

# METROPOLITAN PLANNING ORGANIZATIONS AND TRANSPORTATION PLANNING FOR MEGAREGIONS



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Prepared by:  
U.S. Department of Transportation  
Office of the Assistant Secretary for Research and  
Technology  
John A. Volpe National Transportation Systems Center



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The views expressed in this report are those of the research team and not necessarily the USDOT, the FHWA, the Volpe Center, or MPO contacts.

This report and other resources related to transportation planning for megaregions are posted on the FHWA Megaregions and Multi-Jurisdictional Planning website:

(<http://www.fhwa.dot.gov/Planning/megaregions/>) and the FHWA-FTA Transportation Planning Capacity Building website (<http://www.planning.dot.gov/>). This report is a companion for another FHWA report by the Volpe Center, “Role of Regional Planning Organizations in Transportation Planning Across Boundaries,”

[http://www.fhwa.dot.gov/planning/megaregions/reports/regional\\_planning\\_organizations/index.cfm](http://www.fhwa.dot.gov/planning/megaregions/reports/regional_planning_organizations/index.cfm)

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- "Megaregions Planning for MPOs and Partners," hosted by MAG, Phoenix, AZ (2012)  
[http://www.planning.dot.gov/documents/MAG\\_Megaregions\\_Planning\\_for\\_MPOs\\_TPCB\\_Peer\\_Report\\_May%202012.pdf](http://www.planning.dot.gov/documents/MAG_Megaregions_Planning_for_MPOs_TPCB_Peer_Report_May%202012.pdf)
- "Connected Places: Freight Movement and Megaregions," hosted by the Atlanta Regional Council, Georgia Institute of Technology, and the Atlanta Chamber, Atlanta (2013)  
<https://www.youtube.com/user/ConnectedPlaces>

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## Introduction

The movement of people, goods, and information has rapidly changed during the beginning of the 21<sup>st</sup> century, due to globalization, technology, and new ideas about how transportation should be planned in metropolitan areas. The concept of megaregions provides a valuable new focus on identifying, prioritizing, and addressing important emerging 21<sup>st</sup> century mobility challenges and opportunities. For purposes of this report, megaregions are defined as networks of metropolitan centers and surrounding areas connected through cultural, environmental, and economic characteristics as well as major infrastructure.<sup>1</sup> Although megaregions tend to be defined around and between major metropolitan centers, they also encompass smaller urban areas as well as the suburban, exurban, and rural areas surrounding and in-between cities.

Public and private sector stakeholders with an interest and role to play in transportation planning are beginning to consider mobility and infrastructure needs that extend beyond the local, metropolitan area, or State boundaries within which transportation planning traditionally occurs. Critical transportation needs, problems, and opportunities to improve access and mobility do not respect the formal boundaries of States, Census-defined metropolitan areas, counties, cities, towns, and public transit service areas that are the foundation of transportation planning and investment decision-making in the U.S. Institutional responsibilities for planning, funding, and operating transportation correspond to and are limited by these legally-defined boundaries and jurisdictions. Planning across these boundaries to address freight and passenger transportation needs is a major challenge, receiving increasing attention at Federal, State, and local levels.

Although planning transportation across jurisdictions is a challenge faced by small and large geographic areas alike in the US, researchers identify megaregions as the sub-set of major regions, often multi-state, with the most significant challenges, opportunities, and resultant needs based on forecasts of shifts in demographic and economic trends, freight flows, and passenger demand. These areas are identified as presenting major opportunities for transportation to contribute to national, regional, and local areas thru improved global trade and competitiveness and economic development.

This report explores innovative ways that metropolitan planning organizations (MPOs) are working with partners to begin to conduct planning to address the transportation issues of megaregions. This report is based on research for the Federal Highway Administration (FHWA) Office of Planning conducted by the U.S. Department of Transportation's (USDOT) Volpe National Transportation Systems Center (Volpe Center). The research includes a focus on how MPOs are working within the roles for planning agencies identified in Federal regulations to explore needs outside of their boundaries. While Federal regulations provide flexibility for megaregions-scale planning, they do not require MPOs to plan on this scale. This report explores the benefits that MPOs and their partners receive from participating in megaregions

<sup>1</sup> Center for Quality Growth and Regional Development, "History of Megaregions," Georgia Institute of Technology, 2011. Accessed 27 June, 2014: [http://www.cqgrd.gatech.edu/program\\_areas/megaregions/history.php](http://www.cqgrd.gatech.edu/program_areas/megaregions/history.php)

planning, as well as the institutional and technical challenges that they face in working with a broad range of stakeholders to plan for needs outside of their region.

This report is a component of on-going initiatives of the FHWA<sup>2</sup> and the Transportation Research Board (TRB). The [Literature Review](#) of this report provides details on FHWA's extensive research and technical assistance initiatives related to transportation planning for megaregions, which include this report and a companion report, "The Role of Regional Agencies in Transportation Planning Across Boundaries,"<sup>3</sup> exploring the implications of Regional Planning Organizations (RPO) engaging in transportation planning partnerships and projects of megaregions significance.

## Purpose and Research Questions

This report explores opportunities for MPOs to play active roles in transportation planning at a megaregions scale. The intent is to provide insights for peer MPOs, planning partners, and policymakers with an interest in advancing similar initiatives. The research team hypothesized that the Federal framework for planning might provide both opportunities and limitations for how MPOs can participate in planning for megaregions. Through studying seven megaregions, the research team sought to identify the evolving role of MPOs in developing transportation planning processes for megaregions and to examine the technical planning processes and new institutional structures that are emerging from these initiatives, with a focus on the role of MPOs.

## Methods

The research team reviewed the transportation planning expectations in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), its reauthorization under the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), and related regulations that support MPO participation in transportation planning. The research team used an iterative process to identify seven megaregions to analyze based on panels and workshops at the TRB annual meetings and peer recommendations. The case studies represent a diversity of organization, geography, size, and focus. The team conducted structured discussions with one or more stakeholder(s) from each megaregion, covering issues such as interregional coordination, joint planning activities, organizational structures, MPO involvement, challenges, and constraints. In most cases, the research team interviewed MPO planning managers and senior staff, researchers, and directors of megaregions coalitions. The team also reviewed plans, studies, and other planning products for each case study area. The team then developed a framework for transportation planning for megaregions, drawn in part from analysis of the Federal planning framework, to understand aspects in place for each of the case study areas and refined the framework during later stages of the research.

<sup>2</sup> The FHWA Megaregions and Multi-Jurisdictional Planning website provides a wealth of resources, including all of those cited in this report: <http://www.fhwa.dot.gov/planning/megaregions/>

<sup>3</sup> USDOT/Volpe Center, "Role of Regional Planning Organizations in Transportation Planning Across Boundaries," 2014.

[http://www.fhwa.dot.gov/planning/megaregions/reports/regional\\_planning\\_organizations/fhwahep14043.pdf](http://www.fhwa.dot.gov/planning/megaregions/reports/regional_planning_organizations/fhwahep14043.pdf)

## Defining Megaregions

The definition of megaregions is central to understanding their importance and implications. A megaregion encompasses major and minor urban areas as well as the suburban, exurban, and rural areas surrounding metropolitan centers. Megaregions, in this sense, include multiple major metropolitan cities and often cross State lines. The regions that encompass large metropolitan centers and their associated smaller metropolitan centers and suburban centers are not generally considered megaregions, though these metropolitan regions offer some lessons on inter-jurisdictional collaboration that contribute to development of a framework for successful megaregions planning. Several researchers have defined megaregions across the U.S., with approximate delineation of boundaries, which can vary. For this report, the research team references the megaregions identified by Center for Quality Growth and Development (see Figure 1), recognizing that the actual areas included in and influenced by these megaregions are fluid and may differ from the map below. The case studies in this report are located within seven of these 10 megaregions.

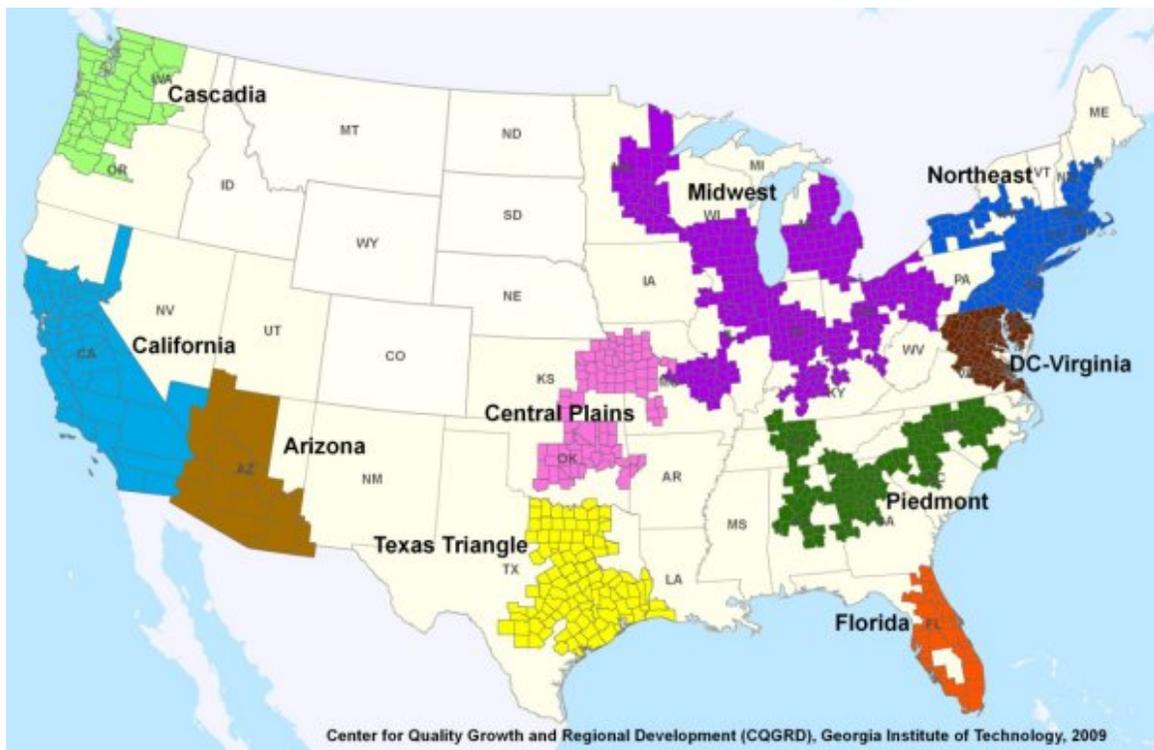


Figure 1: U.S. Megaregions (Center for Quality Growth and Development, Georgia Institute of Technology)

The factors that define megaregions influence the political viability of a megaregion planning framework as well as the effectiveness of planning on a megaregions scale. These factors include:

- a) *Who* defines a megaregion;
- b) The *types of boundaries* considered in the megaregion, and
- c) The *transportation systems* contained within the megaregion.

This section briefly explores how these factors contribute to the geographic definition of megaregions and conditions that contribute to successful initiation of transportation planning for megaregions.

First, actors defining megaregions are motivated to identify boundaries that will bring the greatest benefits to their sector and jurisdiction. For example, a natural resource agency will have an interest in defining boundaries by watershed or the extent of a natural resource while a transportation planning agency will prefer boundaries that encompass major current and future transportation corridors. A multi-agency group that includes representatives of regulatory and resource agencies, multiple levels of government, nonprofit organizations, and private sector companies may provide a relatively neutral and consensus-based way to define a megaregion,<sup>4</sup> and the potential to have that definition serve the purposes of agencies that conduct planning for multiple sectors.

