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CENTENNIAL PAPERS

Standing Committee on Transportation and Economic Development (ADD10)
Sharada Vadali and Konstantina (Nadia) Gkritza, Co-Chairs

Transportation and Economic Development Committee: Scope, Accomplishments, and Future Directions

GREGORY BISCHAK, *CDFI Fund, US Department of Treasury*
JAMES S. GILLESPIE, *Virginia Transportation Research Council, Virginia Department of Transportation*
RIMON RAFIAH, *Economikr*
SHARADA VADALI, *Economic Insights and Research*
JASON WANG, *Appalachian Regional Commission*
GLEN WEISBROD, *Economic Development and Research Group*

INTRODUCTION TO TRB'S TRANSPORTATION AND ECONOMIC DEVELOPMENT COMMITTEE (ADD10)

The upcoming Transportation Research Board (TRB) Centennial year 2020 provides an excellent opportunity to reflect upon the role of the Standing Committee on Transportation and Economic Develop Committee (TED) (ADD10) in promoting research and dialogue addressing the connection between transportation on the one hand, and local, state and national economic development on the other. This paper seeks to contribute to that dialogue by presenting the history of the committee since its inception and the contributions made in the applied research arena and planning practice.

COMMITTEE HISTORY AND BACKGROUND

In the 1980's, TRB had a single committee "Committee on Application of Economic Analysis to Transportation Planning" (A1C01) that covered pricing, benefit-cost analyses, productivity, growth and development of the economy. These can be categorized as conventional neoclassical and macro-perspectives. The A1C01 committee recognized the emerging national discussion of the role transportation investment in economic development topics and decided to sponsor a widely heralded conference on "Transportation and Economic Development" (TED) in Williamsburg, Virginia, in 1989. The response to the conference demonstrated the broad interest in the macroeconomic impact field. The timing and interest in this area coincided with the bourgeoning literature in the academic economics arena that sought to examine the relationship of infrastructure investment and productivity growth, including attempts to measure the rate of return at the macro level of investment in the National Highway System. This was marked by publications like those by Aschauer (1989), Tatom (1991), Munnel (1992), Gramlich (1994) among several others, all motivated by the key issue associated with identification of the contributions of the interstate highway system to the national economy. The results of those studies have been used to generally inform policy forums on the value of transport investments. Policy makers such as Federal Highway Administration wanted to eventually understand the contributions. Resulting in their sponsoring research in two key related areas: issues associated with measurement of capital, led by Dr. Fraumeni; and econometric aspects of the measurement

of the contributions of highway capital to national rates of return led by Dr. Nadiri and Dr. Mamuneas. At that time, TRB also had a committee on "Local Transportation Finance" (A1A06) that was concerned largely with returns on investment from transportation investment, along with a committee on "Taxation and Finance" (A1A01) and "Social and Economic Factors in Transportation" (A1C06). During a meeting in 1993, these committees agreed on a redefinition of roles, recognizing the need for a new committee that would focus on macroeconomic impacts. In effect, the economics committee spun off macroeconomic impacts to include economic returns from transportation investments to the new committee entitled "Transportation and Economic Development." David Forkenbrock, who was active with all four committees, led this process and became the first Chair of the new A1A06 committee. In 2004, TRB recoded the Standing Committee on Transportation and Economic Development as ADD10, as it remains today.

The initial scope of the committee stated: *"macroeconomic effects of transportation infrastructure investments, the effects of transportation cost changes on local and regional competitiveness, and methodological issues in defining and measuring effects of transportation investments on economic growth and performance. The committee is also concerned with the economic development effects of varying intermodal and modal investment strategies."* This scope identifies four key aspects of investments a) macroeconomic processes b) microeconomic sources and manifestation at multiple levels c) methodological issues – or how you measure the effect and d) coverage of multiple modes and intermodal options. While the committee roots focused on how transportation leads to GDP growth, Dr. Forkenbrock (head of the University of Iowa's Public Policy Institute) helped steer the committee to a broader focus that also included economic development impacts at the local level. The impetus for this change was an implicit recognition that macro-level productivity issues manifest differently at the microeconomic levels for states and regions, as well as for individual decision-making agents like firms, businesses and individuals. This was guided in part by a parallel line of research led by Dr. Randall Eberts at the Cleveland Federal Reserve Bank (Eberts, 1990, Deno and Eberts, 1991) that focused on the regional and local economic development aspects associated with investments. Dr. Eberts also served as a member of the committee when it was still called A1A06 under the leadership of Norman Foster.

