TRB *FINAL PROGRAM*

Innovations in Travel Modeling - 2016

May 1-4, 2016

Embassy Suites Denver Downtown Convention Center

Denver, CO

Organized by

Transportation Research Board

Sponsored by

Committee on Traveler Behavior and Values (ADB10)

Committee on Effects of Information and Communication Technologies (ICT) on Travel Choices (ADB20)

Committee on Transportation Network Modeling (ADB30)

Committee on Transportation Demand Forecasting (ADB40)

Special Committee for Travel Forecasting Resources (ADB45)

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CONFERENCE AT A GLANCE

	Sunday, May 1	
11:00 a.m. – 5:00 p.m.	Registration	Crestone Foyer
1:00 p.m. – 2:45 p.m.	Concurrent Workshops	
	• C10 Integrated ABM-DTA Models (Part 1: Theoretical Considerations)	Crestone
	• Strategic Analysis Tools for Scenario Planning (SHRP C16)	Cripple Creek Salon 1
	• Travel Analysis and Modeling Using Python	Cripple Creek Salon 2
3:15 p.m. – 5:00 p.m.	Concurrent Workshops	
	• C10 Integrated Models (Part 2: Application Perspectives)	Crestone
	• C20 Behavior-Based Freight Modeling Tools	Cripple Creek Salon 1
	• Tools for Collaborative Open Source Model Development: GitHub and Beyond!	Cripple Creek Salon 2
5:05 p.m	Social Event: Downtown Denver Walking / History Tour	TRB Registration Desk
	Monday, May 2	
7:30 a.m. – 5:00 p.m.	Registration	Crestone Foyer
7:30 a.m. – 8:30 a.m.	Continental Breakfast	Crystal
8:30 a.m. – 10:00 a.m.	Plenary Opening Session	Crestone
10:00 a.m. – 10:30 a.m.	Break	Crystal Foyer
10:30 a.m. – Noon	• Podium Session: Mode Choice Modeling (Magical Mystery Tour)	Crestone
	• Podium Session: Uncertainty in Modeling (Tomorrow Never Knows)	Cripple Creek Salon 1
	• Podium Session: Big Data (Across the Universe)	Cripple Creek Salon 2
Noon – 1:30 p.m.	Lunch	Crystal
12:15 p.m. – 1:15 p.m.	Social event: Regional Transportation District tour	TRB Registration Desk
1:30 p.m. – 3:00 p.m.	• Podium Session: Innovations with Transit Data (Why Don't We Do It in the Road?)	Crestone
	• Workshop: Autonomous and Connected Vehicles (Drive My Car)	Cripple Creek Salon 1
	• Lightning Talks: Travel Surveys and Big Data (Ask Me Why)	Cripple Creek Salon 2
3:00 p.m. – 3:30 p.m.	Break	Crystal
3:30 p.m. – 5:00 p.m.	Plenary Session	Crestone
5:30 p.m. – 6:30 p.m.	Reception	Crystal
6:30 p.m.	Social Event: Dine Around	TRB Registration Desk

	Tuesday, May 3	
7:30 a.m. – 5:00 p.m.	Registration	Crestone Foyer
7:30 a.m. – 8:30 a.m.	Continental Breakfast	Crystal
8:30 a.m. – 10:00 a.m.	• Podium Session: ABM Innovations: Part 1 (A Day in the Life)	Crestone
	• Podium Session: Unique Applications for Travel Models (Do You Want to Know a Secret?)	Cripple Creek Salon 1
	• Discussion Session: Building a Model (We Can Work It Out)	Cripple Creek Salon 2
10:00 a.m. – 10:30 a.m.	Break	Crystal
10:30 a.m. – Noon	• Lightning Talks: Innovations in TDM and Integrated Models (All Together Now)	Crestone
	• Podium Session: Modeling Changing Trends (I Should Have Known Better)	Cripple Creek Salon 1
	• Workshop: Smartphones and Household Travel Surveys (Here, There and Everywhere)	Cripple Creek Salon 2
Noon – 1:30 p.m.	Lunch	Crystal
Noon – 1:30 p.m.	ADB45: Special Committee for Travel Forecasting Resources - Committee Meeting (open meeting)	Aspen
1:30 p.m. – 3:00 p.m.	• Podium Session: ABM Innovations: Part 2 (A Hard Day's Night)	Crestone
	• Discussion Session: Moving Innovations to Practice	Cripple Creek Salon 1
	• Tutorial Session: Using R for Data Cleaning, Munging, Visualizing, and Modeling	Cripple Creek Salon 2
3:00 p.m. – 3:30 p.m.	Break	Crystal
3:30 p.m. – 5:00 p.m.	Plenary Session	Crestone
5:20 p.m.	Social Event: Shared Bike Tour (sponsored by B-Cycle)	TRB Registration Desk
	Wednesday, May 4	
7:30 a.m. – 8:30 a.m.	Continental Breakfast	Crystal
8:30 a.m. – 10:00 a.m.	• Podium Session: Integrated Demand/Network Models (Come Together)	Crestone
	• Lightning Talks: Future of Transportation and Active Transportation (Here Comes the Sun)	Cripple Creek Salon 1
	• Discussion Session: Future of Travel Modeling Tools	Cripple Creek Salon 2
10:00 a.m. – 10:30 a.m.	Break	Crystal
10:30 a.m. – Noon	Closing Plenary, Thank You, and Awards	Crestone

Sunday, May 1

11:00 a.m. - 5:00 p.m., ***Crestone Foyer***
Registration

1:00 p.m. - 2:45 p.m.
Concurrent Workshops

Workshop 1A, *Crestone*
C10 Integrated ABM-DTA Models (Part 1: Theoretical Considerations)
Moderator: Lei Zhang (University of Maryland)

Integration of advanced Activity-Based Models (ABMs) of travel demand with network simulation tools such as Dynamic Traffic Assignment (DTA) is considered as one of the important strategic directions in our profession. Recently completed pioneering SHRP C10 projects for Sacramento, CA and Jacksonville, FL have brought a first valuable experience with ABM-DTA integration, proved feasibility of such an integrated model, as well as portrayed some important modeling and computational issues that have to be resolved before the new generation of integrated models could be recommended for a wide use in practice. In 2014-2015, several follow-up SHRP C10 projects were started in parallel with different ABM and DTA platforms being integrated, as well as several MPO-sponsored ABM-DTA integration projects. In some of these projects, the original concept of ABM-DTA integration was extended to incorporate the transit side (both vehicle and passenger movements) in a microsimulation fashion as well.