Second, the current political, social, and environmental boundaries present opportunities and constraints related to megaregions definitions. Planning and other jurisdictional boundaries determine political representation, taxation, and investment in transportation infrastructure. Institutions established within these boundaries, whose actors will likely play a role in defining megaregions, have a vested interest in using these boundaries as building blocks for a megaregion. However, planning and political boundaries do not account for natural resource extents or political, economic and cultural relationships within regions, which may form a foundation for addressing mobility needs and priorities.

Ideally, megaregions should be defined with a balance of planning and political boundaries along with the economic, environmental, and cultural links within and between regions. One way to accomplish this balance is to include a diverse group of stakeholders in the definition process.

Megaregions can be defined around several transportation factors, each of which may be critical to establishing a megaregion that can best support mobility and accessibility needs in terms of economic connectivity, efficiency, and movement of both people and goods. Megaregions should first consider passenger and freight flows, recognizing that the spatial and modal patterns of transport differ between people and freight. Second, megaregions should consider multiple service areas; these should extend beyond the home-work commute sheds and include agricultural, industrial, recreational, and utility service areas. Third, megaregions boundaries should consider both individual transportation modes and multi-modal systems. Boundaries should factor in the typical connections of longer-distance modes, such as aviation and high-speed rail, or ports and modes that provide access to ports; these will serve as critical links within a megaregion. Boundaries must also consider intermodal connections that will facilitate mobility and accessibility for people and goods in the communities that make up the megaregion. The need for modal and systems approaches demonstrates the importance of including the needs of local communities and non-urban areas in megaregions planning. This topic is covered in more detail later in this report.

<sup>4</sup> Academic researchers are responsible for much of the existing work on defining megaregions. These academics, not multiagency groups representing diverse interests, continue to refine the criteria that are widely considered in the definition of megaregions. The data-driven definitions of researchers can be reshaped as stakeholders identify opportunities and priorities to pursue.

Key corridors, whether highway or non-highway, are a natural foundation for defining megaregions from a transportation perspective. These corridors include existing infrastructure that often crosses State lines and provide critical linkages for people and goods. Although they may or may not be multi-modal, corridors provide a starting point from which to expand transportation systems to facilitate movement within and across megaregions.

Finally, determination of which regions rise to the level of megaregions of interest can be influenced by politics and policies, in addition to the empirical data based analysis applied by researchers to identify a top priority set of ten or more regions. Governors, mayors, and other political leaders will form partnerships to pursue common cross-boundary goals with neighboring leaders when they share goals and priorities, or interests in new projects that benefit all jurisdictions. This can entail collaboration on access from the Atlanta freight distribution hub to and from southeastern ports; passenger and freight flows between the Phoenix and Tucson metro areas at either end of the Sun Corridor megaregion as well as to ports in Long Beach or planned for Mexico; or improved border crossings and freight connectivity from the Buffalo to Toronto metropolitan areas and beyond.

The combined influence of data analysis and forecasts and political and planning priorities in determining the megaregions and cross-border crossings of greatest opportunity and interest are demonstrated in the case seven case studies that follow.

## Literature Review

This section provides a synthesis and summary of recent developments in transportation planning for megaregions with relevance to MPOs, with a focus on the emerging roles of MPOs. The summary highlights related research as well as Federal and other megaregions initiatives. While not exhaustive, the synthesis will provide useful background on planning for megaregions and a conceptual context for the case studies and analysis that follow.

Researchers at the Center for Quality Growth at Georgia Tech, led by Dr. Catherine Ross (2011) have developed a comprehensive literature review of megaregions transportation planning, covering many additional sources not included in this report.

## Review of Research Findings

Megaregions research examines motivations and current trends in how and why transportation planning focuses on megaregions geographies. Research also identifies needs and challenges that would arise from a shift by MPOs and partners to incorporate megaregions considerations in their on-going metro area transportation planning.

The concept of regional planning beyond the boundaries of metropolitan areas surfaced among American planning policy in the mid-20<sup>th</sup> century. Many scholars trace the foundation of a megaregions concept to Jean Gottman's "Megalopolis" of 1961, which recognized uninterrupted patterns of urban development spanning between cities in the northeast U.S.<sup>5</sup> Megaregions have also gained importance as metropolitan areas merge into one another, enhancing physical connectivity between regions and increasing the need for mobility links.<sup>6</sup> As entities responsible for transportation planning at metropolitan or regional levels, MPOs can play a significant role in defining and addressing mobility links that encompass but go beyond their formally designated jurisdictions.

## Economic and Environmental Motivations

While the concept of megaregions is not new, it has gained increasing importance among transportation planners due to new ways that planners are considering transportation planning and infrastructure investment. Two emerging and strong motivations are: 1) increased priorities to maintain national and regional economic competitiveness in an increasingly globalized economy; and 2) to address energy and environmental concerns at a scale commensurate with the challenge.

One of the strongest motivations for MPOs and other stakeholders to pursue a megaregions approach is economic competitiveness.<sup>7</sup> Regions with diversified economies are becoming increasingly engaged in

<sup>5</sup> Gottmann, Jean. 1961. *Megalopolis: The Urbanized Northeastern Seaboard of the 13 United States*. Cambridge, MA: MIT Press.

<sup>6</sup> Ross, C.L. 2011. Literature Review of Organization Structures and Finance of Multi-jurisdictional Initiatives and the Implications for Megaregion Transportation Planning in the U.S. Center for Quality Growth and Regional Development. FHWA.

<sup>7</sup> Ross, C. L., J. Barringer, J. Yang, M. Woo, J. Doyle, and H. West. 2008. *Megaregions: Literature Review of the Implications for U.S. Infrastructure Investment and Transportation Planning*. Center for Quality Growth and

international trade and in many cases are driving the national economy,<sup>8</sup> providing a need for Federal leaders to recognize a regional role in economic competitiveness. Technology and free trade contribute to the rise of manufacturing and financial centers outside of the U.S. Considering these trends, several researchers suggest that large-scale planning and regional clustering of industries may help these larger regions become more globally competitive than individual cities or regions.<sup>9</sup> MPOs can contribute to this new focus on megaregions, particularly from mobility, access, and connectivity perspectives.

In addition to national and global economic trends that encourage a megaregions approach, energy and environmental concerns are providing additional motivation to plan transportation at a larger geographic scale. Reduction in energy use and greenhouse gas emissions, and climate change resilience are increasingly recognized as requiring planning across established boundaries. This is evidenced by several regional initiatives such as the Western Climate Initiative, the Regional Greenhouse Gas Initiative, and the Midwestern Greenhouse Gas Reduction Accord.<sup>10</sup> Strategies of mitigation of greenhouse gas emissions and adaptation to climate change and extreme weather also lend themselves to governance models that can plan for and address greenhouse gas emission reductions and transportation investment decisions on a larger scale.<sup>11</sup>

Natural resource sheds do not follow political boundaries, and resource scarcity conflicts (including water supply, agricultural land, and habitat) require partnerships across government agencies and jurisdictions. Programs like the Regional Plan Association's (RPA) [Northeast Landscapes Initiative](#) seek to facilitate megaregional, landscape-scale conservation conversations.<sup>12</sup>

An implicit motivation for MPOs to adopt a megaregions approach is that current governmental structures lack incentives for addressing the spatial implications of local issues outside of a local

Regional Development. FHWA. Accessed 16 September 2010:

<http://www.fhwa.dot.gov/planning/megaregions.htm>. P. 2.

<sup>8</sup> Levine, J. N. 2001. The Role of Economic Theory in Regional Advocacy. *Journal of Planning Literature*, Vol. 16, No. 2.

<sup>9</sup> Bullard, K. 2007. Economic Development Opportunities for U.S. Mega-Regions. Accessed 17 September 2010: [www.angelouconomics.com/megaregions.html](http://www.angelouconomics.com/megaregions.html).

Jensen, O. B. & T. Richardson. 2001. Nested Visions: New Rationalities of Space in European Spatial Planning. *Regional Studies*, Vol. 35.8, pp. 703-717.

Salet, W., A. Thornley, & A. Kreukels. 2003. Institutional and Spatial Coordination in European Metropolitan Regions. In W. Salet, Thornley, A, Kreukels, A. (Ed.). *Metropolitan Governance and Spatial Planning Comparative Case Studies of European City-Regions*. London. Spon Press. Pp. 3-19.

Levin 2001.

<sup>10</sup> Western Climate Initiative. 2010. Western Climate Initiative website. Accessed 17 September 2010: [www.westernclimateinitiative.org/](http://www.westernclimateinitiative.org/).

Regional Greenhouse Gas Initiative. 2010. Regional Greenhouse Gas Initiative CO2 Budget Trading Program. Accessed 17 September 2010: [www.rggi.org/home](http://www.rggi.org/home).

Midwestern Greenhouse Gas Reduction Accord. 2010. Midwestern Greenhouse Gas Reduction Accord website. Accessed 17 September 2010: [www.midwesternaccord.org/](http://www.midwesternaccord.org/).

<sup>11</sup> Ross et al. 2008, p. 57.

<sup>12</sup> Regional Plan Association. 2012. Northeast Landscapes Initiative website. Accessed 5 September 2012.

context<sup>13</sup> -- for local governments to plan outside of their boundaries. For instance, Ross and Woo<sup>14</sup> demonstrate that most high speed rail (HSR) routes with high Federal investment priority are located within megaregions and cross State borders. A megaregions framework responds to planning functions that cross planning disciplines, such as data collection and or design of freight networks; single-function planning areas cannot fully address issues that affect the entire region.<sup>15</sup>

Much of the existing infrastructure in metropolitan areas will require significant future investment, recognizing that more than 70 percent of U.S. population and employment growth is expected to occur within these areas and surrounding megaregions.<sup>16</sup> In the past few decades, multi-state corridor planning has been a primary means of interregional transportation investment. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) led to the designation of 21 high-priority corridors, most of which were multi-state, and created funding programs for improvements and long-range planning. The next reauthorization, the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), funded the competitive Borders and Corridors program, which led to many intrastate and interstate partnerships between transportation agencies.<sup>17</sup> Corridor-based planning is a precursor to megaregions planning as both require partnerships across jurisdictions, large spatial scales, and often involve consideration of multi-modal alternatives and multi-regional economic, environmental, and social issues.

### **Governance and Organization**

Several research efforts have considered the optimal means of designating and governing megaregions, recognizing elements that may lead to greater political feasibility of transitions to a megaregions framework. Researchers note an inherent conflict between a top-down approach, in which the Federal government directs the organization of institutions that could be responsible for megaregions, and a bottom-up approach, in which local governments or regional agencies forge relationships with each other to address issues that span beyond their boundaries. Many emerging efforts in regional governance come about through creation of new institutions, ad hoc partnerships, and relationships and incentives devised between existing local governments.<sup>18</sup> These partnerships represent a larger shift in the organizational structure from creation of new institutions to capacity building through strengthened relationships and joint agreements, or “from government to governance.”<sup>19</sup> However, some of the most

<sup>13</sup> Ross et al. 2008.

