TRANSPORTATION
ISSUES IN MAJOR CITIES
COMMITTEE

ABE30: Transportation Issues in Major Cities Annual Meeting

January 9th, 2017

Marriott Marquis, Liberty M (M4)

Agenda

1:30 | **Welcome and Introductions** | Steve Buckley, ABE30 Committee Chair

1:50 | **Update on TRB Initiatives** | Bill Anderson

2:00 | **Sub-Committee Updates**

Communications | Stephanie Dock
Paper Reviews | Julia Salinas
Webinars | Steve Buckley
Annual Meeting Organization | Fred Dock/Jamie Parks
Research | Steve Buckley

2:25 | **Update on NACTO Initiatives** | Linda Bailey

Guest Presenters

2:40 | **Federal Direction under the Incoming Administration** | Jeff Davis

3:00 | **USDOT Pedestrian and Cycling Safety Resources** | Tamara Redmon/ Gabe Rousseau

Agenda

3:20 | **BREAK**

Guest Presenters

3:40 | **Shared Use Mobility** | Sharon Feigon

4:00 | **Autonomous Vehicles** | Ginger Goodin

4:20 | **T4America—Smart Cities Collaborative** | Russ Brooks

4:40 | **Open Floor** | All

4:55 | **Closing Remarks and Certificates of Appreciation** | Steve Buckley

5:00 | **Adjourn**

Steve Buckley

Welcome and Introductions

Bill Anderson

Update on TRB Initiatives

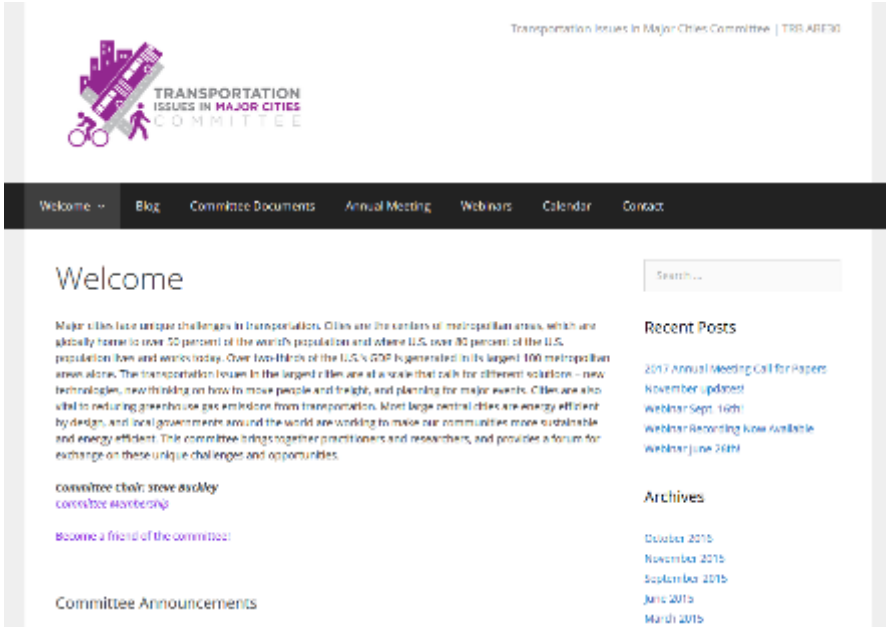
Sub-Committee Updates

Stephanie Dock

Communications

Communications

- New website! www.trbmajorcities.org
  - Special thanks to Ray Chan for all his work on this
- Blog starting soon
  - Keep the conversation going outside our meetings
  - Announcements will still be sent via Google Group
- Other ideas to follow…
  - What would you like to see?
  - Get involved: we have a communications subcommittee – email Stephanie, stephanie.dock@gmail.com



Julia Salinas

Paper Reviews

TRANSPORTATION ISSUES IN MAJOR CITIES COMMITTEE

PAPER REVIEW

- Received 23 paper submissions
- 97 reviewers provided at least 3 reviews for each paper
  - THANK YOU!

- Paper recommendations
  - 9 papers for poster sessions
  - 5 papers for presentation
  - 3 papers for publication

- Currently working with authors on re-reviews for publication

Steve Buckley

Webinars

Webinars Subcommittee: Ivana Tašić

Webinar summary for 2016:

- "Vulnerable Road Users: What Cities Can Do to Make Things Better"
- "Mega-events Helping Urban Growth through Sustainable Transportation Solutions"
- "Cities beyond Driving"
- Up to 400 attendees per webinar

Plan for 2017:

- Multimodal accessibility
- Collaboration between Cities and DOTs
- Smart cities initiative

Acknowledgements: Ema Yamamoto (for great ideas & participation)

Fred Dock and Jamie Parks

Annual Meeting

Annual Meeting Organizing

- Podium Sessions
  - Measuring Urban Mobility: Bridging the Gap Between Policy Objectives and Performance Measures
  - Translating "Aspirational Policy" into "Getting Stuff Done": Challenges to Implementing Vision Zero
  - Experiments and Innovations in Urban Environments
  - Confronting the Fear Factor of Change: Risks and Rewards
    - Co-Sponsors: ABC10: Strategic Management / ABC20: Management and Productivity / ABC30: Performance Management
  - Smart Cities, Smart Organizations
    - Co-Sponsor: ABC10: Strategic Management
  - On a Path to Equitable Transportation Access for All People
    - Co-Sponsors: ADD50: Environmental Justice / ABE70: Women's Issues / ABE80: Native American Issues / ABE90: Developing Countries / ADD30: Land Development

Annual Meeting Organizing

- Workshops Co-Sponsored by ABE30:
  - Help Wanted: Agency Leaders Speak Out on Critical Research Needs to Support a Dramatically Changing Industry
    - Co-Sponsors: ABC10: Strategic Management / ABC20: Management and Productivity / ABC30: Performance Management
  - Neighborhood Greenways: Applications, Research, and Effectiveness
    - Co-Sponsors: ANF20: Bicycles / ANF10: Pedestrians / AHB65: Operational Effects of Geometrics
- Poster session
  - Transportation Issues & Solutions in Major Cities
    - Co-Sponsor: AL010: Transportation Law
- A BIG Thank You! to all involved in the program

Steve Buckley

Research

2017 Calls for Papers

In contrast to the slightly more targeted calls of past years,
we went with a set of broader calls for this conference..

“Transportation Issues and Solutions in Major Cities”

1. Vision Zero & Multimodal Safety
2. Changing Cities

   (i.e. how the confluence of changing demographics, shifting preferences, and evolving technologies impact urban transportation issues)
3. Rethinking the Use of Public Right-of-Way
4. Increasing Innovation & Experimentation

   (i.e. relying upon empirical data over “standards”)
5. Rapidly Improving Technology & a Wealth of “Big Data”
6. Urban Transportation Innovations

Please start putting together your
paper call ideas
in preparation
for next years conference…
typically due in April

It is also time to begin updating our Research Needs Statements…

which includes editing/removing
our existing statements
and preparing new ones

Existing Research Needs Statements

See rns.trb.org and search under our committee name for details.

2014

- Bringing Public Bike Share to All People
- Transportation Resiliency in Major Cities

2012

- Bicycle Transportation Strategies
- Comparative Investment Strategies in Cities
- Expanding the Toolbox for Building Better City Streets
- Summary of City & Metropolitan Transportation Infrastructure Needs

2010

- How Major Cities Can Optimize Public Street Space
- Major Cities' Adaptation to Global Climate Change

Some Possibilities…

- Designing cities for changing populations & conditions
- Multimodal safety
- Providing equal access and mobility for all users
- Best practices sharing on innovative urban solutions
- Balancing competing demands on the streets, including parking & freight
- Opportunities through technology and data
- Developing urban transportation performance measures
- Improving relationships with partners, such as MPOs, transit agencies, state DOTs, and federal agencies

Other dates of potential note:

NCHRP Synthesis Topic Submittals

"Highway" statements due February 17th

"Transit" statements due March 17th

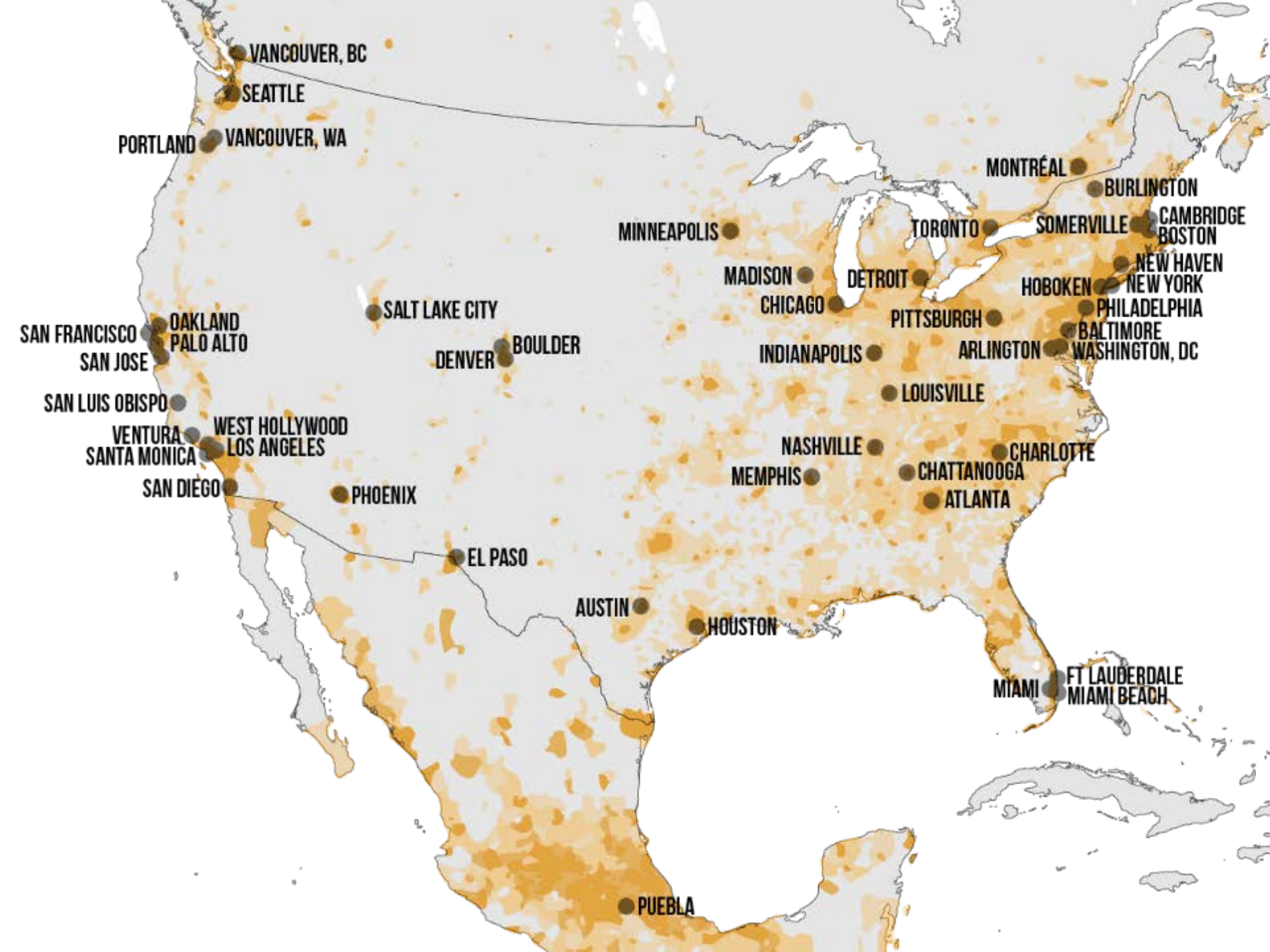
See: www.trb.org/SynthesisPrograms/Suggest.aspx

Linda Bailey

Update on NACTO Initiatives

NACTO: Cities Leading the Way

Linda Bailey, Executive Director


VANCOUVER, BC
SEATTLE
PORTLAND
VANCOUVER, WA
MONTRÉAL
BURLINGTON
MINNEAPOLIS
TORONTO
SOMERVILLE
CAMBRIDGE
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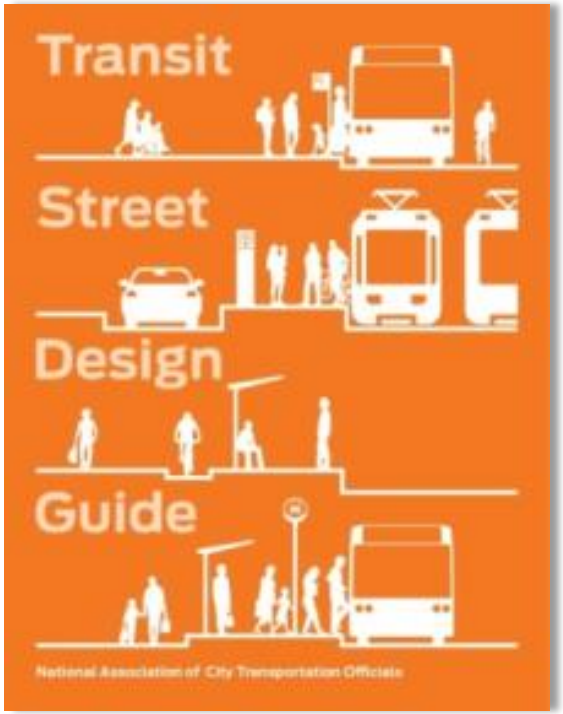
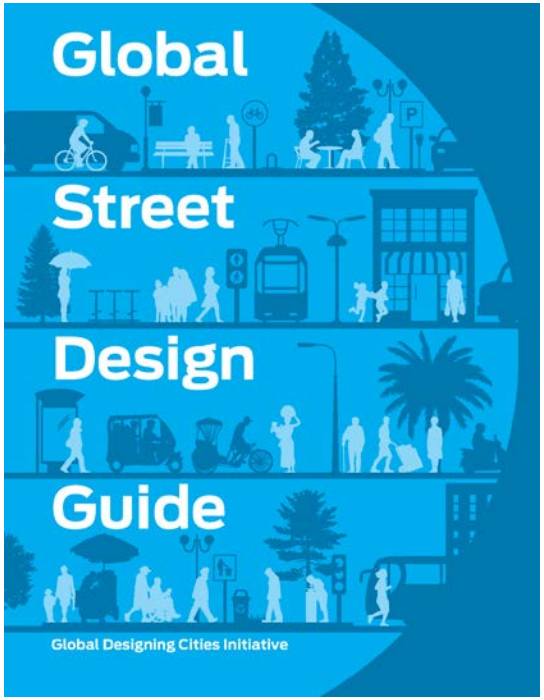
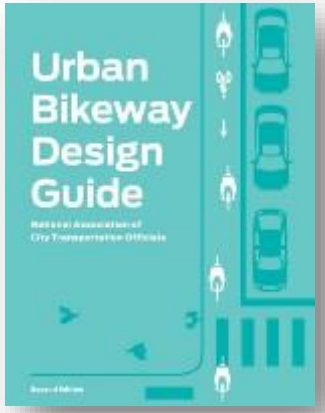
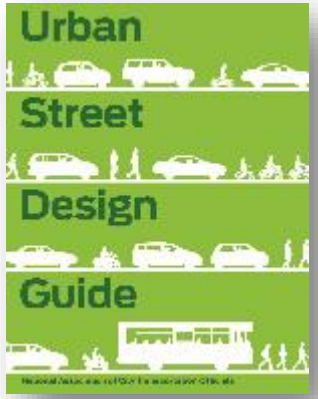
NEW HAVEN
MADISON
DETROIT
HOBOKEN
NEW YORK
CHICAGO
PHILADELPHIA
SALT LAKE CITY
PITTSBURGH
BALTIMORE
SAN FRANCISCO
OAKLAND
PALO ALTO
ARLINGTON
WASHINGTON, DC
SAN JOSE
BOULDER
DENVER
INDIANAPOLIS
LOUISVILLE
SAN LUIS OBISPO
WEST HOLLYWOOD
VENTURA
LOS ANGELES
NASHVILLE
CHARLOTTE
SANTA MONICA
MEMPHIS
CHATTANOOGA
SAN DIEGO
PHOENIX
ATLANTA
EL PASO
AUSTIN
HOUSTON
FT LAUDERDALE
MIAMI
MIAMI BEACH
PUEBLA