The committee scope evolved between 1999 and 2008 under the consecutive leadership of Norman Foster and Glen Weisbrod. It continued to evolve further between 2008-2018 under the consecutive leadership of Co-Chairs Dr. Bischak and Christopher Mann, and then Co-Chairs Dr. Gkritza and Dr. Vadali, incorporating dynamic processes of change in all modes of transportation, and an increasing recognition of underlying spatial processes at work, which could lead to differential micro-level effects. This current scope is robust, subsumes the old scope while still being responsive to the dynamic changes occurring in transportation today. The most current approved scope is as follows:

> "*The Committee is concerned with the macroeconomic, microeconomic, spatial, and distributional effects of transportation investments, as measured by changes in economic performance, competitiveness, and efficiency. It is specifically interested in the identification and measurement of causal linkages between transportation investment and measurable improvement or deterioration in the level or type of economic development. The Committee envisions efficient, effective, and equitable transportation systems that promote competitive advantage, economic sustainability, and resiliency*".

While still emphasizing the same initial four aspects, the revised scope draws greater attention to methodology, causal as well as other emerging methods and the distributional nature of effects, for all modes of transportation likely to be very relevant as we move into an era of technological change.

Relationship with Other Committees

The Committee liaises with the committees on Transportation Economics (ABE20), Revenue and Finance (ABE10), and Transportation and Land Development (ADD30). These committees have also historically supported and promoted the International Conference on Transportation and Economic Development (ITED). Recently the Committee expanded its partnerships to include the committees on Freight Transportation Planning and Logistics (AT015) and Freight Transportation Economics and Regulation (AT010) from the Freight Group. While all of these relationships are important, the Committee works most closely with ABE20 (and by extension now AT010) in crossover areas associated with the application and development of cost-benefit methods. Our current collaboration occurs in an area called wider benefits within the realm of cost-benefit analysis and distinctively separate from wider economic impacts or economic impacts, in general, where there is a great need for additional research. This is because current methods are somewhat limited in their scope, coverage, and assumptions associated with these wider benefits. Similarly, ADD10 collaborates with the Revenue and Finance committee (ABE10) in the areas of economic impacts of funding/financing arrangements as well as funding and financing for economic development. ADD10 works with the Transportation and Land Development Committee (ADD30) in the determination of economic impacts associated with land and/or property values. The original macro-focus and policy context for infrastructure subsequently became part of the Task Force on Value of Transportation (AB020T) funded by the Bureau of Transportation.

International Transportation Economic Development Conference

The most distinctive aspect of ADD10 has been its leadership running the International Transportation and Economic Development (ITED) conferences that have attracted prominent speakers, broad attendance and even broader dissemination of information on how to assess and leverage the role of transportation in fostering economic development within national, state, regional and local jurisdictions. By focusing on planning and policy in practice, conferences after 2002 garnered international involvement (from South America, Mexico, Asia, and Europe), featured prominent government decision makers and corporate leaders. These efforts were headed up by Norman Forster, Glen Weisbord between 1999-2008 duration, by Gregory Bischak and Christopher Mann during the period 2009-2014 and by Sharada Vadali and Nadia Gkritza from 2014-current.