<sup>14</sup> Ross, C.L. and M. Woo. 2011. The Identification and Assessment of Potential High-Speed Rail (HSR) Routes from a Megaregion Perspective. Submitted for the TRB 2012 Annual Meeting.

<sup>15</sup> Ross et al. 2008, 4.

<sup>16</sup> Regional Plan Association. 2006. *America 2050: A Prospectus*. New York.

<sup>17</sup> Cambridge Systematics. 2005. “NHCRP 8-36, Task 45. Multi-state Corridor Planning.” Oakland, CA: Cambridge Systematics.

<sup>18</sup> Wheeler, S. 2002. The New Regionalism: Key Characteristics of an Emerging Movement. *Journal of the American Planning Association*. Vol. 68, No. 3. Accessed 16 September 2010:

[http://www.acce.org/uploadedFiles/Networking/TheNewRegionalism\\_Wheeler.pdf](http://www.acce.org/uploadedFiles/Networking/TheNewRegionalism_Wheeler.pdf).

<sup>19</sup> Xu, J. and G.O. Yeh. 2011. *Governance and Planning of Mega-City Regions: An international comparative perspective*. Routledge: New York and London.

promising megaregions prototypes, particularly in international case studies, are encouraged or led by the national governments.<sup>20</sup>

The case studies featured in this report are largely motivated by a bottom-up approach, but often State or Federal partners encourage pursuit of a megaregions approach or initiative. Several MPOs noted that explicit Federal encouragement for megaregions planning might assist more MPOs to participate in this scale of planning. Ross (2011) highlights the types of roles MPOs play in multi-jurisdictional, megaregional governance setting. These cooperative structures take the form of an agglomeration of multiple MPOs within a State, MPOs coordinating across States, or alternatively, MPOs participating as one type of stakeholder in larger multi-jurisdictional organization or initiatives.

In considering potential governing structures at a megaregions scale, MPOs serve as a useful model. With their responsibility for planning for multimodal networks in Census-designated metropolitan areas, and the expectation that MPOs develop at 3-C (continuing, cooperative, and comprehensive) planning process,<sup>21</sup> MPOs are among the strongest forms of planning for regions in the U.S. Many MPOs can still be challenged to balance the local interests of city and town elected officials on their boards with the greater regional interest. Partnerships with local governments and other agencies can be difficult if local stakeholders remain opposed to a strong MPO role.<sup>22</sup>

A challenge for megaregions planning is instituting an appropriate means to encourage cooperation among key players at the regional and local level. MPOs and other regional actors need an incentive for collaboration to overcome competition across all sectors within the metropolitan area. Such an incentive could come through a funding structure that incentivizes MPOs and States to cooperate in order to receive Federal transportation funding. Researchers also note that collaboration among MPOs is more politically feasible than consolidation.<sup>23</sup>

## Institutional Research and Initiatives

As the benefits of a megaregions framework are becoming more apparent, major institutions involved in transportation planning policy and practice are undertaking research initiatives related to megaregions or are expressing interest in and support for a megaregions approach. Some research efforts review best practices to draw out lessons for transportation planners and officials, while other groups use research to support recommendations for future legislation to support planning on a megaregions scale.

### Prominent Participants in Megaregions

[America 2050](#) is among the most prominent initiatives related to megaregions; it is organized by the [Regional Plan Association](#) and guided by a coalition of researchers, planners, and policymakers. The

<sup>20</sup> Ross 2008, 16-18.

<sup>21</sup> FHWA, Metropolitan Planning Process, Legislation and Regulations.

[https://www.fhwa.dot.gov/planning/processes/metropolitan/legislation\\_and\\_regulations/](https://www.fhwa.dot.gov/planning/processes/metropolitan/legislation_and_regulations/)

<sup>22</sup> Goldman, T. & E. Deakin. 2000. Regionalism through Partnerships? Metropolitan Planning Since ISTEA. *Berkeley Planning Journal*, 14, 46-75.

<sup>23</sup> Ross 2008.

overall initiative focuses on meeting infrastructure, environmental and economic development needs brought about by the significant population growth expected to occur in the U.S. by 2050. According to the initiative, the new “competitive units in the global economy” are European and Southeast Asian megaregions – areas where significant transportation infrastructure investment and economic development strategies occur across among multiple cities. Specific transportation elements proposed by America 2050 include:

- Investment in transportation modes that can link regions spanning 200 to 500 miles. America 2050 strongly emphasizes HSR, which is a mode that can be well-equipped to link megaregions.
- Integration of high-speed rail with commuter rail, highways, and airports, for seamless transportation connections within megaregions.
- New freight systems, including toll lanes devoted to freight trucks, to create new capacity to support the economies of megaregions.

A second institutional leader in megaregions research is the [Center for Quality Growth and Regional Development](#) (CQGRD), at the Georgia Institute of Technology. CQGRD approaches megaregions as a tool to address multiple social, economic, and environmental challenges faced by major metropolitan areas. Specifically, CQGRD believes a megaregions planning framework can address issues that are spatial in nature, extend beyond traditional political boundaries, and impact future generations. These issues include population growth, urbanization, congestion, social inequalities, resource loss, and global competition. CQGRD calls for a new planning framework that draws on actors from multiple disciplines, spans regional geographies, and encompasses a longer timeframe than typical infrastructure planning efforts. Through megaregions research, CQGRD has defined ten U.S. megaregions, documented international examples of best practices in megaregions planning, and developed a conceptual framework for FHWA that incorporates the megaregions concept into existing political processes.

### **Federal Initiatives**

The USDOT is involved in research, infrastructure planning, and implementation at a megaregions scale. Notable among its infrastructure activities is the Federal Railroad Administration’s (FRA) High-Speed Intercity Passenger Rail Program (HSIPR). Authorized in 2009 under the Passenger Rail Investment Improvement Act, the program establishes a national framework for a network of passenger rail corridors. Since then, FRA has solicited more than \$10 billion in grant funding to plan and implement projects across the country.<sup>24</sup>

The [FHWA Office of Planning](#) supports megaregions research and capacity building through research reports, including this report, grants, and related technical assistance thru workshops and coordination with key stakeholders, including:

- **TRB Workshop on Megaregions:** With support from FHWA and the Volpe Center, several TRB committees hosted a workshop on “Megaregions: Strategic Thinking about Key Transportation

<sup>24</sup> USDOT Federal Railroad Administration (2012). High-Speed Intercity Passenger Rail Program. Accessed 19 September 2012.

Issues” at the 2010 Annual Meeting.<sup>25</sup> The workshop’s recommendations and broad committee interest led to establishment of the TRB Joint Subcommittee on Megaregions (ADA20 (1)) and panel sessions at the 2011 Annual Meeting on MPO and freight planning perspectives on megaregions.<sup>26</sup>

- **FHWA MPO and Megaregions Peer Exchange:** The FHWA and FTA Transportation Planning Capacity Building (TPCB) program peer exchange on the role of MPOs in planning for megaregions, hosted by the Maricopa Association of Governments, the Phoenix metropolitan area MPO. The peer exchange featured best practices and lessons from five of the MPO peers featured in this report.<sup>27</sup>
- **FHWA Piedmont Atlantic Freight Peer Exchange:** TPCB peer exchange in Atlanta on “Megaregions Freight Movement,”<sup>28</sup> focused on the Piedmont Megaregion, was co-hosted by the Atlanta Regional Commission (Atlanta area MPO), CQGRD at Georgia Tech University, and the Atlanta Chamber. The workshop included all six DOTs and major MPOs in the area, along with FTA, expert MPO peers (included in this report as case studies), elected officials, shippers and other private industry representatives, and academic researchers to exchange information and ideas on how the Piedmont area can address transportation issues and realize opportunities to improve freight movement and better compete in the global market place.
- **FHWA Talking Freight Webinar and Megaregions:** the FHWA Freight and Planning Offices presented a webinar for freight stakeholders on relevance of megaregions for freight policy, planning, and investments.<sup>29</sup>
- **“Role of Regional Planning Organizations in Transportation Planning across Boundaries”:** FHWA companion report to this report by the Volpe Center on how Regional Planning Organizations can participate in and help shape transportation planning partnerships and projects of megaregions significance.<sup>30</sup>

<sup>25</sup> Lyons, W., C. Ross, M. Pisano, and M.D. Meyer, “Mega-regions: Strategic Thinking about Key Transportation Issues,” TRB Report 177, Transportation Research Board of the National Academies, Washington, D.C. January, 2010.

<sup>26</sup> TRB Programming, Planning, and System Evaluation Committee, “Multi-Disciplinary Perspectives on Megaregions, Part I: Planning, Programming, Finance and Institutions,” Session 727: 90th Annual Meeting. Transportation Research Board of the National Academies. Accessed October 8, 2014: <http://www.trb-programming.org/wp-content/uploads/2012/01/ADA50-Final-TSP.pdf>

<sup>27</sup> FHWA, “Megaregions Planning for MPOs and Partners,” Transportation Planning and Capacity Peer Exchange, Phoenix, May 2012. Accessed October, 2014: [http://www.planning.dot.gov/documents/MAG\\_Megaregions\\_Planning\\_for\\_MPOs\\_TPCB\\_Peer\\_Report\\_May%202012.pdf](http://www.planning.dot.gov/documents/MAG_Megaregions_Planning_for_MPOs_TPCB_Peer_Report_May%202012.pdf)

<sup>28</sup> FHWA, “Megaregions Freight Peer Exchange,” Atlanta, GA November 2013 Video presentations accessed October, 2014: <http://www.youtube.com/user/ConnectedPlaces>

<sup>29</sup> Lyons, W., C. Ross, P. Siplon, “Talking Freight Webinar,” February 2014. Accessed October, 2014: [http://www.fhwa.dot.gov/planning/freight\\_planning/talking\\_freight/index.cfm#archives](http://www.fhwa.dot.gov/planning/freight_planning/talking_freight/index.cfm#archives)

<sup>30</sup> Peckett, H. and W. Lyons, Transportation Research Record: Journal of the Transportation Research Board, Planning 2012, “Evolving Role of Metropolitan Planning Organizations in Transportation Planning for Megaregions.” <http://trid.trb.org/view.aspx?id=1130220>

## Policy Institutions

Several major policy and research institutions have made highly-regarded research contributions related to transportation, land use, economic development, global competitiveness, and population growth. The work of these institutions can include consideration of Federal transportation policy; some research relates directly to megaregions, while other efforts deal more broadly with the social, economic, environment, and infrastructure ties between metropolitan areas.

The [Lincoln Institute of Land Policy](#) supports research, training, and conferences in the areas of urban development, the built environment, and tax policy in the U.S. and abroad. The Lincoln Institute published a report on the Healdsburg Seminar on Megaregion<sup>31</sup>s in September 2007, which includes four case studies on the emergence of megaregions and the links between transportation infrastructure and economic structure. The Healdsburg Seminar, which was organized jointly with the Regional Plan Association, draws out several lessons from the case studies, among which was a recognition that megaregional planning organizations can share some of the responsibilities that currently fall under MPOs.

The Lincoln Land Institute has several other projects focused on individual megaregions to identify key indicators and data needs for megaregions policy development.

## Other Stakeholders

National associations of transportation officials and planners often work directly on issues related to megaregions when considering position statements and strategies for their member organizations. The [American Association of State Highway Transportation Officials](#) (AASHTO) recognizes the competitive advantage of enhanced mobility through high speed rail and separated goods movement to link megaregions distances (AASHTO 2012). AASHTO has also partnered with the Lincoln Institute and the Regional Plan Association to explore megaregions in a transportation policy context.

