TRB *FINAL PROGRAM*

# International Conference on Demand Responsive and Innovative Transportation Services

***April 15-17, 2019***
***Baltimore, Maryland***

***Organized by***
**Transportation Research Board**

***Sponsored by***
**Committee on Paratransit (AP060)**
**Committee on Emerging and Innovative Public Transport and Technologies (AP020)**

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## BRONZE

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transportation software solutions

ASCENDAL
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Routematch

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SMART · MOBILITY · SOLUTIONS

Welcome to Baltimore! The place to be to find out how Demand Responsive and Innovative Transportation Services (DRT) are transforming the way people move about in our communities.

Jitney, Dial-a ride, Paratransit and TNC/taxi are all Demand Response Mobility Services at the center of a creative revolution in how we move. Our objective over the next 3 days is to profile:

- Current demand response- systems around the world;
- How the legal and regulatory systems governing transit either help or hinder DRT development;
- Novel ways to connect passengers and transit;
- New mobility providers and systems;
- Transit system partnerships with healthcare providers, and social service agencies to provide Mobility on Demand;
- Accessibility, Equity and Sustainability considerations for inclusive service design and marketing;
- The state of the market in DRT vehicle options;
- Transit Data Metrics and Planning Techniques that support performance management and bench-marking of DRT services;
- Business models and payment strategies that will promote and integrate new mobility services; and
- The progress toward Mobility as a Service integration.

Please take advantage of our setting to connect with your peers to hear about the progress of initiatives in Demand Responsive Transportation Services you can use to benefit your community.

While you are here, take some time to enjoy Baltimore's Inner Harbor with lots of great places to eat, play and relax.

If you have any questions, please ask any of us any of the conference organizing committee identified by our nametags.

Mark Mindorff, Darts Transit
Conference Planning Co-chair

Steve Yaffe, Yaffe Mobility Consulting
Conference Planning Co-chair

## CONFERENCE PLANNING COMMITTEE

**Mark Mindorff,** Conference Co-Chair, Darts Transit
**Steve Yaffe,** Conference Co-Chair, Yaffe Mobility Consulting
**Adam Cohen,** University of California, Berkeley
**Arjan van Andel,** PTV Group
**Arnd Batzner,** Mobility CarSharing Switzerland
**Carol Schweiger,** Schweiger Consulting LLC
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**Lindsey Morse,** Imperial College London
**Marlene Connor,** Marlene Connor Associates
**Matthew W. Daus, Esq.,** The City College of NY at The City University of New York
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**Prachi Vakharia,** Steer
**Susan Shaheen,** University of California, Berkeley
**Young-Jae Lee,** Morgan State University

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**www.TRB.org**

# CONFERENCE AT A GLANCE

| | | |
|---|---|---|
| | **Sunday, April 14** | |
| 3:00 p.m. – 5:00 p.m. | **Registration** | ***Chesapeake Gallery*** |
| | **Monday, April 15** | |
| 7:00 a.m. – 5:00 p.m. | **Registration** | ***Chesapeake Gallery*** |
| 7:30 a.m. – 8:30 a.m. | **Continental Breakfast** | ***Harborview 2*** |
| 8:30 a.m. – 6:30 p.m. | **Exhibit** | ***Harborview 2*** |
| 8:30 a.m. – 9:45 a.m. | Welcome & Open Plenary Session | ***Chesapeake I&II*** |
| 9:45 a.m. – 10:15 a.m. | **Break** | ***Harborview 2*** |
| 10:15 a.m. – Noon | Concurrent Sessions: A, B | |
| | A: Profiling Current Demand Responsive Transit Systems | ***Chesapeake III*** |
| | B: Legal and Regulatory | ***Harborview 1*** |
| Noon – 1:30 p.m. | **Lunch** | ***Chesapeake I&II*** |
| 1:30 p.m. – 3:00 p.m. | Concurrent Sessions: C, D | |
| | C: International | ***Chesapeake III*** |
| | D: Connecting DR Passengers | ***Harborview 1*** |
| 3:00 p.m. – 3:30 p.m. | **Break** | ***Harborview 2*** |
| 3:30 p.m. – 5:00 p.m. | Concurrent Sessions: E, F | |
| | E: The Rules for Deploying DRT Systems | ***Chesapeake III*** |
| | F: Data: How and What Should We Measure, and How Can We Improve Performance? | ***Harborview 1*** |
| 5:00 p.m. – 6:30 p.m. | **Welcome Reception/ Poster Session/Exhibits** | ***Harborview 1 & 2*** |
| | **Tuesday, April 16** | |
| 7:30 a.m. – 5:00 p.m. | **Registration** | ***Chesapeake Gallery*** |
| 7:30 a.m. – 8:30 a.m. | **Continental Breakfast** | ***Harborview 2*** |
| 8:30 a.m. – 5:00 .m. | **Exhibit** | ***Harborview 2*** |
| 8:30 a.m. – 10:15 a.m. | Concurrent Sessions: G, H | |
| | G: Researching Service Delivery Models | ***Chesapeake III*** |
| | H: Vehicles | ***Harborview 1*** |
| 10:15 a.m. – 10:30 a.m. | **Break** | ***Harborview 2*** |
| 10:30 a.m. – Noon | Plenary Session | ***Chesapeake I&II*** |
| Noon – 1:30 p.m. | **Lunch with Speaker** | ***Chesapeake I&II*** |

