

**Transportation Research Board  
Transportation and Sustainability Committee (ADD40)  
2016-2019 Triennial Strategic Plan  
(TSP)**

**I. Future Outlook**

**Mission Statement**

The Transportation and Sustainability Committee will serve the Transportation Research Board (TRB) by advancing the state of the science of sustainability as it relates to the transportation sector by providing a forum for the development and implementation of research agendas, and a framework to track the progress of these efforts. The committee's efforts will result in increased coordination between internal and external stakeholders, and establish the Committee as the clearinghouse for TRB on the issue of sustainability. The Committee strives to inspire and enable transportation agencies and organizations at all levels to adopt and implement strategies and practices that are founded on global Sustainable Development goals and principles as well as the latest advances in sustainability research.

**Sustainable Transportation**

Sustainability is frequently expressed as a *triple bottom line* concept, or as applying the **three Es: Environment, Economy and Equity**. The triple bottom line is exemplified in a transportation system which supports the economy, preserves the environment, and enhances equity in our communities and the quality of life for all. The Transportation and Sustainability Committee defines sustainable transportation in its basic form as a system that meets present needs without compromising the needs of the future. It is an equitable and safe transportation system across land, water, and air. It is an adaptable, integrated, multimodal transportation system.

Within the Transportation Research Board (TRB) environment, the Committee represents the convergence of sustainability research and its practical application leading to reductions in greenhouse gases, increases in system efficiencies returning a fiscal and resource benefit, and improvements in the transportation system's effect on disproportionately impacted populations.

The Committee views sustainable transportation as an overarching, holistic concept that advances public health and access to destinations, is zero-emissions based to reduce climate change and air pollution impacts, and responds to changing conditions to improve people's quality of life.

## Committee Scope

The Committee addresses the broad topic of transportation sustainability by connecting and integrating individual sustainability-related issues that are covered by other TRB Committees, such as air-quality, energy, land development, alternative fuels, climate change, resiliency and equity. The Committee considers not only the social, economic and environmental impacts of the transportation system, but also focuses on transportation’s key role in serving a sustainable society in a sustainably developing world.

## Goals

The committee has identified two goals that serve to carry out our mission in the next three years:

- **Goal 1 – Advance the understanding of sustainable transportation**
- **Goal 2 – Develop and promote high-priority sustainable transportation research that helps transportation stakeholders strategically integrate sustainability.**

## Driving Forces and Key Issues

This section identifies emerging and cross-cutting issues over the approaching short term (1 to 3 years) and long term (4 to 7 years) time frame that will likely affect the sustainability of the transportation sector. The Committee believes having a broad list of topics allows the Committee to be nimble and responsive to crisis issues as well as providing a structure for long-range analysis, strategic investments in research and practical applications.

| <b>Topic</b> | <b>Short-term Drivers/Issues:<br/>(1-3 years)</b>  | <b>Mid to Long-term<br/>Drivers/Issues:<br/>(4-7 years)</b>   |
|--------------|--|---|
| Economy      | <ul style="list-style-type: none"><li>- Prospect of green/sustainable growth/investments as part of economic recovery</li><li>- Need to quantify economic benefits of sustainable transportation</li></ul> | <ul style="list-style-type: none"><li>- Need to maintain, enhance and reorient existing transportation system based on sustainability (e.g. for climate adaptation)</li><li>- A lack of sufficient funds to maintain and enhance the existing transportation system</li></ul> |