A permission slip to innovate

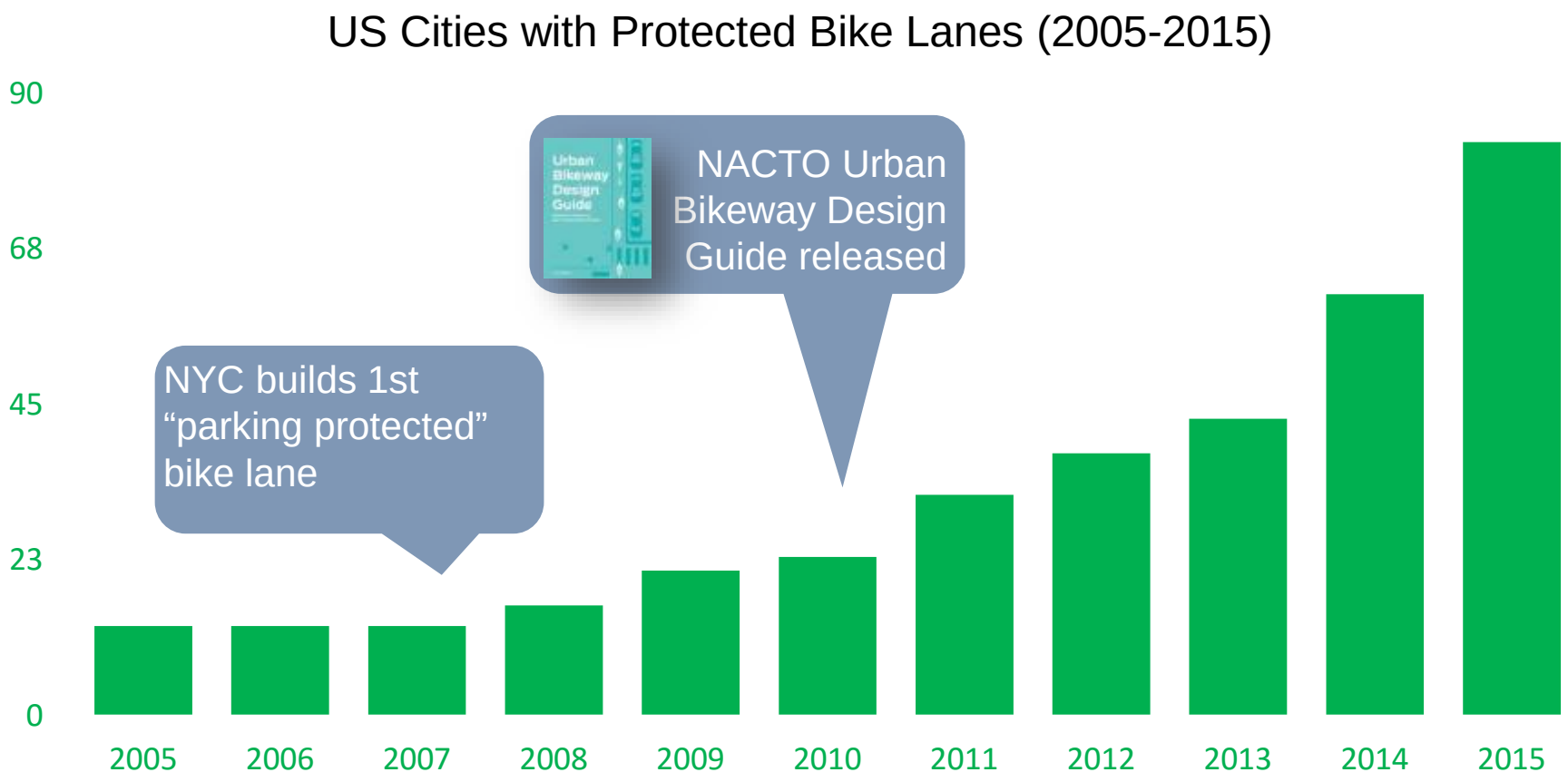








From ideas to projects




San Francisco


Pittsburgh


Chicago


Memphis

Guidance for stronger transit

- New Transit Affiliate Membership
- Transit Street Design Guide (2016)
- Transit Accelerator Program

Leadership for safety

In cities that are building protected bike lane networks, cycling is increasing and the risk of injury or death is decreasing. Pairing appropriately-scaled bike share with protected bike lanes increases ridership and is essential to equity and mobility efforts.

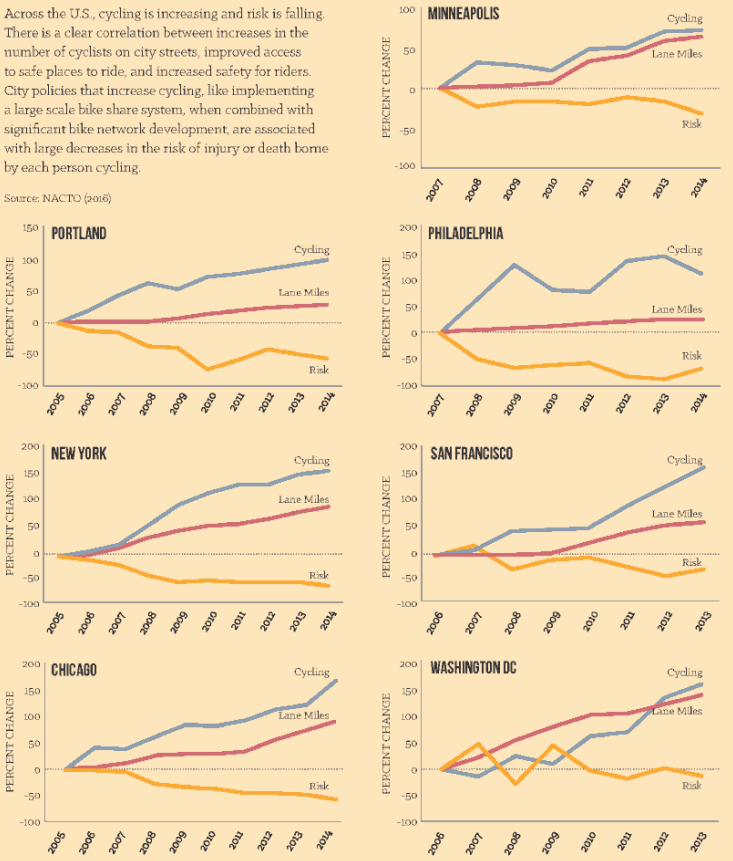
The connection between bike share ridership and high-quality bike lanes is clear: people ride more when they have safe places to ride. I ex explored is the positive feedback loop between bike share, the creation of protected bike networks, and overall cyclist safety – and the importance of this feedback loop in helping to address the systemic inequities in the U.S. transportation system.

Over the six years from 2010 to 2015, there were over 62 million bike share trips in the United States and zero fatalities, an enviable safety record.[1] There are many explanations for bike share's safety advantage over general bicycling, but strong evidence is emerging that bike share is a tool for improving the safety of all riders. NACTO's new analysis of seven major cities across the U.S. shows that, as cities build more bike lanes, the number of cyclists on the street increases, and the individual risk of a cyclist being killed or severely injured drops, often dramatically. The investment in bike lanes spurs additional cycling, increasing visibility and further reducing risk for all cyclists. Deployed across city neighborhoods at a meaningful scale, as NACTO has described in other reports,[2] bike share can help increase overall bike ridership at accelerated rates and spur a city to develop more—and better—bike infrastructure. By increasing the number of people riding, bike share systems can directly make cycling safer for all, including people on their own bikes.

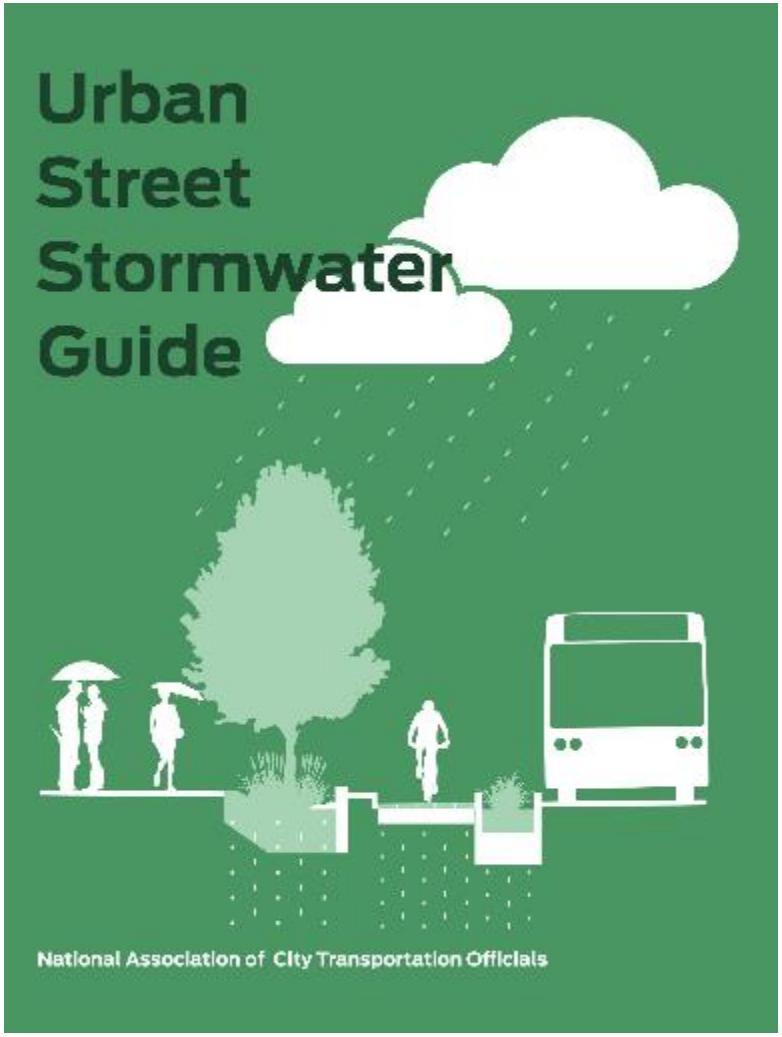
MORE CYCLISTS + BETTER LANES = REDUCED RISK

Across the U.S., cycling is increasing and risk is falling. There is a clear correlation between increases in the number of cyclists on city streets, improved access to safe places to ride, and increased safety for riders. City policies that increase cycling, like implementing a large scale bike share system, when combined with significant bike network development, are associated with large decreases in the risk of injury or death borne by each person cycling.

Source: NACTO (2016)



Design solutions for climate change



A framework for the future

NACTO POLICY STATEMENT ON AUTOMATED VEHICLES

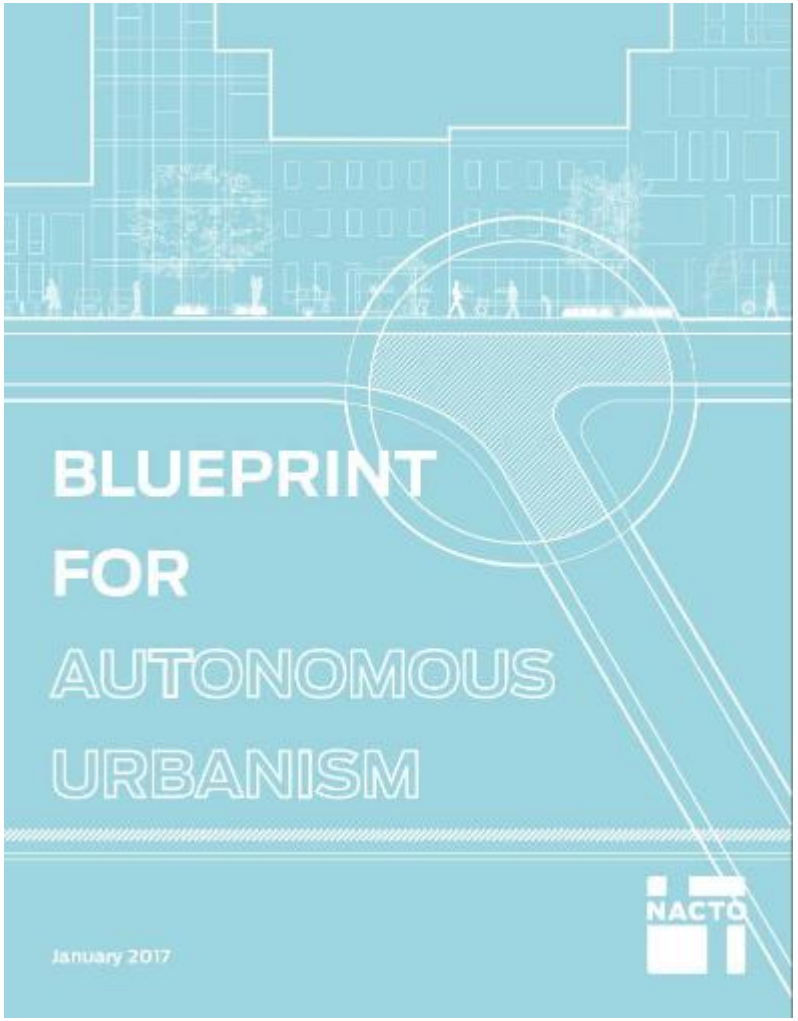
VISION

NACTO supports a future transportation system that provides a sustainable, accessible, and affordable backbone to the strong cities at the center of our 21st century economy. New technology has the capacity to reduce the footprint of vehicular travel, moving more people in new forms of medium and low density transit, while creating space for safe and inviting walking and cycling infrastructure. Positioning new mobility services to provide access and mobility to all, and to buttress rather than undermine the successful transit lines at the heart of our cities, is vital to realizing the value of fully automated vehicles for mobility. At the same time, policy at every level of government should address head-on the destructive potential for increased traffic, emissions from additional driving, and on-street congestion that could easily result from automated vehicle technology.

SHAPING AUTOMATED VEHICLE POLICY

Fully automated vehicles (often referred to as level 4 automation by NHTSA) are a disruptive technology that will have widespread impacts on safety, mobility, land use, labor, and the built environment. Considering the complexity of urban environments and the many demands placed on city streets, as well as existing city policy goals of reduced greenhouse gas emissions and vehicle miles travelled, NACTO supports automated vehicle policies and regulations designed to:

- **promote safety** for pedestrians, bicyclists, transit riders, automated vehicle passengers, and all street users within the multi-modal urban context;
- **incentivize shared, automated, electric vehicles** to reduce the environmental impacts of vehicular travel and refocus planning on the principle of mobility as a service;
- **support the future vision of communities** as great places to live, work, and play by using technology as a tool to change land use as well as how streets are built;
- **rebalance the use of the right-of-way** with less space for cars and more space for people walking, cycling, using transit and recreating;
- **support public transit** by providing first and last mile connections to major transit lines via shared, automated vehicles, and by providing cost-effective, on-demand transit in lieu of low-performing fixed routes; and
- **improve mobility for all,** contributing to a more equitable transportation system, where benefits reach all demographics and any negative effects are not unjustly concentrated.



Designing Cities Conference

- 800+ city transportation leaders from 125 cities
- Hand's on workshops, trainings, Walkshops, and expert panels
- Designing Cities 2017 in Chicago

See you in Chicago!