The conferences grew to around 200 attendees, with support form 20 financial patrons and technical content co-sponsorships by Federal Highway Administration, American Association of Highway Transportation Officials (AASHTO), Delta Regional Authority (DRA), Federal Reserve Bank (FRB) (in the Little Rock and Dallas conferences), the Transportation Association of Canada (TAC) American Planning Association (APA), International Economic Development Council (IEDC), North American Association of Development Organizations (NADO), North Association of Regional Councils, Transportation and Development Institute of American Society of Civil Engineers (T&DI), Appalachian Regional Commission (ARC) and

more recently, Organization for Economic Cooperation and Development (OECD), World Bank, and U.S. Census Bureau. Sponsor funds were used to subsidize attendees from local agencies and foreign countries, and produce the proceedings of the conference. All conferences had anchor organizations serving as local hosts. For example, ITED anchors or local hosts have included Nick J Rahall Transportation Institute, University of Arkansas at Little Rock (UALR) and UALR Institute of Economic Advancement, Texas A&M Transportation Institute). The most recent local host in 2018 was the National Transportation Center, University of Maryland. The success of all TED/ITED conference series attributes to each of the conference planning committees. In each case, many organizations had their unique perspectives on transportation and development reflected in the conference (example: ARC and NADO with their focus on rural issues; Federal Reserve with issues focused on transportation in their districts).

In all cases, the diverse, multi-disciplinary attendance at these conferences is an indicator of the committee's success in encouraging interdisciplinary discussion between practitioners, planners, academics, and public sector leaders from state transportation agencies, metropolitan and regional planning organizations across the country. Historically, these conferences have also attracted local economic development officials from the location/region where the conference was hosted. The continuing AICP education credits available through APA from the 2014 conference onwards became an added benefit for federal, state and local officials.

In addition to dialogue and discussion, in each case, there were also tangible conference outcomes that were distinctly different as shown in **Figure 1**. The tangible outcomes have included E-Circular documents in 2002 and 2019, a special issue of Transportation Research Record in 1989, and two special issue journal publications from conferences held in 2011 and 2014.

Conference themes have changed over time to reflect the diverse trends influencing the linkages between transportation and economic development domestically as seen from the titles:

- Transportation and Economic Development (1989, 1999, 2002, 2006)
- ITED- Economic Impact of Connecting People, Goods, Markets, Employment, Services and Production (2011)
- ITED- Economic Development Implications of Global Trade, Transport Investments, Climate Change, Environmental, and Urban and Rural Policies (2014)
- ITED- Relationships between Multimodal Transportation & Economic Development: Policy, Infrastructure, & Technology (2018).

COMMITTEE MISSION AND SCOPE IN RELATION TO NATIONAL AND GLOBAL TRENDS

Another distinctive aspect of ADD10's focus on transportation and economic development is the evolving scope of national and global trends in developed, developing and less developed countries where economic development is often a key objective for transportation and infrastructure investments. It is interesting to note that after the 2008 world financial crisis, the 90th TRB annual meeting's spotlight theme in 2011 was "***Transportation, Livability, and Economic Development in a Changing World*".** As such, the committee's activities (sponsored annual meeting sessions, papers, workshops, webinars, research ideas, ITED sessions) are often closely tied to the pressing economic issues at the time and the scope of the committee. Here are some examples of these activities:

- Spatial Economic Development Impacts: Methodological Issues and Regional Modeling Case Studies (lectern session 423, 2011 TRB annual meeting);

