

**Using National Household Travel Survey Data  
for Transportation Decision Making**  
*A Workshop*

June 6–7, 2011

The Keck Center of the National Academies, Washington, D.C.

*Supported by*  
Office of Highway Policy Information, FHWA

<http://www.trb.org/conferences/NHTS2011.aspx>



## Chair's Letter

The Transportation Research Board, with support from the Federal Highway Administration, hosts this workshop focusing on how the National Household Travel Survey data is used in transportation planning and practice and how it informs decision making.



*Polzin*

The workshop objectives are to bring together data producers, analysts, policy makers, and other interested stakeholders to

- Illustrate the use of NHTS and other travel data sources to support transportation decision making in key issue areas;
- Share case studies of strategies and methods for enhancing the effectiveness of NHTS and other travel databases to inform decisions;
- Share the results of NHTS-based investigations and innovative applications of other data sources to provide a more complete picture of travel behavior in the United States; and
- Identify emerging trends and issues in travel behavior that are now or should be illustrated by NHTS.

It is expected that the workshop will

- Enhance knowledge and appreciation of the ways in which NHTS informs policy decisions;
- Broaden the constituency for planning future NHTS surveys; and
- Provide guidance for more directly linking travel data collection, analysis, and dissemination programs to planning and policy issues.

We look forward to a very successful workshop.

—Steven E. Polzin  
Conference Chair  
*Director, Mobility Policy Research*  
*Center for Urban Transportation Research*  
*University of South Florida*

June 6–7, 2011



# Workshop Agenda

## Monday, June 6

7:30 a.m.–8:30 a.m., *Outside Room 100*

**Registration Opens and Breakfast Is Served**

8:30 a.m.–10:00 a.m., *Room 100*

### **Opening Session**

Steven E. Polzin, University of South Florida, *presiding*

#### **FHWA's Treasure—You Say Data and We Say Intelligence**

Shailen Bhatt, Associate Administrator for Policy and Governmental Affairs, FHWA

#### **Meeting the Challenge and Building the Community**

Patricia S. Hu, Director, Bureau of Transportation Statistics, RITA

#### **Overview of the NHTS Program: Past, Present, Future**

Tianjia Tang, Federal Highway Administration

#### **Exploring Changing Travel Trends**

Steven E. Polzin, University of South Florida; and Nancy McGuckin, Consultant

10:00 a.m.–10:30 a.m.

### **Morning Break**

10:30 a.m.–noon, *Room 100*

### **Data in the Policy Process**

Joseph L. Schofer, Northwestern University, *presiding*

Three policy analysts discuss their experiences providing information support in the policy process and share their perspectives of the role of travel data.

#### **Perspective from a Former Senate Environment and Public Works Committee Staffer and FHWA Policy Leader**

Susan J. Binder, Cambridge Systematics

#### **Perspective from a Retired Congressional Research Service Transportation Specialist**

John Werner Fischer, Consultant

#### **Perspective from a State CEO**

Neil J. Pedersen, Maryland State Highway Administration

Noon–1:00 p.m., *Outside Room 100*

### **Lunch Is Served**

Seating available in Third Floor Atrium and breakout rooms

1:00 p.m.–3:00 p.m., *Room 101*

### **Hot Off the Press: Findings from the 2009 NHTS**

Jill Ingrassia, American Automobile Association, *presiding*

#### **Factors Influencing Vehicle Use in Multiple-Vehicle Households**

Don H. Pickrell, Volpe National Transportation Systems Center

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**Use of NHTS Data in Assessment of Impacts of Plug-In Hybrid Electric Vehicles on Greenhouse Gas Emissions and Electricity Demand**

Yan Zhou and Anant D. Vyas, Argonne National Laboratory

**Poverty and Transportation: What does the NHTS Say?**

Krishnan Viswanathan, Wilbur Smith Associates

1:00 p.m.–3:00 p.m., *Room 100*

**Innovative Analysis Methods**

Daniel G. Chatman, University of California, Berkeley, *presiding*

**Using NHTS Add-On Data to Estimate Interstate Travel**

Rhett Fussell and Erin Wardell, Parsons Brinckerhoff; and Stacey Bricka, Texas Transportation Institute