The [Association of Metropolitan Planning Organizations](#) (AMPO) and the [National Association of Regional Councils](#) (NARC) also conduct research, conferences, and workshops related to megaregions, and participate in FHWA's research described in this section. NARC, as a national advocate for regional councils, has initiatives and focus areas related to transportation planning for megaregions. Topics of interest for the regional associations include: the extent of planning and decision-making authority for regions; flexibility in funding allocations; and dedicated resources for freight across regions.

## Implications of Current Research

The breadth of research on megaregions and interest by a broad range of organizations demonstrate the emergence of this topic as important consideration for transportation policy-makers, planners, and operating authorities. Economic competitiveness, efficient movement of freight, environmental sustainability, and addressing needs that increasingly reach beyond MPO boundaries are the key

<sup>31</sup> Lincoln Institute of Land Policy, "The Healdsburg Seminar on Megaregions," September 2007. Accessed October, 2014: [http://www.lincolninst.edu/pubs/1282\\_The-Healdsburg-Seminar-on-Megaregions](http://www.lincolninst.edu/pubs/1282_The-Healdsburg-Seminar-on-Megaregions)

reasons that MPOs are starting to plan on a megaregions scale. While approaches to structures for megaregions governance and related planning processes continue to evolve, MPOs provide a valuable model for working at a systems level between jurisdictions within a metropolitan area that might usefully be applied at a cross-jurisdictional level for megaregions planning.

Through summarizing and synthesizing key megaregions research and programs, this section concludes with some key questions to be addressed later in this report:

1. How are MPOs working with partners to adapt the established Federal planning framework and funding programs for metropolitan areas to begin to participate in planning for megaregions?
  - a. To what degree do MPOs pursue a top-down approach for megaregions planning, with political and policy leadership, and with what results?
  - b. To what extent do MPOs approach megaregions from the bottom-up, beginning with data exchange, regional data collection, and shared use of models and other tools, and with what results?
  - c. What is the role of Federal agencies in encouraging megaregions planning at the MPO level, and how can current policies and programs encourage megaregions planning?
2. How are MPOs participating in megaregions initiatives?
  - a. What forms of governance and MPO participation have been effective?
  - b. What ad hoc, virtual, or established institutional structures have been created, and with what results?
  - c. How do MPO initiatives inform and support expanded megaregions initiatives, and with which additional partners?
3. What resources are currently available for MPOs pursuing megaregions planning, and how are MPOs taking advantage of these resources, including public and private sector sources?

Research on megaregions is robust in the areas of potential economic, social, and environmental benefits, including benefits in priority areas established by MPOs within their formal planning boundaries. There are also many research efforts highlighting barriers and challenges to emerging megaregions efforts, as well as some valuable lessons from international examples.

- **Opportunities for megaregions framework:**
  - A framework for planning for megaregions would support global competitiveness by identifying priority opportunities to enhance economic and infrastructure links between metropolitan regions.
  - The need for improved transportation between neighboring metropolitan areas can be addressed through investments in HSR and freight corridors. Both HSR and freight are gaining significant momentum among many national stakeholders.
  - Megaregions have the potential to simultaneously address social, economic, environmental, and infrastructural issues, as well as to address links between these sectors within a region.
  - The current scale of government and transportation planning processes may have limitations for addressing some important large-scale infrastructure and environmental

problems; researchers have suggested several types of megaregional authorities that may better be able to address these issues.

- **Gaps in research related to megaregions:**

- There is a need for incentives or a tested structure for collaboration between MPOs and State and local governments.
- Uncertainty remains as to whether megaregions are best instituted from the top-down, from the bottom-up, or by both in combination; documented models of successful practice can be very helpful.
- Strong models of multi-state or interregional collaboration are still emerging; lessons from these models need to be further developed and disseminated.

- **Challenges:**

- The current scales of governance and funding allocations do not directly consider megaregions; government agencies inevitably focus on the priorities within their formally-defined jurisdictions before they consider projects and funding outside their boundaries.
- Megaregions planning will require new types of flexibility and voluntary collaboration that may be challenging for MPOs, State DOTs, and other stakeholders with their focus within their jurisdictions. Incentives are critical as are documented best practices.

## A Transportation Planning Framework for Megaregions

A framework provides a systematic way of organizing and describing the various stages of transportation planning, including the timing, sequence, and relationship between the stages. The stages range from:

- analyzing current and forecast future demographic, economic conditions, and travel trends;
- setting long-range goals;
- prioritizing needs to address, problems to solve, and opportunities to pursue;
- identifying and evaluating costs, benefits, and impacts; and
- selecting policy, strategy, or investment decisions; and
- monitoring results.

## Federal Planning Framework

In the U.S., Federal legislation defines transportation planning requirements<sup>32</sup> that provide a common framework<sup>33</sup> followed by all State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) responsible for transportation planning in Census-defined metropolitan planning areas over 50,000 in population. The framework encourages DOTs, MPOs, and their planning partners to take a multimodal systems approach to the transportation network within formally-defined State and metropolitan area boundaries.

Although the Federal framework is structured around planning within legally defined State and metropolitan area boundaries, it offers a useful foundation for planning on a megaregions scale. Using the framework as a key point of reference, this section outlines key components of an adapted framework the research team developed as resource to assist interested MPOs and their DOT, public transit and other partners to successfully begin to participate in planning transportation at a megaregions scale. The section offers insights on successful approaches to megaregions planning, including examples of planning strategies, roles and responsibilities for MPOs and partners based on seven best practice case studies.

This section and the overall report conclude that the Federal framework provides valuable flexibility and opportunities, as well as limitations, for MPOs interested in meaningful ways to participate in planning at a megaregions scale.

The case studies and analysis demonstrate significant potential thru adapting the existing framework to plan for megaregions.

The Federal planning framework provides a broad foundation of requirements and expectations for a “continuing, cooperative, and comprehensive (3-C) planning process” by MPOs and their partners in all metropolitan areas with populations over 50,000.<sup>34</sup> The Federal framework defines a consistent set of roles and responsibilities that MPOs adapt to reflect local situations, including statewide and local regulations, policies, goals, and priorities. The Federal requirements set the institutional and technical “context” in which MPOs participate in planning for megaregions. This context is critical to understand

<sup>32</sup> FHWA, Federal Legislation and Regulations, Statewide and metropolitan transportation planning processes are governed by Federal law (23 USC 134 and 135).

[http://www.fhwa.dot.gov/planning/processes/metropolitan/legislation\\_and\\_regulations/](http://www.fhwa.dot.gov/planning/processes/metropolitan/legislation_and_regulations/)

<sup>33</sup> FHWA and FTA Transportation Planning Capacity Building Program, “The Transportation Planning Process: Key Issues.” Accessed October, 2014: <http://www.planning.dot.gov/documents/briefingbook/bbook.htm>

<sup>34</sup> FHWA, “Federal Legislation and Regulations,” Accessed October, 2014:

[http://www.fhwa.dot.gov/planning/processes/metropolitan/legislation\\_and\\_regulations/](http://www.fhwa.dot.gov/planning/processes/metropolitan/legislation_and_regulations/)

the evolving roles MPOs play in planning for megaregions. This report identifies how MPOs and their partners demonstrate flexibility in planning for megaregions in the absence of formally defined planning processes, boundaries, institutions, and funding programs specifically directed towards megaregions.

The regulations can provide a flexible foundation for adaptation by MPOs and their partners. These regulations offer opportunities for regional collaboration on technical planning as well as investment in projects that span MPO and State boundaries. They may also limit the MPOs' capacity by establishing other priorities for planning and investments.

The MPO planning initiatives discussed in this report are occurring within the context of current regulations and funding programs. This research demonstrates that there is significant potential and flexibility within the existing framework for MPOs and partners to conduct major aspects of planning for megaregions.

## Relevant Aspects of Federal Transportation Planning Regulations

Transportation planning in the U.S. is shaped by MAP-21, the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (P.L. 112-141). Signed into law in July 2012, MAP-21 builds on many of the transportation programs and policies established in 1991, as adapted in later Federal reauthorization.<sup>35</sup> MAP-21 and related regulations define current expectations for metropolitan transportation planning, including the requirement that MPOs and DOTs produce long-term plans and short-term investment programs for projects using Federal funds, as described briefly in the following sections. MPOs must coordinate with specified stakeholders and comprehensively consider eight planning factors in their planning. The Federal framework provides flexibility to address emerging issue areas, such as megaregions, in the future.

### MPO Role

MPOs are responsible for conducting participatory transportation planning for U.S. Census-defined urbanized areas that have populations over 50,000 people. MPO policy boards consist of local elected officials, representatives of State DOTs, and local public transportation agencies. Current regulations do not preclude MPOs from offering advisory roles or technical committee membership to other stakeholders, such as modal authorities or private transportation providers. Formal inclusion of transportation providers serving areas outside the MPO's boundaries, resource agencies, or even representatives from MPOs serving adjacent urbanized areas could strengthen megaregions planning; this would also enhance the external stakeholders' understanding of the priorities within the metropolitan area. Under the Federal requirements, MPOs are expected to consult and coordinate plans with neighboring MPOs for transportation improvements and non-attainment areas that cross MPO boundaries.

Megaregions issues typically span several MPO planning areas as well as nonmetropolitan or rural areas that are not technically covered under metropolitan planning processes. If multiple MPOs jointly conduct planning along a major corridor, they might need to work with nonmetropolitan areas. This could encourage additional coordination with State DOTs or regional planning organizations, which are unlikely to have the planning capacity of MPOs.

<sup>35</sup> FHWA, MAP-21, Moving Ahead for Progress in the 21<sup>st</sup> Century Act (P.L. 112-141), Accessed October, 2014: <https://www.fhwa.dot.gov/map21/>

## Planning Products

The MPO must prepare a metropolitan transportation plan (MTP) that includes strategies and actions to guide transportation system development over a 20-year planning horizon. The MTP should provide strategic direction for the area's transportation projects, and forecast long range transportation costs and all funding sources. While MPOs are only required to include projects and programs within their boundaries, MPOs could also incorporate the broader needs of corridors that run through but are not contained within the urbanized area to better support megaregions planning. The plan should provide a financially realistic approach to meeting the MPO's needs and priorities, and can also provide a broader transportation vision by including regionally significant projects from other regions with impacts expected within the MPO's planning jurisdiction. MTPs can incorporate broader megaregion goals, programs, projects, and performance measures; and goals expressed in MTPs from neighboring regions can be reflected in plans for the megaregion.

MPOs must prepare a financially-constrained Transportation Improvement Program (TIP) that lists all capital and non-capital surface transportation projects along with total project costs and funding sources over a four-year period. TIPs focus on projects and programs that fall within the MPO boundaries. However, Federal regulations support megaregions planning by encouraging MPOs to coordinate their plans and TIPs for projects that cross the boundaries of other MPOs. TIPs must be incorporated in and consistent with State Transportation Improvement Programs (STIPs), providing an opportunity for States and MPOs to align project prioritization and funding. MPOs can also review TIPs in neighboring regions prior to creating their own TIPs and consider aligning aspects of project selection to advance common goals.