The purpose of Part 1 of this workshop is to bring a wide audience of researchers and practitioners together to discuss the recent progress on the ongoing SHRP C10 projects, theoretical issues encountered, and innovative methods for integrating ABM and DTA.

Panelists:
Peter Vovsha (Parsons Brinckerhoff)
Lei Zhang (University of Maryland)
Balaji Yelchuru (Booz Allen Hamilton)
David Roden (AECOM)
Joel Freedman (RSG)

Workshop 1B, *Cripple Creek Salon 1*
Strategic Analysis Tools for Scenario Planning (SHRP C16)
Moderator: Eric Pihl (FHWA) with assistance from Maren Outwater (RSG)

A network of regional agencies with the support of the National Association of Regional Councils (NARC) and Federal Highway Administration (FHWA), has come together to accelerate the adoption and deployment of scenario planning tools. The goal of these efforts are to lower the barriers to entry, set strong guidelines for high-quality data and applications, design an effective delivery network for getting planning support systems up and running and provide technical assistance on adopting and improving the use of strategic planning methods for scenario planning.

The workshop will offer an overview of techniques currently in use by state and local planning agencies, followed by an introduction to recently developed predictive strategic planning tools. A panel discussion will follow that will seek to identify barriers and strategies for improving analytical practices used in scenario planning to aide in the development a roadmap for increasing adoption.

Panelists:
Supporting Performance-Based Planning and Programming through Scenario Planning
Eric Pihl, FHWA

Synthesis of Current Practice in Strategic Modeling
Ken Snyder, PlaceMatters

Future Forces What-if Scenarios for Greater Philadelphia
Ben Gruswitz (DVRPC)

A Vision for Open Source Tools
Brian Gregor (Oregon Systems Analytics)

Workshop 1C, *Cripple Creek Salon 2*
Tutorial: Travel Analysis and Modeling using Python
Moderator: Billy Charlton and Brice Nichols (Puget Sound Regional Council)

Interested in learning Python but don't know where to start? Join us for this laptops-open tutorial that starts with the very basics and builds the basic skills you will need to use Python for travel analysis.

3:15 p.m. - 5:00 p.m.
Concurrent Workshops Continue

Workshop 2A, *Crestone*
C10 Integrated Models (Part 2: Application Perspectives)
Moderator: Lei Zhang (University of Maryland)

Part 2 brings together a wide audience of researchers and practitioners together to discuss the recent progress on the ongoing SHRP C10 projects, practical issues encountered, practical aspects of preparation of the necessary inputs, as well as the potential for application of these new tools in practice.

Panelists:
Greg Giaimo (Ohio DOT)
Rebekah Anderson (Ohio DOT)
David Ory (Metropolitan Transportation Commission)
Guy Rousseau (Atlanta Regional Commission)
Robert Tung (Metropia)

Workshop 2B, *Cripple Creek Salon 1*
SHRP2 C20 Behavior-based Freight Modeling Tools
Moderator: Vidya Mysore (FHWA)

The SHRP C20 Freight Demand modeling and Data Improvement project is supporting implementation of four behavior-based freight model development projects. This workshop aims to share innovative components from each model project with a focus on recent advancement in modeling methods and project implementation approach. The workshop features presentations from all four project teams and followed by an interactive panel discussion. The work¬shop participants will leave with an understanding of recent advances and future directions of the freight modeling, data and analysis.

Panelists:
Vladimir Livshits (MAG)
Arun R. Kuppam (CS)
Zahra Pourabdollahi (RS&H)
Chris Chritton (WisDOT)
Daniel Beagan (CS)
Brian Ryder (BMC)
Colin Smith (RSG)
Dick Walker (Metro)
John Gliebe (RSG)
Maren Outwater (RSG)

Workshop 2C, *Cripple Creek Salon 2*
Tutorial: Tools for Collaborative Open Source Model Development: GitHub and Beyond!
Moderator: Billy Charlton and Brice Nichols (PSRC)

This laptops-open tutorial will build skills necessary for effective collaborative software development including

version control, issue-tracking, documentation, release planning, testing, and code review using GitHub and other associated tools.

5:05 p.m. ***(Meet at TRB Registration Desk - Leave promptly at 5:10pm)***
Social Event: Downtown Denver Walking / History Tour

- Led by docents from Historic Denver Lower Downtown district
- Starts from Union Station – about 1 mile and 75 minutes long
- A $12 cost per person (not part of registration fee, must be pre-registered)
- Groups of about 10 per docent

Monday, May 2

7:30 a.m. - 5:00 p.m., ***Crystal Foyer***
Registration

7:30 a.m. - 8:30 a.m., ***Crystal***
Continental Breakfast

8:30 a.m. - 10:00 a.m., ***Crestone***
Plenary Opening Session

Welcome and Introductions
Jen Duthie and David Kurth, Conference Co-Chairs

Promoting and Accelerating Collaboration Between Academia and the Practicing Profession: Opportunities and Pathways Forward
Honored Speaker Chandra Bhat, University of Texas, Austin

Future Questions CDOT Needs to Address and Forecast Information Needed
Honored Speaker Mike Lewis, CDOT Deputy Executive Director.

Interactive Discussion: How to Get the Most Out of ITM?

10:00 a.m. - 10:30 a.m., ***Crystal***
Break

10:30 a.m. - Noon
Concurrent Podium Sessions

Session 1A, *Crestone*
Mode Choice Modeling (Magical Mystery Tour)
Moderator: Peter Vovsha (PB)

Mode Choice Modelling Using Personalized Travel Time and Cost Data: Case Study of the Greater Chicago Area, USA.
Presenter: Ramin Shabanpour Anbarani (University of Illinois at Chicago); Co-authors: Mahmoud Javanmarti (UCI), Mehran Fasihozaman Langerudi (UCI), Abolfazl Mohammadian (UCI)

Scenario Analysis Using a Mode Choice Model with Latent Attitudinal Variables
Presenter: Mark Bradley (RSG); Co-authors: Greg Spitz (RSG), Matthew Coogan (New England Transportation Institute)

Combinatorial Tour Mode Choice
Presenter: James E. Hicks (PB); Co-authors: Peter Vovsha (PB), Guarav Vyas (PB), Rebekah Anderson (ODOT), Greg Giaimo (ODOT), Vladimir Livshits (MAG)

Integrated Estimation of Transit Access Stop and Household Driver Choices in a Tour-Based Model of Commuter Mode Choices for Portland, Oregon
John Gliebe (RSG)

Session 1B, *Cripple Creek Salon 1*
Uncertainty in Modeling (Tomorrow Never Knows)
Moderator: Siva Srinivasan (University of Florida), with assistance from Kathleen Yu (NCTCOG),