| | | |
|---|---|---|
| 1:30 p.m. – 3:00 p.m. | Plenary Session | ***Chesapeake I&II*** |
| 3:00 p.m. – 3:30 p.m. | **Break** | ***Harborview 2*** |
| 3:30 p.m. – 5:00 p.m. | Concurrent Sessions: I, J | |
| | I: Managing DR Systems | ***Chesapeake III*** |
| | J: The Challenges of Delivering DRT Service: Experiences and Learnings | ***Harborview 1*** |
| **Wednesday, April 17** | | |
| 8:00 a.m. – 11:00 a.m. | **Registration** | ***Chesapeake Gallery*** |
| 8:00 a.m. – 8:30 a.m. | **Continental Breakfast** | ***Harborview 2*** |
| 8:30 a.m. – 11:00 a.m. | **Exhibit** | ***Harborview 2*** |
| 8:30 a.m. – 10:00 a.m. | Plenary Session | ***Chesapeake I&II*** |
| 10:00 a.m. – 10:30 a.m. | **Break** | ***Harborview 2*** |
| 10:30 a.m. – Noon | Conference Wrap-Up | ***Chesapeake I&II*** |
| Noon | Adjourn | |
| 1:00 p.m. – 3:00 p.m. | Stakeholder Engagement Session<br>• NCHRP 20-102(11) Task Order: Mobility-on-Demand and Automated Driving Systems: A Framework for Public-Sector Assessment | ***Chesapeake I&II*** |

## Sunday, April 14

***3:00 p.m. - 5:00 p.m., Chesapeake Gallery***
**Registration**

## Monday, April 15

***7:00 a.m. - 5:00 p.m., Chesapeake Gallery***
**Registration**

***7:30 a.m. - 8:30 a.m., Harborview 2***
**Continental Breakfast**

***8:30 a.m. - 8:30 a.m., Harborview 2***
**Exhibit**

***8:30 a.m. - 9:45 a.m., Chesapeake I&II***
**Welcome and Open Plenary Session**

**Conference Welcome**
Mark Mindorff, *Darts Transit*
Co-Chair, Conference Planning Committee

**Open Plenary Session**
Michelle Pourciau, *Director, Department of Transportation, City of Baltimore*

***9:45 a.m. - 10:15 a.m., Harborview 2***
**Break**

***9:45 a.m. - 10:15 a.m., Harborview 2***
**Exhibit**

***10:15 a.m. - Noon***
**Concurrent Sessions**

**Breakout Session A - *Chesapeake III***
**Profiling Current Demand Responsive Transit Systems**
*Moderator: Mollie D'Agostino, Policy Institute for Energy, Environment and the Economy, University of California, Davis*