- Development Impacts of Transit Investments and Disinvestments (lectern session 623, 2011 TRB annual meeting);
- National, Regional, and Local Economic Effects of Various Modes of Transportation infrastructure on Economic Performance (ITED 2011 session B1);
- National, Regional, and Local Studies of Freight Transportation on Economic Performance (ITED 2011 session A1);
- Analysis of Changes in Transportation infrastructure on Regional and Local Geographies Due to Cluster-Based Economic Development (ITED 2011 session A3);
- Impacts of Technological Changes on Transportation and Economic Development (ITED 2011 session B2);
- Energy/Climate Change Policy-Induced Effects on Transportation Investments and Economic Development (ITED 2011 session B3);
- Economic Growth Impacts of Public Transport Investments (ITED 2011 session C1);
- Integration of Economic Impact Analysis into State and Regional Transportation Planning Process (ITED 2011 session C2);
- Challenges Facing the Use of Economic Impact Models by Transportation Agencies (ITED 2011 an open discussion session);
- Public-Private Sector Roles and Relationships Promoting Transportation Infrastructure Investment Objectives (ITED 2011 session D1);
- MAP-21 and Disinvestment (ITED 2014 session C3);
- Innovations in Transportation Project Economic Development Appraisal (ITED 2011 session D3).
- The Impact of Multimodal Transportation and Transformative Technologies on Regional Economy and Community Development (Plenary ITED 2018)
- Transportation and Supply Chains of the Global Economy (Plenary, ITED 2018)
- Spatial Distribution of Economic Development Outcomes from Transportation Accessibility (Session 1375, TRB 2019).
- Transportation for a Smart, Sustainable, and Equitable Future: Lessons for Megaregion Planning from International Cases in Economic Integration (Session 1019, TRB 2019)
- Causal Development Impacts of Transportation Investments (Session 1669, TRB 2019)

Focus on Rural Economic Development and Lagging Economics

Over the years, the committee has also taken a lead in exploring rural communities, small cities/towns or multi-jurisdictional rural regions where economic development has always been the centerpiece for their livelihood and growth. The philosophy is a reflection of ADD10's mission to examine spatial processes- in this case, the role of transportation in helping rural economics and lagging regions more broadly. To this end, the Appalachian Regional Commission, Federal Highway Administration, and National Association of Development Organization have all played a pivotal role in ensuring that focus on these regions via their support for ITED as reflected in some of the sessions listed below:

- Rural Transportation and Regional Integration (ITED 2018 session 2B);
- The Appalachian Development Highway System: Access to Opportunities (ITED 2011 session A4);

- Federal Initiatives and Programs to Support Rural Economic Development (ITED 2018 Federal Plenary Session, June 8, 2018)

Workshops to Advance Research and Implementation

While ITED has been the lead task for ADD10 membership and leadership, held every 3-4 years, ADD10 has also contributed to the development of workshops to directly advance impact analysis, support a better understanding of impacts by understanding the core data needs better. To this extent, ITED partnered with Census Bureau in 2018 to bring new developments in the data domain to ITED audience since many of the datasets are vital in planning for and analyzing impacts. In 2019, ADD10 also helped developed a workshop in collaboration with World Bank and other committees to better understand emerging international contexts for project evaluation and spatial distribution of impacts and how they might be compared. ADD10 members have also worked with Revenue and Finance Committee (ABE10) on developing two workshops on value capture funding in 2015 and 2019 respectively.

Economic Impact Analysis Tools, Research and /or Webinars Directly Supported by ADD10

A key part of the evolution of the committee was the development of economic impact analysis of individual investment decisions separate from cost-benefit analysis, as a standalone analysis. The development was in collaboration with the current Transportation Economics Committee (ABE20), as cost-benefit analysis is largely their domain. By 2010, the committee had made significant headway in engaging broader TRB audiences about the methodological and policy relevance of economic impact analysis. Furthermore, ADD10 actively collaborated on a wide range of economic impact analysis and topics being discussed and covered by activities of TRB's other rail, aviation, marine, transit and highway planning committees. ADD10 has directly supported the development of free tools and research projects by helping in the development of research ideas that were subsequently funded by National Cooperative Highway Research Program (NCHRP) as well as having ADD10 committee members serving on National Academy of Science (NAS) and TRB panels. A much larger set associated with publications of committee members is not included here for the sake of brevity.