On Experimental Designs for Uncertainty Analysis of Travel Demand Models
Presenter: Jason Lemp (Cambridge Systematics); Co-authors: Rachel Copperman (CS) David Kurth (CS)

Development of a Risk Analysis Methodology for Quantifying the Uncertainty of Travel Demand Forecasts
Presenter: Rachel Copperman (CS); Co-authors: Jason Lemp (CS), David Kurth (CS), Boris Lipkin (California High Speed Rail Authority), Matthew Henley (PB), Noel Berry (PB)

Modeling the Potential Consequences of New Transportation Technologies and Services Using a Fuzzy Cognitive Map Based Model
Presenter: Brian Gregor (Oregon Systems Analytics); Co-authors: Haizhong Wang (Oregon State University), Alex Bettinardi (ODOT)

Performance-Based Modeling: Forecasting in an Era of Uncertainty and ChangeOn
Jeremy Raw (FHWA)

Session 1C, *Cripple Creek Salon 2*
Big Data (Across the Universe)
Moderator: Greg Macfarlane (PB), with assistance from Mason Gemar (UT)

How Business Clusters and Destination Choice are Connected: A Model Based on Social Media Data
Presenter: Arthur Huang (Tarleton University); Co-authors: Luciano Gallegos (University of Southern California), Kristina Lerman (USC)

Integration of the National Long Distance Passenger Model with the Tennessee Statewide Model and Calibration to AirSage Data
Presenter: Vince Bernardin (RSG); Co-authors: Nazneen Ferdous (RSG), Hadi Sadrasadat (RSG), Chin-Cheng Chen (State of Tennessee)

Using Archived Real Time Travel Speed Data for Model Calibration and Validation
Presenter: Kanchana Nanduri (Caliper)

Using Passive Data to Build an Agile Tour-Based Model: A Case Study in Asheville
Presenter: Josephine D. Kressner (Transport Foundry); Co-Authors: Greg Macfarlane (PB), Leta Huntsinger (PB), Rick Donnelly (PB)

Noon - 1:30 p.m., ***Crystal***
Lunch

12:15 p.m. - 1:15 p.m. ***(Meet at TRB Registration Desk)***
Social Event: Regional Transportation District Tour Led by RTD Staff
1. Limited to about 40 people (must be pre-registered)
2. Bring your transit pass if you have one
3. Itinerary: Convention Center – Alameda Station – Union Station

1:30 p.m. - 3:00 p.m.
Concurrent Sessions Continue

Session 2A, *Crestone*

Innovations with Transit Data (Why Don't We Do It in the Road?)

Moderator: Bruce Griesenbeck (SACOG)

Measuring Transit Connectivity using GTFS Data
Presenter: Sabyasachee Mishra (University of Memphis); Co-authors: Afrid Sarkar (U. Memphis), Timothy Welch (Georgia Tech U.), Mihalis Golias (Memphis U.), Amit Kumar (Georgia Tech U.)

Efficiency Estimation of Transit Transfer Stations Using Sustainability Criteria Within the Framework of the Data Envelopment Analysis
Presenter: Juan Manuel Mayoral (Universidad Nacional Autónoma de México); Co-authors: Azucena Roman de la Sancha (Universidad Nacional Autónoma de México), Luis Roman Universidad Nacional Autónoma de México)

On the Expansion of Transit On-board Passenger Surveys
Presenter: David Ory (Metropolitan Transportation Commission)

Congestion Reduction Benefits of Transit Projects in Northern Virginia
Presenter: David Roden (AECOM)

Session 2B, *Cripple Creek Salon 1*

Workshop: Autonomous and Connected Vehicles (Drive My Car)

Moderator: Rachel Copperman (CS), with assistance from Siva Srinivasan (University of Florida)

The workshop will include three five-minute presentations on autonomous and connected vehicles. Following the presentations will be a facilitated discussion on what practitioners and researchers can and should be doing now to model autonomous and connected vehicles. The focus of the workshop will be on modeling nearer-term mixed mode conditions rather than modeling for the more distant future of fully autonomous and connected vehicles. We will seek to answer the following questions:

- What type of scenarios are practitioners interested in modeling right now with regard to autonomous and connected vehicles?
- How can we model autonomous and connected vehicles using the tools we currently have?
- What tools do we need to develop in order to better model autonomous and connected vehicles?
- What questions do practitioners need answered that researchers can help with?

How Can Activity-Based Models be Used to Represent the Impact of Connected/Autonomous Vehicles?
Presenter: Martin Milkovits (Cambridge Systematics); Co-author: Tom Rossi (CS)

Quantifying the Uncertainty of Autonomous and Shared Use Vehicles
Presenter: Jason Lemp (CS); Co-authors: Rachel Copperman (CS), David Kurth (CS)

The Problems of Incorporating Future Transportation Services and Technology into Travel Demand Models
Scott Peterson (Boston Region MPO)

Three five-minute presentations and facilitated discussion

Session 2C, *Cripple Creek Salon 2*

Lightning Talks*: Travel Surveys and Big Data (Ask Me Why)

Moderator: Julie Dunbar (Dunbar Transportation Consulting), with assistance from Rick Donnelly (PB)

Update on NHTS Activities
Presenter: Stacey Bricka (ETC Institute); Co-author: Adela Santos (FHWA)

Modeling Transit Reliability: A Schedule-based Approach using GTFS and AVL Data
Presenter: Alireza Khani (University of Minnesota); Co-author: Tyler Beduhn (Kimley-Horn)

Creating a Transit Data Standard Suitable for Dynamic Network Models
Presenter: Drew Cooper (SFCTA); Co-authors: Elizabeth Sall (UrbanLabs) and Stefan Coe (PSRC)

Trajectory-based Regression Approach to Predict Real-Time Traveler Information Using Crowdsourced Location Traces
Presenter: Karthik Konduri (University of Connecticut); Co-author: Asif Rehan (Uconn)

Massive GPS Travel Pattern Data for Urban Congestion Relief in the Twin Cities
Presenter: Paul Morris (SRF Consulting Group)

Developing Trip Ends from GPS (Google Location History)
Presenter: Daniel Beagan (Cambridge Systematics)

Synthesis of Transit Trips Using System-wide Fare-Card Transaction Data
Presenter: Cemal Ayvalik (CS); Co-authors: Kimon Proussaloglou (CS), Menglin Wang (CS), Jeffrey Sriver (City of Chicago), Keith Privett (Chicago)

Using Big Data to Measure Small Populations
Presenter: Andrew Campbell (SFCTA)