Guest Speakers

Jeff Davis

Federal Direction

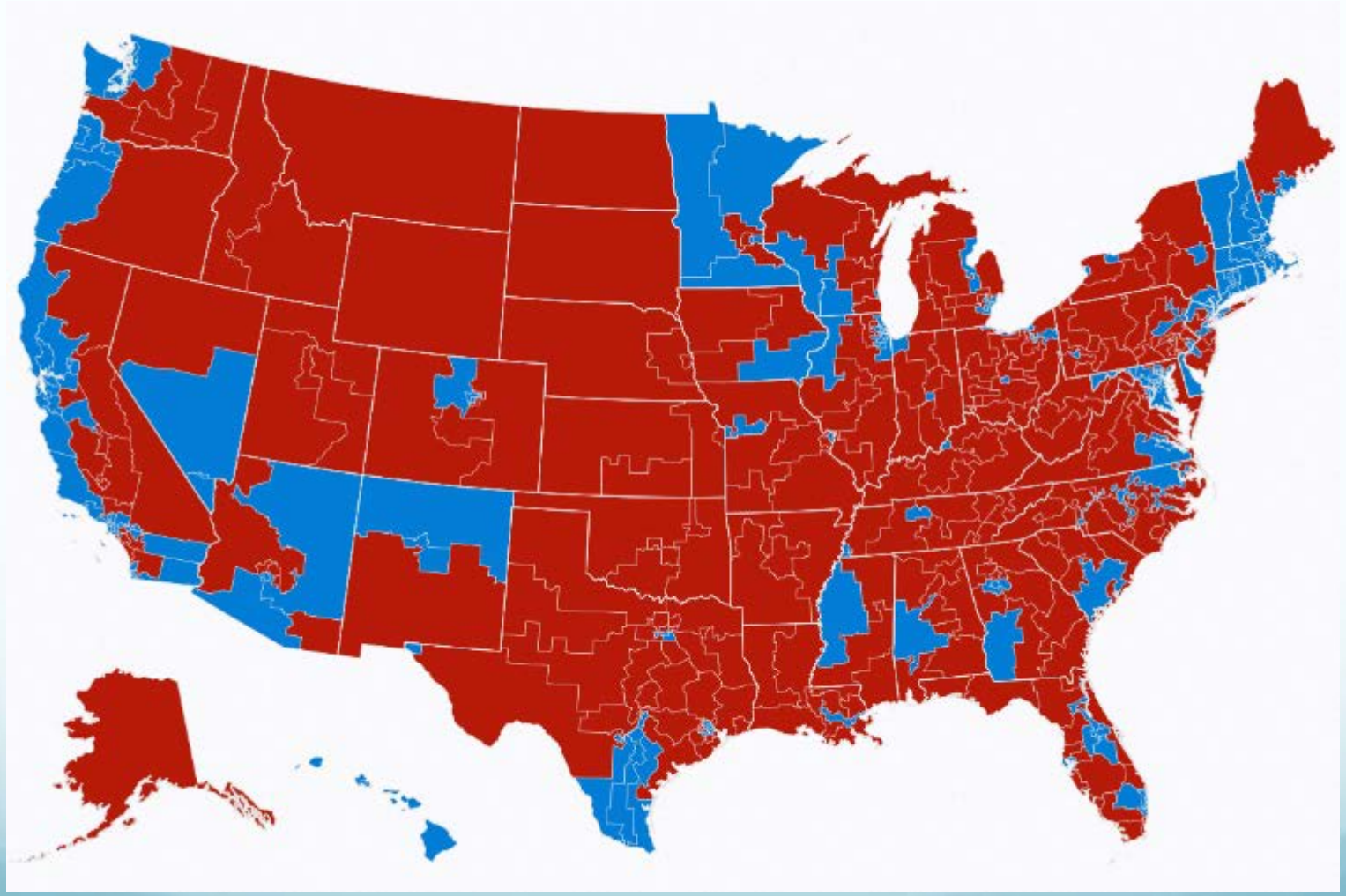
The Trump Transportation Transition

Jeff Davis
Eno Center for Transportation

2016 Election Results

- Trump defeats Clinton in Electoral College based on unexpected strength in MI/WI/PA. Rural/small cities/exurbs provided Trump's margin of victory there and elsewhere.
- House – GOP lost only 6 seats, far less than anticipated – from 247R-188D to 241R-194D.
- Now, more than ever, population density determines how anti-Republican a US House district votes.
- Before last round of redistricting, median Dem-held House district had pop. Density of 1600 ppsm – median GOP-held district was 150 ppsm. That difference has probably gotten wider since then.

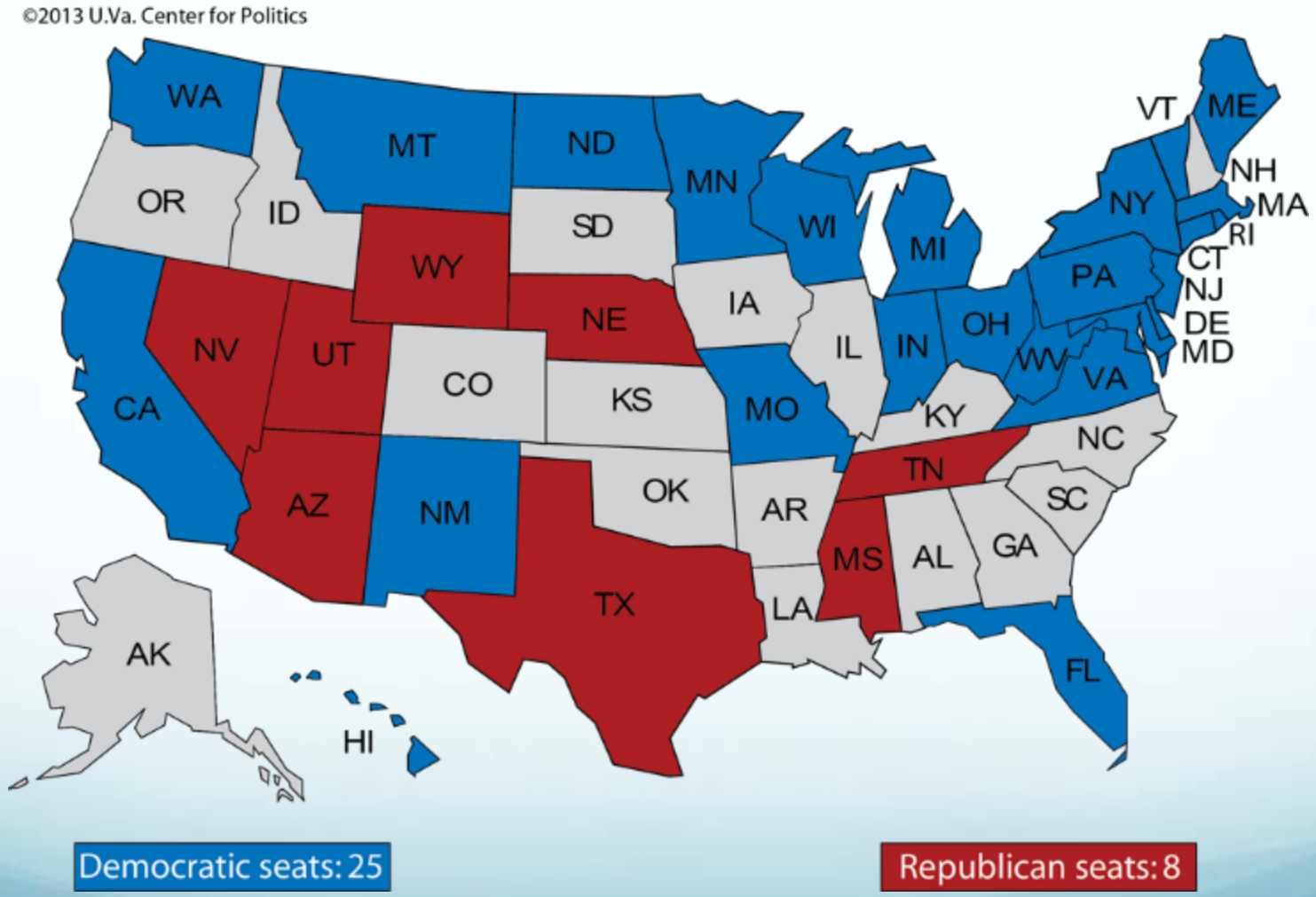
2016 Election Results - House



2016 Election Results

- Senate – GOP lost only 2 seats, going from 54R-46D to 52R-48D.
- But the big news is looking ahead to 2018.
- Luck of the draw that began in 1789 – GOP defends only 8 seats in 2018 while Democrats defend 25.
- And it's not just how many seats each party defends, it's where they are.

2018 Senate Elections



Trump Transition

Good news:

- Sec. Elaine Chao – experienced, conventional, popular candidate. Well-known, has both transportation policy background and political bona fides, easy to confirm.
- Earliest a President-elect has announced a SecDOT choice in at least 40 years.
- Confirmation hearing January 11 at 10:15 a.m.
- Almost certain to be confirmed on or shortly after January 20.

Trump Transition

Bad news #1:

- There are three different DOT transitions:
  1. Sec. Chao, a few former Labor staffers, and a few transpo policy people she would like to hire.
  2. The transition office in DC set up by Sen. Sessions and Gov. Christie and run by Nancy Butler, Shirley Ybarra, Brig McCown, etc. Working on transition policy papers and vetting of potential staff.
  3. Trump Tower in NYC.
- No one is quite sure which office is in charge of what and who has the final say on hiring or policy.

Transition - Personnel

Bad news #2:

Transition - Personnel

- Deputy Secretary, Assistant Secretaries, General Counsel, modal Administrators probably won't be named and confirmed for months thereafter.
- Secretary Chao will be "home alone" and dependent on White House/OMB for policy and logistical support and staffing.
- OMB nominee, Rep. Mick Mulvaney (R-SC), has shown unrelenting hostility while in Congress to higher spending, "stimulus," and anything that increases the public debt.
- <u>EVERYTHING RUNS THROUGH OMB.</u>

Transportation Funding – Whose Vision?

Steve Bannon, White House chief strategist?

“I'm the guy pushing a trillion-dollar infrastructure plan. With negative interest rates throughout the world, it's the greatest opportunity to rebuild everything. Shipyards, ironworks, get them all jacked up. We're just going to throw it up against the wall and see if it sticks. It will be as exciting as the 1930s, greater than the Reagan revolution — conservatives, plus populists, in an economic nationalist movement.”

Transportation Funding – Whose Vision?

Mick Mulvaney, White House budget director (OMB)?

"Washington cannot wean itself from its spending addiction. Indeed, [the 2013 Ryan-Murray budget deal] is another example of how we got $17 trillion in debt: we can have lots of bipartisanship, as long as we spend more money."

"I have never believed the threat that this country will default on its debt as a result of any failure to raise the debt ceiling."

Transportation Funding – Whose Vision?

Elaine Chao, Secretary of Transportation?

"…it is important to find ways to expedite the process of making repairs and building new constructions and decreasing the regulatory burdens when appropriate. With or without a new infusion of funds, it is necessary to look at the existing processes for infrastructure development and find more efficient ways to address bottlenecks in planning and permitting…a big challenge will be to strive for equity between urban and rural areas, among different modes of transportation, and other competing but equally deserving stakeholders."

Transportation Funding – Whose Vision?

Donald Trump?

"On infrastructure, we will build new roads, tunnels, bridges, railways, airports, schools and hospitals, including major projects in the inner cities. There's such potential in the inner cities."

"**BUY AMERICAN, HIRE AMERICAN.**"

Trump Vision

- Big, “legacy” infrastructure projects. Shiny.
- Someone affiliated with one of the transition offices prepared a list of 50 potential legacy projects in mid-December. (Never officially released.)
- Gateway, NextGen, Second Ave. Subway Phases 2 and 3, Maryland Purple Line, M-1 Rail Detroit, Gordie Howe Bridge, MBTA Green Line, Chicago Red/Purple Line Mod, DC and Chicago Union Stations, lots of water and electrical grid projects, some airports.
- Numbers in list seemed outdated and goal seemed to be to have private equity share at 50% aggregate

Trump Vision

- Campaign advisors (incl. Sec. of Commerce nominee) produced plan to leverage $1 trillion of private investment in U.S. infrastructure via $140 billion of on-budget federal tax credits.
- Good news: this plan, like other PPP plans, are biased towards megaprojects in large urban areas because either massive VMT or freight traffic, or significant sales tax revenue, or some kind of revenue stream based on a significant population is needed to repay debt.
- If they really borrow from private markets, it won't increase federal debt like TIFIA and RRIF PPP's will.

Trump Vision

- “Buy American, Hire American”
- Buy America provisions (mostly steel and rolling stock-related) have been in law for federal transpo grant programs since 1970s, waivers possible at DOT discretion. Expect many of those to stop.
- “Hire American” – at present, federal transpo grants to states/localities do not require compliance with E-Verify or other methods to ensure contractors only hire citizens or those with valid work permits.

Trump Vision

- Contractor compliance with E-Verify etc. is up to state or MPO or transit agency. Many of the biggest do not currently require citizenship/work permit verification.
- Uncertain if existing grant programs can be amended to cut off grants if contractors don't participate in E-Verify. (*South Dakota v. Dole*.) But any new infrastructure grant program could include such requirements (see 1977 jobs program).

Republican Vision

- Eternal hostility to “stimulus” so any plan has to look markedly different than did the 2009 ARRA stimulus law.
- Difficult to square past opposition to higher deficit-financed domestic spending with any new package of federal funding under Trump.
- Difficult to square past opposition to increasing the public debt with a massive amount of new federal financing (TIFIA/RRIF etc.) under Trump.

Republican Vision

- 2016 GOP Platform: cut mass transit out of the HTF because transit is "…an inherently local affair that serves only a small portion of the population, concentrated in six big cities."
- "We propose to phase out the federal transit program…"
- "…we oppose a further increase in the federal gas tax."
- "We reaffirm our intention to end federal support for boondoggles like California's high-speed train to nowhere."

Republican Vision

- GOP Platform, and House Republicans, are actively hostile to the interests of large urban regions because large urban regions now vote solidly Democratic. (Or is the the other way around – see the case of *Chicken v. Egg.*)
- A few House R's still represent suburbs of big cities but mostly in Sun Belt areas. Almost none left near the big six transit "legacy cities" (NYC, Chicago, Philly, SF, Boston, DC.)
- Some GOP Senators still have to care about the needs of large cities (though not NYC/LA/Chicago).

Competing Visions

- Good news: Increased financing of megaprojects through enhanced PPPs may be the path of least resistance for an infrastructure plan, and many of those are the big-ticket items in major cities.
- Bad news: path is still unclear for any significant increase in federal funding for infrastructure, and the Congressional vote math is very bad for mass transit, especially the needs of legacy cities.

Tamara Redmon/Gabe Rousseau

USDOT Safety Resources

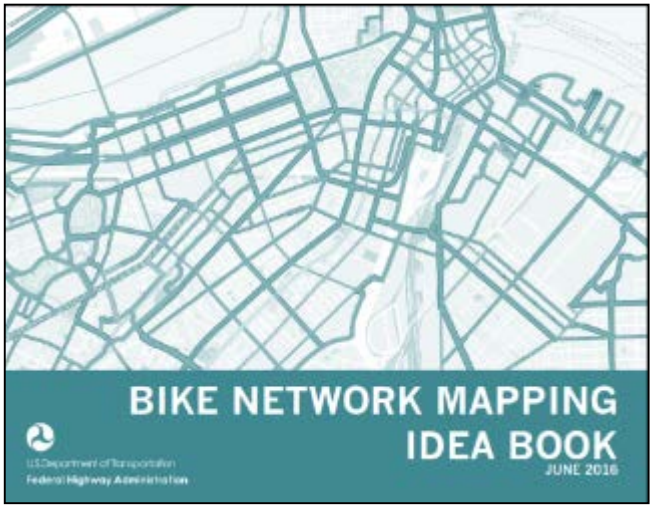
Types of FHWA Resources and Assistance

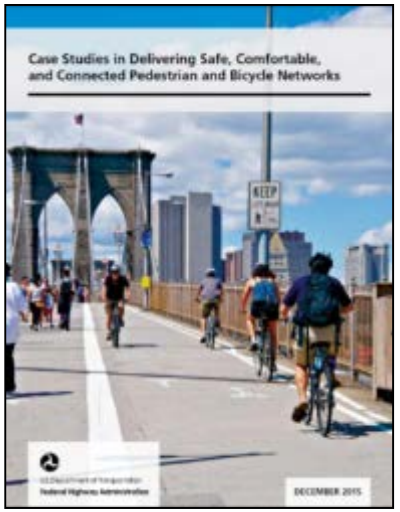
- Reports
- Tools
- Initiatives/Technical Assistance

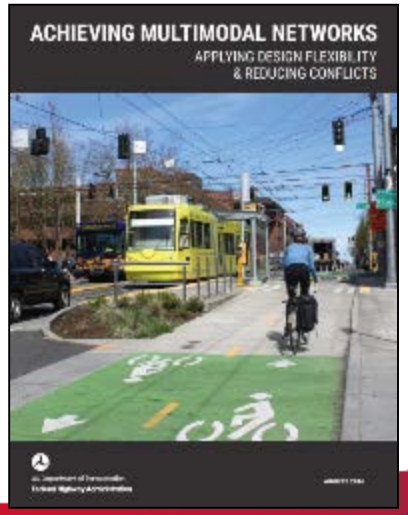
Types of FHWA Resources and Assistance

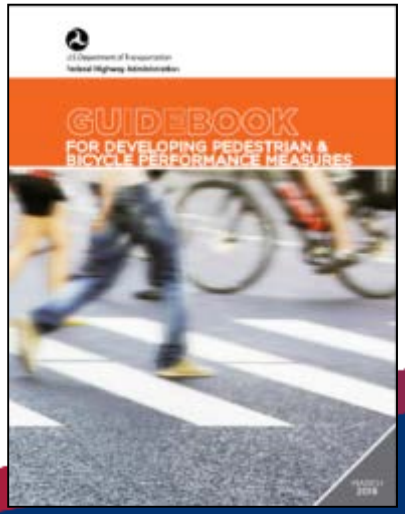
- Reports
- Tools
- Initiatives/Technical Assistance