| <b>Topic</b>       | <b>Short-term Drivers/Issues:<br/>(1-3 years)</b>  | <b>Mid to Long-term<br/>Drivers/Issues:<br/>(4-7 years)</b>  |
|--------------------|--|--|
| Climate Change     | <ul style="list-style-type: none"> <li>- Need to integrate climate change strategies and evaluations within the broader planning frameworks</li> <li>- Support COP21 goals to decarbonize the transportation system and improve efficiency</li> <li>- Embrace and promote an explicit goal to reduce greenhouse gas (GHG) emissions 40% below 1990 levels by 2030 and 80-95% below 1990 levels by 2050, consistent with the Under2MOU</li> </ul> | <ul style="list-style-type: none"> <li>- Need for significant reduction in transportation GHG emissions</li> <li>- Large scale societal adaptation needs</li> <li>- Addressing the impacts of climate change on transportation infrastructure (risk and resilience)</li> </ul> |
| Policy/Legislation | <ul style="list-style-type: none"> <li>- Debt spending cuts and/or raised taxes</li> <li>- Mileage based user fees</li> <li>- Fuel standards</li> <li>- Sustainable transportation programmatic resiliency (i.e. maintain program significance across divergent executive focuses).</li> </ul>   | <ul style="list-style-type: none"> <li>- Political/legal framework for transportation sustainability strategies, assessment, and implementation</li> <li>- Next bill after The Federal Surface Transportation Reauthorization (FAST ACT)</li> </ul>                            |

| <b>Topic</b>                    | <b>Short-term Drivers/Issues:<br/>(1-3 years)</b>   | <b>Mid to Long-term<br/>Drivers/Issues:<br/>(4-7 years)</b>  |
|---------------------------------|---|--|
| Global sustainability regime    | <ul style="list-style-type: none"> <li>- Role of transportation within UN's 17 Sustainable Development Goals to Transform our World of 2015 and succeeding Summits.</li> <li>- Follow-up to the recommendations of the UN High Level Advisory Group report "Mobilizing Sustainable Transportation for Development" (October 2016)</li> </ul>  | <ul style="list-style-type: none"> <li>- Global frameworks for integrating sustainability in all transportation development</li> <li>- High-level international commitment to fulfill goals for the 2015-2030 Sustainable Development Agenda to promote sustainable development</li> </ul> |
| Demographics and human behavior | <ul style="list-style-type: none"> <li>- Growth in travel for tourism, commuting, aging population, driving patterns, and air travel across age and income groups</li> <li>- Access to destinations (land use and transport)</li> <li>- Identify strategies to decrease VMT and encourage most sustainable transportation behavior</li> </ul> | <ul style="list-style-type: none"> <li>- Changes in demographics and community values</li> <li>- Changes in human behavior/travel demands and preferences, and residential choices</li> </ul>  |
| Big data                        | <ul style="list-style-type: none"> <li>- Identify opportunities to obtain transportation related large data-sets (from mobility providers, google, apps, and social media) for research</li> <li>- Understand behavioral changes associated with data and information knowledge</li> </ul>  | <ul style="list-style-type: none"> <li>- Using data to predict future mobility trends and help guide these to be as sustainable as possible</li> </ul>   |

| <b>Topic</b>   | <b>Short-term Drivers/Issues:<br/>(1-3 years)</b>  | <b>Mid to Long-term<br/>Drivers/Issues:<br/>(4-7 years)</b>  |
|--|--|--|
| <p>Connected and Automated Vehicles (CAV), Intelligent Transportation Systems (ITS), and Mobility Services</p> | <ul style="list-style-type: none"> <li>- Impact on transportation, land-use and city planning</li> <li>- Impact of VMT and emissions</li> <li>- Impact on equity</li> <li>- Impact on security</li> </ul>  | <ul style="list-style-type: none"> <li>- Lifecycle impacts</li> <li>- Identify policy or legislation that can encourage CAV, ITS, and mobility services to deliver sustainable and equitable travel</li> <li>- Identify, develop and implement opportunities from 21<sup>st</sup> century innovations in data, virtual travel, and new structural paradigms to maintain economic, environmental and equitable mobility.</li> </ul> |
| <p>Equity</p>  | <ul style="list-style-type: none"> <li>- Develop metrics for quantifying impacts on equity</li> <li>- Ensure everyone benefits equally from new mobility options and transportation projects</li> <li>- Identify &amp; mitigate exposure of disadvantaged populations (demographic and geographic) which may be susceptible to negative impacts of transportation</li> <li>- Help developing nations leap-frog to most sustainable transportation options</li> </ul> | <ul style="list-style-type: none"> <li>- Support education and professional development in developing nations and disadvantaged communities</li> </ul>   |