Synthesizing Future Year School Locations
Presenter: Jonathan Ehrlich (Metropolitan Council); Co-author: Dennis Farmer (MetCouncil)

Evaluating Taxi Data from 2010 to 2015
Presenter: Krishnan Viswanathan (CS); Co-author: Anurag Komanduri (CS)

Transportation Network Management with Multiple Network Types
Presenter: Daniel Tischler (SFCTA)

Accelerating the Impact of Data in Transportation Modeling Through Cyber Infrastructure
Presenter: Mason Gemar (University of Texas); Co-authors: Natilia Ruiz Juri (UT), Jennifer Duthie (UT), Kenneth Perrine (UT), Gregory Abram (UT), Rion Dooley (UT)

3:00 p.m. - 3:30 p.m., ***Crystal***
Break

3:30 p.m. - 5:00 p.m., ***Crestone***
Plenary Session

BTS Perspective on Data and Open Data Tools, Big Data, Agency Vision and Initiatives, and Other Elements as Related to the Conference Program
Honored Speaker Patricia Hu, Director of the Bureau of Transportation Statistics.

What Did You Learn Today? Interactive Discussion of Data in/for Models

5:30 p.m. - 6:30 p.m., ***Crystal***
Reception

6:30 p.m. ***(Meet at TRB Registration Desk)***
Social Event: Dine Around

- Restaurant sign-up will be on Sunday and Monday during the day at TRB registration desk
- Up to 10 people for each restaurant
- Each restaurant group will be assigned a discussion topic and a topic leader / facilitator.

Tuesday, May 3

7:30 a.m. - 5:00 p.m., ***Crystal Foyer***
Registration

7:30 a.m. - 8:30 a.m., ***Crystal***
Continental Breakfast

8:30 a.m. - 10:00 a.m.
Concurrent Sessions

Session 3A, *Crestone*
ABM Innovations: Part 1 (A Day in the Life)
Moderator: Mark Bradley (RSG)

Exploring the Implications of Alternative Household- and Person-level Constraints at Multiple Spatial Resolutions in Synthetic Population Generation.
Presenter: Karthik Konduri (University of Connecticut); Co-Author: Daehyun You (Georgia Tech), Venu Garikapati (Georgia Tech), Ram Pendyala (Georgia Tech)

A Latent Class Multiple Constraint Multiple Discrete-Continuous Extreme Value Model of Time Use and Goods Consumption.
Presenter: Chandra R. Bhat (UT Austin); Co-authors: Sebastian Astroza (UT Austin), Sergio Jara-Diaz (Universidad de Chile), Abdul Pinjari (U. South Florida)

Reflecting the Interaction Between Activity-Travel Engagement and Subjective Well-Being in Activity-Based Travel Model Systems.
Presenter: Ram Pendyala (Georgia Tech); Venu Garikapati (Georgia Tech), Daehun You (Georgia Tech)

Validation of New Approach to Tour-formation in Activity-Based Model Framework.
Presenter: Gaurav Vyas (PB); Co-authors: Peter Vovsha (PB), Danny Givon (Jerusalem Transportation Master Plan Team), Yehoshua Birotker (Jerusalem Transportation Master Plan Team)

Session 3B, *Cripple Creek Salon 1*
Unique Applications for Travel Models (Do You Want to Know a Secret?)
Moderator: Liza Amar (CDM Smith)

Accounting for Unique Aspects of Travel Demand Generated by a Large University in Travel Models.
Presenter: Venu G. Garikapati (Georgia Tech); Co-authors: Daehyun You (Georgia Tech), Ram Pendyala (Georgia Tech), Tushar Patel (AECOM), Jiji Kottommannil (AECOM), Aaron Sussman (Mid-Region Council of Governments)

Estimating User Accessibility Benefits with a Housing Sales Hedonic Model.
Presenter: Michael Reilly (Metropolitan Transportation Commission)

Estimated Impacts of Deteriorating Highway Conditions to Oregon's Economy.
Presenter: Becky Knudson (Oregon DOT); Co-author: Alexander Bettinardi (Oregon DOT)

Petrol, Diesel or Electric? An Extension of Passenger Transport Models for Differentiating Car Travel Demand.
Presenter: Tudor Mocanu (German Aerospace Center); Co-author: Christian Winkler (German Aerospace Center)

Session 3C, *Cripple Creek Salon 2*
Discussion: Building a Model (We Can Work It Out)
Moderator: Erik Sabina (CDOT), with assistance from Drew Cooper (City of SF)

Guidelines for Selecting Travel Forecasting Methods and Techniques.
Presenter: Maren Outwater (RSG); Co-author: Jeff Doyle (RSG)

A Framework for the Collaborative Development of Regional Strategic Planning Models.
Presenter: Brian Gregor (Oregon Analytics); Co-author: Tara Weidner (ODOT), Jeremey Raw (FHWA)

Making the Leap: Agency-led Integrated Team and Other Methods of Technology Transfer.
Presenter: Elizabeth Sall (UrbanLabs); Co-author: Diana Dorinson (Transportation Analytics), David Ory (MTC), Billy Charlton (PSRC), Joe Castiglione (SFCTA)

10:00 a.m. - 10:30 a.m., ***Crystal***
Break

10:30 a.m. - Noon
Concurrent Sessions Continue

Session 4A, *Crestone*
Lightning Talks: Innovations in TDM and Integrated Models (All Together Now)
Moderator: Billy Charlton (PSRC), with assistance from Rick Donnelly (PB)

Incorporation of Suitable Vehicle Following Models for Mixed Traffic Simulation by Considering Lateral Position Characteristics.
Presenter: Kavitha Madhu (Indian Institute of Technology Madras); Co-authors: Karthik Srinivasan (IITM), R Sivanandan (IITM)

Time-slice Traffic Assignment on a Space/Time Network Revisited.
Presenter: Calin Dan Morosan (INRO Consultants); Co-author: Michael Florian (INRO)

Developing Expenditure versus Delay Reduction curves from Travel Demand Models.
Presenter: Daniel Beagan (Cambridge Systematics); Joseph Zissman (CS), Joseph Guerre (CS)

Developing Usable and Useful Travel Modeling Software.
Presenter: Lisa Zorn (Metropolitan Transportation Commission); Co-authors: Elizabeth Sall (UrbanLabs), Billy Charlton (PSRC)

Using Perceived Time in the Generalized Cost Function for Static Assignment.
Presenter: Vince Bernardin (RSG); Co-authors: Steven Trevino (RSG), Chin-cheng Chen (Tennessee DOT)