Recent FHWA Ped/Bike Reports



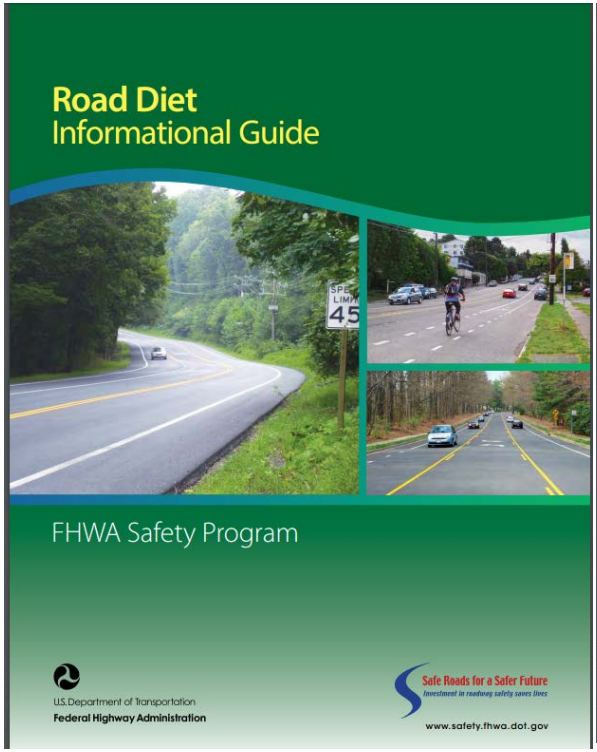


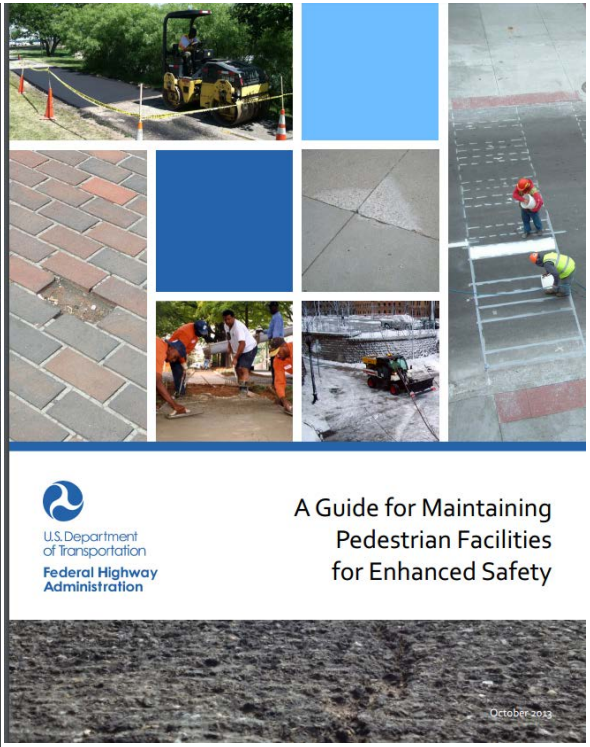




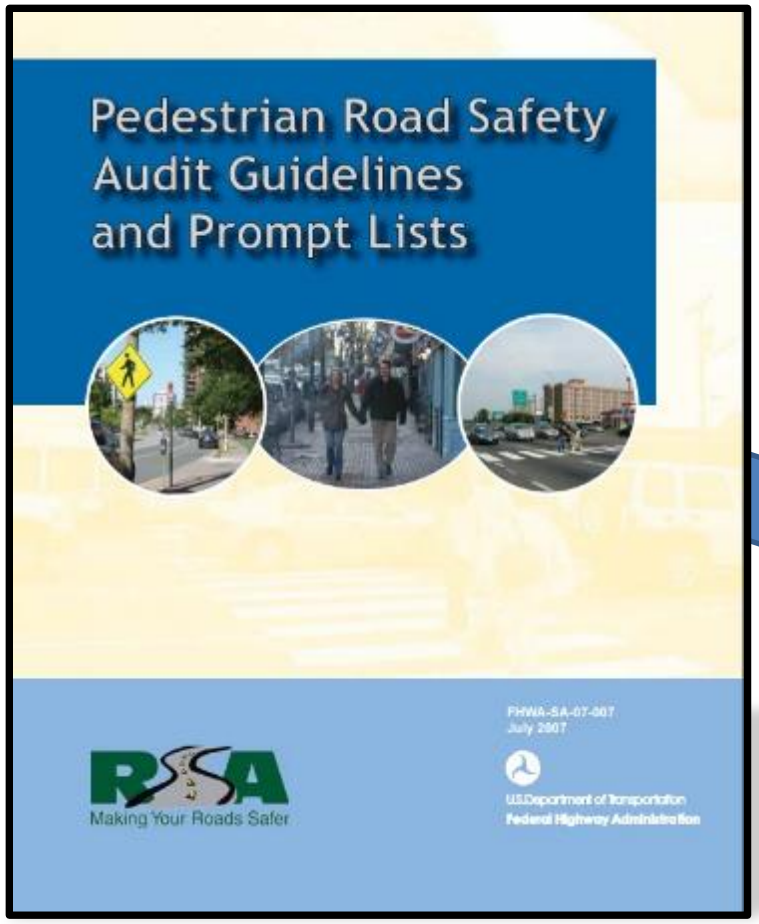
Available at www.fhwa.dot.gov/environment/bicycle_pedestrian

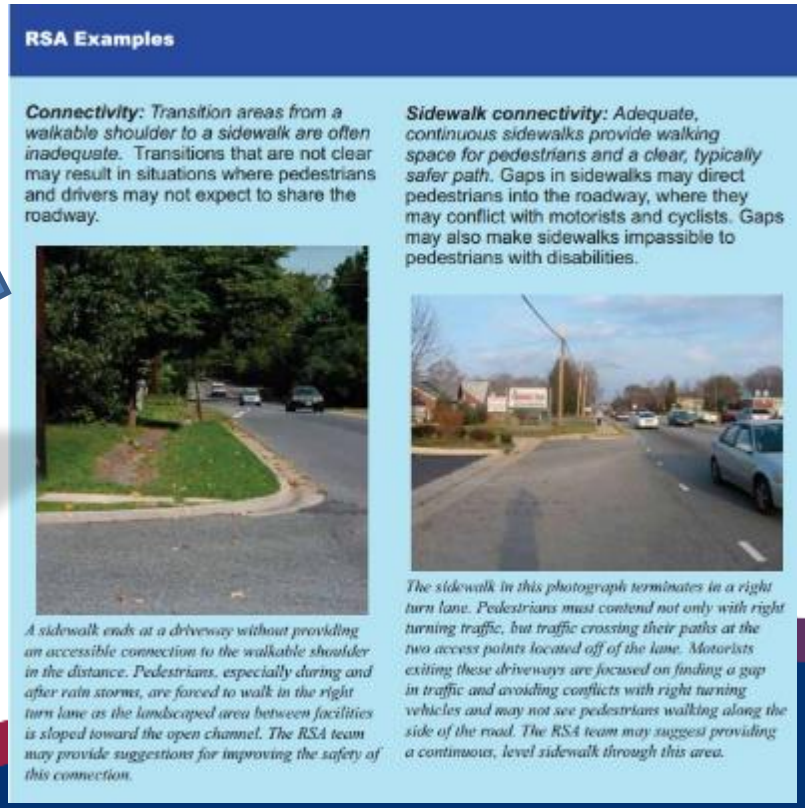
FHWA Ped/Bike Reports





Tools—Road Safety Audit Materials





RSA Examples

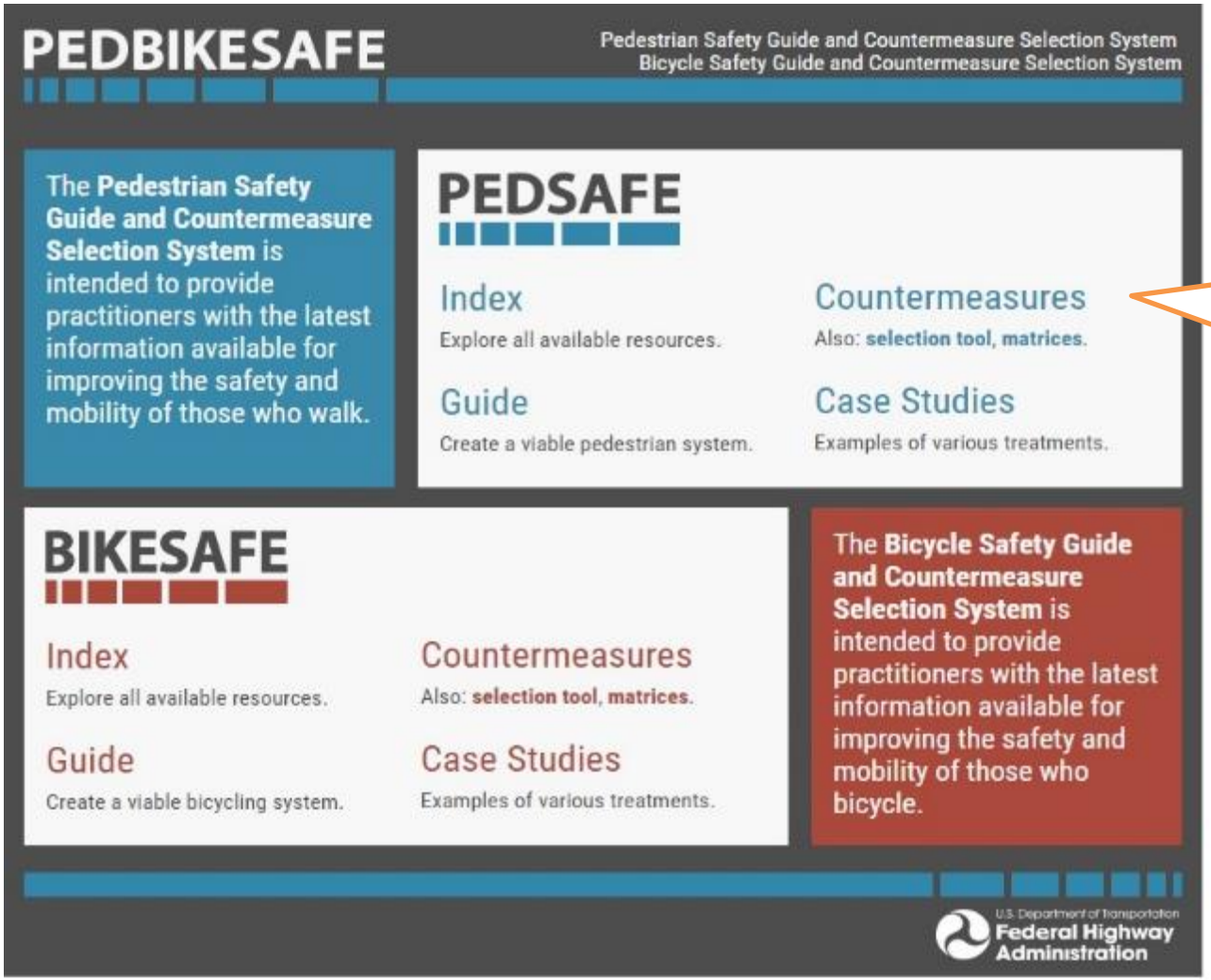
Connectivity: *Transition areas from a walkable shoulder to a sidewalk are often inadequate.* Transitions that are not clear may result in situations where pedestrians and drivers may not expect to share the roadway.

A sidewalk ends at a driveway without providing an accessible connection to the walkable shoulder in the distance. Pedestrians, especially during and after rain storms, are forced to walk in the right turn lane as the landscaped area between facilities is sloped toward the open channel. The RSA team may provide suggestions for improving the safety of this connection.

Sidewalk connectivity: *Adequate, continuous sidewalks provide walking space for pedestrians and a clear, typically safer path.* Gaps in sidewalks may direct pedestrians into the roadway, where they may conflict with motorists and cyclists. Gaps may also make sidewalks impassible to pedestrians with disabilities.

The sidewalk in this photograph terminates in a right turn lane. Pedestrians must contend not only with right turning traffic, but traffic crossing their paths at the two access points located off of the lane. Motorists exiting these driveways are focused on finding a gap in traffic and avoiding conflicts with right turning vehicles and may not see pedestrians walking along the side of the road. The RSA team may suggest providing a continuous, level sidewalk through this area.

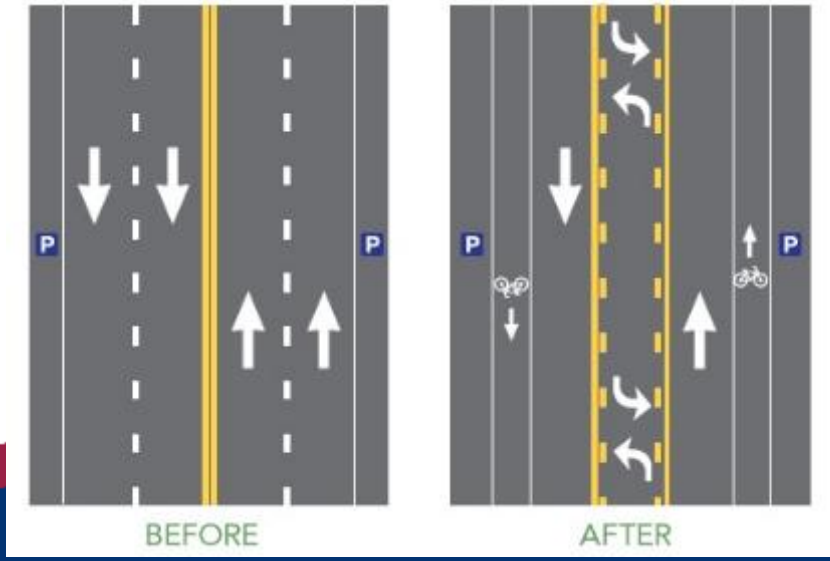
Tools—Countermeasure Selection Systems



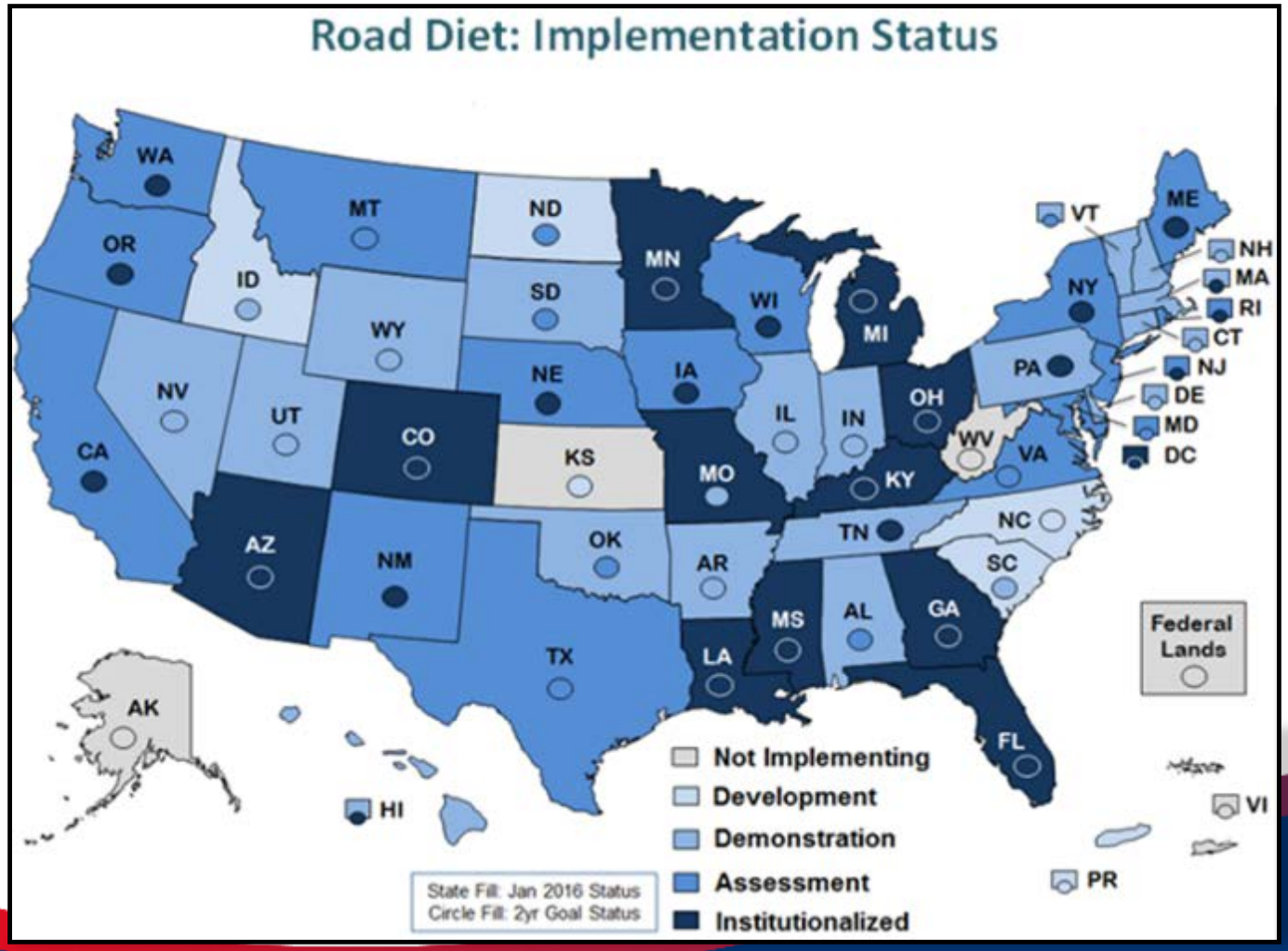
"67 engineering, education, and enforcement countermeasures"

Initiatives—Proven Safety Countermeasures

- **Median Refuge—**Raised space separating directions of traffic.
- **Pedestrian Hybrid Beacon—**An overhead beacon that assists pedestrians at crossing locations that do not have a traffic signal.
- **Road Diet—**Narrowing or eliminating travel lanes to make more room for pedestrians and bicyclists.