Some examples of ADD10 initiated, supported research, or other efforts include:

- Strategic Highway Research Program 2, Transportation Research Board: Dr. Bischak served on the panel and several committee members contributed to the development of tools associated with C03/C11 (leading to EconWorks, now supported by AASHTO).
- Synthesis 480: Economic and Development Implications of Transportation Disinvestment (initiated by ADD10 under the leadership of Dr. Bischak and Christopher Mann)
- NCHRP Project 19-14: Right-Sizing Transportation Investments--Methods for Planning and Programming (initiated by ADD10 under the leadership of Dr. Bischak and Chris Mann)
- Site Selection Webinar led by Dr. Chad Miller in cooperation with FHWA (initiated by ADD10 under the leadership of Dr. Vadali and Dr. Gkritza- forthcoming Spring 2019)
- Site Selection Research Problem Statement (initiated by ADD10 under the leadership of Dr. Vadali and Dr. Gkritza- Submitted in 2018, Anticipated Resubmit 2019)

- NCHRP 19-13 "Land Value Return and Recyling- A Guidebook" led by Dr. Vadali (in collaboration with and with many members of ABE10).
- Dr. Gkritza served as a panel member on NCHRP Synthesis 459, while Dr. Vadali served as a panel member on Transit Cooperative Research Synthesis Project 128.
- NCHRP 456: Guidebook for Assessing the Social and Economic Effects of Transportation Projects co-authored by Dr. Frockenbrock and Glen Weisbrod in 2001.
- Webinar on Best Practices and Strategies for Assessing Economic Implications of Disinvestment or Right-Sizing Scenarios led by C. Duncan and moderated by Dr. Bischak, 2015.

Another example of adoption of methods by other committees and representation of members of ADD10 is a peer review study undertaken under NCHRP Project 20-24(103), "Peer Exchange on Transportation Investment for Economic Development: Making the Case" leading to E-C202: "Transportation Investment Making the Case for Economic Development" led by Task Force on Data for Decisions and Performance Measures and Committee on Asset Management.

GOING FORWARD- WHERE ADD10 SEES ITSELF IN THE NEXT FEW YEARS

In 2002, Dr. Frockenbrock laid out 10 rules for a transportation capacity improvement to contribute to economic competitiveness (E-Circular E-C050, 2002). They are as follows:

1. Improvements in reliability should be considered.
2. Role of transportation in the sectors using transportation should be considered. Dr. Frockenbrock refers to this as transportation -intensive sectors.
3. Focus on overall reduction in time cost savings rather than mode specific savings.
4. Operational improvement with focus on safety is a good way to reduce societal costs of transportation.
5. Expediting construction so as to reduce delays that can act as a drag on productivity.
6. An equity-based focus on transportation projects with reduced adverse impacts incidence on low-income populations. However, transportation can also serve as a social policy lever to support more equitable development of the economy.
7. The most compelling argument for transportation investments occurs when all other critical contributors to economic development are present, elements such as cost-effective labor, natural resources, and other infrastructure.
8. Land use planning strategies must work in support of transportation and help to reduce transport costs.
9. Develop a level playing field by recognizing the full range of costs and benefits of alternative modal investments.
10. Focus on system wide effects of a single project.

It is an opportune time to indicate that all of these factors still hold true today, and implementation of these tenets is highly varied across the country.

Trends, Emerging Issues and Short and Long-Term Committee Focus Areas

Progress on several fronts has emerged, however, there are several areas still in need of further investigation by ADD10. For instance, much effort has gone into the examining system wide

effects of a single project at multiple levels. Yet there is much left to be examined with what that system wide effect implies for spatial equity, modal cost savings, overall accessibility and how they may all be brought together in a framework. Secondly, research has made progress in understanding and recognizing transportation usage by mode and sector but more work is clearly required to further develop methods for productivity analysis of transportation investments and impact assessment across modes. Most of the research is still somewhat highway-centric. Third, a factor omitted in Dr. Forkenbrock's rule no. 2 is the market conditions that are impacting the transportation sector itself as well as market structures these industries face. Fourth, factors like technical change and transformative technologies change the status quo approach to evaluating and considering industry relationships and the role of physical transport needs to withstand a much stronger economic test. The last two ITED conference themes have examined global economic and technological trends influencing transportation and economic development as a dynamic and a spatial relationship. As mentioned previously, the committee scope has evolved over the last decade and has most recently focused on how transportation and economic development planning can be coordinated to achieve broader resilience, sustainability and economic prosperity goals. We do not yet do a very good job of addressing market conditions facing the transportation industry and/or the market structure of these industries in impact analysis. In no other place is this more critical than in freight transportation sector, like freight rail and aviation, in general.