Innovative Features in Portland's DASH Model.
Presenter: Richard Walker (Portland METRO); Co-author: John Gliebe (RSG)

Economic Models—What Makes Sense?
Presenter: Benjamin Gruswitz (DVRPC); Co-author: Reuben MacMartin (DVRPC)

Developing Validation Standards for San Francisco's Citywide Dynamic Traffic Assignment Model.
Presenter: Daniel Tischler (SFCTA); Joe Castiglione (SFCTA), Drew Cooper (SFCTA), Bhargava Sana (SFCTA)

Moving Towards Agent Based Model (AgBM) as the Next Step in Evolution of Integrated ABM-DTA Models.
Peter Vovsha (PB)
Adopting an Integrated Transportation and Land-use Policy Assessment Tool for the Triangle Region.
Presenter: Yanping Zhang (DCHC MPO); Co-authors: Felix Nwoko (DCHC MPO), Erich Rentz (RSG), Colin Smith (RSG)

Model Form and Bias in Trip Generation Models.
Liming Wang (Portland State University)

Behavioral Dynamics and Computational Challenges of ADAPTS Model.
Presenter: Ramin Shabanpour Anbarani (University of Illinois at Chicago); Co-authors: Mahmoud Javanmardi (UIC), Mehran Fasihozaman Langerudi (UIC), Abolfazl Mohammadian (UIC)

Session 4B, *Cripple Creek Salon 1*
Modeling Changing Trends (I Should Have Known Better)
Moderator: Michael Mahut (INRO), with assistance from Venu Garikapati (GaTech)

Modeling Autonomous Vehicles - Challenges and Results.
Presenter: Peter Davidson (TransPosition); Co-author: Anabelle Spinoulas (TransPosition)

Discrete Choice Models with Dynamic Effects: Estimation and Application in Activity-Based Travel Demand Framework.
Presenter: Guarav Vyas (PB); Co-authors: Peter Vovsha (PB), Danny Givon (Jerusalem Transportation Masterplan Team), Yehoshua Birotker (JTMT), Amire Mossek (JTMT), Eitan Bluer (JTMT)

The Transition from Diary-based to Smartphone-based Travel Survey Data: Implications for Travel Demand Modeling.
Presenter: Mark Bradley (RSG); Co-authors: Elizabeth Greene (RSG), Robert Wertman (Heartland MPO), Suzanne Childress (PSRC)

Session 4C, *Cripple Creek Salon 2*
Workshop: Smartphones and Household Travel Surveys (Here, There and Everywhere)
Moderator: Stacey Bricka (ETC Institute), with assistance from Rachel Copperman (CS)

The purpose of this workshop is to explore recent advances in deploying smartphone technology in household travel surveys. Attendees will receive updates on three smartphone apps currently being used in actual studies, hear from a panel of experts who are helping to advance the state of practice, and brainstorm next steps. The content is designed to update attendees on current studies deploying smartphone apps and then break into smaller discussion groups to focus on challenges and opportunities and to identify research priorities.

Project Presentations: 5 min each (each presentation is structured to inform Round Table discussion)
Maricopa Association of Governments - Arun Kuppam (CS)
Ohio Department of Transportation - Rebekah Anderson (ODOT)
Concordia University - Zachary Patterson (CU)

Panel: Key Questions/Information Needs from each Perspective – 10 min each
Academic: Eric Miller (University of Toronto)
Agency: Vladimir Livshits (MAG)
Practitioner: Elizabeth Greene (RSG)

Round Table Discussions: 30 min - Potential topics – will be finalized based on pre-conference survey
- Apps and other technologies – includes short demos of apps presented at the start of the workshop
- Response rates and respondent reactions, survey burden and outreach
- Trade-offs in app development (accuracy vs. burden) for collection and validation
- Mixed mode data collection – what to do about those who don't own a smartphone?
- Is the data collected from Smartphones better or just different? What can be inferred vs. asked?
- Privacy concerns (agencies releasing data, respondents giving details, etc.)
- Implications for ABM
- Beyond Smartphones – what are the emerging technologies we should be testing now?

Moving Into Practice – 15 min summaries per table with focus on key research topics and other priorities

Noon - 1:30 p.m., ***Crystal***
Lunch

Noon - 1:30 p.m., ***Aspen***
ADB45: Special Committee for Travel Forecasting Resources - Committee Meeting (open meeting)

1:30 p.m. - 3:00 p.m.
Concurrent Sessions Continue

Session 5A, *Crestone*
ABM Innovations: Part 2 (A Hard Day's Night)
Moderator: Karthik Konduri (UConn), with assistance from Brice Nichols (PSRC)

Pricing and Reliability Enhancements in the San Diego Activity-Based Travel Model.
Presenter: Joel Freedman (RSG); Co-authors: Nagendra Dakhar (RSG), Mark Bradley (RSG), Wu Sun (SANDAG)

Using Parking Pricing to Manage Congestion: SF-CHAMP Model Enhancements and Preliminary Results.
Presenter: Joe Castiglione (SFCTA); Co-authors: Rosella Picado (PB), Michael Schwartz (SFCTA), Joel Freedman (RSG), Diana Dorinson (Transportation Analytics), Dan Tischler (SFCTA), Tim Grose (CS)

Testing Activity-Based Model Component Transferability at the Individual Component and System Level.
Presenter: Martin Milkovits (CS); Co-author: Thomas Rossi (CS)

Experiments with Big Data Management Technologies for Activity-Based Microsimulation Travel Models.
Presenter: Ben Stabler (RSG); Co-authors: Yegor Malinovskiy (INRIX), Rick Donnelly (PB)

Session 5B, *Cripple Creek Salon 1*
Discussion Session: Moving Innovations to Practice
Moderator: Dave Ory (MTC)

Successful innovations in Travel Modeling often follow a logical progression from research to application. Innovation at the research phase inherently involves successes and failures - both of which add value as our industry evolves (provided each are well documented and shared). Applications of models, which are inherently conducted to solve problems, educate decision makers and/or inform policy, should be understandable and minimize failure. It is the transition from innovation to application that is critical and challenging. Entire industries have evolved to tackle this problem and many innovations fail to move into application not because of their genius but for other, more mundane reasons, including leadership failures, inappropriate allocation of funding, uncertain expectations, constraints of ownership, and willingness to accept mediocrity. This panel will share ideas and motivate discussion around how we in the transportation sector currently, and ideally should, transition innovation into application.