Initiatives—Every Day Counts 3: Road Diets



State Fill: Current Status
Circle Fill: Goal Status

- Not Implementing
- Development
- Demonstration
- Assessment
- Institutionalized

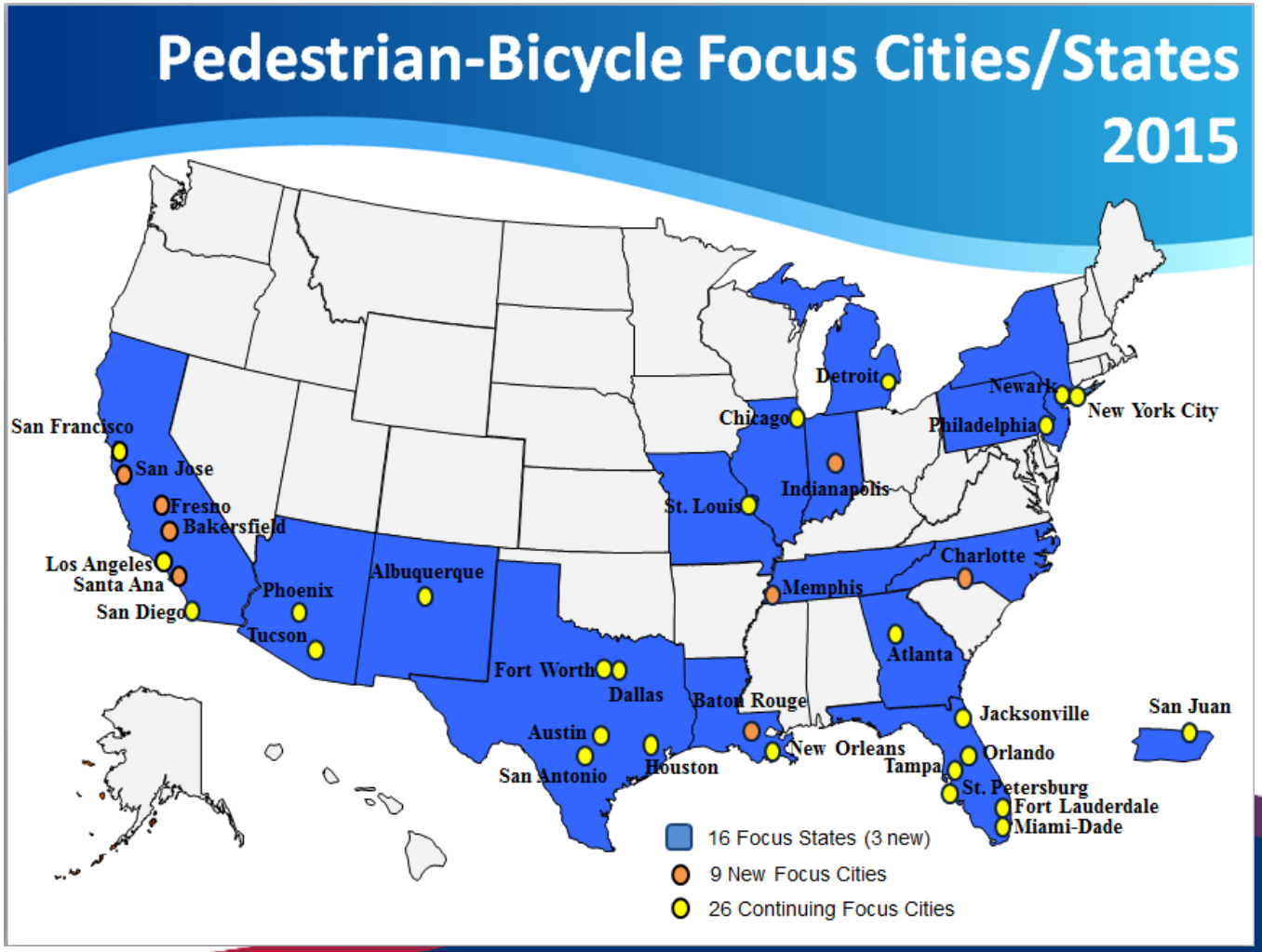
Initiatives—Every Day Counts 4: STEP (Safe Transportation for Every Pedestrian)

- **Mission**: Encourage and assist practitioners in providing safer crossings for all pedestrians through the implementation of appropriate safety treatments at uncontrolled crossing locations.
  - Crosswalk Visibility Enhancements
  - Pedestrian Refuge Islands
  - Raised Crosswalks
  - Pedestrian Hybrid Beacon (PHB)
  - Road Diets

Initiatives—Focused Approach to Safety

Types of assistance available:

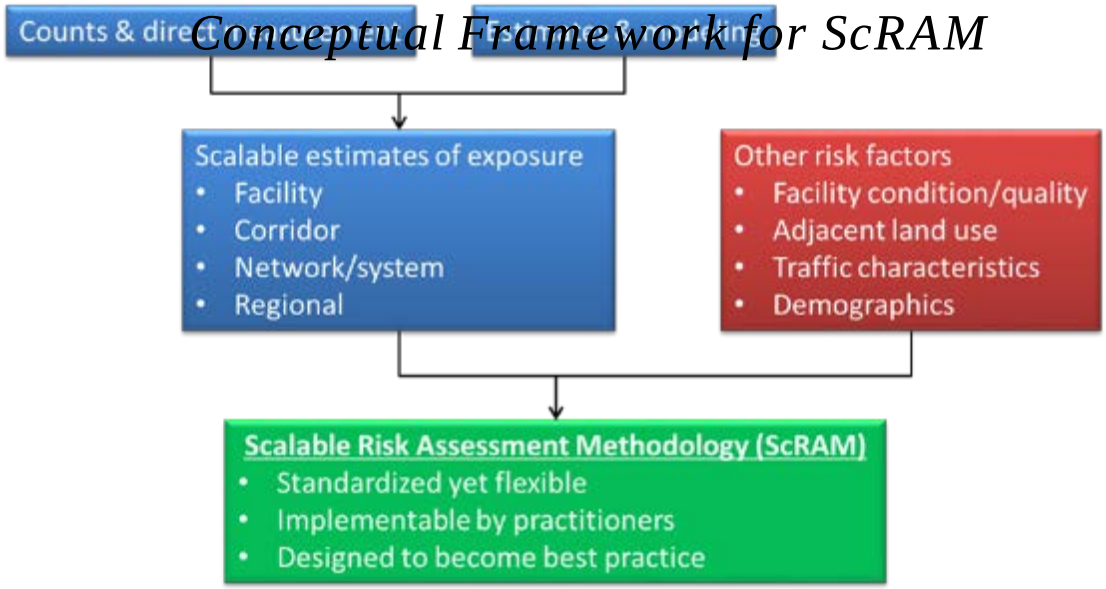
- Action Plan Development
- Training
- Data analysis



Under Development: Scalable Risk Assessment Methodology

- Develop a standardized approach to estimate pedestrian and bicyclist exposure to risk.
- Contract awarded May 2016.
- ScRAM Complete May 2018.
- Technical Assistance and Training Available 2018 ~May 2020.

Conceptual Framework for ScRAM



Under Development this Year: Bicycle Facility Selection Guide

- Will build off existing FHWA, AASHTO, NACTO, and international materials.
- Provide guidance on when to separate bicycle traffic from motor vehicle traffic and how to do it safely within constrained urban right-of-way.
- Contract Awarded by Summer 2017.
- Guide complete by Summer 2019.
- Technical Assistance provided until 2021.

More FHWA Information on Pedestrian & Bicyclist Safety

Key FHWA pages:

- safety.fhwa.dot.gov/ped_bike
- www.fhwa.dot.gov/environment/bicycle_pedestrian

Newsletters

- Pedestrian Forum
  - safety.fhwa.dot.gov/ped_bike/pedforum
- Fostering Livability Newsletter
  - www.fhwa.dot.gov/livability/newsletter
- Human Environment Digest
  - www.fhwa.dot.gov/livability/he_digest

Bret Johnson

Technology Transfer

TRB Conduct of Research Committee (ABG10)

The TRB Conduct of Research Committee assists TRB and standing committees in their research efforts. Below is listed our focus areas, initiatives, and various products that might be of help to your committee's research activities. How can we help you?

CONDUCT OF RESEARCH COMMITTEE

Mission:

- Increase the quality and effectiveness of transportation research
- Improve research planning and management processes
- Promote improved coordination between those who sponsor and conduct research and those who implement research products
- Assist the Transportation Research Board in its role of stimulating research and serving as a national clearinghouse for research activities.

Focus Areas:

- Setting the Research Agenda
- Carrying Out Research
- Delivering Results
- Communicating Value
- Collaborating in Research Activities

Initiatives:

- Accelerating Research Methods for Transformational Technologies
- Ahead of the Curve: *To develop and deliver a coordinated and continuing TRB training program that enhances the knowledge, skills, and abilities of those who manage transportation research and innovation programs*
- Back-to-Basics/Committee Research Coordinators: http://www.trb.org/AboutTRB/crc.aspx

Resources:

RPPM

Research Program and Project Management Website: http://rppm.transportation.org/Pages/default.aspx

A SharePoint website that provides a forum to allow the research community to share information (announcements, calendar events [incl. funding program deadlines], documents, discussion forum, links) on each part of the above research cycle.

Effective RNS

How to Write an effective Research Statement: http://www.trb.org/ResearchFunding/AppendixAWritingaResearchStatement.aspx

Literature Searches and Literature Reviews for Transportation Research Projects: *How to Search, Where to Search, and How to Put It All Together:* http://www.trb.org/Publications/Blurbs/172271.aspx (report & webinar)

This report and webinar address the necessary steps for producing a high quality literature review for a transportation research project, including how to conduct literature searches, where to search, and related definitions.

Funding Guidebook

Funding Sources for Transportation Research: Competitive Programs: http://www.trb.org/ResearchFunding/ResearchFunding.aspx

Effective Experimental Design and Data Analysis in Transportation Research: http://www.trb.org/Main/Blurbs/167861.aspx

This report describes the factors that may be considered in designing experiments and presents 21 typical transportation examples illustrating the experiment design process, including selection of appropriate statistical tests.

Management Guide to Intellectual Property for State Departments of Transportation: http://www.trb.org/main/blurbs/172260.aspx (report & webinar)

This report and webinar documents guidance on how agencies can manage copyrights, patents and other intellectual property.

NCHRP Report 610: Communicating the Value of Transportation Research: http://www.trb.org/main/blurbs/161866.aspx (report & webinar)

This report and webinar describe integrating communications throughout the research process and introduces new ways to think about communicating the value of research.

How can we help you? Send us your ideas on how the Conduct of Research Committee can better serve TRB and your committee. We'd like to hear from you regarding issues our committee should address and resources our committee could develop to improve your committee's research activities.

Contact Us:

Contact the Conduct of Research Committee (ABG10) with questions or requests for help regarding any part of the research cycle.

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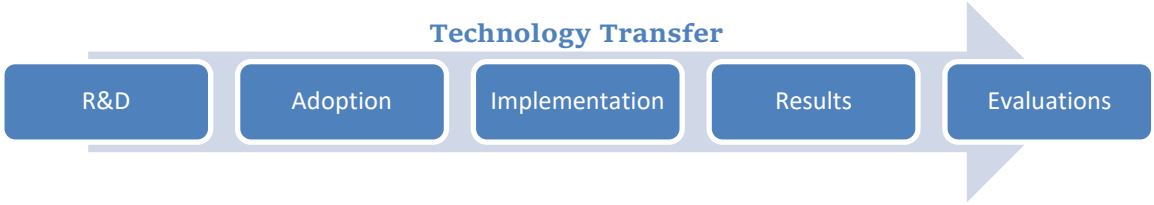
Google Site: https://sites.google.com/site/conductofresearchcommittee/
TRB Website: https://www.mytrb.org/CommitteeDetails.aspx?CMTID=2065

CONDUCT OF RESEARCH COMMITTEE

TRB Technology Transfer Committee (ABG30)

Our mission is to support transportation stakeholders on the effective use of technology transfer practices to achieve faster and more widespread research result implementation.



ABG30 is dedicated to promoting technology transfer across all TRB committees with research, guidance, and case studies of successful research implementation. Please let us know your technology transfer successes and ideas for joint papers and sessions at:
https://sites.google.com/site/trbt2committee/

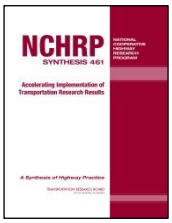
Follow us on Twitter @TRBTechTransfer

Key TRB documents directly related to technology transfer and implementation

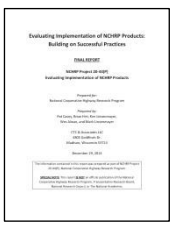
Building a Foundation for Effective Technology Transfer through Integration with the Research Process, 2016
http://ntl.bts.gov/lib/57000/57400/57403/Transportation_TechTransfer_Primer.pdf
This primer provides an overview of the activities that are required to transfer most kinds of research results.

Transport Research Implementation: Application of Research Outcomes, Summary of the Second EU-U.S. Transportation Research Symposium, 2015
http://onlinepubs.trb.org/onlinepubs/conf/cp51.pdf
This document provides a summary of the entire content of the Symposium. The purpose was to promote cooperation across the Atlantic and share best practices for the implementation of research outcomes in the field of surface transportation at the local, state, national, and international levels.

NCHRP Report 768: Guide to Accelerating New Technology Adoption through Directed Technology Transfer, 2014
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_768.pdf
This report outlines the principles of guided T^2, a process that allows accelerated adoption of new technology. It includes several actual DOT examples which illustrate the successful use of the guided T^2 process.



NCHRP Synthesis 461: Accelerating Implementation of Transportation Research Results, 2014
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_461.pdf
This synthesis examines implementation practices used by public-sector non-transportation agencies, nonprofits, and academia to accelerate practical application of research results. The emphasis is on practices that might be useful for transportation agencies to create more responsive research programs.