This changing global and national context also comes at a time of unprecedented surge in the availability of economic data and computing power. These changes are stimulated by global forces and technology leading to increases in the types of economic variables and volume of data that can be used to support economic development research and to address its linkage to transportation programs and projects. These in themselves, provide excellent opportunities to test existing theories, and develop improved tools and methods, by providing new insights into relationships that were previously not possible. There are additionally several key questions and issues that evolve around the role of technology in transportation and the broader economy as well as labor force. The committee is also increasingly focused on causality and other core methods that can provide greater context for transportation and these are well reflected in the Committee's Strategic Plan.

Next, there is increasing recognition that domestic national, regional, and local economic development are part of a global system where micro-competitiveness is a function of capacity of individual regions, industries, and supply chains to avail of right kinds of capital, including but not limited to infrastructure and transportation. From an economic development perspective, at the macro and micro-levels, these trends can influence economic development in many ways through impact on distribution systems, logistics, access to right kind of labor, location and site selection decisions. Evaluating such effects better and what these may mean for economic resilience and sustainable transportation investment decisions at the micro-level and at the macro-level are indeed in the realm of the committee's mission and scope going forward in the near term and longer term.

There is indeed an ongoing need to better understand and learn from international experiences, best practices and contexts on lagging regions and what that may mean for rural economies, going forward. The questions here continue to questions like:

- How can investments help lagging regions?
- How and under what conditions can connectivity lead to uplifting of such economies?

- What process are at work and what is the role of investments in promoting economic resilience?
- How effective have rural investments/interventions been so far at the system level?

Finally, there also needs to be simultaneous return to the initial macro focus of this committee and address contributions of freight systems, transit and multimodality to the national economy- an aspect that could benefit from greater research. ADD10 expects that all these issues will take center stage in the near and longer term.

CONCLUSIONS

ADD10 is preparing to meet these issues by striving to develop relevant sessions, collaborating with other TRB relevant committees to create synergy in developing sessions and research problem statements going forward. At the same time, we also urge other committees to collaborate with ADD10 in areas associated with interactions between transportation and economic development or economic impacts. It is our understanding that our scope is relevant and robust to address the issues outlined above, going into the next 5-10 years. Economic impacts will always be discussed and will always be part of a communication toolbox at different levels. The methods and contexts will likely evolve and be different based on the forums and avenues they are discussed in and it is our hope and expectation that ADD10, with effective cross-committee collaborations and sponsors, has indeed a long future with TRB.

The TED/ITED Conferences are, in large measure, possible because of the support and work of TRB as well as all the member of ADD10 and representatives of collaborating committees. ADD10 is grateful for that support.

The ADD10 membership would like to extend their congratulations to the Transportation Research Board on completing 100 years. ADD10 would also like thank TRB for the opportunity to contribute to and enhancing the field of research and practice associated with the linkages between transportation and economic development.

COMMITTEE WEBSITE

Here are the links to the committee's online material:

- Committee's webpage on the TRB website: https://www.mytrb.org/OnlineDirectory/Committee/Details/1074
- Committee's Website until 2010: https://sites.google.com/site/tedcommittee/home/purpose-and-organization
- Committee's Current Website as of 2010 -----: https://trbadd10.wixsite.com/tedsite

The committee welcomes all interested in committee activities and the intersection of transportation and economic development to please check out these websites and reach out to TRB Senior Program Officer of Social, Economic and Policy Issues, Mr. William Anderson or the Committee Co-Chairs.