**Joint Household-Level Analysis of Work-Arrangement Decisions of Individuals**

Mubassira Khan, Rajesh Paleti, and Chandra R. Bhat, University of Texas at Austin; and Ram M. Pendyala, Arizona State University

**Multilevel Approaches to Explore the Effect of Land Use on NHTS Commuting Outcomes**

Edmund J. Zolnik, George Mason University

**Logit Models to Forecast Nationwide Intercity Travel Demand in the United States**

Nicolas Karlsson Hinze and Antonio A. Trani, Virginia Polytechnic Institute and State University

1:00 p.m.–3:00 p.m., *Room 204*

**Overview of NHTS Data and Resources**

Nancy McGuckin, Consultant, *presiding*

This session is to provide participants an overview on both the 2009 NHTS data and processes used to carry out the 2009 survey. Plans for future surveys will also be discussed. The presentations span the history of the program, including the value-added data, and innovative programs of application. The program manager will end the session with a wrap-up and plans for future surveys.

**2009 NHTS—Overcoming all the Odds**

Heather Contrino, Federal Highway Administration

**Travel Patterns of the 50+: Who's Driving New Trends in Mode Choice?**

Jana Lynott, AARP Public Policy Institute; and Carlos Figueiredo, AARP

**Transportation Fuel Use—Using NHTS for Energy Analysis**

Thomas Leckey and Mark A. Schipper, Energy Information Administration

**NHTS Resources and Tools—A Wealth of Web Tools**

Rick Goeltz, Oak Ridge National Laboratory

**Overview and Plans for the Next NHTS**

Adella Santos, Federal Highway Administration

3:00 p.m.–5:00 p.m., *Room 101*

**Policy Impact**

Joseph L. Schofer, Northwestern University, *presiding*

**Poor People's Use of Different Modes of Public Transit: Is There a Conflict Between Rail and Bus Services?**

Sandra Rosenbloom, University of Arizona; and Nancy McGuckin, Consultant

**NHTS Data Contributions to Critical Federal Policy Questions**

Heather Contrino, Federal Highway Administration

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**Hybrid Vehicles, Fuel Efficiency, and Vehicle Miles Traveled**

Cynthia Chen, University of Washington

**Next Generation of Travel Research, Analysis, and Scenario Development**

Erica Interrante and Heather Contrino, Federal Highway Administration

3:00 p.m.–5:00 p.m., *Room 100*

**Modeling Applications**

Phillip J. Mescher, Iowa Department of Transportation, *presiding*

**Incorporating NHTS Data into the Urban Mobility Report**

David Lynn Schrank and Timothy J. Lomax, Texas Transportation Institute

**Estimation and Short-Range Forecasting of County-Level Vehicle Miles of Travel and Motor Fuel Use for the United States**

Frank Southworth, Oak Ridge National Laboratory

**Developing Vehicle Ownership and Use Models from the 2001 and 2009 NHTS Data for Environmental Policy Analysis**

Lei Zhang, Yijing Lu, Xiang He, and Jasmy Methipara, University of Maryland, College Park

**The 2009 National Household Travel Survey, Vermont**

Justine Sears, University of Vermont

3:00 p.m.–5:00 p.m., *Room 204*

**Integrating Data with NHTS**

Adella Santos, Federal Highway Administration, *presiding*

**An Evaluation of the NHTS Add-On Surveys in Texas**

Stacey Bricka, David Pearson, Lisa Larsen, and Ed Hard, Texas Transportation Institute

**Household Travel Attributes Transferability Analysis: Application of Hierarchical Rule-Based Approach**

Abolfazl Mohammadian and Taha H. Rashidi, University of Illinois at Chicago

5:00 p.m.–6:30 p.m., *Keck Center Atrium, 3rd Floor*

**Welcome Reception and Poster Session**

**The Effectiveness of State and Local Incentives on Household Ownership of Hybrid Electric Vehicles: Results from the 2009 National Household Travel Survey**

Jean-Daniel Maurice Saphores and Roberto Ayala, University of California, Irvine

**Changes in Equity of the Gasoline Tax, 2001–2009**

Brian Anthony Weatherford, Pardee RAND Graduate School

**A Travel Estimation Toolkit for Transportation Planning**

Matthew Martimo, Citilabs

**Estimating Household Car Ownership from 2009 National Household Travel Survey—A Joint Model of Vehicle Holding and Vehicle Type Choice**