| <b>Topic</b>                 | <b>Short-term Drivers/Issues:<br/>(1-3 years)</b>  | <b>Mid to Long-term<br/>Drivers/Issues:<br/>(4-7 years)</b>  |
|------------------------------|--|--|
| Health & Safety              | <ul style="list-style-type: none"> <li>- Decrease transportation-related impacts and deaths (from accidents and exposure to air pollution) through behavioral and technological changes</li> <li>- Improve quality of life and public health issues through promoting recreational and physical fitness opportunities (bicycle and pedestrian mobility)</li> </ul> | <ul style="list-style-type: none"> <li>- Prevent hacking of transportation technology that may impact safety and privacy</li> </ul>  |
| Freight, air & marine travel | <ul style="list-style-type: none"> <li>- Identify optimal pathways for decarbonizing</li> <li>- Quantify benefits of “Green” pilot projects</li> <li>- Identify and increase sustainable practices in freight, air &amp; marine travel</li> </ul>  | <ul style="list-style-type: none"> <li>- Support development of technology and policies that support air and marine alternative fuels</li> </ul>                               |
| Decision support             | <ul style="list-style-type: none"> <li>- The need for decision-support frameworks/tools/data that are able to capture environmental, social, and economic impacts of transportation projects</li> </ul>  | <ul style="list-style-type: none"> <li>- Building a strong evidence base for sustainability strategies, measures, investments and associated decision support tools</li> </ul> |

| <b>Topic</b>                     | <b>Short-term Drivers/Issues:<br/>(1-3 years)</b>   | <b>Mid to Long-term<br/>Drivers/Issues:<br/>(4-7 years)</b>  |
|----------------------------------|---|--|
| Performance measures             | <ul style="list-style-type: none"> <li>- The identification and implementation of new data sources and new performance measures of sustainability</li> </ul>  | <ul style="list-style-type: none"> <li>- Need for integrated comprehensive performance measurement frameworks and 'Sustainable Transportation Indices'</li> <li>- Identification of transport system performance indicators and evaluation practices that reflect sustainability objectives and their data requirements</li> </ul> |
| Resiliency and adaptation        | <ul style="list-style-type: none"> <li>- Develop metrics to quantify economic impacts related to resiliency and adaption of transportation assets</li> <li>- Identify sustainable funding mechanisms for the aging transportation infrastructure</li> </ul>   | <ul style="list-style-type: none"> <li>- Long-term sustainability of transportation infrastructure and assets</li> <li>- Incentivize and prioritize low-carbon transportation projects</li> </ul>  |
| Coordination with and beyond TRB | <ul style="list-style-type: none"> <li>- The increased need of addressing cross-cutting issues with other TRB Committees</li> <li>- Increased coordination with external research entities and transportation practitioners</li> <li>- Other non-traditional groups getting more involved with TRB and the topic of sustainability</li> </ul> | <ul style="list-style-type: none"> <li>- Develop new outreach mechanisms to foster coordination</li> <li>- Develop mechanisms to get research results digested in a form suitable for transportation practitioners to utilize</li> </ul>   |
| Communication & Education        | <ul style="list-style-type: none"> <li>- Increase culture of sustainability awareness and assimilation with transportation practitioners</li> </ul>   | <ul style="list-style-type: none"> <li>- Develop sustainability advocates in economic, environmental and social welfare institutions.</li> </ul>   |

## **II. Committee Plan**

The transportation sector is undergoing a rapid transformation in several areas, all of which have important implications for sustainable transportation.

- First, technology development is underway in all areas and advances are particularly evident for zero-emission vehicles, mobility and car-sharing services, intelligent transportation systems, and connected and autonomous vehicles.
- Second, major changes are occurring in freight and goods movement, particularly when it comes to local, door-to-door delivery of consumer goods and technology advancements in zero- and near zero-emissions freight movement.
- Third, the transportation sector's transformation is also influenced by shifts in people's preferences regarding where they live and how they get around.
- Fourth, it has been over 60 years since the passing of the Federal-Aid Highway Act of 1956. The bulk of transportation infrastructure constructed since then is approaching – or has passed – its intended lifecycle. New infrastructure has come on line without funding for maintenance. A sustainable funding mechanism is needed to support a secure, efficient system.