**Current and Emerging Good Practices in Rural Shared Mobility: European Experiences from the SMART Rural Transport Areas Project (SMARTA)**
Giorgio Ambrosino, *MemEx Srl*

**A Door-to-Hub Demand-Responsive Transport Service for Mass Transit**
Dean Economou, *Liftango*

**Ridehailing and Public Transportation: Evaluating the Evolution of Partnerships and Pilots**
Susan Pike, *University of California, Davis*

**PSTA's FTA Mobility on Demand Sandbox Pilot: Integrating Cross-Disability Access into DRT App Design & Service Delivery**
Ross Silvers, *Pinellas Suncoast Transit Authority (PSTA)*
Justin Bergener, *Goin*

**Profiling New Technology in Belleville Transit on-Demand Night Bus Service**
Luke Mellor, *Pantonium*

**Breakout Session B -*Harborview 1***
**Legal and Regulatory**
*Moderator: Matthew W. Daus, Esq., Transportation Research Center, The City College of NY at The City University of New York*

**Thinking and Working Outside the Box - New Mobility Initiatives Require Legal & Regulatory Reform**
Steve Yaffe, *Yaffe Mobility Consulting*

**Developing a Demand Responsive Transportation Data and Privacy Regulatory Framework**
Matthew W. Daus, Esq., *Transportation Research Center, The City College of NY at The City University of New York*

**TNC Accessibility for Persons with Disabilities**
Erin McAuliff, *San Francisco Municipal Transportation Agency*

**Overview and Analysis of Policy and Frameworks Within which Rural Shared Mobility is Provided in Europe – Findings of the SMART Rural Transport Areas Project (SMARTA)**
Brendan Finn, *ETTS, Ltd.*

***Noon - 1:30 p.m., Chesapeake I&II***
**Lunch with Speaker**

Vincent Valdes, *Associate Administrator for Research, Demonstration and Innovation, FTA*

***1:30 p.m. - 3:15 p.m.***
**Concurrent Sessions Continue**

**Breakout Session C - *Chesapeake III***
**International**
*Moderator: Prachi Vakharia, Steer*

**Demand-Responsive Transport and Informality: Opportunities and Limits of Formalization**
Arnd Bätzner, *Mobility CarSharing*

**Inclusive Shared Mobility**
Mitch LaRosa, *Shared Mobility Inc.*

**Transport Equity impacts of DRT in Peri-Urban Environments**
Ben Kaufman, *Griffith University Cities Research Institute*

**Transportation and Community Mobility for Individuals with Developmental Disabilities**
Beth Pfeiffer, *Temple University*

**Let's Talk About the Daily Commute**
Tom Williams, *Ascendal Group, LLC*

**Breakout Session D - *Harborview 1***
**Connecting DR Passengers**
*Moderator: Marlene Connor, Marlene Connor Associates*

**Older Drivers and Transportation Network Companies: Investigating Opportunities for Increased Safety and Improved Mobility**
Melissa Tooley, *Texas A&M Transportation Institute*

**Community Readiness for Crowding Sourcing - Evaluating and Innovating**
Sherry Welsh, 3P Ride, Inc., *Central Pennsylvania Transportation Authority*

**Including Flexible DRT Services in OpenTripPlanner and 1-Click via GTFS Flex**
Paul Sorensen, *Cambridge Systematicse*

**Assessing Impacts on Operations and Customers of Ride-Hailing and Optimization Applications to DRT Service**
Randall Farwell, *Tindale Oliver*

***3:15 p.m. - 3:30 p.m., Harborview 2***
**Break**

***3:00 p.m. - 3:30 p.m., Harborview 2***
**Exhibit**

***3:30 p.m. - 5:00 p.m.***
**Concurrent Sessions Continue**

**Breakout Session E - *Chesapeake III***
**The Rules for Deploying DRT Systems**
*Moderator: Arjan van Andel, PTV Group*

**Service Design for Mobility Providers: Getting Shared Services Right Before Launch (Chicago Case Study)**
Mike Cottle, *Bestmile*

**Evolving Transit Planning Methodologies to Incorporate Alternative Service Delivery Options**
Jessica Alvarez, *Foursquare Integrated Transportation Planning*