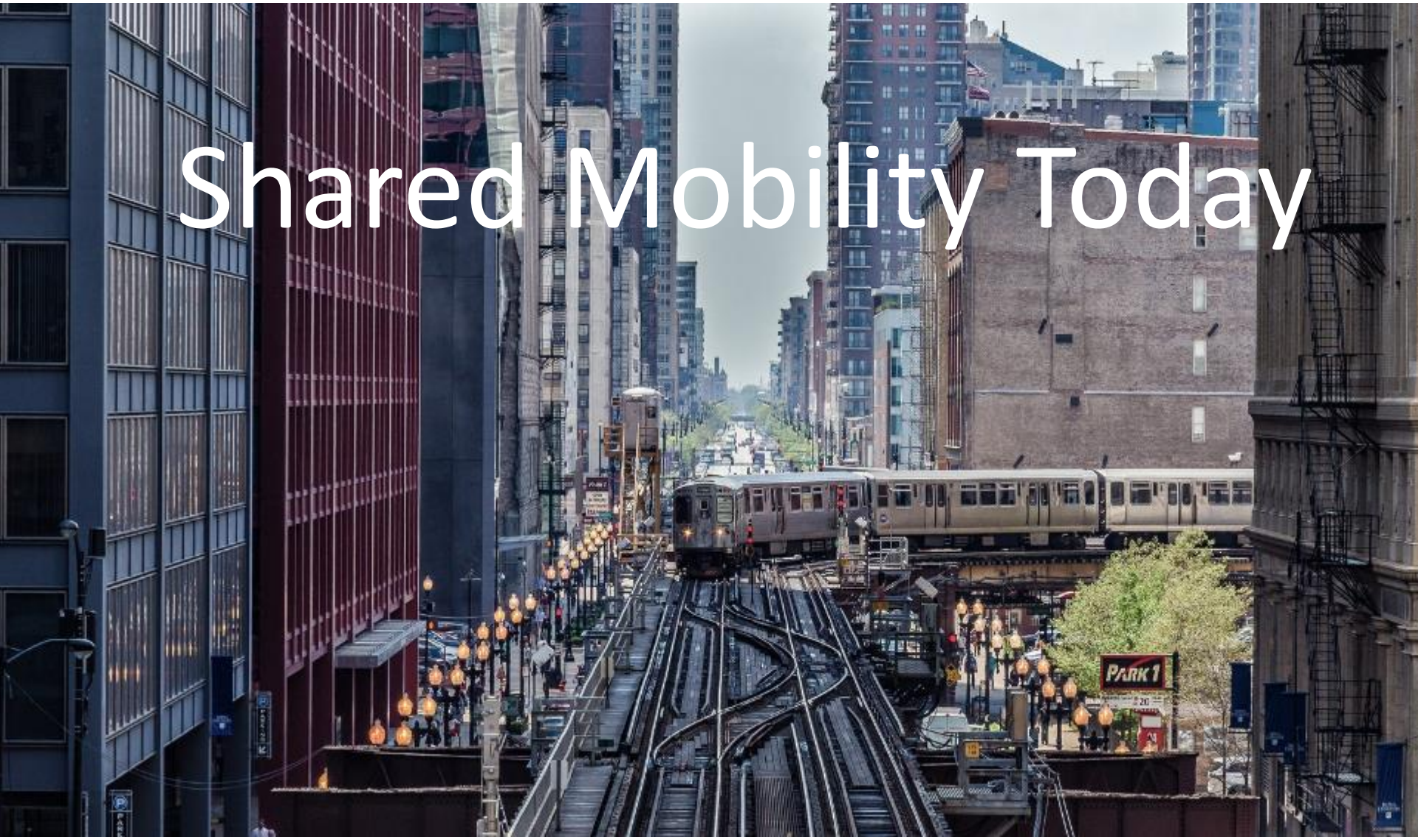


NCHRP Project 20-44(P): Evaluating Implementation of NCHRP Products: Building on Successful Practices, 2014
http://onlinepubs.trb.org/onlinepubs/nchrp/docs/Evaluating_Implementation_of_NCHRP.pdf
The key findings from this report address elements of implementation success, barriers to successful implementation, and recommendations to improve implementing NCHRP research.

Sharon Feigon

Shared Use Mobility

Shared Mobility Today



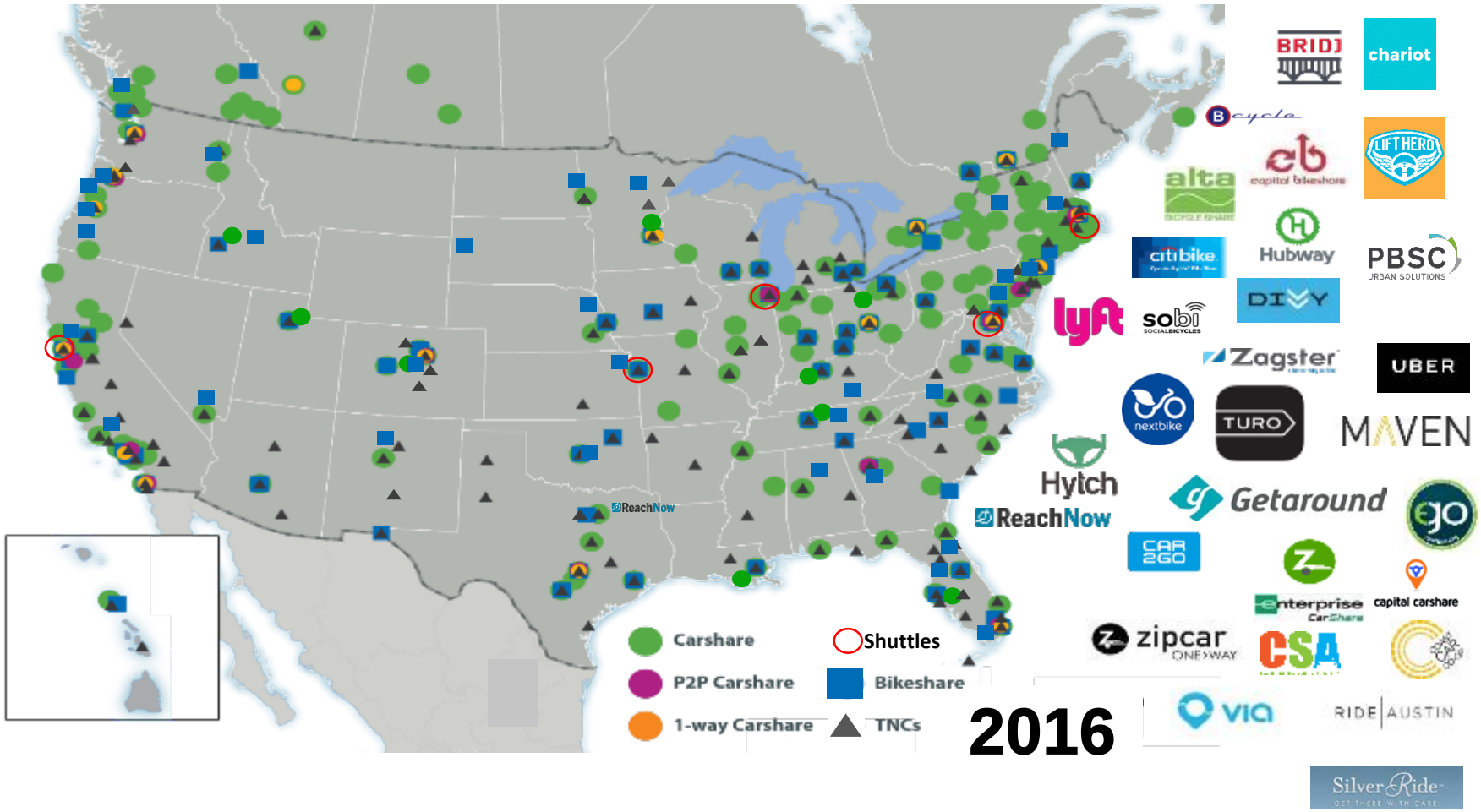
Sharon Feigon, Executive Director
sharon@sharedusemobilitycenter.org

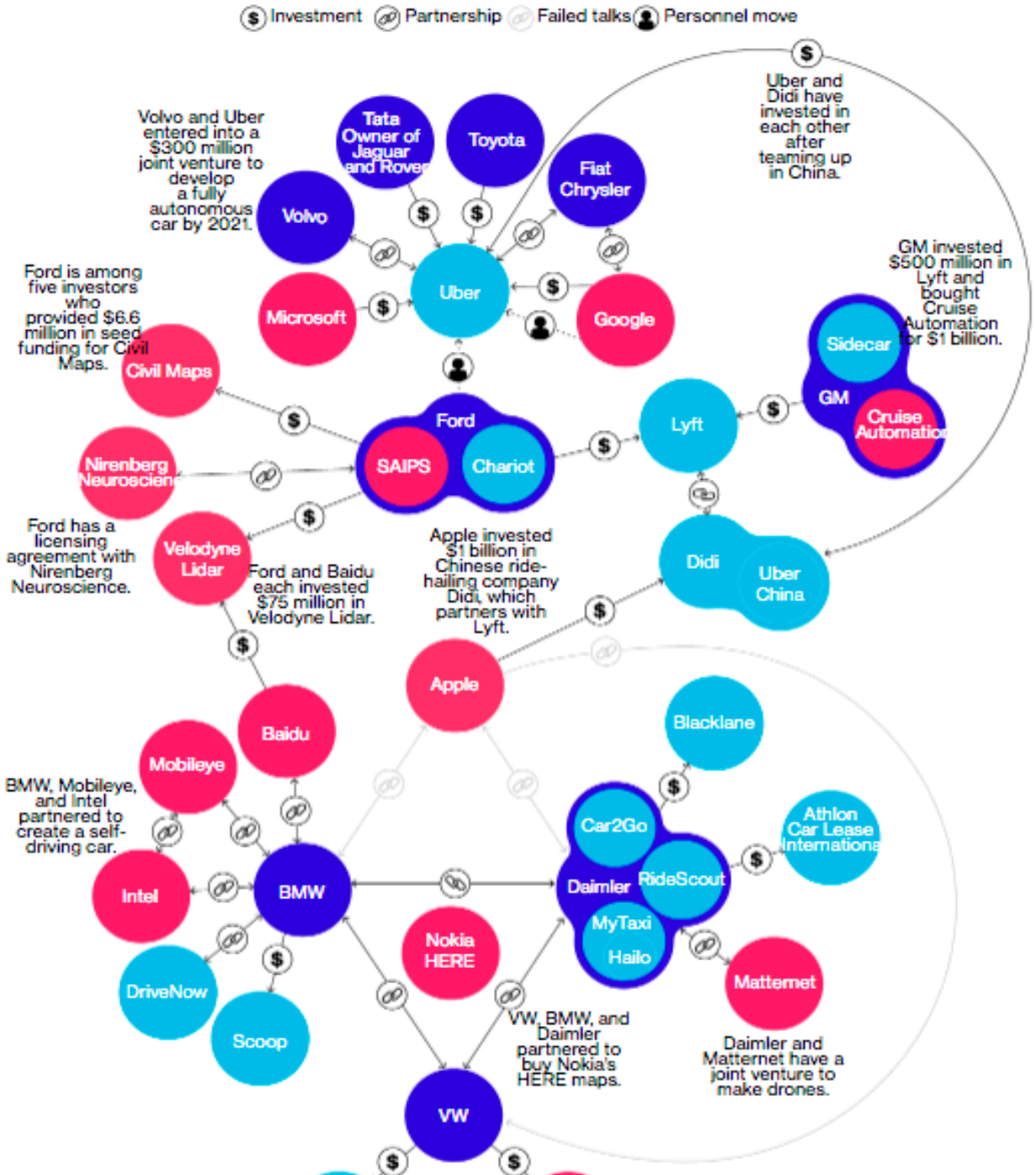
SHARED-USE MOBILITY CENTER

BIG ISSUES THIS YEAR

- GROWTH
- RESEARCH FINDINGS
- PUBLIC PRIVATE PARTNERSHIPS
- FARE INTEGRATION
- AUTONOMOUS VEHICLES
- POLICY CONSIDERATIONS

Tracking Shared Mobility
in North America




Investment
Partnership
Failed talks
Personnel move
Uber and Didi have invested in each other after teaming up in China.
Volvo and Uber entered into a $300 million joint venture to develop a fully autonomous car by 2021.
Tata Owner of Jaguar and Rover
Toyota
Fiat Chrysler
Volvo
Uber
Microsoft
Google
GM invested $500 million in Lyft and bought Cruise Automation for $1 billion.
Ford is among five investors who provided $6.6 million in seed funding for Civil Maps.
Civil Maps
Sidecar
GM
Cruise Automation
Ford
SAIPS
Chariot
Lyft
Nirenberg Neuroscien
Velodyne Lidar
Ford has a licensing agreement with Nirenberg Neuroscience.
Ford and Baidu each invested $75 million in Velodyne Lidar.
Apple invested $1 billion in Chinese ride-hailing company Didi, which partners with Lyft.
Didi
Uber China
Apple
Baidu
Mobileye
Blacklane
BMW, Mobileye, and Intel partnered to create a self-driving car.
Car2Go
Athlon Car Lease Internationa
Intel
BMW
Daimler
RideScout
MyTaxi
Hailo
Nokia HERE
DriveNow
Scoop
Matternet
VW, BMW, and Daimler partnered to buy Nokia's HERE maps.
Daimler and Matternet have a joint venture to make drones.
VW

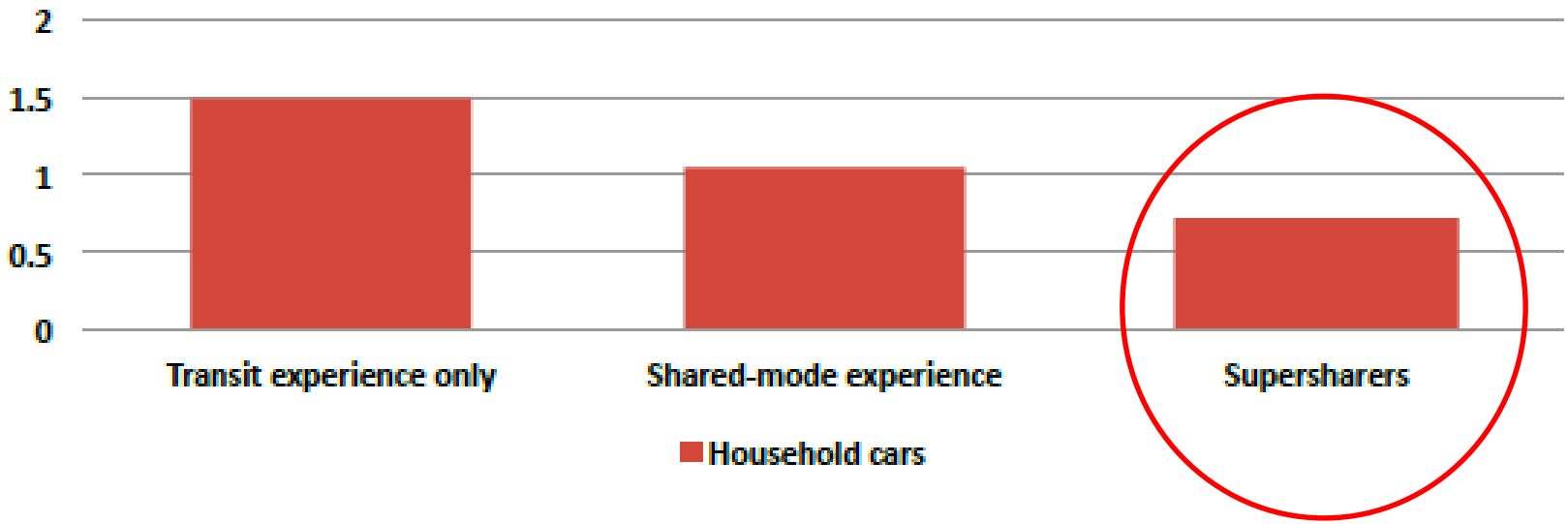
Objectives

- Improve understanding and find ways for transit agencies to learn from new tech-enabled mobility services
- Identify opportunities & challenges
- Present strategies & best practices for transit agencies to maximize public benefit

Study cities: Austin, Boston, Chicago, DC, LA, San Francisco, Seattle

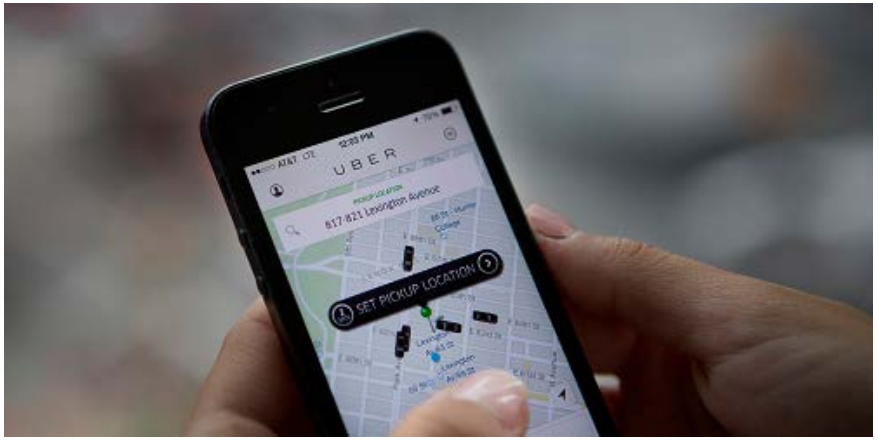
“Supersharers” report greater transportation cost savings and own half as many cars as people who use transit alone.

