ10: National Transportation Data Requirements and Programs
- ABJ40: Travel Survey Methods
- ABE60: Accessible Transportation and Mobility
- ABE70: Women's Issues in Transportation
- ABE90: Transportation in Developing Countries
- ABG20: Transportation Education and Training
- ADA10: Statewide Multimodal Transportation Planning
- ADB30: Transportation Network Modeling
- ADB40: Transportation Demand Forecasting
- ADB50: Transportation Planning Applications
- ANF10: Pedestrians
- ANF20: Bicycle Transportation
- AV050: Airport Terminals and Ground Access
- Av090: Aviation Security and Emergency Management

The committee also maintains ongoing liaison representations with outside organizations, such as:

- American Society of Civil Engineers (ASCE)
- Institute of Transportation Engineers (ITE)
- American Planning Association (APA)
- American Public Transportation Association (APTA)
- Regional Science Association International (RSAI)
- USDOT including FAA, FTA, FRA and RITA
- Advanced Transit Association (ATRA)

AP040 Committee will also like to develop collaboration with the following entities in the near future:

- Urban Land Institute,
- American Society of Landscape Architects
- America Walks,
- International Society of City and Regional
- American Institute of Architects

The committee is working closely with a few selected organizations and groups beyond TRB to develop new relationships with professional associations, the global community, and multidisciplinary groups of researchers. For example, the committee is currently collaborating closely with the Advanced Transit Association (ATRA) in developing educational material, encouraging participation at conferences and workshops, and form research topics. AP040 Committee is also working on a joint effort among the USDOT/FTA, the Swedish government, ATRA and the Institute of Sustainable Transport to host a conference on Automate Transit Systems in Washington DC.

APPENDIX 1. COMMITTEE HISTORY AND ACTIVITIES

The AP040 committee was started as a subcommittee under the New Systems and Technology Committee (AP020), now emerging and Innovative Public Transport and Technologies Committee. The New Systems and Technologies Committee had traditionally been headed by the Federal Transit Administration (FTA), then Urban Mass Transportation Administration (UMTA) Director of Research and Development, including Bill Merritt, George Pastore and Franz Gimmler. The Sub-committee was headed by Dan Brandt of Charles River Associates and Tom McGean, an independent consultant. The subcommittee tended to stress various automated technologies including dual mode, Personal Rapid Transit, Automated Guideway Transit, etc., all of which had been recommended in a seminal report by the Stanford Research Institute on "New Urban Public Transportation Systems" led by Clark Henderson and published in 1974.

The subcommittee thrived during the era of "If we can send a man to the moon why can't we move people across town!" A full committee was established in the late 1990s to give more visibility to those automated transportation systems, which at the times have been installed and operated in airports, hospitals, universities and CBDs. The scope of the Ap040 Committee continued to be on line haul and area-wide applications, which had been the subject of the Stanford report. Originally oriented to automated people movers (APM), the committee soon moved into moving walkways, cable systems, small buses and trams etc., as our charter was all means for providing circulation within activity centers where walking was insufficient.

Along with the increased applications and interests in Personal Rapid Transit (PRT), driverless metros, and many other forms of automated transit systems, the committee became a “go to place” for the spectrum of Automated Guideway Transit (AGT) technologies. A discussion on name change started around 2006-2007 and intensified when the committee started working on the Triennial Strategic Plan (TSP) in 2011. The discussion is concluded and we are ready to make the leap as AP040: **Automated Transit Systems Committee.**

Year: 2009

Committee Membership

Number of members at current time.
- Total 13
- Young 1
- Emeritus 0
- International 1

Paper Review:

Number of papers reviewed during the last year 6
Number of papers recommended for publication 1

Annual Meeting Sessions Sponsored:

2 Paper/Conference Sessions
1 Published Meeting
1 Cosponsored Session/Meeting

Annual Meeting Sessions:

Paper or Conference Session (S)s

532 (PSS09-007)

Tuesday, January 13, 2009, 1:30pm- 3:15pm, Hilton, Jefferson West

Rapid Transit Gets Personal: Development, Evaluation, and Sustainability of Personal Rapid Transit Applications

Rongfang Liu, New Jersey Institute of Technology, presiding

Sponsored by Committee on Major Activity Center Circulation Systems

The session presents current and potential applications of personal rapid transit (PRT) technology and its role in major activity center circulation and urban transport systems. Some performance measures are developed in order to sustain and improve PRT applications.