Panelists:
Stephen Lawe (RSG)
Rick Donnelly (WSP|PB)
Clint Daniels (SANDAG)
Doug Rex (DRCOG)
Eric Miller (University of Toronto)
Greg Giaimo (DOT)

Session 5C, *Cripple Creek Salon 2*
Tutorial: Using R for Data Cleaning, Munging, Visualizing, and Modeling
Moderator: Josie Kressner (Transport Foundry), with assistance from Greg Macfarlane (PB)

Laptops-open Tutorial on Using R and Important Accessories. No Prior Experience Needed.

This laptops-open tutorial will help you get your data munging, cleaning, and mathematical modeling done fast and cleanly in R. The hands-on tutorial will use ACS PUMS, CTPP, NHTS, and other travel datasets you are familiar with for travel analysis.

3:00 p.m. - 3:30 p.m., ***Crystal***
Break

3:30 p.m. - 5:00 p.m., ***Crestone***
Plenary Session

Historical Perspective of Innovative Model Development
Honored Speaker Kermit Wies, Retired CMAP Transportation Director

What Did You Learn Today? Interactive Discussion on Next Generation Model Platforms

5:30 p.m. ***(Meet at TRB Registration Desk at 5:20 p.m.)***
Social Event: Shared Bike Tour (sponsored by B-Cycle)

- Bicycles will be reserved (must be pre-registered)
- B-Cycle will provide free bicycles and helmets
- Delivery and pick-up at hotel site

Wednesday, May 4

7:30 a.m. - 8:30 a.m., ***Crystal***
Continental Breakfast

8:30 a.m. - 10:00 a.m.
Concurrent Sessions

Session 6A, *Crestone*
Integrated Demand/Network models (Come Together)
Moderator: Guy Rousseau (ARC), with assistance from Hua Yang (NCTCOG)

Integrated Dynamic Traffic and Transit Assignment for a Multimodal Corridor Study.
Presenter: Mason Gemar (University of Texas); Co-authors: Jen Duthie (UT), Alireza Khani (U. Minnesota), Jackson Archer (UT), Natalia Ruiz Juri (UT), Ken Perrine (UT)

Increasing the Stability and Robustness of Simulation-based Network Assignment Models for Large Scale Applications.
Present: Michael Mahut (INRO); Co-authors: Michael Florian and Dan Florian (INRO)

Integrated Model of Travel Demand and Network Simulation.
Presenter: Peter Vovsha (PB); Co-authors: James Hicks (PB), Rebekah Anderson (ODOT), Greg Giaimo (ODOT), Presenter: Guy Rousseau (ARC)

A Continuous-Time Integrated Transport Model System for Simulating Impacts of Dynamic and Active Mobility Management Strategies.
Presenter: Daehyun You (Georgia Tech University); Co-authors: Venu Gerakapati (Georgia Tech), Karthik Konduri (Uconn), Ram Pendyala (Georgia Tech), Xuesong Zhou (Arizona State U.)

Session 6B, *Cripple Creek Salon 1*
Lightning Talks*: Future of Transportation and Active Transportation (Here Comes the Sun)
Moderator: Greg Giaimo (ODOT), with assistance from Rick Donnelly (PB)

Measuring Health Benefits of Active Transport Scenarios with the Health Economic Assessment Tool (HEAT).
Presenter: Brice Nichols (PSRC); Co-author: Suzanne Childress (PSRC)

Travel Forecast Scenario Creation with the Foresight 750 Series.
Presenter: Alan Horowitz (AJH Associates and University of Wisconsin, Milwaukee)

Who is willing to adopt autonomous vehicle technology? Trends in public perception in the Puget Sound Region.
Presenter: Leah Flake (RSG)

Effects of Information and Communication Technologies (ICT) and Evolving Transportation Services on Modality Styles and Travel Mode Choice.
Presenter: Alejandro Henao (University of Colorado Denver)

When Models Aren't Enough: Calculating Mode Shift in Washington, D.C.
Presenter: Tim Padgett (Kimley-Horn)

Last Mile Transit Access/Egress Provided by Bike-Share Systems - Case Study from Chicago.
Presenter: Anurag Komanduri (Cambridge Systematics); Co-author: Zhuyun Gu (Cambridge Systematics)

Transportation Model Integration to Measure Sustainability.
Presenter: Daniel Engelberg (University of Maryland); Co-authors: Erdogan Sevgi (UMD), Di Yang (UMD), Harulyan Shahumyan (University College Dublin), Rolf Moeckel (Technical University Munich), Fred Ducca (UMD), Gerrit Knapp (UMD), Uri Avin (UMD)

Implementing Active Transportation Forecasting in a Statewide Model.
Presenter: Scott Thompson-Graves (Whitman, Requardt, and Associates); Co-authors: Michael DuRoss (DelDOT), Li Li (WRA), Ashley Tracy (WRA)

Modeling Bicycling Travel Demand in Los Angeles.
Presenter: Feng Liu (Cambridge Systematics); Co-authors: Tom Rossi (CS)

Adaptive Step Sizes for Feedback in Solving Equilibrium Travel Demand Models.
Presenter: John Gibb (DKS Associates)

Open Source Demand Modeling with Python.
Presenter: Chetan Joshi (PTV America)

Including Reliability in VDF Curves.
Presenter: Daniel Beagan (CS)

Session 6C, *Cripple Creek Salon 2*

Getting Down to the Business of Advancing the Practice of Travel Modeling

Moderators: Dave Ory (MTC), Elizabeth Sall (UrbanLabs), Billy Charlton (PSRC), Joan Walker (UC Berkeley) and Brian Gardner (FHWA)

How would a business or foundation approach advancing/improving travel modeling research and practice? By first articulating their mission, vision, and goals, and then focusing on a finite list of concrete next steps. Please come prepared to roll up your sleeves and join us for an interactive working session in which we tackle these tasks.

10:00 a.m. - 10:30 a.m., ***Crystal***
Break

10:30 a.m. - Noon, ***Crestone***
Closing Plenary, Thank You, and Awards

Putting it All Together . . . Summary of ITM 2016 and Directions
Honored Speaker, Eric Miller, Professor at The University of Toronto.

Interactive Discussion on Future Research and Innovation

Lightning Talk Abstracts, Workshop Abstracts and Podium Session Research Briefs will be Posted on www.TFResource.org

TSS-Transport Simulation Systems (TSS) develops, markets and supports the Aimsun traffic modelling software environment. Aimsun is an all-in-one tool for transportation modelling applications: from planning, to operations, to evaluation of ITS, autonomous and connected vehicle technologies. Aimsun integrates a microscopic-mesoscopic hybrid simulator with travel demand modelling and macroscopic functionalities, while Aimsun Online offers traffic control centres real-time, simulation-based decision support for traffic management.