At the same time that this transformation is taking place, we are more aware of the impacts transportation has on climate, air quality, and human health. Furthermore, human behavior, transportation infrastructure, and land use require time for change to support a more sustainable transportation system. Keeping these points in mind, the section below outlines the specific goals and strategies that the Committee will address over the next three years.

### **Goal 1 – Advance the understanding of sustainable transportation**

Strategy 1: Work Collaboratively within TRB – The Committee will continue to work collaboratively with TRB Committees and the Executive Committee to advance research relating to sustainable transportation. The Committee will develop research ideas that emerge from the TRB Annual Meeting, Committee-led conferences, and from the activities of other TRB Committees. The Committee will continue to develop effective ways to coordinate and communicate its activities. Close coordination with other TRB Committees with sustainability-related missions will encourage a more holistic approach to sustainability by capitalizing on ongoing work of other Committees. Furthermore, working with other Committees without sustainability-related missions to consider sustainability in their efforts will advance the culture of sustainability throughout TRB.

Strategy 2: Work Collaboratively beyond TRB – The Committee will reach out to and coordinate with external stakeholders including governmental and international agencies to gain



knowledge, learn about research needs, disseminate sustainable transportation research findings, and engage them into the Committee's activities.

- Survey needs and maturity assessments from various transportation sectors includes federal, state, local and regional and international agencies.
- Develop Subteams/networks for each of the sectors to discuss issues and gain sponsorship for research needs.

Strategy 3: Improve committee communications – Develop a communications strategy around the revamping of the committee website. Integrate into the social media environment and develop a newsletter on sustainable transportation.

Strategy 4: International Conference – During the next three years, the Committee plans to hold a second international conference focused on critical issues relating to sustainable transportation. The first conference, held in 2015, was successful because it was able to explore ways to institutionalize sustainable practices globally, while taking advantage of sustainability subject matter experts from across the globe representing government, private sector, academia, business and non-profit organizations. We want to build upon this success. This conference will serve TRB Committees with sustainability-related missions and enable the Committee to showcase the research it has supported through its TRB-related activities.

Strategy 5: The success of Goal 1 can be realized by effective outreach on the use of the TRB Research Needs Statements (RNS) database. The database could effectively be used by jurisdictions and research institutions. Measured, in part, by the annual number of research needs statements entered into the RNS database, whether these statements lead to funded research (both nationally and internationally), and whether the statements were developed collaboratively with other Committees.

## **Goal 2 – Develop and promote high-priority sustainable transportation research that helps transportation stakeholders integrate sustainability**

Strategy 1: Recommend devising a strategy for how this committee can help “develop” and promote the application of high-priority sustainable transportation research. E.g., “The Committee will work with leadership with other committees to develop short- and long-term research plans to direct TRB research in directions necessary for advancing sustainable transportation.”

Strategy 2: Identify and connect producers of sustainability related research with consumers of sustainability research.

APPENDIX A  
ADD40 TSP Action Plan

| GOAL  | ACTIONS  | LEAD  | TIMELINE   |
|---|--|---|--|
| <p><b>#1 – Advance the understanding of sustainable transportation.</b></p> | <p><b><u>Strategy 1: Within TRB:</u></b><br/>           Develop and implement an ADD40 communication strategy</p> <p>Identify committee liaison coordinators to manage the communication of ideas between ADD40’s partner committees</p> <p>Identify all TRB committees advancing research related to sustainable transportation</p> | <p>Communication subcommittee</p> <p>Research subcommittee<br/>Indicators subcommittee</p> <p>Paper review subcommittee</p> | <p>Communication strategy - 2017</p> <p>All other activities - Ongoing</p> |
|   | <p><b><u>Strategy 2: Beyond TRB:</u></b><br/>           Develop and implement an ADD40 communication strategy for external stakeholders</p>  | <p>Communication subcommittee</p>   | <p>Communication strategy - 2017</p>                                       |