Cinzia Cirillo and Yangwen Liu, University of Maryland, College Park

**The Development of a Decision Tool for Greenhouse Gas Emissions Reduction Strategies: The Role of NHTS Data in GreenSTEP Model Development**

Kelly J. Clifton, Alexander York Bigazzi, and Roger Chen, Portland State University; and Brian J. Gregor, Oregon Department of Transportation

**Estimating and Modeling Vehicle Soak Time Distributions with NHTS Data**

Xiang He, Xiajie Cong, and Lei Zhang, University of Maryland, College Park; and Oliver Gao, Cornell University

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**Active Travel in Germany and the United States: Implications For Public Health**

Ralph Buehler, Virginia Polytechnic Institute and State University; John Pucher, Rutgers University; and Dafna Merom and Adrian Bauman, University of Sydney, Australia

**U.S. School Travel 2009: An Assessment of Trends**

Noreen McDonald and Austin Brown, University of North Carolina, Chapel Hill

**Congestion and Air-Quality Benefits of LRT Starter Line on the Phoenix Metropolitan Region: A Quantitative Approach**

Abhishek Dayal, METRO Light Rail

**Analysis of 2008 NHTS Arizona Add-On Samples**

Sreevatsa Nippani, Maricopa Association of Governments; and Aichong Sun, Pima Association of Governments

**Exploring the Influence of Urban Form on Travel and Energy Consumption by Using Structural Equation Modeling (SEM)**

Chao Liu, University of Maryland, College Park

**Short-Term and Long-Term Mobility Patterns of the Elderly in the United States: Evidence from the 2009 NHTS Data**

Sujan Sikder, University of South Florida

**The Travel Behavior of the Foreign-Born: Findings from the 2001 and 2009 National Household Travel Surveys**

Nicholas J. Klein, Rutgers University; and Daniel G. Chatman, University of California, Berkeley

**Vehicle Occupancy Composition of Journey-to-Work Trips: Evidence from the Vermont Add-on Sample of the 2009 NHTS**

Nathan P. Belz and Brian H. Y. Lee, University of Vermont

**A Comparative Analysis of University Student Travel Behavior in Virginia**

Asad J. Khattak, Xin Wang, and Sanghoon Son, Old Dominion University; and Paul Thomas Agnello, and Ju-Yin Chen, Virginia Department of Transportation

**Similarity and Dissimilarity in Travel Behavior Between Urban and Rural Areas in North Carolina**

Soon Chung and Tae-Gyu Kim, North Carolina Department of Transportation

**Enhancing Transportation Planning Using National Household Travel Survey Add-On Data**

Sasanka Gandavarapu, Wilbur Smith Associates

**Do Trip Productions Vary in Space?**

Xin Wang and Asad J. Khattak, Old Dominion University; Ju-Yin Chen and Paul Thomas Agnello, Virginia Department of Transportation

**Analyzing NHTS Travel Behavior Data for Effective Travel Demand Management**

Lei Zhang and Cory Krause, University of Maryland, College Park

**Cohort Analysis with the NHTS Data**

Krishnan Viswanathan, Wilbur Smith Associates

**Assessing Potential Transit Ridership with NHTS Data**

Lee Han, University of Tennessee; and Patricia S. Hu, Bureau of Transportation Statistics, U.S. DOT

**Household Vehicle Fleet Composition and Use from 2001 to 2009: Opportunities and Obstacles for Reducing Future Transportation Energy Use**

Kevin Bolon, University of Michigan

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## Tuesday, June 7

7:30 a.m.–8:30 a.m., *Outside Room 100*  
**Registration Opens and Breakfast Is Served**

8:30 a.m.–9:45 a.m., *Room 100*  
**Topic Focus Session: Model Development**  
Ken Cervenka, Federal Transit Administration, *presiding*

**Study of Interregional Long-Distance Commuting Using NHTS Data**  
Binbin Chen, University of Texas at Austin

**NHTS Add-On Data: Trip Generation Rates and Descriptive Analysis**  
Sasanka Gandavarapu and Jennifer Hahnfeldt Humphreys, Wilbur Smith Associates