Assessing the Contribution and the Feasibility of a Citywide Personal Rapid Transit System (09-1470)
Helen Muir, University of Leeds, United Kingdom
David Jeffery, University of Southhampton, United Kingdom
Anthony May, University of Leeds, United Kingdom
Antonino Tripodi, University of Rome, Italy
Simon Shepherd, University of Leeds, United Kingdom
Torgeir Vaa, Norwegian Public Roads Administration

Vehicle Control Scheme for Assessment of Operational Control Algorithm in Personal Rapid Transit Systems (09-0760)
Jun-Ho Lee, Korea Railroad Research Institute
Yong-Kyu Kim, Korea Railroad Research Institute

Sustainable Approaches Linking Personal Rapid Transit and Parking: Interfaces and Linkages (09-2879)
Shannon Sanders McDonald, American Institute of Architects
Stanley E. Young, University of Maryland, College Park

Performance Measures for Personal Rapid Transit (09-2951)
Wayne D. Cottrell, National University
Bill James, JPods Corporation

585 (PSS09-011)

Tuesday, January 13, 2009, 3:45pm- 5:30pm, Hilton, Jefferson West

Major Activity Circulation Systems and Their Performance Measures

Wayne D. Cottrell, National University, presiding

Sponsored by Committee on Major Activity Center Circulation Systems

This session presents worldwide applications of automated people movers and their performance measures and an early preview of ongoing Airport Cooperative Research Program studies.

Driverless Transit in Taipei: Applications, Operations, and Development (09-0691)
Jiun-Jia Hsu, Kainan University, Taiwan
Luou Shen, Florida International University

Development of Performance Measures for Automated People Mover Systems at Airports (P09-0442)
Christopher M. Gambla, Lea & Elliott, Inc.
Rongfang Liu, New Jersey Institute of Technology

Critical Elements of Airport Circulation (P09-1321)
Kelly Leone, U.S. Department of Homeland Security

Current Aviation Cooperative Research Program Guidebook Projects on Automated People Mover Systems (P09-1759)
David D. Little, Lea & Elliott, Inc.

Published Meeting - Committee (M)s

PSM09-010

Monday, January 12, 2009, 7:30pm- 9:30pm, Hilton, Hemisphere
Major Activity Center Circulation Systems Committee
Rongfang Liu, New Jersey Institute of Technology, presiding
Sponsored by Committee on Major Activity Center Circulation Systems

AP040 Cosponsored Sessions (only editable by the primary committee sponsor)

RPW09-016

Saturday, January 10, 2009, 1:00pm- 5:00pm, Marriott, Wilson B
An Interactive Workshop to Assess Pedestrian Research Activities vs. Research Needs
Ilona Kastenhofer, Virginia Center for Transportation Innovation and Research, presiding

Improving conditions for pedestrians is critical for safety, mobility and general health. Many organizations have been contributing by researching pedestrian issues. However, organizations are dispersed and questions arise. What are the most critical areas of pedestrian research? What are the critical problem areas that may be under represented in research? How to promote needed research? Other co-sponsors: ITE Pedestrian and Bicycle Council and Assoc. of Pedestrian & Bicycle Professionals

Year: 2010

Committee Membership
Number of members at current time.
Total 18
Young 0
Emeritus 0
International 2

Paper Review:

Number of papers reviewed during the last year 6
Number of papers recommended for publication 2

Annual Meeting Sessions Sponsored**:**

2 Paper/Conference Sessions
1 Published Meeting
1 Cosponsored Session/Meeting

Annual Meeting Sessions:

Paper or Conference Session (S)s

583 (PSS10-020)
Tuesday, January 12, 2010, 7:30pm- 9:30pm, Hilton, Georgetown West
Diversified Applications of Automated People Movers and Personal Rapid Transit in the Urban Environment

Frank Michael Vidergar, Consultant, Canada, presiding
Sponsored by Committee on Major Activity Center Circulation Systems