Now with offices in Barcelona, London, New York City, Paris, Portland and Sydney, TSS services over 3,700 licensed users in 73 countries, including government agencies, consultancies, academic users and research partners.

INRO designs and develops the world's most powerful and proven transport planning software. Emme travel demand forecasting, Dynameq multi-scale traffic simulation and CityPhi visual analytics software are built to handle the rigors of complex transport systems and to account for the diverse technological, social, and economic challenges facing planners today. Our focus on professional methodologies ensures that planners can rely on the credibility of our models, and our flexible tool-kit approach gives planners the freedom to adapt and customize models to suit local needs. INRO software is used in over 1000 organizations in more than 80 countries, including half of the world's largest cities.

PTV Group plans and optimizes everything that moves people and goods worldwide – be it transport routes, distribution structures or private and public transportation systems. As an international leading transportation technology company we offer software, data, content, training and research to make mobility environmentally friendly, sustainable and cost-effective for all. PTV Group is proud to be the Platinum sponsor of the TRB Annual Meeting.

Caliper Corporation is a technology leader in the development of transportation analysis software. TransCAD, Caliper's GIS platform for transportation planning, is the most popular travel demand forecasting software among MPOs that do planning in the US. TransModeler, TransCAD's sister product, is used across the US to simulate the impacts of proposed land use developments, traffic control and roadway improvement projects, and active traffic management strategies. Caliper is also a highly regarded consulting and R&D provider offering professional services in quantitative management consulting, transportation, and decision support systems development.

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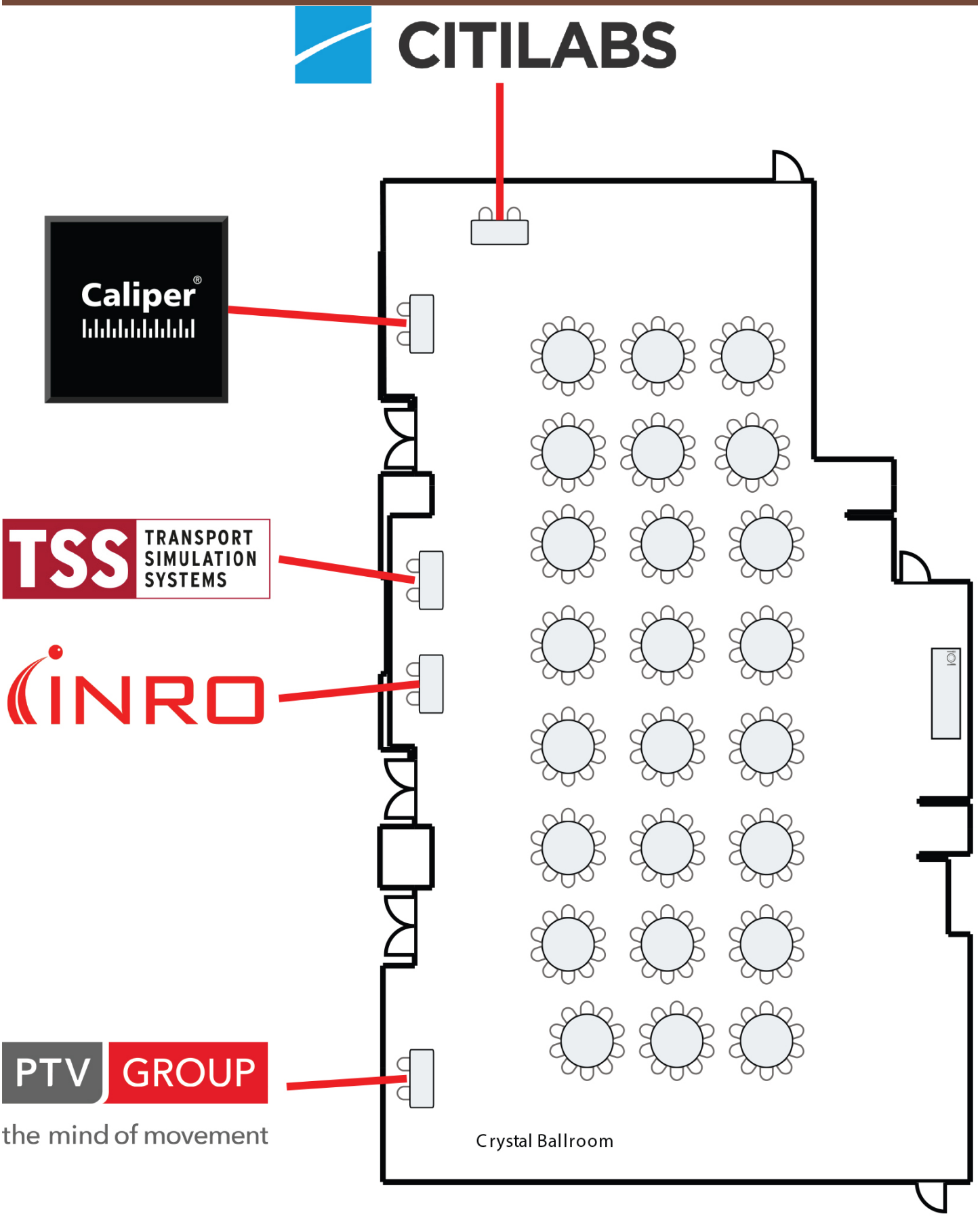
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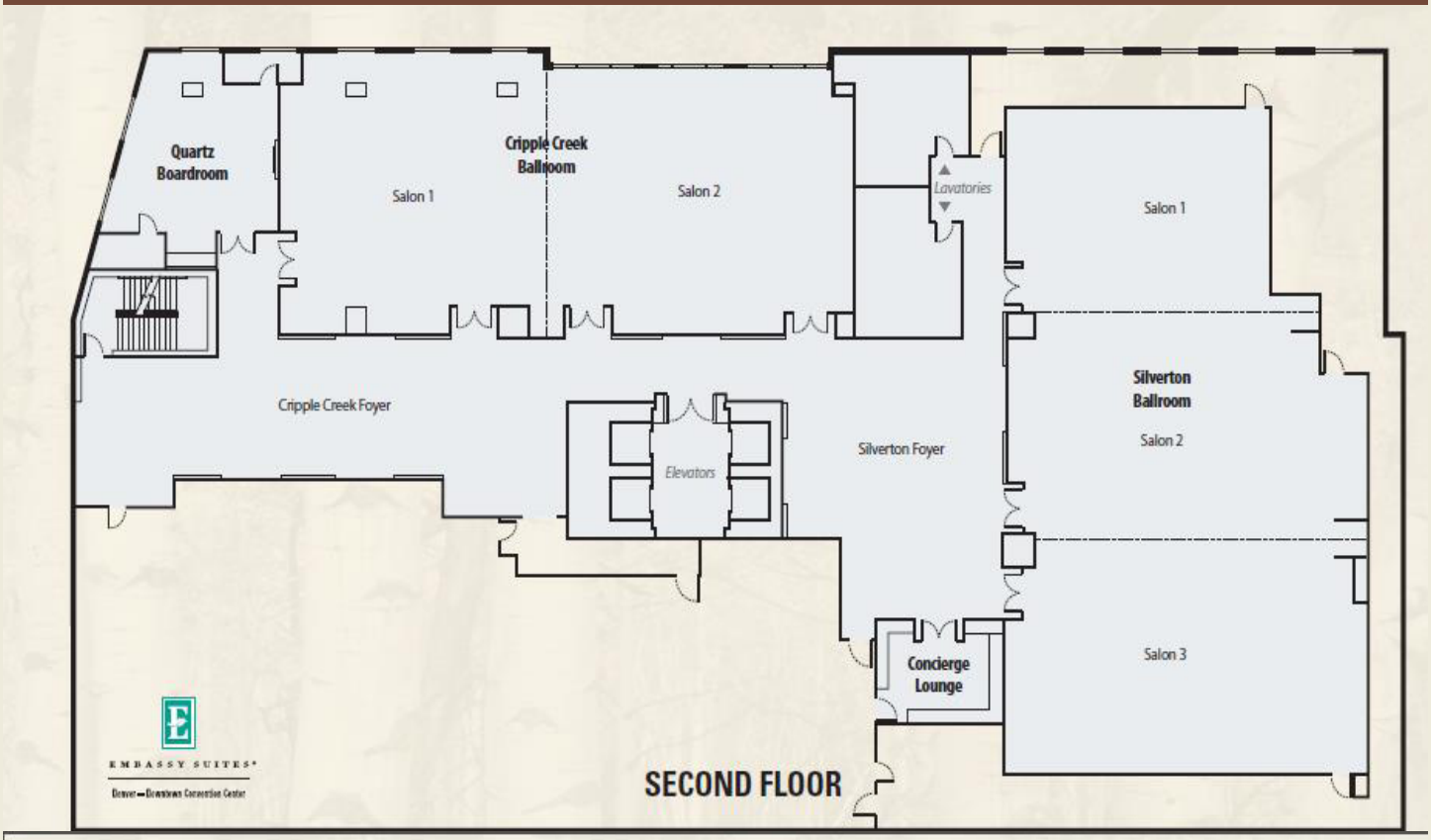