**GIS Approach to Identify the Potential Service Areas and Feasibility for Demand Response Feeder Transit Service: US metropolitan Suburban Areas**
Samira Ahangari, Istiak Bhuyan, Young-Jae Lee; *Morgan State University*

**Working Out Where to Pilot on Demand Flexible Services in Metro Vancouver**
Niklas Kviselius, *Translink*
Dennis Fletcher, *Steer*

**Portland Study: OnDemand+ MaxService to Reduce Congestion and Equitable on Demand Service**
Arjan van Andel, *PTV Group*

**Breakout Session F - *Harborview 1***
**Data: How and What Should We Measure, and How Can We Improve Performance?**
*Moderator: Lindsey Morse, Railway and Transport Strategy Centre, Imperial College London*

**New Paradigms in DRT/ Shared Mobility-on-Demand (MOD) Metrics**
Will Rodman, *TSS Paratransit*

**Paratransit Capacity Utilization: Matching Demands on Space with Vehicle Mix – Insights from the American Bus Benchmarking Group**
Lindsey Morse, *Railway and Transport Strategy Centre, Imperial College London*

**Statewide Paratransit Scheduling and Dispatch Software Deployment**
John Taylor, *Pennsylvania Department of Transportation*

**Operational Impacts and Assessing Lifecycle Costs of Open Source RidePilot DRT Scheduling Software**
Paul Sorensen, *Cambridge Systematics*
Clint Wilkinson, *Utah Transit Authority*
Ryan Taylor, *Utah Transportation Authority*

***5:00 p.m. - 6:30 p.m., Harborview 1 & 2***
**Welcome Reception/Poster Session/Exhibits**

**Mode Choices with Time Reliability Considerations**
Ricardo Daziano, *Cornell University*

**Taxi and For Hire Vehicle Services and Linkages to Illicit Activities**
Jonathan Peters, *The City University of New York*

**Sources of Variability in Operations and Costs of Demand Responsive Transit Systems**
Charalampos Sipetas, *University of Massachusetts Amherst*

**Greater Minnesota Five-Year Transit System Plans**
Lee Nichols, *WSB & Associates, Inc.*

**Charging Fleets of Shared Electric Ride Vehicles with Renewables and the Grid in San Francisco: Developing a Smart EV Routing System, a Smart Charging Algorithm, and Estimating Their Economic Feasibility**
Stefania Mitova, *University of Colorado Boulder*

**Using Technology to Enhance the Coordination of Transit and DR Services in Multi-Agency Regions: Planning a Travel Management Coordination Center (TMCC) and Related Challenges**
Brendon Hemily, *Hemily and Associates*

**Rural Mobility as a Service (Maas) in Finland**
Eric Bruun, *Kyyti Group*

## Tuesday, April 16

***7:30 a.m. - 5:00 p.m., Chesapeake Gallery***
**Registration**

***7:30 a.m. - 8:30 a.m., Harborview 2***
**Continental Breakfast**

***7:30 a.m. - 8:30 a.m., Harborview 2***
**Exhibit**

***8:30 a.m. - 10:15 a.m.***
**Concurrent Sessions**

**Breakout Session G - *Chesapeake III***
**Researching Service Delivery Models**
*Moderator: Jean Ruestman*, *Michigan Department of Transportation*

**Dynamic Bus Routing: The Role of High-capacity on Demand Ridesharing in a Population-dense Urban Environment**
Kenneth Koh, *Land Transport Authority*

**Negotiating Transit-TNC Partnerships that Work**
Dan Berez, *Nelson\Nygaard*

**Flex Danmark**
Jana Lynott, *AARP*

**The Impact of Analytical Reports on Paratransit Service Planning**
Will Rodman, *TSS Paratransit*

**Breakout Session H - *Harborview 1***
**Vehicles**
*Moderator: Steve Yaffe, Yaffe Mobility Consulting*

**Embedding Principles into the Automated Vehicle Revolution**
Sheryl Gross-Glaser, *Community Transportation Association of America*