AUTHOR CONTRIBUTION STATEMENT

Dr. Greg Bischak, CDFI Fund, US Department of Treasury (provided the background history and reviewed document)

Mr. James S. Gillespie, Virginia Transportation Research Council, Virginia Department of Transportation (provided the background history and some references)
Mr. Rimon Rafiah, Economikr (reviewed the document and provided discussion on intersection areas between Economics and Economic Development)
Dr. Sharada Vadali, Economic Insights and Research (compiled the document, references, and contributed to sections entitled -ADD10 contributions, committee mission and scope, going forward)
Mr. Jason Wang, Appalachian Regional Commission (provided recent rural perspectives)
Mr. Glen Weisbrod, Economic Development and Research Group (provided the background history, document review, and some references)

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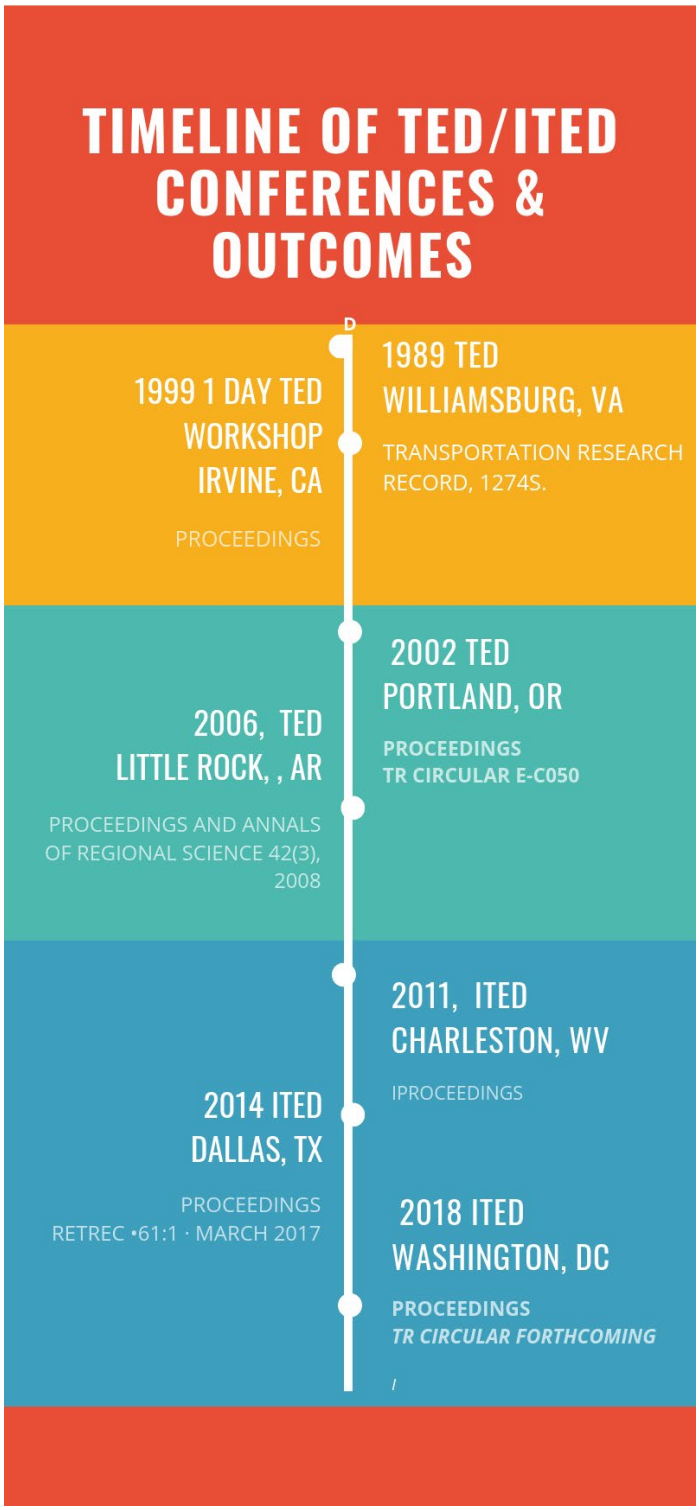

Figure 1. History of TED/ITED Conferences and Outcomes