Figure 3:
Household vehicle ownership, by shared-mode experience[3]



Shared modes complement public transit, enhancing urban mobility.

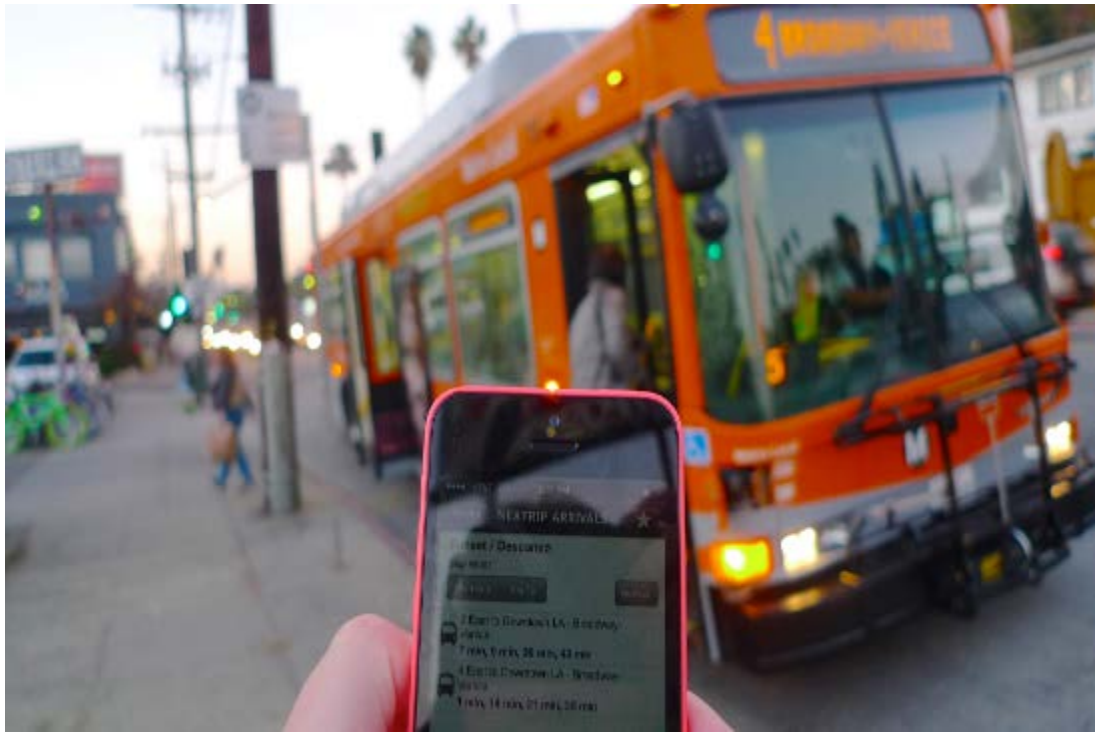
- Ridesourcing services (e.g., Lyft and Uber) are most frequently used for social trips between 10 p.m. and 4 a.m., times when transit runs infrequently or is unavailable.



Shared Modes and Transit Patterns

Shared modes largely complement public transit, enhancing urban mobility

Transit most competitive in its own right of way with frequent service.



Emerging Mobility Business Models and Partnerships

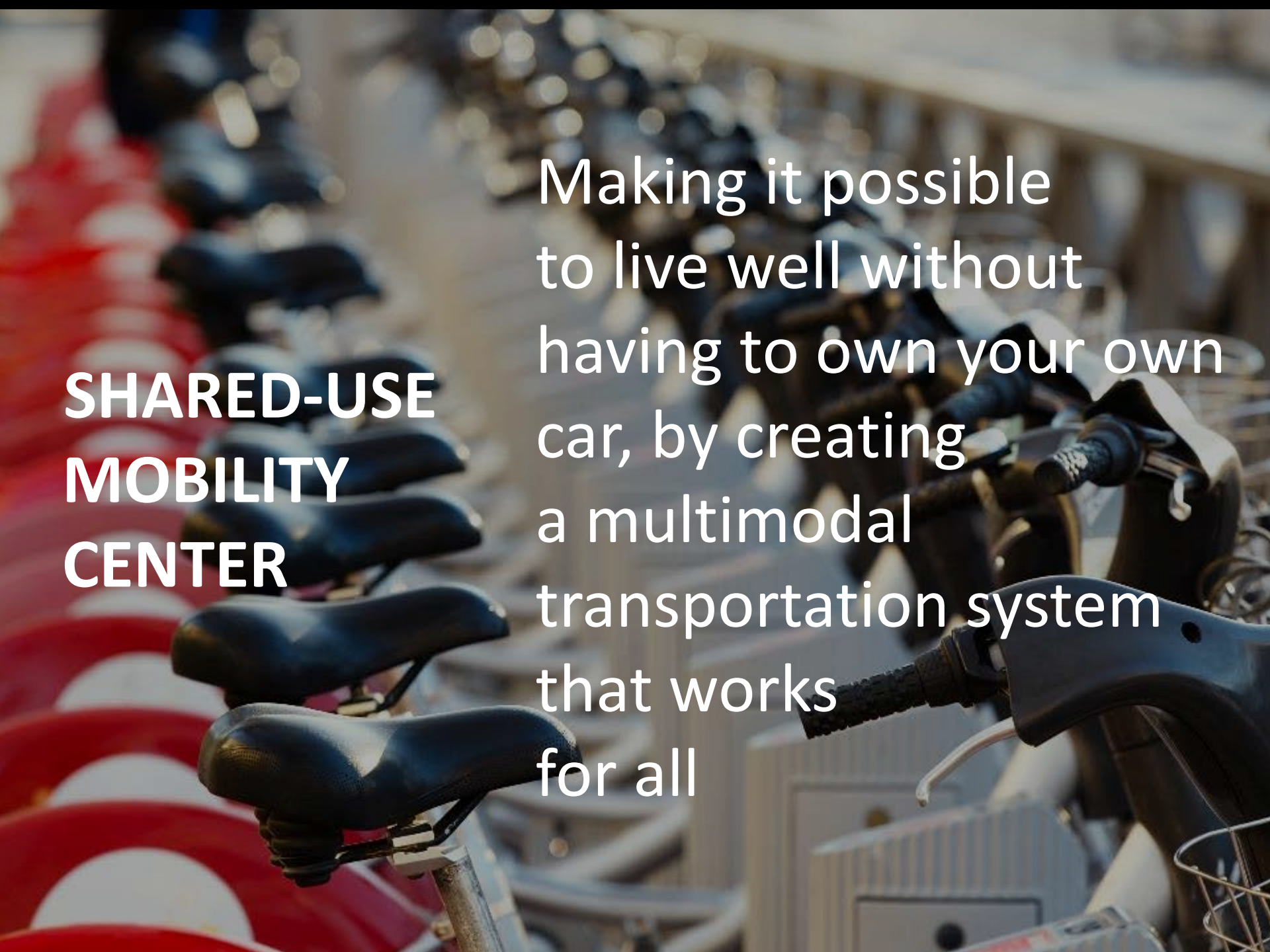
- Key areas of collaboration are in microtransit/dynamic demand response; cross-modal trip planning, reservation, and payment application integration; service links and handoffs; and private access to the public way

Upcoming Research Results

- TNC, Transit deep dive in five cities– Seattle, Los Angeles, Chicago, Washington, DC, Nashville
- Private Transit/Microtransit

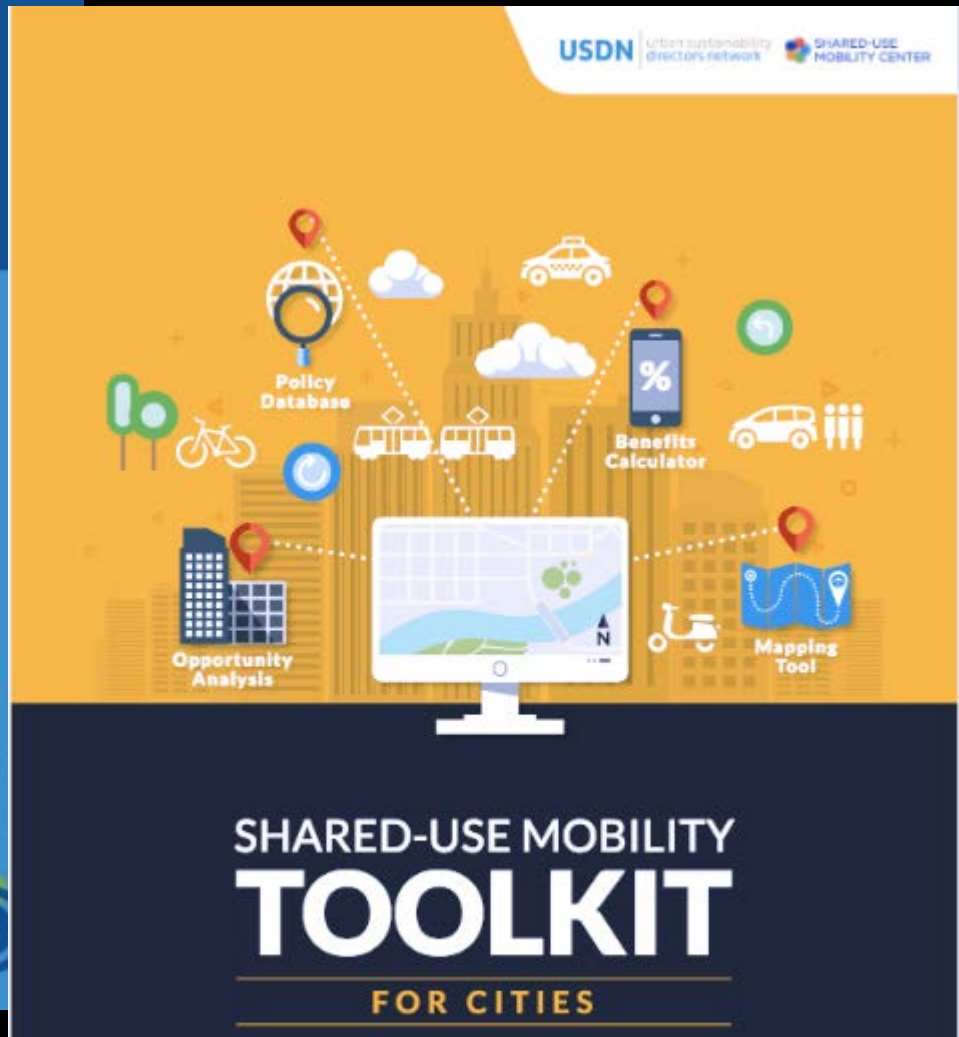
CONTINUING SHARED MOBILITY ISSUES

- Labor
- Taxis
- Ride-hailing Regulations
- Street Space
- Transportation Equity

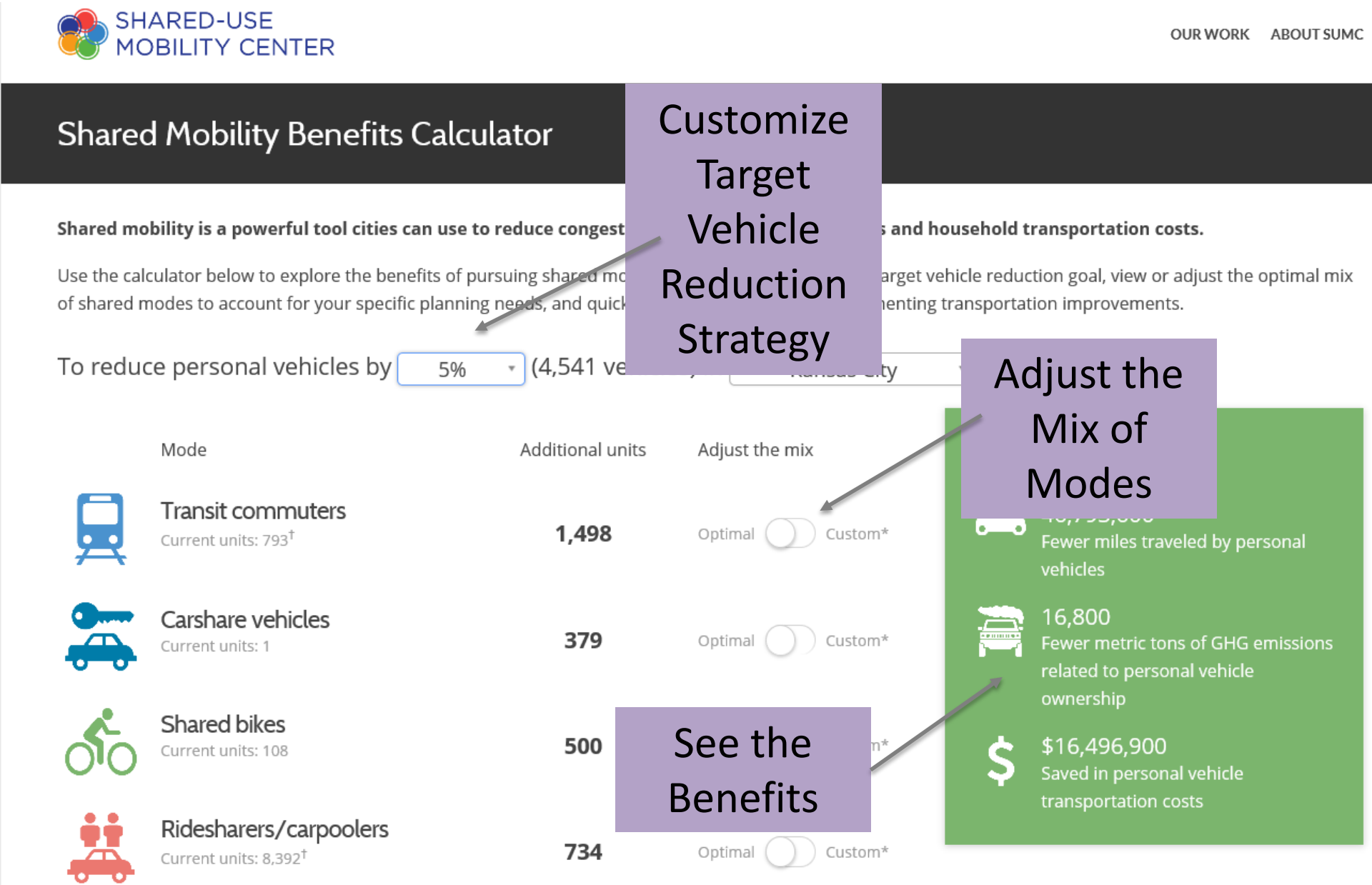

SHARED-USE
MOBILITY
CENTER
Making it possible
to live well without
having to own your own
car, by creating
a multimodal
transportation system
that works
for all


Connecting public agencies and transit, community and private sectors to scale benefits of shared mobility for all
Argyle Av
757 METRO RAPID
Metro Rapid
Local
180
LA FITNESS