The need for reliable and flexible transportation applications is more than ever in today's diversified life-style and travel environment. This session showcases various applications of APM and PRT technologies in the domestic and international settings.
Preparing for PRT Operations at Heathrow Airport, United Kingdom (10-3267)
Martin Vincent Lowson, ULTra PRT Ltd., United Kingdom
Planning a Passenger Ropeway for a University Campus (10-4058)
Wayne D. Cottrell, National University
Efe Adodo, California State Polytechnic University, Pomona
Victor Hugo Chavez, California State Polytechnic University, Pomona
Andrew Minwoo Chung, California State Polytechnic University, Pomona
David Freese, California State Polytechnic University, Pomona
Rashed Alam Hyder, California State Polytechnic University, Pomona
Engelbert Leano, California State Polytechnic University, Pomona
Steven Lee Lewis, California State Polytechnic University, Pomona
Cindy Alejandra Maldonado, California State Polytechnic University, Pomona

Harry Louis Mayo, California State Polytechnic University, Pomona
Efrain Guzman Perez, California State Polytechnic University, Pomona

Efficient Edge Cities of the Future (10-0662)
Steve Raney, Cities21.org

Discussant (P10-1416)
Peter J. Muller, PRT Consulting, Inc.

618 (PSS10-042)
Wednesday, January 13, 2010, 8:00am- 9:45am, Hilton, Jefferson West
Performance Evaluation of Automated People Mover and Personal Rapid Transit Technologies
Rongfang Liu, New Jersey Institute of Technology, presiding
Sponsored by Committee on Major Activity Center Circulation Systems

Performance counts. The PRT and APM technologies lent themself well to serve major activity circulation systems when its energy consumption, environmental impact, and cost/benefit ratio are evaluated and compared to other modes. This session presents a number of approaches, methodologies, and case to measure performances of each technology.

CBD Circulators in Cities that Competed for Downtown People Mover Program Funding (10-0336)
Wayne D. Cottrell, National University

Renewable Energy Use Advantages of Maglev-Based Personal Rapid Transit (10-0815)
Robert Baertsch, NASA Ames Research Center
Jared Dunnmon, Duke University

Theoretical Maximum Capacity as Benchmark for Empty Vehicle Redistribution in Personal Rapid Transit (10-1262)
John D. Lees-Miller, University of Bristol, United Kingdom
John C Hammersley, Advanced Transport Systems Ltd., United Kingdom
R. Eddie Wilson, University of Bristol, United Kingdom

Discussant (P10-1358)
Stanley E. Young, University of Maryland, College Park

Published Meeting - Committee (M)s

PSM10-035
Tuesday, January 12, 2010, 10:15am-12:00pm, Hilton, Morgan
Major Activity Center Circulation Systems Committee
Rongfang Liu, New Jersey Institute of Technology, presiding
Sponsored by Committee on Major Activity Center Circulation Systems.

AP040 Cosponsored Sessions (only editable by the primary committee sponsor)

PSS10-004
Monday, January 11, 2010, 1:30pm- 3:15pm, Hilton, International East
Bold Ideas and Big Challenges: Transportation Infrastructure in China
V. Setty Pendakur, Pacific Policy and Planning Associates, Canada, presiding

Transportation Revitalization Plan - Chinese Stimulus Package in Responding to the Economic Crisis (P10-0140)
Rongfang Liu, New Jersey Institute of Technology
Land Use and Transportation: Green TOD Models in China (P10-1560)
Robert Cervero, University of California, Berkeley
High-Speed Railways: Ambitious Plans and Big Challenges (P10-0056)
Wei-Bin Zhang, University of California, Berkeley
Shanghai International Ocean Transportation Center Development and Its Multi-Modal Supporting Transportation Systems (P10-1561)
Jian John Lu, University of South Florida.