|  |   |   |  |
|--|---|---|--|
|  | <p><b><u>Strategy 3: Improve Committee Communications:</u></b><br/>         Develop and implement an ADD40 communication strategy for internal and external stakeholders</p> <p>Revamp committee website.</p> <p>Integrate into the social media environment</p> <p>Develop a sustainable transportation newsletter</p> | <p>Communication subcommittee</p> <p>Communication subcommittee</p> <p>Communication subcommittee</p>   | <p>Communication strategy – 2017</p> <p>Winter/Spring 2017</p> <p>Ongoing</p> <p>Ongoing</p>                       |
|  | <p><b><u>Strategy 4: International Conference:</u></b></p> <p>Brainstorm objectives, timing, and planning committee makeup with committee</p> <p>Form planning committee</p> <p>Identify collaboration opportunities</p> <p>Initiate conference planning</p>  | <p>International subcommittee</p> <p>International subcommittee</p> <p>International subcommittee</p> <p>International subcommittee</p> <p>International subcommittee</p> | <p>Conference: Spring/ Summer 2018</p> <p>Winter 2017</p> <p>Winter 2017</p> <p>Winter 2017</p> <p>Winter 2017</p> |

|  |   |  |  |
|--|---|--|--|
|  | <p><b><u>Strategy 5: RNS Database</u></b></p> <p>Identify and prioritize critical research needs</p> <p>Collaboratively develop research needs statements</p> <p>Submit research ideas to the RNS database</p> <p>Support the process of developing funding for ADD40-initiated research</p> <p>Track annual number of research needs statements entered into the RNS database, whether submitted statements lead to funded research and/or they were developed collaboratively with other Committees</p> | <p>Research subcommittee<br/>Paper review subcommittee</p> <p>Research subcommittee<br/>Indicators subcommittee<br/>Paper review subcommittee</p> <p>Research subcommittee<br/>Paper review subcommittee</p> <p>Research subcommittee</p> <p>Research subcommittee<br/>Paper review subcommittee</p> | <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing<br/>Annual</p> <p>Ongoing</p> <p>Annual</p> |
|--|---|--|--|

|   |   |  |   |
|---|---|--|---|
| <p><b>#2 – Develop and promote high-priority sustainable transportation research that helps transportation stakeholders integrate sustainability.</b></p> | <p><b><u>Strategy 1: High Priority Sustainable Transportation Research</u></b><br/> Devise a strategy for developing high-priority sustainable transportation research.</p> <p>Work with leadership with other committees to develop short- and long-term research plans to direct TRB research in directions necessary for advancing sustainable transportation.</p> | <p>Research subcommittee</p> <p>Communication subcommittee<br/> Paper review subcommittee</p>                          | <p>Spring/Summer/Fall 2017</p> <p>Spring/Summer/Fall 2017</p> |
|   | <p><b><u>Strategy 2: Identify and connect producers of sustainability related research with consumers of sustainability research.</u></b></p> <p>Identify research institutions specializing in research central to transportation and sustainability</p> <p>Identify consumers of sustainability (i.e. progressive jurisdictions, MPOs, etc.)</p>                    | <p>Research subcommittee<br/> International subcommittee</p> <p>Research subcommittee</p> <p>Research subcommittee</p> | <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>                  |

|                                  |                            |                               |                    |
|----------------------------------|----------------------------|-------------------------------|--------------------|
| <b>Ongoing committee actions</b> | Meeting planning           | Committee Leads               | Ongoing            |
|                                  | Paper reviews              | Paper review subcommittee     | Annual             |
|                                  | Session planning           | Session planning subcommittee | Spring/Summer 2017 |
|                                  | International Coordination | International subcommittee    | Ongoing            |
|                                  | Website upkeep             | Communications subcommittee   | Ongoing            |