## MAP-21 Planning Factors

The Federal planning requirements identify eight planning factors<sup>36</sup> for MPOs to address in the metropolitan planning process. While each of the factors provides opportunities for megaregions planning, the following four factors may be most relevant to a megaregions approach:

- **Economic vitality:** By participating in megaregions planning, MPOs and their partners can look outside their planning boundaries to ensure that transportation projects, policies, and strategies strengthen the economic vitality both of their jurisdictions and the megaregion.
- **Accessibility and mobility for people and freight:** Megaregions present new accessibility and mobility needs and challenges, including efficient movement of people and goods across greater distances to connect economic and social hubs of larger regions. A focus on megaregions and global trade increases the importance of integrated freight and passenger systems.
- **Consideration of the environment, energy, quality of life, and local planned growth:** Planners need to consider both local and regional planned growth and economic development and its impact on transportation systems. These aspects are challenging to consider on a megaregions scale because few established agencies actively guide long-term growth and land use at an appropriate scale or consider the complex forces that impact growth between regions. Related environmental, energy, or growth policies define roles that are local or statewide but do not apply to megaregions, for example, those crossing State boundaries.

<sup>36</sup> FHWA and FTA, "Statewide and Nonmetropolitan Transportation Planning; Metropolitan Transportation Planning," Proposed Rule, 6/2/14 § 450.206 Scope of the statewide and nonmetropolitan transportation planning process. Accessed October, 2014: <https://www.federalregister.gov/articles/2014/06/02/2014-12155/statewide-and-nonmetropolitan-transportation-planning-metropolitan-transportation-planning>

- **Intermodal integration and connectivity:** Intermodal connectivity will need to incorporate movement of high-speed rail, aviation, and traditional surface transportation modes at multiple scales as part of interconnected, multi-modal systems serving megaregions. This will require greater coordination between modes that traditionally are planned for, managed, funded, and operate in separate geographic dimensions such as road, rail, transit, aviation, or maritime sectors.

It is possible that future iterations of the planning factors under reauthorization might include further consideration of megaregions-scale issues either through a separate planning factor or an explicit focus within other planning factors.

## Case Studies and Synthesis

MPOs actively participate in large-scale transportation planning efforts throughout all eleven major megaregions in the U.S. This section establishes a spectrum or continuum based on the diverse activities of MPOs and roles they play to plan for megaregions. Planning activities include data sharing, leading regional forums, developing corridor plans and studies, and establishing organizational structures for planning. This report provides case studies as best practice examples for peer MPOs and partners interested in planning beyond their formal boundaries, at a megaregions scale. The seven featured MPOs and their megaregions are:

- Greater Buffalo-Niagara Regional Planning Council (GBNRPC)/ Greater Niagara bi-national megaregion;
- Pikes Peak Association of Governments / Colorado's Front Range megaregion;
- San Diego Association of Governments (SANBAG ) / Southern California megaregion;
- Maricopa Association of Governments (MAG) / the Sun Corridor in Arizona;
- North Jersey Transportation Planning Authority (NJTPA); New York Metropolitan Transportation Commission (NYMTC); and Delaware Valley Regional Planning Council (DVRPC) / I-95 Corridor Coalition;
- Atlanta Regional Commission (ARC) / Piedmont Atlantic megaregion; and
- Central Florida MPO Alliance / Florida megaregion.

Based on these case studies, the research team developed a framework that describes how MPOs participate in initiatives to plan for megaregions across a range of levels of involvement and types of planning activities. This chapter describes and analyzes MPO participation in planning for megaregions by:

- Identifying a framework for MPO participation;
- Describing formal and informal organizational structures developed by MPOs and partners;
- Identifying emerging themes.

## Methodology

The Research team selected the MPOs featured in the case studies based on their involvement and innovation in transportation planning at a multi-region or multi-State megaregion level. The case studies represent the majority of geographic areas identified in megaregions research. The team identified MPOs and megaregions based on: reviews of technical literature and plans; TRB presentations and research publications; and recommendations from FHWA and Volpe Center staff or members of the TRB Metropolitan Planning Sub-committee of the ADA-20 Committee.

Three of the case studies feature megaregion initiatives presented at the 2011 TRB Annual Meeting: the Greater Niagara bi-national megaregion, the Front Range megaregion in Colorado, and the Southern California megaregion. The remaining four case studies represent innovative or promising megaregions efforts identified through the team's review of best practices from across the U.S. For six of the case

studies (all except Central Florida), the research team conducted structured discussions with key stakeholders on issues including: interregional coordination, joint planning activities, MPO involvement, and challenges and constraints. The Central Florida case study is based on a review of technical publications, Internet research, and follow-up contacts with planning managers at MetroPlan Orlando, the Orlando metropolitan area MPO. All case studies were reviewed and commented on by key contacts at MPOs and in some cases, their partner agencies.

## **Synthesis and Framework**

The case studies cover a diversity of MPO sizes, geographic locations, and involvement in megaregions activities. The team's case study analysis led to identification of several common themes related to why and how MPOs think about megaregions in the context of transportation planning. The case studies also provide the basis for a flexible framework describing how MPOs can participate in planning at a megaregions scale. The team developed the framework as a resource for MPOs and their partners to use as they develop their own processes to plan at a megaregions scale.

## **Emerging Themes**

This section lays out themes that describe the motivation of MPOs and their partners to plan for megaregions and emerging approaches. These themes will assist peer MPOs to understand how the case study MPOs approach megaregions planning and hopefully assist peers to develop their own approaches.

The research team's discussions with MPO senior staff and review of megaregions planning documents revealed several common themes. These themes fall within the areas of planning process structure, actors and roles, activities and motivations, and transportation issues.

## **Planning Process Structure**

Despite the variance in context, initiatives, and activities in the case study areas, this study identifies a simplified framework for planning that can be helpful in addressing common transportation challenges of megaregions. The structure includes both organization and outcomes.

## **Organization**

Stakeholders participating in megaregions planning may formally organize themselves in a variety of ways, with defined roles, shared funding, signed agreements, or other forms of commitment. Some groups may form institutions with dedicated staff and budgets and targeted schedules to address key objectives. Other organizations may be defined by their lack of formal roles, agreements, and funding. Many megaregions initiatives address these organizational elements on an as-needed basis over the course of their work while others are at early stages and may evolve to more formal structures.

## **Outcomes**

Megaregions institutions and organizational structures often develop with the goal of producing a joint product (action oriented) or providing a forum to convene on shared issues (discussion oriented).

- Action oriented: Stakeholders meet to jointly develop a vision, study, or plan that addresses a megaregion-scale transportation problem. They may also come together to create a program or project that addresses this problem, such as a communications system to coordinate traffic management or a high-speed rail corridor that serves many MPO regions.
- Discussion oriented: Stakeholders provide a forum to discuss megaregions issues. This may be through a one-time meeting or ongoing groups. Individual stakeholder organizations may pursue individual projects or research studies based on issues raised during these discussions.

Figure 2 below illustrates a common process for the formation and organization of megaregions planning activities. Although the planning actions can be part of a continuum, progressing from “discussion-oriented” to “action-oriented” topics, these topics can also be distinct.

### Actors and Roles

MPOs are more likely to participate in planning for megaregions if there are clear and tangible benefits related to the priorities of the MPO and its jurisdictions. Federal and statewide regulations and local needs shape MPO priorities; MPO board members understandably focus on meeting localized needs through local projects. While MPO staff may appreciate the long-term benefits of megaregions planning, they often lack the budgetary flexibility to devote resources to these efforts. However, MPOs join megaregions planning efforts to benefit from efficiency or expanded technical capacity through partnerships on regional freight plans; access to and sharing of new data; discussion forums for complex, interregional issues; and support for economic development both within the MPO’s formal planning boundaries and beyond, for the greater megaregion. Although competition between MPO jurisdictions over issues like growth and location of port improvements may be expected to inhibit cooperation, this was not identified as a concern in the case study areas.

Partnerships between MPOs and other transportation entities are critical for the evolution and effectiveness of megaregions planning efforts and to encourage and maintain MPO involvement in these efforts. State DOTs can coordinate statewide planning and plans with States that share megaregions ties, and can coordinate communications between MPOs and resource agencies within States. Federal resource agencies with jurisdiction over a large area can work with MPOs and State DOTs to craft environmental mitigation strategies at a megaregions level, which may be more effective than piecemeal strategies.

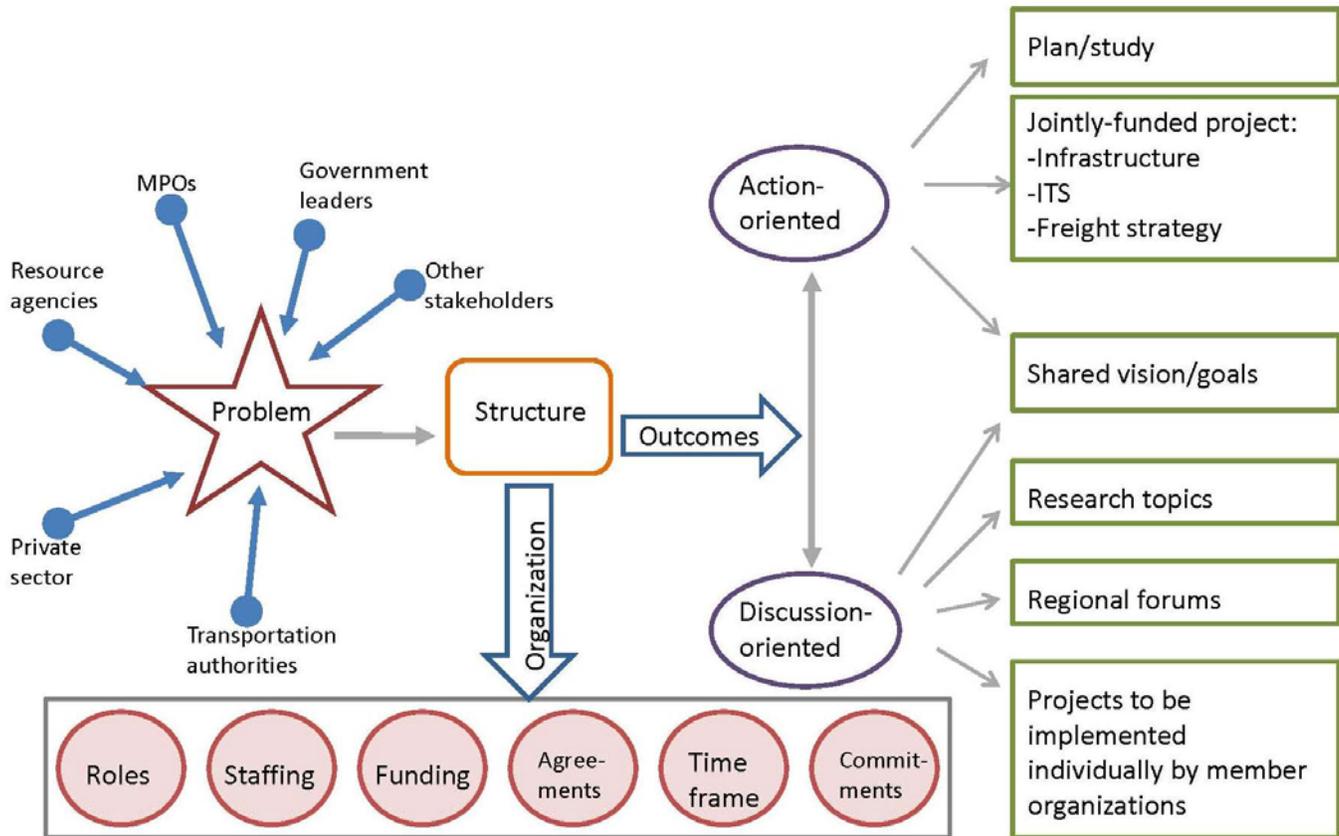
Finally, although many megaregions planning initiatives have not yet focused on public engagement, there are some successful examples of public involvement in region-wide, large-scale visioning, which occurred in Central Florida with support from the MPOs.