Year: 2011

Committee Membership
Number of members at current time.
Total 18
Young 0
Emeritus 0
International 2

Paper Review:

Number of papers reviewed during the last year 7
Number of papers recommended for publication 2

Annual Meeting Sessions Sponsored:
2 Paper/Conference Sessions
1 Workshop
1 Published Meeting
1 Cosponsored Session/Meeting

Annual Meeting Sessions:

Paper or Conference Session (S)s

317 (PSS11-009)
Monday, January 24, 2011, 1:30pm- 3:15pm, Hilton, Georgetown East
The String and the Pearls: Creating Livable Communities via Automated Guideway Transit
Rongfang Liu, New Jersey Institute of Technology, presiding
Sponsored by Committee on Major Activity Center Circulation Systems; Committee on Airport Terminals and Ground Access

Development and Deployment of Downtown Circulators (11-4121)
Daniel K. Boyle, Dan Boyle & Associates
Composite Index: Performance Measures of Automated People Mover Systems at Airports (11-0801)

Rongfang Liu, New Jersey Institute of Technology
Zhaodong Huang, New Jersey Institute of Technology

Feeder Vehicle Scheduling for Special Events' Intermodal Services (11-3010)
Yuyi Chen, Tongji University, China
Yuyi Chen, Tongji University, China
Ming Zhao, China Highway Engineering Consulting Group Company Ltd.
Xiaoguang Yang, Tongji University, China
Bo Shen, Tongji University, China

Identifying the Optimal Circulation Mode (P11-1680)
Wayne D. Cottrell, National University

374 (PSS11-010)
Monday, January 24, 2011, 3:45pm- 5:30pm, Hilton, Georgetown East
Operation PRT: All Issues Related to Personal Rapid Transit
Robert E. Johnson, R. E. Johnson Consulting, presiding
Sponsored by Committee on Major Activity Center Circulation Systems

Ridership Effects of PRT with Mass Transit (11-0383)
Ingmar J. Andreasson, Royal Institute of Technology, Sweden

Maximum Capacity of PRT Stations (11-1317)
Martin Vincent Lowson, ULTra PRT Ltd., United Kingdom
John C Hammersley, Advanced Transport Systems Ltd., United Kingdom

Sampling for Personal Rapid Transit Empty-Vehicle Redistribution (11-0158)
John D. Lees-Miller, University of Bristol, United Kingdom
R. Eddie Wilson, University of Bristol, United Kingdom

International Development of PRT Systems (P11-1685)
Stanley E. Young, University of Maryland, College Park

Workshop (W)s

174 (PSW11-002)
Sunday, January 23, 2011, 1:30pm- 4:30pm, Hilton, Georgetown East
Critical Roles of Multimodal Transportation in Major Activity Center Circulation and Urban Development
Rongfang Liu, New Jersey Institute of Technology, presiding
Sponsored by Committee on Major Activity Center Circulation Systems; Committee on Bus Transit Systems; Committee on International Activities

This workshop showcases innovative strategies and tactics in using multimodal and intermodal transportation services, especially mass transportation, in major activity center circulation and general urban development. Examples may include traffic circulation for special events, infrastructure improvement for Olympic Games, emergency evacuation plans, and intermodal coordination among various service modes.

Metro Development Strategies and Methods in China and Applications: Recent Case of Wenzhou (P11-0935)
Jia-Hao Wu, W & S Solutions, LLC
Scheduling Model of Urban Rail Transit for Emergency Evacuation at Major Activity Centers (P11-0932)
Huaguo Zhou, Southern Illinois University, Edwardsville
Huimin Niu, Lanzhou Jiaotong University, China
Safety of Roadway System Connecting Major Activity Centers (P11-0934)
Zhongyin Guo, Tongji University, China
2010 Shanghai World Expo Transportation Solution and Evaluation (P11-0936)
Xiaohong Chen, Tongji University, China

Published Meeting - Committee (M)s

PSM11-019
Monday, January 24, 2011, 8:00am-12:00pm, Hilton, Jay
Major Activity Center Circulation Systems Committee
Rongfang Liu, New Jersey Institute of Technology, presiding
Sponsored by Committee on Major Activity Center Circulation Systems

AP040 Cosponsored Sessions (only editable by the primary committee sponsor)

PSW11-003

Sunday, January 23, 2011, 1:30pm- 4:30pm, Hilton, Columbia Hall 9 & 10
The Big Picture: Total Transportation Connectivity--Integrating Transportation Technologies to Create Seamless Mobility Solutions for Livable Communities
Susan A. Shaheen, University of California, Berkeley, presiding

This workshop helps practitioners and researchers understand emerging movement technologies such as personal rapid transit, bicycles, electric vehicles, and new communication systems electronic–wireless) for carpooling, carsharing, bike sharing, and parking interconnection. More sustainable communities can be created by distributing quality right-sized mobility services across an urban region and by providing multiple transportation options for passenger trips.