**Innovative Application of NHTS Databases for Estimation, Validation, and Calibration of Activity-Based Models**  
Petya Maneva, Maricopa Association of Governments; and Surabhi Gupta, Parsons Brinckerhoff

**A Multivariate Analysis of Factors that Influence Attitudes Toward Use of Nonmotorized Forms of Transportation**  
Saamiya Seraj, Raghuprasad Sidharthan, and Chandra R. Bhat, University of Texas at Austin; Ram M. Pendyala, Arizona State University; and Kostas Goulias, University of California at Santa Barbara

8:30 a.m.–9:45 a.m., *Room 109*  
**Understanding Alternative Fuel Vehicle Demand**  
Johanna P. Zmud, RAND Corporation, *presiding*

This session examines the nation's current and future demand for alternative fuel vehicles through the NHTS data lens. Given the growing importance of low-emissions vehicle analyses in planning and policymaking, the capability of an expanding set of data users both in the private and public sector to use NHTS data for such studies becomes increasingly important.

**Use of NHTS for Predicting Future Transportation and Electric Energy Demand**  
Di Wu, Eirini Kastrouni, and Dionysios Aliprantis, Iowa State University; and Nadia Gkritza, Institute for Transportation at Iowa State University

**Trip Characteristics and Fuel Efficiency: Your Mileage May Vary**  
Rick Nevin, ICF International; and Don H. Pickrell, Volpe National Transportation Systems Center

**Do U.S. Households Favor High-Fuel-Efficiency Vehicles When Gasoline Prices Increase?**  
Valerie Karplus, Massachusetts Institute of Technology

8:30 a.m.–9:45 a.m., *Room 204*  
**Innovative Methods for NHTS Data Display and Communications**  
Alan E. Pisarski, Consultant, *presiding*

**USA Today's Approach to Visualization and Its Relevance to NHTS**  
Paul Overberg, USA Today

**Dynamic Visualizations of Household Travel Survey Data**  
Ben Stabler, PB

**A Review of GeoStats' Efforts with Visualization of NHTS Data**  
Marcelo Simas Oliveira, GeoStats

**An Innovative Approach to Select Key Measures and Variables for Visualizing NHTS 2009 Data**  
Qifeng Lu, MacroSys, LLC

Tuesday, June 7, 2011



9:45 a.m.–10:15 a.m., *Outside Room 100*

**Morning Break**

10:15 a.m.–noon, *Room 100*

**Topic Focus Session: Bicycles, Pedestrians, and Health Issues**

Daniel G. Chatman, University of California, Berkeley, *presiding*

**Kuzmyak Presentation**

**Quantifying Nonmotorized Demand: A New Way to Understand Walking and Biking Demand**

Jeff Hammond and Preston Jonathan Elliott, RPM Transportation Consultants, LLC

**Traffic Safety Barriers to Walking and Bicycling: An Analysis of California Add-On Responses to the 2009 National Household Travel Survey**

Robert J. Schneider and Swati Pande, University of California, Berkeley; and John M. Bigham, Safe Transportation Research and Education Center

**Active Transportation Beyond the Urban Centers**

Daniel Sonenklar, Virginia Polytechnic and State University; and David D. Levinger, Rails-to-Trails Conservancy

10:15 a.m.–noon, *Room 109*

**Topic Focus Session: Add-On Experiences**

Tianjia Tang, Federal Highway Administration, *presiding*

**Using NHTS Data for Model Development: The Virginia Experience**

Patrick Coleman, AECOM; Juyin Chen and Paul Thomas Agnello, Virginia Department of Transportation; and William G. Allen, Jr., Transportation Planning Consultants

**Comparison of Travel Measures from State Perspective**

Nathan S. Erlbaum, New York State Department of Transportation

**Design and Develop Add-On Sampling Plan**

Vidya Mysore, Florida Department of Transportation; and Krishnan Viswanathan, Wilbur Smith Associates

**Use of NHTS Data for Georgia Statewide Model**

Habtewold Kassa, Georgia Department of Transportation; and Jay Pease, PBS&J

10:15 a.m.–noon, *Room 204*

**Understanding Personal Vehicles Use and Environmental Consequences**

Shashi S. Nambisan, Iowa State University, *presiding*

**Urban Transportation, Land Use, and Household Greenhouse Gas Production**

Matthew Holian, Mineta Transportation Institute

**NHTS Survey Day-Driving Distance and Estimated Variability to Inform Electric Vehicle Range Design**

Elizabeth Traut, Jeremy J. Michalek, and Chris T. Hendrickson, Carnegie Mellon University