### Activities and Motivating Factors

Megaregions groups often evolve from one common project or area of interest such as freight, operations, or a major interregional infrastructure project to broader activities. Establishing the relationships and governance structure for one study or project can set the stage for future megaregions planning and collaboration. Several case studies identified more mature megaregions efforts that

evolved organically from a smaller effort, including the Central Florida MPO Alliance and the Bi-National Working Group in the Buffalo-Niagara-Toronto megaregion.

Figure 2: Framework for MPO Participation in Megaregions



State legislation has required or encouraged MPOs to align their plans and projects with State goals and objectives, often motivating MPOs to coordinate with each other to pursue megaregions-scale joint planning efforts. Federally designated planning topics, such as freight and ITS, provide another important motivation for stakeholders to come together in a megaregions forum. Megaregions initiatives that focus on designated planning topics may attract greater MPO engagement because MPOs may have funds set aside to plan for these areas but not for megaregions planning in general. Other federally-designated topics that attract attention include traffic data coordination, air quality nonconformity, high-speed rail, and land use and development patterns.

Within megaregions planning initiatives, actors have effectively pursued joint studies, plans, visions, and performance measures. The studies and plans often involve federally-designated planning topics and focus on an interregional issue such as border crossing or freight. Megaregions visioning processes allow regional stakeholders to broadly consider needs and interests that transcend any one organization's boundaries, formal responsibilities, or technical discipline. Visioning creates a long-term, large-scale planning outlook with diverse participation, including from MPOs. However, visioning may lack a

structure for implementation; several megaregions in the case studies have strong joint visions without immediate or concrete benefits for participants. Finally, MPOs participating in megaregions planning are considering performance measures across jurisdictional boundaries as an important need for the future. However, few megaregions have yet to institute performance measures.

## Key Transportation Issues Addressed through Megaregions

As evidenced through the megaregions studied, several transportation-specific issues lend themselves naturally to planning at a megaregions scale. These include the following:

- **Freight:** Strong, multi-modal freight networks that allow for efficient and seamless connections between metropolitan areas and across international borders are an integral tool for enhancing economic competitiveness. As megaregions become increasingly significant as units for global trade, freight planning will need to occur at a megaregions level with participation from MPOs, State governments, and freight and rail operators. MPOs currently oversee freight-related technical and advisory committees, which could naturally be expanded to include freight projects on a megaregions scale.
- **Border Crossings:** Similar to freight, the movement of people and goods across international borders is critical to global competitiveness. With the challenge of different legal and political systems, and the need to align different transportation systems and technologies, MPOs have often served as conveners, initiating communications with organizations and multiple levels of government and in the private sector, on both sides of borders. Joint planning for border crossing helps MPOs, such as those in the San Diego, Buffalo-Niagara-Toronto, and Phoenix and Tucson metropolitan areas, to more effectively meet their jurisdiction's needs while also bringing benefits to surrounding regions.
- **Intelligent Transportation Systems:** MPOs often struggle to obtain real-time traffic information to manage congestion and project future demand within and beyond their jurisdictions. Several MPOs have used megaregions-scale data sharing, such as NITTEC and the I-95 Corridor Coalition, to leverage resources of partners. With standardized ITS applications across a megaregion, MPOs can better plan for and respond to shifts in demand in short and long terms, and drivers benefit from smoother traffic operations.
- **MAP-21 Planning Factors:** The MAP-21 Planning Factors<sup>37</sup> provide a useful foundation for MPOs and their DOT, transit, and other planning partners to begin to participate in megaregions planning. The factors appear prominently in the case studies, including:
  - Support the economic vitality of the metropolitan area, especially by enabling global competitiveness;

<sup>37</sup> FHWA and FTA, "Statewide and Nonmetropolitan Transportation Planning/Metropolitan Transportation Planning," 06/02/2014. Accessed October, 2014: <https://www.federalregister.gov/articles/2014/06/02/2014-12155/statewide-and-nonmetropolitan-transportation-planning-metropolitan-transportation-planning>

- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Increase the accessibility and mobility of people and mobility of freight.

Within the patterns shown in Figure 2 above, there are many combinations of actors, organizations, and outcomes that account for a diversity of megaregions institutions and planning approaches. These patterns demonstrate important overall trends in undertaking planning and establishing organizational structures to address megaregions issues.

## Structures of Megaregions Institutions

In some cases, structures represent different stages of evolution in addressing megaregions. For example, a group of actors that convenes once to discuss megaregions issues may eventually evolve to become a formalized stakeholder group with designated roles, and eventually undertake joint planning projects. In other cases, different structures represent an institution's adaptation to its context. For example, the I-95 Corridor Coalition that serves a 1,900 mile corridor over 12 States will need a different management and participation structure than the Front Range or Central Florida megaregions, which are contained within single States.

Several key factors seem to have the greatest influence upon the megaregions structures of the seven institutions described in the case studies. These include the following:

- **Formalized structure and roles:** Institutions are formally recognized by other organizations in the megaregion. The institution has defined roles and responsibilities for participants.
- **Informal coalition:** These coalitions represent groups of stakeholders that often convene around a specific issue but usually lack a strong definition or formal recognition by other organizations.
- **Signed agreement or charter:** Institutions may have signed an agreement formalizing the roles and structures of the institution or a commitment to collaborate on a specific project or program.
- **Forum for discussion:** These institutions bring together a diverse group of actors to consider issues and needs on a megaregions scale. These groups may lack an immediate path to implementation but provide a fertile ground for ideas and new relationships.
- **Tangible outcomes or projects:** Institutions have produced a plan, study, or vision for the megaregion or have worked together to implement a joint transportation project or program.
- **MPO role:** Some institutions have MPOs in a leadership or convening role, whereas others have lesser levels of support and participation from MPOs.
- **Dedicated staff and budget:** Institutions may collect funds from participants or through other sources to fund megaregion-scale activities and/or dedicated staff. In most cases, institutions lack the means to raise funds but rely instead on informal, in-kind staffing support from participating organizations.

The following seven case studies and highlight how each MPO and its partners are addressing transportation challenges on a megaregion scale.

## Central Florida Case Study



Figure 3: Map of Central Florida Region

MPOs in Florida are generally organized by county or groups of counties, resulting in metropolitan areas that contain multiple MPOs. This case study focuses on several innovative partnerships between entities in Central Florida, which includes ten counties and 4.2 million residents (see Figure 3 for the area included within the Central Florida region).

While the region encompasses many large cities (including Orlando, Daytona Beach, Lakeland, Kissimmee, Melbourne, Ocala and Clermont), it does not constitute a typical megaregion due to the area's more limited economic and geographic scope. The layering of planning processes and partnerships in Central Florida, and the overlapping geographic areas do offer some valuable insights for future megaregions planning, particularly on the potential roles that

MPOs might play.

This is a time of change in Central Florida's transportation system with more emphasis being put on the development of a more balanced, multi-modal system. The Orlando metropolitan area is moving forward with the SunRail commuter rail transit line, the first rail transit project in the region. The first phase opened in May 2014 from the DeBary Station in Volusia County to the Sand Lake Road Station in Orange County. The second phase is scheduled to open in 2016 which will extend service north the DeLand Station in Volusia County and south to the Poinciana Station in Osceola County. Other transportation-related issues for the region include the completion of the beltway around the Orlando metropolitan area, the rebuilding of Interstate-4 to include managed lanes, putting more emphasis on the efficient movement of freight, bicycle and pedestrian safety and filling in the gaps to accelerate the development of a regional trail system.

With hundreds of municipal governments and six MPOs across the Central Florida region, several innovative partnerships have emerged to jointly address the region's key issues. One of the most prominent is [myregion.org](http://myregion.org) a partnership of seven counties and 86 cities in the Orlando metropolitan area. MyRegion.org does not represent a full megaregion initiative, since it covers a limited metropolitan area, but rather offers a model of bringing together a large number of multi-disciplinary stakeholders, including multiple MPOs, that are limited by jurisdiction or focus on a sub-region. This model can also be effective for larger, megaregions efforts.

Myregion.org has leadership from the public, private, and independent sectors with a broad focus on economic, environmental, education, smart growth, and transportation issues. The entity is one of the lines of business of the Central Florida Partnership, formerly the Orlando Regional Chamber of Commerce. Local contacts describe this as an ideal arrangement since the Central Florida Partnership (along with the predecessor organization) has a long tradition of bringing together diverse interests to tackle issues of regional significance. The MPOs and the Florida Department of Transportation have played a prominent role with the myregion.org initiative since transportation impacts so many areas beyond mobility such as land use, economic development and environmental quality. Since its official creation in 2001, myregion.org has engaged over 20,000 residents in extensive visioning and goal-setting activities, resulting in themes, maps, and the “How Shall We Grow” regional vision (see Figure 5). myregion.org has received several awards at the State and national levels for its cross-jurisdiction planning work. The myregion.org partnership is also notable for its inclusion of a diverse range of representatives, including elected officials, universities, economic development organizations, business leaders, energy providers, environmental interests, the operators of all modes of transportation-, and private citizens.



Figure 4: "How Shall We Grow" Regional Vision 2050 Map

The [Central Florida MPO Alliance](#) is closely affiliated with myregion.org in terms of membership, goals, and visions. Although established independently from myregion.org, the Alliance activities are closely

linked to [myregion.org](http://myregion.org). Comprised of representatives of the six MPOs in Central Florida, the Alliance plans and advocates for current and future multi-modal transportation needs. The Alliance began in 1997 as collaboration between [MetroPlan](#) Orlando (the MPO for Orange, Seminole and Osceola Counties) and the Volusia Metropolitan Planning Organization (now called the River to Sea Transportation Planning Organization). The initial focus was to accelerate improvements to Interstate 4 (I-4), which runs through both MPO regions, and provide improved transit service in the corridor. Four other MPOs later joined the Alliance to better plan for the region's future needs.

The Alliance, which meets quarterly, provides the MPOs with a forum for coordination on project-specific and general transportation issues, especially those that affect multiple counties such as SunRail, interstate improvements and the region's trail network. The Central Florida MPO Alliance is one of seven regional associations of MPOs in Florida; 21 of Florida's 26 MPOs have entered into formal arrangements to participate in one of these associations. Florida also encourages cooperation between MPOs through the [Florida MPO Advisory Council](#), a statewide transportation planning council created by the Florida legislature that provides a forum for policy discussion and a support network for MPOs.