Total Connectivity Ideas (P11-0493)
Dan Sturges, IntraGo
Steve Raney, Cities21.org
Interconnecting Public Transport and Shared Transport (P11-0500)
Sean O'Sullivan, Avego Limited
Cybercars for Sustainable Mobility – A European Collaborative Approach (P11-0496)
Michel Parent, French National Institute for Research in Computer Science and Control
Architecturally Linking All the Pieces (P11-0497)
Shannon Sanders McDonald, American Institute of Architects

Public-Private Innovation: Implementing Seamless Mobility Linking Modes, Services, Technologies, Design, Policy, and New Business Models (P11-0498)

Susan Zielinkski, University of Michigan

Panel Discussion (P11-0499)

Stanley E. Young, University of Maryland, College Park
Rongfang Liu, New Jersey Institute of Technology
Robert Cervero, University of California, Berkeley
Lawrence J. Fabian, Trans.21
Susan A. Shaheen, University of California, Berkeley
Ingmar J. Andreasson, Royal Institute of Technology, Sweden.

2012

This year the committee sponsored the sessions titled “Critical Roles of Automated Guideway Transit in Multimodal Systems;” co-sponsored parts 1 and 2 of the session “Working Together: Multiplying Efficiency by Modal Efficacy” with Bus Transit Systems (AP050), Commuter Rail Transportation (AP070), Light Rail Transit (AP075), and Intercity Passenger Rail (AR010); and co-sponsored the workshop “Ready for Automated Mobility” with Intelligent Transportation Systems (AHB15), Vehicle-Highway Automation (AHB30), and Emerging and Innovative Public Transport and Technologies (AP020).

The committee also co-sponsored a conference in the summer, which is described below.

Summary of TRB Road Vehicle Automation Workshop

July 24 – 26, 2012

Irvine, California

In July 2012, the Transportation Research Board (TRB) organized a 2.5 day workshop to explore the progress towards, and issues raised by road (and) vehicle automation. The workshop had the support of six separate TRB committees: Intelligent Transportation Systems (AHB15); Vehicle-Highway Automation (AHB30); Major Activity Center Circulation Systems (AP040); Emerging and Innovative Public Transport and Technologies (AP020); Emerging Technology Law (AL040); and Vehicle User Characteristics (AND10).

The workshop began with an afternoon “pre-workshop” to discuss early automation deployment opportunities in managed lane operations, which was co-hosted by the TRB Managed Lanes Committee. Since managed-use lanes offer the possibility of safely integrating early automated vehicles onto highways and arterials, this session sought to define research topics that addressed common issues between managed lane operations and road vehicle automation. A number of topics were raised, ranging from automated

truck platoons or transit vehicles operating in dedicated lanes to questions of financing and cost recovery; although greater agreement on potential deployment scenarios appears necessary before specific research questions could be generated.

The first full day of the workshop included presentations of the state of the art in technology development and deployment, as well as the current state of understanding of potential issues. The question of terminology and taxonomy were addressed at the outset, with participants understanding that self-driving technologies ranging from fully autonomous vehicles to those intricately tied to communication between other vehicles and the infrastructure would be considered. The agenda and copies of the presentation can be found at: http://onlinepubs.trb.org/onlinepubs/conferences/2012/Automation/presentations.pdf

The second day then consisted largely of break-out groups to consider the issues raised the day before. Topics included issues related to: public policy; law and liability; driver-vehicle interaction; information infrastructure and operational concepts; technology needs and constraints; vehicle safety and security; and transition and deployment strategies. These groups refined the questions and worked to turn them into research needs statements and, short of that, develop parameters for future discussions.

In the end, participants agreed that this discussion was only beginning, and many facets need continued conversation. In light of this, the group plans to continue its work as the TRB "Joint Subcommittee on Multimodal Road Vehicle Automation," sponsored by the committees represented in the organization of the workshop, as well as any others that would like to join the discussion.