**Optimizing Electric Fleet Operations Serving Demand-responsive Mobility in an Automated Mobility District**
Venu Garikapati, *National Renewable Energy Lab*

**Miami-Dade TPO SMART Demonstration Projects: On-Demand Responsive Services**
Lisa Colmenares, *Miami-Dade Transportation Planning Organization*

**The Optimization of Publicly Regulated e-Hailing Complementary ADA Paratransit: Lessons from Six U.S. Transit Programs**
Jamaal Schoby, *Texas Southern University*

**Transportation Network Companies Used as a Part of Basic Mobility in Transit**
Todd Hansen, *Texas A&M Transportation Institute*

***10:15 a.m. - 10:30 a.m., Harborview 2***
**Break**

***10:15 a.m. - 10:30 a.m., Harborview 2***
**Exhibit**

***10:30 a.m. - Noon, Chesapeake I&II***
**Plenary Session**
**Integrated Mobility Innovation: Realizing Complete Trips for All**
*Moderator: Federal Transit Administration*

***An Introduction to FTA's Integrated Mobility Innovation Program***
Rik Opstelten, *FTA Office of Mobility Innovation*

***The Evolution from Mass Transit to Mobility Integration: What the Trends Tell Us***
Mary Leary, *FTA Office of Research, Demonstration and Innovation*

***Challenges at the Cutting Edge: Lessons Learned in the MOD Sandbox***
Ross Silvers, *Pinellas Suncoast Transit Authority (PSTA)*

***Noon - 1:30 p.m., Chesapeake I&II***
**Lunch with Speaker**

Neil Pedersen, Executive Director, Transportation Research Board

***1:30 p.m. - 3:00 p.m., Chesapeake I&II***
**Plenary Session**
**Mobility as a Service Becoming a Reality in the US: Needs and Opportunities**
*Moderator: Rich Farr, rabbittransit*

***The Current and Potential Future State of MaaS in the U.S.***
Carol Schweiger, *Schweiger Consulting LLC*

***How to Develop the Thinking/Models, Curriculum and Outreach Efforts to Support MaaS***
Kevin Chambers, *Full Path*

***Mobility Marketplace Project***
Robert Sheehan, *Federal Highway Administration*

***What is the Bigger Picture for MaaS in The U.S.?***
Dwight Mengel, *Tompkins County Department of Social Services*

***3:00 p.m. - 3:30 p.m., Harborview 2***
**Break**

***3:00 p.m. - 3:30 p.m., Harborview 2***
**Exhibit**

***3:30 p.m. - 5:00 p.m.***
**Concurrent Sessions Continue**

**Breakout Session I** ***- Chesapeake III***
**Managing DR Systems**
*Moderator: Eric Bruun, Kyyti Group*

**How Government Agencies Can Better Manage and Promote Shared Mobility**
Andrei Greenawalt, *Via*

**Providing Mobility as a Service in San Joaquin Regional Transportation District**
Kelly Coughlin-Tran, *Ecolane DRT*

**Demand Responsive Public Transportation Services in Canada: An Overview**
Brendon Hemily, *Hemily and Associates*

**Comparison Between Demand Responsive Feeder Transit Services with Door-to-Door and with Temporary Stops**
Amirreza Nickkar, *Morgan State University*
Young-Jae Lee, *Morgan State University*

**How Effective Data Analysis and Technology can Promote Mobility, a Reduction in Paratransit Cost, and Rider Transformation**
Pepper Haward, *Routematch*

**Breakout Session J** ***- Harborview 1***
**The Challenges of Delivering DRT Service: Experiences and Learnings**
*Moderator: Arnd Bätzner, Mobility CarSharing*

***Challenges of Delivering Demand-Responsive Service in an Urban Environment***
Jonathan Cheng, *San Francisco Municipal Transportation Agency*

***Delivering New and Innovative Mobility for Everyone***
Adam Leishman, *Ascendal Group, LLC*

***Transportation Network Companies (TNCs) and Demand Responsive Transit (DRT)***
Chris Pangilinan, *Uber Technologies Inc.*