**Analysis of Household Vehicle Usage by Vehicle Type, Age, and Area Type: Applications of 2009 National Household Travel Survey**

Yan Zhou, Anant D. Vyas, and Danilo J. Santini, Argonne National Laboratory

**Using NHTS to Identify Impact of Hybrid Electric Vehicles Incentives and Determinants of Hybrid Vehicle Adoption**

Alison Riggieri, Georgia Institute of Technology

12:00 p.m.–1:00 p.m., *Outside Room 100*

**Lunch Is Served**

Seating available in Third Floor Atrium and breakout rooms

Tuesday, June 7, 2011





1:00 p.m.–3:00 p.m., *Room 100*

**Topic Focus Session: Transportation Land Use**

Guy Rousseau, Atlanta Regional Commission, *presiding*

**Accommodating Immigration Status and Built Environment Effects in Joint Model of Household Auto Ownership and Residential Neighborhood Type Choice**

Chandra R. Bhat and Rajesh Paleti, University of Texas at Austin; and Karen Marie Lorenzini, Texas Transportation Institute, Texas A&M University

**Residential Land Use, Travel Characteristics, and Demography of Southern California**

Hsi-hwa Hu, Frank Wen, Simon Choi, SeongHee Min, and Jung Seo, Southern California Association of Governments

**Effect of Residential Location on Vehicle Type and VMT**

Minhee Lee, University of Wisconsin–Madison

**NHTS Data Sets and Neighborhood-Level Effects: Lessons from Research on Immigrants' Travel Patterns**

Michael Smart, University of California, Los Angeles

1:00 p.m.–3:00 p.m., *Room 109*

**Topic Focus Session: Sociodemographic**

Steven E. Polzin, University of South Florida, *presiding*

**Impact of Gasoline Prices on Internet Purchases**

Andrea Martens, University of Illinois at Urbana–Champaign

**Transit Dependence and Choice Riders in NHTS 2009: Improving Our Understanding of Transit Markets**

Ugo Lachapelle, Voorhees Transportation Center

**Mobility Gap Analysis for Rural Households**

Nancy X. Lefler and Frank Spielberg, Vanasse Hangen Brustlin Inc; and Albert T. Stoddard, LSC Transportation Consultants, Inc.

**Motor Vehicle Occupant Fatality Risk: Age, Gender, Day of Week, Time of Day, and Their Remarkable Interactions**

Craig Morris, U.S. Department of Transportation

1:00 p.m.–3:00 p.m., *Room 204*

**Exploring Long-Distance Travel Research in Frameworks Designs, Methods, and Identifying Issues**

Adella Santos, Federal Highway Administration, *presiding*

This session presents an overview of past and future U.S. long-distance travel research surveys issues at national and state levels. Topics will cover decisions related to various mode choices, purpose, urban and rural behavior. It will provide a general understanding of the issues of data collection and its strengths and gaps in the conduct of the freight and passenger surveys. An audience dialogue will help identify long-distance travel survey need assessments.

**Needs of Multimodal Long-Distance Travel Data**

Tianjia Tang and Rolf R. Schmitt, Federal Highway Administration

**Historical Overview of Passenger Long-Distance Travel Survey**

Joy Sharp, Bureau of Transportation Statistics

**Exploring New Methods of Data Gathering in Long-Distance Passenger Travel Data**

Bennett Pierce, Battelle Memorial Institute

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## Long-Distance Travel Data Sources