2013

The committee has sponsored two sessions and co-sponsored a session on "driverless vehicles"

Session 234

Viability of Personal Rapid Transit

Monday, January 14, 2013 8:00AM - 9:45AM *Hilton, Lincoln WestLectern Session*Passenger Transportation, Public Transportation

Alain L. Kornhauser, Princeton University, presiding

Sponsored By:

Major Activity Center Circulation Systems (AP040)

This session brings the audience a wide range of personal rapid transit (PRT) applications around the world. The presenters explore the viability of PRT from various aspects--economic, structural, demand, and more--which may help many other locations in deciding on PRT implementations.

Abstracts: Show Hide

Title	Presentation Number
Case Study Analysis of SkyCabs Monobeam System Avishai Ceder, University of Auckland, New Zealand, presenter Yuval Hadas, Bar Ilan University, Israel, presenter	13-3733
Investigating Economic Viability of Personal Rapid Transit System for a University Campus and Its Surroundings Shahram Tahmasseby, University of Calgary, Canada, presenter Lina Kattan, University of Calgary, Canada, presenter	13-2124
Personal Rapid Transit Studies in Two Scandinavian Cities Daniele Stam, University of Rome "La Sapienza," Italy , presenter Adriano Alessandrini, University of Rome, Italy, presenter	

Session 722

Showcase of Diversified Automated People Mover Applications

Wednesday, January 16, 2013 8:00AM - 9:45AM *Hilton, Columbia Hall 8Lectern Session*Passenger Transportation, Public Transportation

Rongfang Liu, New Jersey Institute of Technology, presiding

Sponsored By:

Major Activity Center Circulation Systems (AP040)

This session presents an array of automated people mover technologies and their applications in diversified environments. The showcase demonstrates not only the flexibility of the applications but also their readiness for deployment.

Abstracts: Show Hide

Title	Presentation Number
Assessment of "Last Mile" Shuttle Corridors and Users in New Jersey Devajyoti Deka, Rutgers University, presenter Stephanie DiPetrillo, Rutgers University, presenter	13-0421
A Comparative Analysis of Personal Rapid Transit as an Urban Transportation Mode Reuben Morris Juster, University of Maryland, College Park, presenter Paul Schonfeld, University of Maryland, College Park, presenter	13-1186
Modeling the Practical Capacity of Escalators Using a Rule-Based Microsimulation of Pedestrian Behavior Peter Kauffmann, Gorove/Slade Associates, Inc., presenter	

Major Activity Center Circulation Systems Committee
Monday, January 14, 2013 7:30PM - 10:00PM Hilton, Columbia Hall 2Public Transportation
Rongfang Liu, New Jersey Institute of Technology, presiding
Sponsored By:

Major Activity Center Circulation Systems (AP040)

APPENDIX 2. SAMPLE RESEARCH NEEDS AND PROBLEM STATEMENTS

AP040 Committee members have initiated the following TCRP problem statement, which may serve as a sample problem statement. The committee is currently working on further research needs and problem statements and fine-tuned documents will be submitted to ACRP, TCRP or any other appropriated research programs.

TOPICS SUGGESTIONS FOR TCRP Project J-07

Synthesis of Information Related to Transit Problems

TITLE: Current Development of Automated Guideway Transit

SUBMITTED BY:

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SCOPE:

Automated guideway transit (AGT) is no stranger to the transportation community or to anyone who has recently traveled through large airports, visited cities with downtown people movers (DPMs), or vacationed at amusement parks where monorail trains shuttle visitors around the sprawling resorts. However, searching through the transportation research database, you may not be able to find many current or comprehensive studies on the topic.

There are many AGT applications overseas, such as France, Malaysia, and Canada but the true transit application of AGT in the United States has been trapped in various planning, “wishing”, or “dreaming” stages.

The proposed synthesis project will provide a comprehensive overview of the current development of Automated Guideway Transit technology and its applications in the United States and internationally. A complete inventory of various technologies under the AGT spectrum and their applications in diversified setting, under different stages will provide a better roadmap for the transportation community.

INFORMATION SOURCES:

TRB Committee AP040: Major Activity Center Circulation Systems.
Advanced Transit Association (ATRA).

Liu, Rongfang. 2011. “The Spectrum of Automated Guideway Transit (AGT) and Its Applications” Handbook of Transportation Engineering, Volume II Applications and Technologies, Second Edition. Edited by Myer Kutz. Published by McGraw Hill.