***The Challenges of Seamlessly Integrating Demand Responsive Transportation with Public Trasnport Services and Authorities***
Alice Etropolszky, *door2door*

## Wednesday, April 17

***8:00 a.m. - 11:00 a.m., Chesapeake Gallery***
**Registration**

***8:30 a.m. - 8:30 a.m., Harborview 2***
**Continental Breakfast**

***8:00 a.m. - 11:00 a.m., Harborview 2***
**Exhibit**

***8:30 a.m. - 10:00 a.m., Chesapeake I&II***
**Plenary Session: Key Conference Findings**

- **Profiling Current Demand Responsive Transit Systems**
  Mollie D'Agostino, *Policy Institute for Energy, Environment and the Economy, University of California, Davis*
- **Legal and Regulatory**
  Matthew W. Daus, Esq., *Transportation Research Center, The City College of NY at The City University of New York*
- **International**
  Prachi Vakharia, *Steer*
- **The Rules for Deploying DRT Systems**
  Arjan van Andel, *PTV Group*
- **Connecting DR Passengers**
  Marlene Connor, *Marlene Connor Associates*
- **Data: How and What Should We Measure, and How Can We Improve Performance?**
  Lindsey Morse, *Railway and Transport Strategy Centre, Imperial College London*
- **Researching Service Delivery Models**
  Jean Ruestman, *Michigan Department of Transportation*
- **Vehicles**
  Steve Yaffe, *Yaffe Mobility Consulting*
- **Managing DR Systems**
  Eric Bruun, *Kyyti Group*
- **The Challenges of Delivering DRT Service: Experiences and Learnings**
  Arnd Bätzner, *Mobility CarSharing*

***10:00 a.m. - 10:30 a.m., Harborview 2***
**Break**

***10:30 a.m. - Noon, Chesapeake I&II***
**Conference Wrap-Up & Adjourn**

Mark Mindorff, *Darts Transit*
Co-Chair, Conference Planning Committee

***1:00 p.m. - 3:00 p.m., Chesapeake I&II***
**Stakeholder Engagement Session**
**NCHRP 20-102(11) Task Order: Mobility-on-Demand and Automated Driving Systems: A Framework for Public-Sector Assessment**
Booz Allen Hamilton
UC Berkeley's Transportation Sustainability Research Center (TSRC)

**The goals of the session would include:**
1. Presenting findings from the state-of-the-art assessment to the stakeholder community
2. Presenting the final impact assessment framework, which entails our structure for assessing the impacts of MOD and ADS deployments and demonstrations; and
3. Drafting/Reviewing use case scenarios which outline the circumstances of public agency engagement with specific MOD operators. These draft use cases will support the subsequent stages of the project.

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## MEET US AT DRTS

### BREAKOUT SESSION E

THE RULES FOR DEPLOYING DRT SYSTEMS

APRIL 15 AT 15:30

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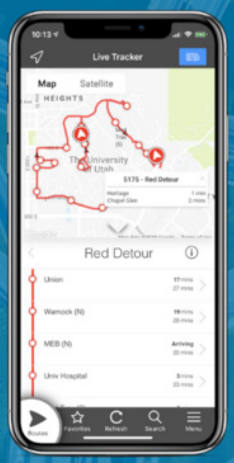