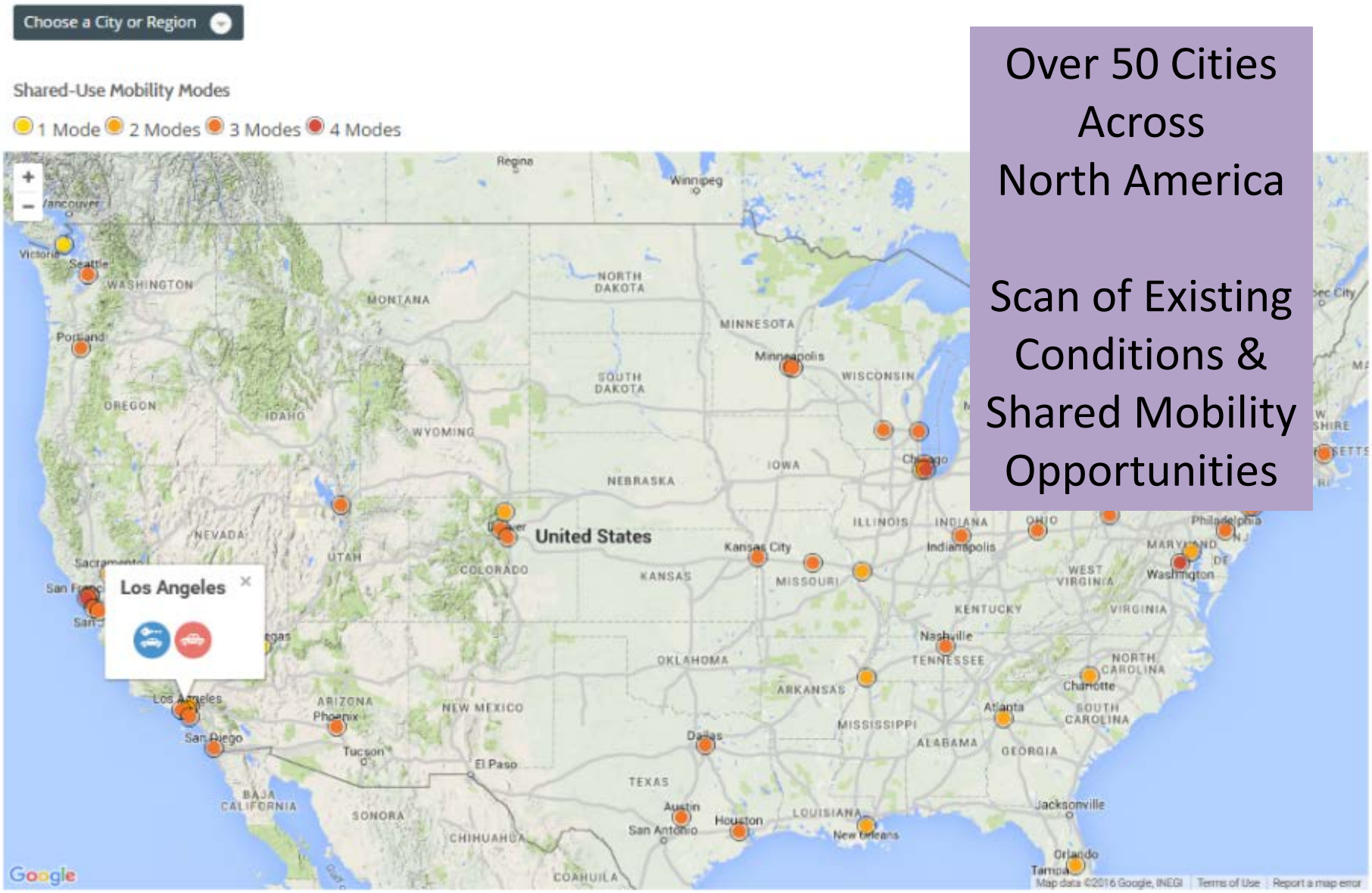
Conducting innovative research and serving as the clearinghouse for shared mobility



Benefits Calculator



Shared Mobility Mapping Tool



Over 50 Cities Across North America

Scan of Existing Conditions & Shared Mobility Opportunities

Plan: 100,000 Cars Off the Road in LA County
Twin Cities up next

Public Private Partnerships: Exam

First/Last Mile: Publicly-subsidized Uber/Lyft trips within transit service areas (to/from transit hubs

Payment Integration: Integration between transit and shared mobility services being tested in various US cities

Carpooling/Ridesharing: More private models arising for ride-matching on work commutes, voucher programs for Uber/Lyft through transit-run carpool program, google, waze app

Expanded Services: Concierge services address technology user gaps in niche markets, cash-based payment options

Key Governance Issues for Fare Integration

- Technical Standards for integration between modes and providers
- Processes for handling payments and accounts and sharing payment data
- Decision-making around technology acquisition
- Incentive coordination and inclusion
- Equity and accessibility for users
- Addressing tax benefit distribution
- Data collection and storage access

Autonomous Vehicle Policy Issues

Controlling use of streets, parking, registration fees, taxes, requirements for operation

Insurance- Who is liable for what?

AV only lanes, combining with other vehicles

Fleet operation- local government, private sector, or ppp's.

Hubs of Modes and Activities

- Public Transit
- Carsharing
- Bikesharing
- Ridesourcing
- Microtransit
- Interactive kiosks
- Bike parking
- EV charging
- Amenities?

POLICY: BE PROACTIVE & SET GOALS

- MAKE MOBILITY THE GOAL and change performance metrics
- FUND A MOBILITY MANAGER
- INCENTIVIZE scale & equity
- SET RULES & REQUIRE DATA SHARING and address accessibility
- PRIORITIZE bike and pedestrian safety
- CREATE FLEXIBLE POLICIES that can adapt to the changing environment

Thank you.

Contact: sharon@sharedusemobilitycenter.org

Website: sharedusemobilitycenter.org

Ginger Goodin

Autonomous Vehicles

Strategies to Advance Automated and Connected Vehicles

A Primer for State and Local Decision Makers

Preliminary Findings from NCHRP 20-102 (01)

Ginger Goodin, Principal Investigator
Texas A&M Transportation Institute

6% OF PLANS CONSIDER THE POTENTIAL EFFECT OF DRIVERLESS TECHNOLOGY

3% OF PLANS TAKE INTO ACCOUNT PRIVATE TRANSPORTATION NETWORK COMPANIES (TNCS) SUCH AS UBER OR LYFT, DESPITE THE FACT THAT THEY OPERATE IN 60 OF THE 68 MARKETS

What should state and local governments do?

- State, regional and local governments use **policy levers**….
  - to ensure safe and efficient operation of public roadways
  - to foster equity across users of the system
  - to mitigate negative effects of transportation
- For automated vehicles (AV) and connected vehicles (CV) a range of policy levers could influence private choices toward **outcomes** that would **benefit society**

Research Objective

Assess potential **policy and planning strategies** for use by state and local governments that guide the deployment of AV and CV to create **positive outcomes for society**

Context: Technology

Automated Vehicle (AV)

Takes control of aspects of the driving tasks

For this research, only higher levels of automation are considered

Connected Vehicle (CV)

Internal devices connect vehicles to other vehicles, to infrastructure, to cloud, and to other road users

Provides driver alerts but does not control the operation of the vehicle

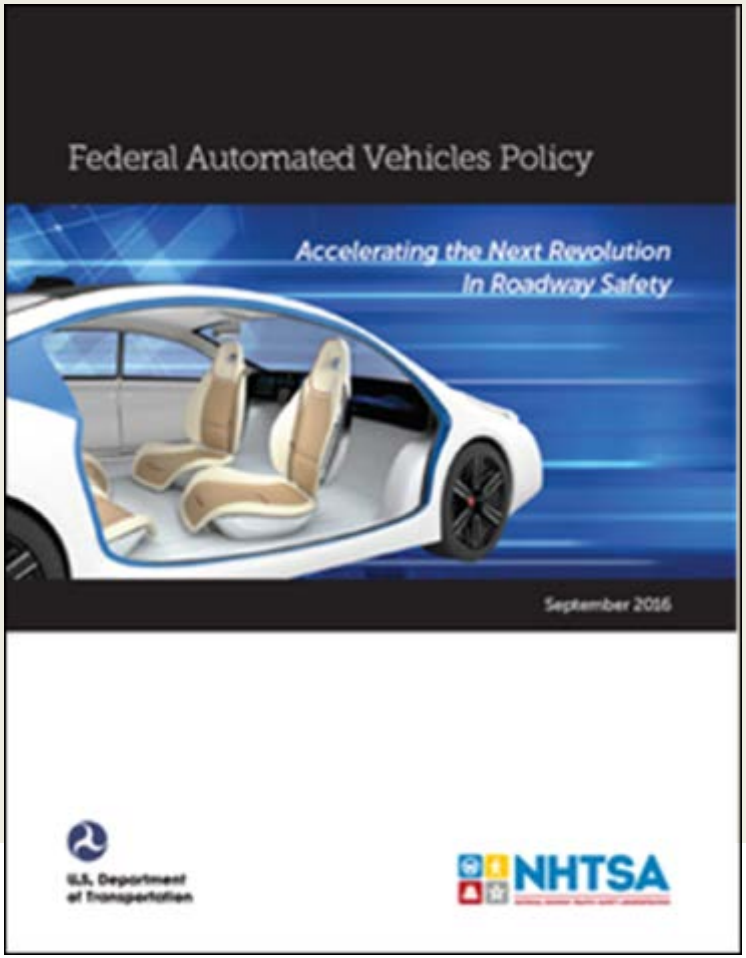
Context: Regulatory

USDOT Policy Guidance

States retain traditional regulatory roles

- Licensing drivers
- Registering /licensing vehicles
- Enacting and enforcing traffic laws
- Regulating insurance

➢ Guidance is silent on city regulatory roles



Effects of AV and CV

- Traffic Crashes
- Congestion
- Pollution
- Land Development
- Mobility

Potential Benefits of Automation

Potential Benefits of Connectivity and Automation

Driving Externality	Connectivity (Full V2X)	Autonomy* (L4,5)	Shared Autonomy (L4,5)	Electrification**
Safety				
Congestion				
Emissions				
Land				
Mobility				

*Autonomy is defined for this purpose as individually owned vehicle.
**While not a focus of this NCHRP research, the team provides assumptions of potential benefits of electrification based on known literature.

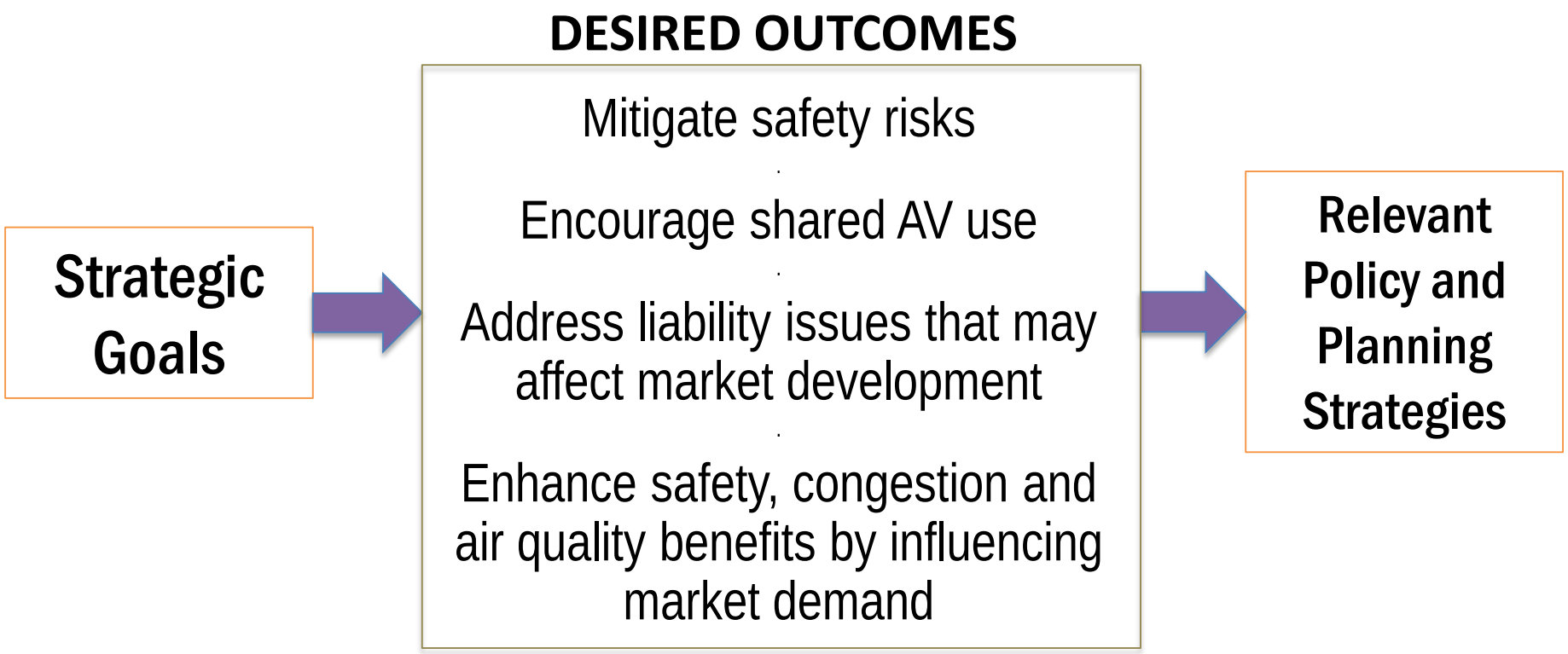
- Strong benefits
- Some expected benefits
- Weakest benefits/no impact
- Uncertain impact

What are you trying to accomplish?

Decision makers identify….

- **Goals** achieved through AV and CV
- **Performance measures** that support goals
- **Business case** for CV investment
- **Economic development** implications of emerging technologies

Creating Desired Outcomes



Policy and Planning Strategies

OUTCOME: To mitigate safety risks through testing, training and public education

- Enact legislation to legalize AV testing
- Enact legislation to stimulate CV or AV testing
- Modify driver training standards and curricula
- Increase public awareness

OUTCOME: To encourage shared AV use (and mitigate increased VMT and vehicle emissions):

- Subsidize SAV use
- Implement transit benefits
- Implement a parking cash-out strategy
- Implement location-efficient mortgages
- Implement land use policies and parking requirements
- Apply road use charging

OUTCOME: To address liability issues that may impact market development:

- Implement a no-fault insurance approach
- Require motorists to carry more insurance

OUTCOME: To enhance safety, congestion, and air quality benefits by influencing market demand:

- Subsidize CV- equipped vehicles
- Invest in CV infrastructure
- Grant AV- and CV-equipped vehicles privileged access to dedicated lanes
- Grant signal priority to AV- and CV-equipped vehicles
- Grant parking access to AV- and CV-equipped vehicles
- Implement new contractual mechanisms with private service providers

Local Strategies

OUTCOME: To mitigate safety risks through testing, training and public education

- Enact legislation to stimulate CV or AV testing
- Increase public awareness

Local Strategies

OUTCOME: To encourage shared AV use (and mitigate increased VMT and vehicle emissions)

- Subsidize SAV use
- Implement transit benefits
- Implement land use policies and parking requirements
- Apply road use charging

Local Strategies

OUTCOME: To enhance safety, congestion, and air quality benefits by influencing market demand

- Subsidize CV- equipped vehicles
- Invest in CV infrastructure
- Grant AV- and CV-equipped vehicles…
  - privileged access to dedicated lanes
  - signal priority
  - parking access
- Implement new contractual mechanisms with private service providers

Understanding the Strategies

Enact Legislation to Stimulate CV or AV Testing

Mitigate Safety Risks | Encourage Shared AV Use | Address Liability Issues | Influence Market Development

Effectiveness

Efficiency

Political Acceptability

Operational Feasibility

Geographic Impact

Urban, suburban, rural

Who

Legislature, state and local transportation agencies

Hurdles

Passing legislation, upgrading or installing roadside infrastructure, coordinating state government and agency efforts and partnerships

Description

Legality

There is no legal barrier to enacting legislation

EXAMPLE

Funding CV testing would build institutional knowledge and experience with those emerging technologies, which could increase the likelihood of the systems being implemented in the future.

TRB

13

Viability Assessments

- Effectiveness and efficiency of strategy
- Political acceptability
- Implementation considerations
- Legality
- Optimal timing
- Geographic impact
- Challenges

Thank you!

Project website:

http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=3934

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The research team is grateful for the guidance provided by the NCHRP 20-102(01) Oversight Panel

Russ Brooks

Smart Cities

Open Floor

Steve Buckley

Closing Remarks

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Thank You