Nancy McGuckin, Consultant

## National Transportation Model—Needs of Long-Distance O-D Data

Brad Gudzin, Federal Highway Administration

3:30 p.m.–5:00 p.m., *Room 100*

### Using NHTS for Transportation Decision Making

Steven E. Polzin, University of South Florida, *presiding*

In this wrap-up session, panel members will

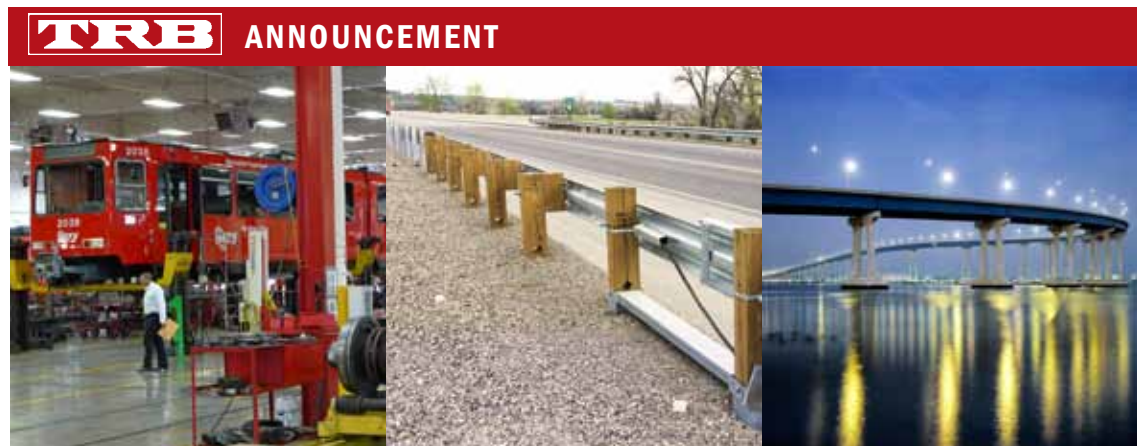
- Discuss the range of applications of NHTS data presented at this workshop to support transportation decisions;
- Highlight notable achievements, opportunities, and gaps in creative data analysis, interpretation, and presentation modes; and
- Consider promising future directions for the NHTS program.

### Panelists

Daniel G. Chatman, University of California, Berkeley

William J. Mallett, Congressional Research Service

Joseph L. Schofer, Northwestern University



## 9th National Conference on Transportation Asset Management *Making Asset Management Work in Your Organization*

April 16–18, 2012  
The Westin San Diego  
San Diego, California

[www.TRB.org/Conferences/AssetManagement2012](http://www.TRB.org/Conferences/AssetManagement2012)

Tuesday, June 7, 2011



## PLANNING COMMITTEE

Steven E. Polzin, University of South Florida,  
*Chair*

Daniel G. Chatman, University of California,  
Berkeley

Jill Ingrassia, American Automobile Association

William J. Mallett, Congressional Research  
Service

Phillip J. Mescher, Iowa Department of  
Transportation

Guy Rousseau, Atlanta Regional Commission  
Joseph L. Schofer, Northwestern University

Liaisons:

Tianjia Tang, Federal Highway Administration

Adella Santos, Federal Highway Administration

Ken Cervenka, Federal Transit Administration

## Hotel Information

Hotel Monaco  
700 F Street, NW  
Washington, D.C. 20001

## Contacts

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Thomas M. Palmerlee, tpalmerlee@nas.edu