In 2007, the Central Florida MPO Alliance developed the first eight-county Regional Long Range Transportation Plan that included regionally-significant projects from all six MTPs in the region. The L RTP envisioned a regionally-planned transportation system to bring benefits to residents and visitors in the areas of regional connectivity, environmental resources, air quality, and economic development. The Regional L RTP focused on projects that either span across MPO regions or achieve major modal or multi-modal accomplishments within an MPO region. The Plan also considered the cross-cutting areas of the Florida Strategic Intermodal System, ITS strategies, commuter transportation, and freight mobility across Central Florida. The Plan did not contain information about fiscal constraint or public involvement, except to summarize efforts of individual MPOs. Implementation of the Regional L RTP was to be combined with the implementation of [myregion.org](http://myregion.org)'s "How Shall We Grow?" visioning process, recognizing that individual MPOs have a large role in implementing the larger regional vision. The work of the Alliance has evolved over time. According to contacts, it now includes a regional prioritization process, described as a first in the State of Florida, and a process to establish legislative priorities.

The Central Florida region offers instructive models for megaregions planning in the areas of regional visioning and inter-MPO collaboration. First, the visioning efforts of [myregion.org](http://myregion.org) has resulted in goals, strategies, resolves, and implementation actions that comprehensively consider broad needs for the region and connections between diverse sectors. For example, the "How Shall We Grow?" theme of distinctive and diverse "centers" will address needs of economic development and quality of life while also easing transportation planning by centralizing key destinations. The structure of this visioning effort, with support from leaders representing the public, private and independent sectors, has effectively engaged stakeholders throughout the region to produce a consensus vision with applications in multiple fields.

Other areas around the country that are interested in developing institutions to encourage megaregions planning might consider creating a robust megaregions vision as an early step to initiate and begin to guide related planning activities. Peer areas might also encourage business and non-profit stakeholders

to formally review megaregion-scale infrastructure plans. On one hand, the “How Shall We Grow?” vision will shape future MPO activities and goals. On the other hand, because the Central Florida MPO Alliance is a member of and funding contributor to myregion.org, the MPO Alliance members can have a key role in implementing the visioning activities.

The Central Florida MPO Alliance provides a valuable model of the type of inter-MPO collaboration that would need to happen on a larger scale for megaregions planning. While the MPO Alliance does not cover a complete megaregion, the Alliance has addressed challenges that face MPOs in megaregions. For example, they have created a structure to meet regularly to address issues that cross MPO boundaries. Through the creation of their joint Regional LRTP and adopting a successful regional project prioritization process, the Central Florida MPO Alliance has created a broader vision and implementation path to a regional transportation system. Peer MPOs and their planning partners can look to the MPO Alliance for examples of concrete steps that MPOs might feasibly take to begin planning for megaregions. Flexibilities for Federal planning funds could encourage MPOs to collaborate, in a similar manner to the Central Florida MPO Alliance, to jointly plan and construct megaregions-scale infrastructure. MPOs may also respond to incentives or enhanced technical assistance, particularly research on best practices, for more joint planning.

As MPOs and other transportation stakeholders across the country seek ways to address megaregions needs, the Central Florida partnerships offer examples of initial outreach and collaboration with tangible benefits. Both the MPO Alliance and the regional visioning model have been effective as applying flexibility within the Federal planning framework. Similar activities might be encouraged through targeted incentives and technical assistance.

## Front Range Colorado Case Study

The Front Range area of Colorado is an emerging megaregion encompassing the metropolitan areas of Fort Collins, Denver, Colorado Springs, and Pueblo and surrounding areas along the eastern side of the Rocky Mountains. The population of the megaregion in 2000 was 3.6 million people and is expected to grow to 8.0 million people by 2040, representing 80 percent of Colorado's population.

As shown in Figure 5, the Front Range region spans the eastern side of the Colorado Rocky Mountains, expanding into the plains. The megaregion's shared geography and accelerated growth have contributed to a series of regional growth and planning

challenges that may best be addressed at an interregional scale. These challenges focus on population growth, economic development, and related transportation issues.

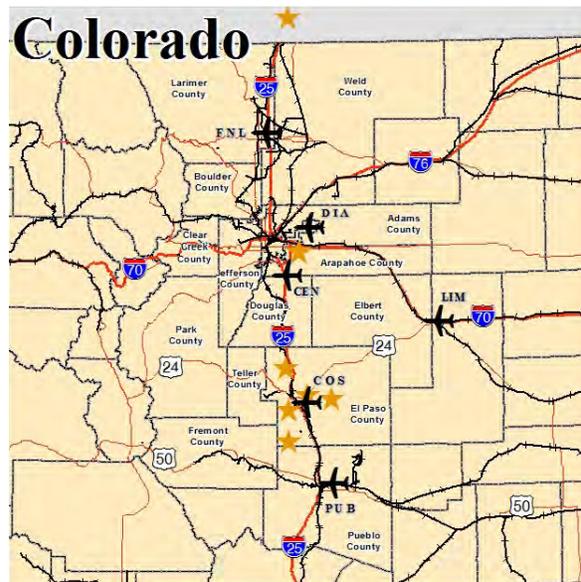


Figure 5: Colorado's Front Range area

The four MPOs in the Front Range recognize the shared geographic and economic characteristics of their metropolitan areas. They are increasingly pursuing coordinated activities to best meet future infrastructure needs. The participating MPOs are the [Pikes Peak Area Council of Governments](#) (PPACG), serving the Colorado Springs metropolitan area; the [Pueblo Area Council of Governments](#) (PACOG), serving the Pueblo metropolitan area, the [Denver Regional Council of Governments](#) (DRCOG), and the [North Front Range MPO](#) (NFRMPO), serving the Fort Collins metropolitan area. While the emerging megaregion lacks a formal structure, the MPOs have strong relationships forged through planning studies and joint projects that provide a foundation for future megaregions activities.

### Defining the Megaregion

The Rocky Mountains provide a defined geographic area for the emerging megaregion, but PPACG staff noted that the boundaries of a megaregion are fluid depending on who is willing and able to work together. The MPOs within the Front Range megaregion have also been involved in individual projects and studies expanding outside of Colorado boundaries. For example, the MPOs have been involved in rail corridor feasibility studies stretching from Wyoming to Texas. Additionally, the MPO directors from six intermountain States, including the MPO directors from the Front Range, meet twice annually to discuss shared issues, including rail. However, they further believe that MPO staff should prioritize coordination within their own State, particularly in terms of aligning the goals of MPOs and State agencies, before expanding megaregions efforts to other States.

## Front Range Key Issues

Several historic and emerging issues span the Front Range region and compel the MPOs to work together to arrive at joint priorities and solutions. These issues include population and employment growth and related congestion, the need for expanding transportation infrastructure, and the preservation of natural resources and open space.

### *Population Growth and Connectivity*

As individual metropolitan areas in the Front Range grow, the boundaries between urban areas blur. Most new residential and employment growth and development are occurring along major highways and transit corridors. The region is expected to gain 1.7 million jobs between 2010 and 2040, a growth of 61 percent from 2010 levels. However, new residential and economic growth bring planning and management challenges. Although the Front Range megaregion is the main economic engine of the State, congestion levels could be an impediment to attraction and location of businesses and economic growth. PPACG staff expressed a concern about maintaining the megaregion's infrastructure to keep up with population growth.

The expanding development patterns of the urban areas within the Front Range contribute to a greater need for interregional mobility and a greater demand for use of limited interregional transportation resources, such as highways and transit. Residents and employees of the Front Range are increasing their daily interregional travel, both for business and leisure purposes. The trends of heavier interregional traffic demonstrate the need for more efficient travel modes between metropolitan areas.

In addition to anticipated demands for improved connectivity, planners foresee greater congestion for the Front Range. Like many other megaregions, vehicle miles traveled (VMT) in the megaregion is growing faster than population growth (planners predict a 78 percent growth in VMT between 2000 and 2030, compared to 60 percent for population growth for that time period). With only a ten percent increase in new lane miles of roadways, congestion will become significantly worse in the coming decades. In order to meet employment growth forecasts and remain an economically-competitive megaregion, transportation agencies and governments must address the congestion problem.

### *Natural Resources and Open Space*

The rapid development in the Front Range has increased pressure on the region's natural resources and scenic areas. MPOs and non-governmental organizations (NGOs) in the Front Range recognize the need to protect these resources in conjunction with future land use and transportation planning. Residents of the Front Range consider open space to be an important part of their community character and regional culture, as well as an attraction to draw tourists to the region. However, rapid development in the past few decades consumed significant amounts of open space. Future planning challenges include the need for open space buffers amidst megaregion development.

New population growth has also threatened the health and sustainability of Colorado's air and water resources. Western Resource Advocates (WRA), Trout Unlimited (TU) and the Colorado Environmental Coalition (CEC) released a plan for addressing human water needs while protecting river health. The report is entitled "[Filling the Gap: Commonsense Solutions for Meeting Front Range Water Needs.](#)"

Additionally, several areas in the Front Range fail to meet the Federal air quality standards for ozone; the Colorado Department of Transportation (DOT), the MPOs and other transportation agencies work closely with the U.S. Environmental Protection Agency to reduce ozone levels from mobile sources.

### **Communications and Coordination**

PPACG staff cites their strong relationships with the other five MPOs and the 16 Councils of Governments (COGs) in Colorado. The staff of these organizations work together to advance interregional initiatives according to shared needs and priorities. They have built trust and learned to compromise on key issues through several decades of cooperation on interregional studies and projects. Building on the existing relationships, PPACG hopes to start formalizing megaregions activities through agreements between MPOs on consensus issues. These may later be expanded to include State agencies and to tackle more complicated issues.

Colorado's MPOs and COGs communicate frequently through several formal and informal forums. The most recent of these is the [Colorado Association of Regional Organizations](#) (CARO), formed in 2010 to provide a forum for COGs and MPOs in Colorado to share best practices, build relationships with State and Federal agencies, and increase training and technical assistance opportunities. CARO has a "virtual structure," without a formal structure and permanent staff -- member organizations contribute staff time to pursue coordinated efforts. Through CARO and project-specific collaborations, the MPOs and COGs communicate on a regular basis and successfully work together to pursue cross-regional initiatives. However, because the MPOs primarily come together to consult on specific projects or issues, their ability to organize around a larger program or plan on a megaregion scale is limited by the lack of a formal structure.

PPACG staff envisions that the model established by CARO could evolve toward to a formalized megaregions organization that would allow MPOs to jointly set megaregions priorities. Member organizations would contribute funds to implement projects and programs and contribute staff time to oversee administrative activities. Such an organization would also need the support of State agencies, specifically the Colorado Department of Transportation (CDOT).

### **State Efforts**

For the emerging Front Range megaregion, which is entirely within the State of Colorado, the relationship between MPOs and State agencies is important for coordination and prioritization of megaregions issues. Political shifts affecting the leadership of CDOT have offered both opportunities and challenges for the MPOs working on megaregions activities. For example, newly elected or appointed leaders may set new priorities for the organization; these priorities would then need to be aligned with those of the MPO and other planning agencies within the megaregion. MPO staff note that their planning processes are challenging to adapt to the shifting business practices and priorities of State agencies.

CDOT has an existing multi-agency forum that can also serve as a foundation for future megaregions activities in the State. The [Transportation Environmental Resource Council](#) (TERC) brings together local, State, and Federal agencies three times a year to discuss environmental stewardship related to

transportation. CDOT and FHWA established the group in 2002, using FHWA funding. The 15 members include PPACG, PACOG, DRCOG, and NFRMPO. The relationships established through the TERC are instrumental in building the emerging megaregion.