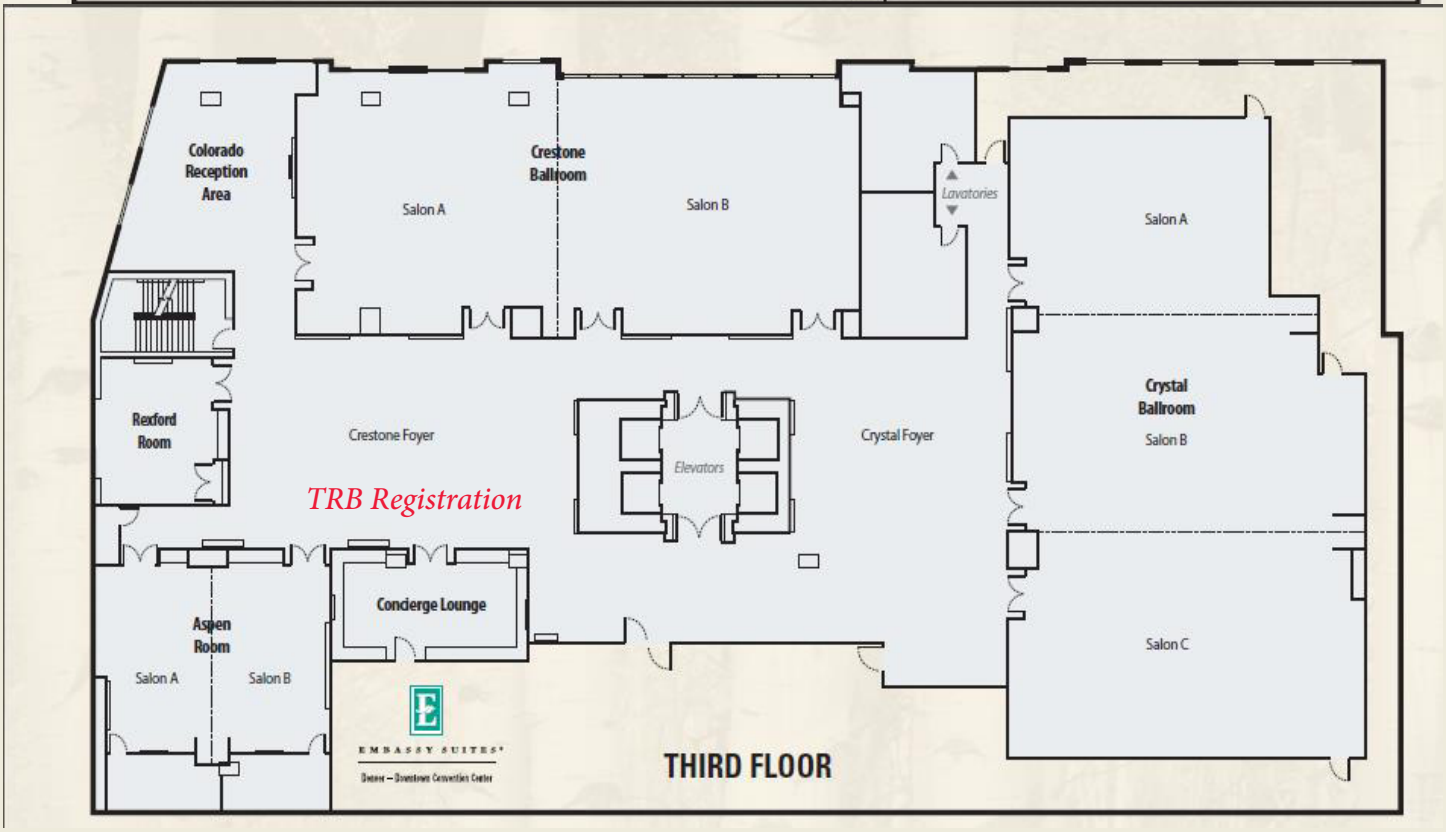

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