**TRB** PRELIMINARY PROGRAM

### Using Census Data for Transportation

October 25–27, 2011

Arnold and Mabel Beckman Center of the National Academies  
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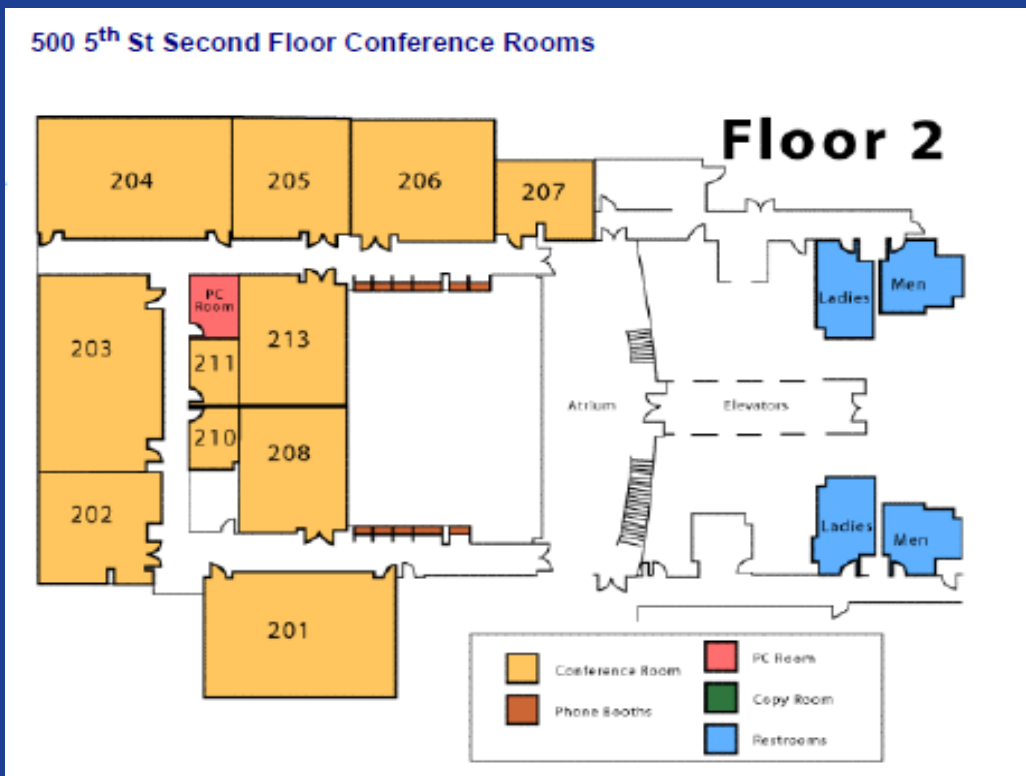
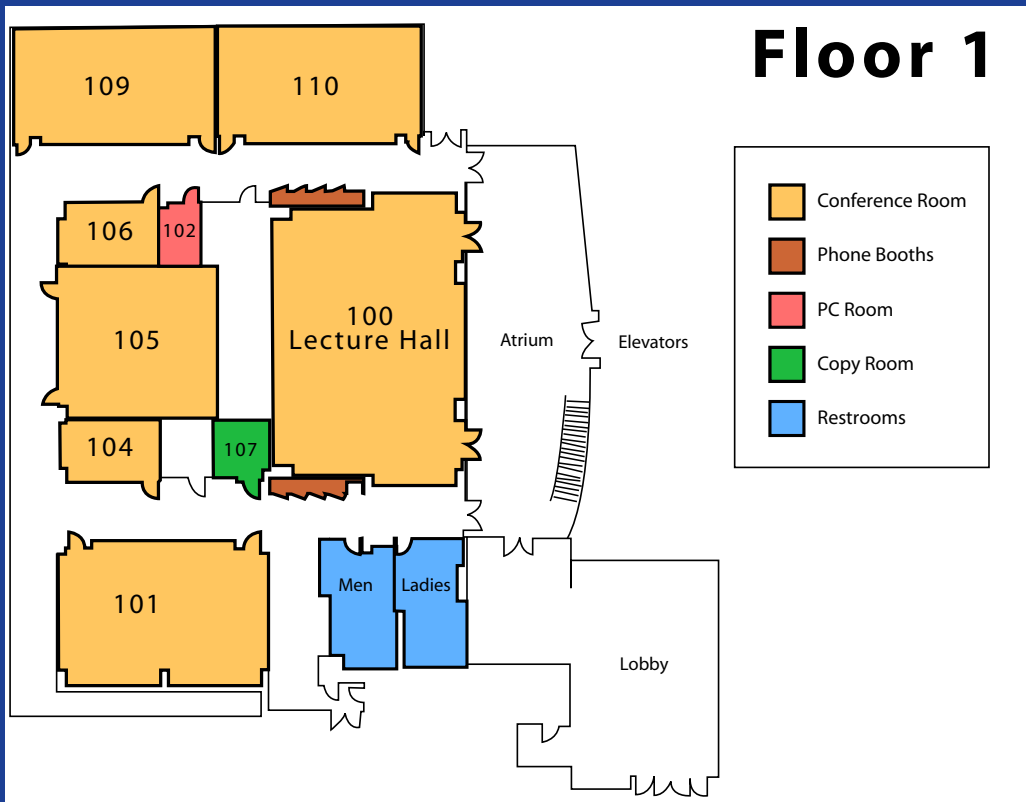
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