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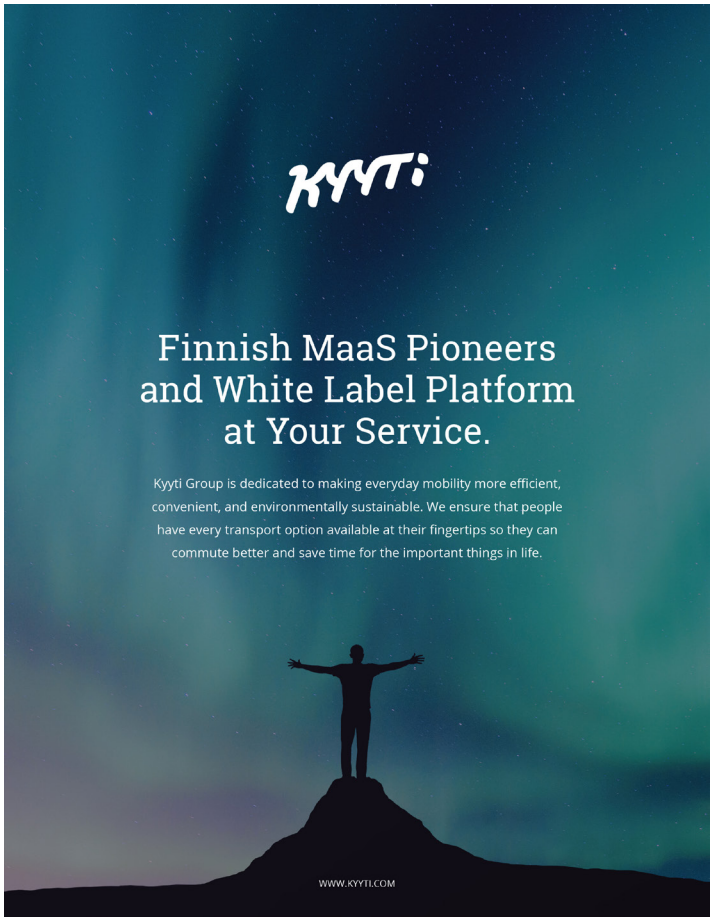
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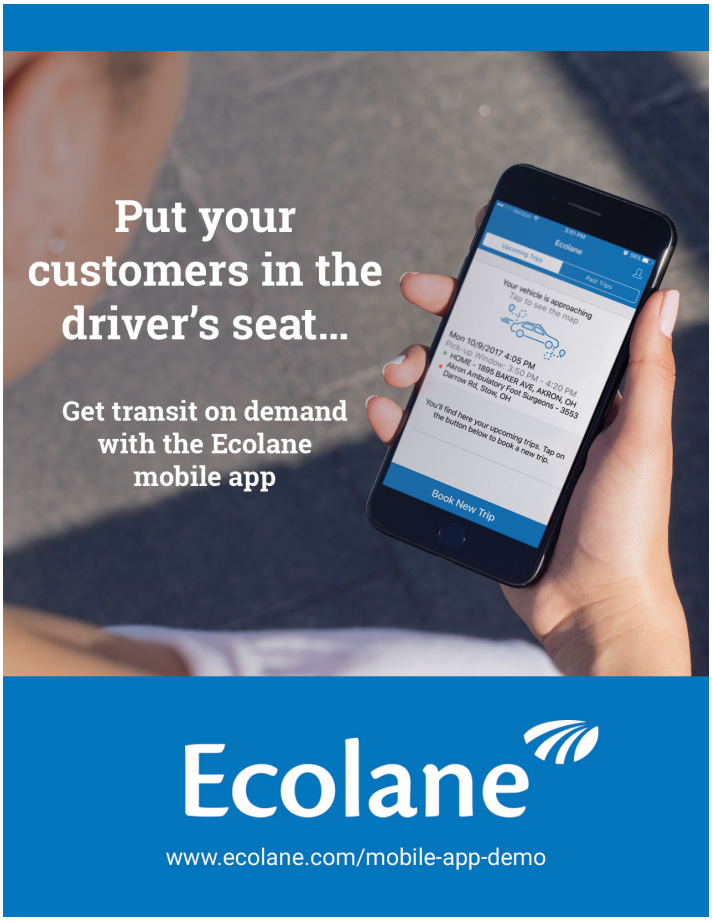
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ASCENDAL
GROUP

# Bringing Cities to Life

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DEMANDTRANS®
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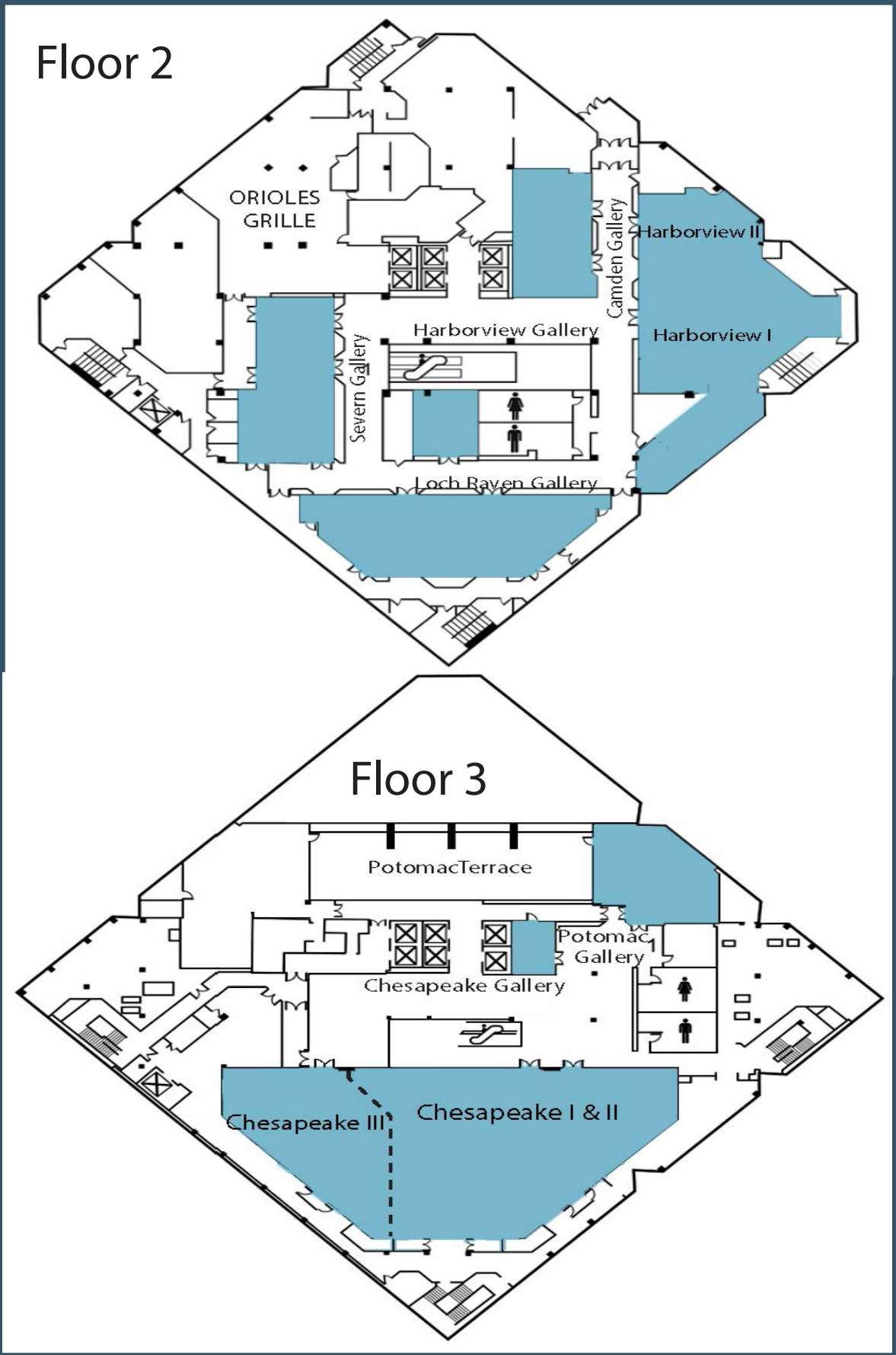
DemandTrans has unmatched experience and knowledge in designing and implementing technology-enabled solutions for general public on-demand, flexible transportation services. DemandTrans' **MobilityDR** technology platform enables public transportation systems to provide multiple forms of on-demand, flexible transit services both for first mile/last mile connectivity to fixed route rail and bus services and for local community circulation. Used since 2010 by the largest general public DRT program in the country in Denver and in other metropolitan areas including Chicago and Los Angeles, **MobilityDR** is also integrated with the **Kyyti MaaS** platform to provide a seamless set of mobility options encompassing all forms of public transportation in a city and region.

# HOTEL FLOOR PLAN





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