## Sustainability

PPACG has been leading development of a coordinated sustainability strategy for El Paso and Teller Counties, the two counties comprising the MPO region. PPACG staff has worked to bring together a diverse and comprehensive set of regional stakeholders to sign a sustainability agreement. The committee that drafted and approved the Regional Sustainability Plan included military commanders from the area's bases, chambers of commerce, local governments, non-governmental organizations, and business leaders. The group created "[Sustainability Stretch Goals for 2030](#)" in the areas of energy, water, transportation, materials management and procurement, built and natural environment, economic development, health, education, and arts and culture. These goals can be accomplished through action at the local level from city and county governments, businesses, NGOs, and citizens. PPACG has been showcasing its Regional Sustainability Plan and related efforts to other MPOs and COGs in Colorado to show them how to leverage funding and create sustainability plan at a regional scale.

The State of Colorado has been making a parallel push to coordinate multiple State departments to pursue sustainability activities. CDOT had not previously been involved in sustainability activities, but recently received a grant from the Transportation Research Board's Strategic Highway Research Program 2 to pursue sustainability within the Department. They are starting to establish sustainability programs such as mini-grants for local governments. They may also be able to build on related collaborative work of the TERC. As State agencies expand their sustainability activities, they can look to PPACG's model of bringing together multiple stakeholders at a regional level. PPACG staff believes that a similar type of agreement or coalition would be useful to encompass the new statewide activities and to align sustainability efforts at the megaregions scale.

## Rail Feasibility

The Colorado MPOs have long been involved in planning and feasibility studies for rail corridors crossing the Front Range, both for passenger and freight rail. These rail studies are the highest-profile projects being evaluated at the megaregions scale. The MPOs demonstrate ongoing coordination with each other, CDOT, and occasionally MPOs and State DOTs outside of Colorado. While the recommendations of these studies have not yet been implemented due to lack of funding, the relationships gained through the studies and the persistent coordination efforts are a cornerstone of the Front Range's megaregions activities. A few of the most recent studies include the following:

- **High-Speed Rail Feasibility:** The [Rocky Mountain Rail Authority](#) is a multi-jurisdictional government body composed of 45 member counties, municipalities, and transportation organizations along the I-25 and the I-70 corridors. In March 2010, RMRA published a collaborative feasibility study for high-speed passenger rail along the I-25 and I-70 corridors. The feasibility study found several options that met the Federal Railroad Administration's feasibility criteria for high-speed rail. The study findings are on hold until implementation funding is identified.

- **Colorado Rail Relocation:** The Union Pacific and Burlington Northern Santa Fe Railways companies proposed the improvement and relocation of freight rail infrastructure to move through-freight train traffic away from population centers along the Front Range. CDOT published a [Public Benefits and Costs Study](#) in 2005 that suggested that public benefits would warrant further evaluation of a public/private partnership. CDOT is currently completing a [Colorado Rail Relocation Implementation Study](#) to determine the steps needed to complete the infrastructure relocation, including defining and sharing costs, creating a public/private partnership, and obtaining environmental clearances.

For these joint projects, participating organizations often contribute funds for planning. However, finding money to implement the planning efforts often proves to be more challenging. The three MPOs along the Front Range contributed funding to develop a Front Range Combined Coordination Plan for the megaregion in 2008. The Plan includes joint priorities and recommendations for project selection and prioritization. The MPOs lack the funding, approximately \$1 million, to implement recommended improvements from the Plan for projects that span multiple areas within the Front Range.

### **Megaregions Infrastructure Projects**

In addition to the rail studies, the MPOs in the Front Range work closely with CDOT and other regional transportation organizations on other megaregion-scale projects including the following:

- **Front Range Express:** The [Front Range Express](#) (FREX) was a commuter bus service serving Colorado Springs, Monument, and Denver. PPACG was working with the provider of the service, the City of Colorado Springs, for FREX to expand service to major activity and employment centers in Denver and points south. PPACG staff sees the project as the precursor to a Denver-Colorado Springs rail link. The funding for this expansion comes from individual communities, PPACG's CMAQ funds, and the Pikes Peak Rural Transportation Authority (PPRTA) ten percent transit allocation.<sup>38</sup> The project represents an example of the MPO moving an interregional project forward using local funds to supplement available Federal and State funds. In 2015, CDOT will provide this service rebranded "BUSTANG" to replace FREX that terminated in 2012.
- **Front Range Travel Counts:** The four MPOs in the Front Range are jointly completing the [Front Range Travel Counts](#), a travel survey of 12,000 households spanning the entire Front Range region. The survey began in the North Front Range area in August 2009 and was completed with the Pueblo area in the fall of 2010.

PPACG, along with other MPOs in the Front Range, would like to create a unified strategic plan for the megaregion as a first step to address common issues and shared trends. A jointly-developed Front

<sup>38</sup> The Pikes Peak Rural Transportation Authority (PPRTA) levies a one-cent sales tax in El Paso County and the cities of Colorado Springs, Manitou Springs, Ramah, and Green Mountain. Revenue from the tax funds voter-approved transportation projects, and ten percent of the tax revenues go towards expansion of the bus system.

Range Transportation Plan would cover areas of transportation, development, open space, and air quality. In conjunction with a unified strategic plan, agencies within the Front Range would like to coordinate their efforts on growth, modeling, land use assumptions, and plans. PPACG has identified several additional mechanisms for coordination with other regional agencies. These include a bi-annual Front Range Transportation Forum, a working group, coordinated updates of LRTPs, and other sharing of regional best practices.

## Lessons

The planning agencies participating in the Front Range megaregion work closely on several initiatives affecting the entire megaregion. They have articulated transportation issues that can best be addressed through collaborative efforts, and have identified projects that can meet their mobility, economic, and social needs. However, the megaregion has not developed formal structures or agreements to guide their joint planning activities. The Front Range relies upon strong relationships and frequent communications to coordinate on a number of shared transportation projects, programs, and data collection to meet the region's priority needs.

Through the experience of PPACG and the other MPOs in the Front Range, the research team identified several findings relevant to coordination in an emerging megaregion:

- **Formalized megaregions coordination helps to ensure continuity of efforts.** Although the MPOs in the Front Range have successfully established relationships, created joint priorities, and developed megaregions-scale plans and studies, they lack a formal structure. PPACG staff note that an agreement or a formalized organization would help the MPOs achieve greater continuity for the goals and projects of the emerging megaregion. Without this structure, staff believes that activities will occur only on an ad-hoc basis, whereas a formalized means of coordination would enhance the commitment of participants and help advance individual projects.
- **Local sustainability efforts are a model for megaregions-scale efforts.** PPCAG has been successful at convening stakeholders within its metropolitan area to create and meet sustainability goals in the areas of transportation, energy, and waste management, among others. These efforts can be particularly instructive in aligning the goals and initiatives of the multiple Colorado agencies pursuing similar sustainability goals. These State agencies could use PPACG's model of a consensus committee and goal development to create a shared set of priorities and activities across the State. The streamlining of sustainability goals by State agencies would also support progress on coordinated sustainability activities within the Front Range megaregion.
- **Align priorities between State and regional agencies.** The MPOs in the Front Range region have been successful in collaboratively establishing joint priorities for megaregions transportation projects and needs, but these priorities sometimes differ from those of CDOT. State agencies might further support megaregions goal-setting and planning to help ensure that State and regional priorities are compatible and complementary. Arriving at a set of consensus priorities could also help State and regional agencies streamline the funding and implementation of priority projects.

- **Megaregions agreements will require regular monitoring and assessment.** The MPOs suggest that strong agreements between the MPOs and CDOT, which recognize the consensus goals of the stakeholders, will be important to planning for the emerging megaregion. Such an agreement will require active commitment and continuous evaluation from all signatories. Regular communications among megaregions stakeholders can help maintain agreements even amidst challenges such as changes in political leadership and lack of funding for project implementation.
- **Use an incremental approach to build trust. This can begin with cooperation on shared goals and projects with neighboring areas, and later expand to form megaregions partnerships, plans, and projects.** The MPOs in the Front Range have a long history of working on shared projects within Colorado and therefore have a solid foundation upon which to establish more ambitious joint goals and plans for the emerging megaregion. They hope to start formalizing their relationships through small-scale, project- or issue-specific agreements between neighboring MPOs. A later step will be to align priorities and create agreements with State agencies. Although the MPOs recognize the value and potential of expanding their megaregion to include other intermountain States, they first need to ensure strong coordination amongst themselves and within Colorado.

## I-95 Corridor Coalition



Figure 6: The I-95 Corridor Shield

The I-95 Corridor Coalition is the largest and most established megaregions-scale alliance of its kind in the U.S. The Coalition covers the corridor surrounding Interstate 95, which stretches from Maine to Florida as shown on their shield logo in Figure 6. While the corridor at this scale exceeds the boundaries of any one megaregion, the Coalition addresses broad issues through a multi-agency structure that can serve as a model for other megaregion efforts. The Coalition is a volunteer-based organization that provides a forum for transportation and government officials to address transportation management and operations issues that span traditional jurisdictional boundaries.

### Background and Structure

The Coalition consists of State DOTs, transportation and port authorities, Amtrak, and Federal transportation agencies, all of which serve as full members and are entitled to a seat on the Coalition's Executive Board. MPOs have taken on an increasingly active role in the Coalition, serving as affiliate members and entitled to representation on committees and special task forces. State DOTs represent the large rural areas in the corridor. Other Coalition members include Canadian transportation agencies, law enforcement agencies, and transportation industry associations; four full-time staff members also support the work of the Coalition. The Coalition receives funding from participating agencies and other participants in Coalition studies.

The I-95 Corridor Coalition serves as a launching pad for major new mobility initiatives in the northeast and throughout the corridor, enriching the discussion on long-term transportation issues for its members. Since its formal establishment in 1993 and under the current leadership of its Executive Director, George Schoener, the Coalition has broadened its focus from ITS technologies and highway-based transportation to include multiple modes and strategic planning and policy. For example, the Coalition now considers alternative freight modes, high speed rail, integrated security planning, and greenhouse gas (GHG) emissions reductions.

Through its Program Track committees, the Coalition oversees and funds studies in the following areas: Travel Information Services; Intermodal Freight and Passenger Movement; Policy and Strategic Planning; and Coordinated Incident Management and Safety. Coalition members, including MPOs, provide matching funds, often in the form of staff resources, for these studies. The Coalition's studies and committees help transportation officials research, document, and evaluate transportation issues with impacts and implications throughout the corridor. For example, the Coalition keeps a database of freight studies led by Coalition members, mostly from State DOTs. The [Mid-Atlantic Rail Operations Study](#)

helped at least one MPO better understand future commodities flows through its metropolitan region and prioritize investment for their MTP. Other ongoing Coalition work includes coordination of the E-ZPass electronic toll collection system, traffic monitoring, and emergency response.

While the Coalition has evolved to have a broad influence in transportation planning in the multi-state megaregion and enlists participation from numerous agencies, its basic model can inform developing megaregion efforts on smaller scales. The voluntary, dues-free membership allows stakeholders of all sizes and capacities to participate. The Program Track committee structure covers a variety of topics and allows for flexibility to shift the programming focus based on the Coalition's needs and emerging trends. The structure also provides a forum for discussion and engagement that is relevant and accessible to many corridor stakeholders. Most committees use webcasts for most meetings and gather in person approximately once per year. Some committees meet in person and simultaneously offer a webcast option. Finally, the presence and leadership of a strong Executive Director have allowed the Coalition to build on past success and expand its focus to meet future multi-modal and policy demands.

### **Role of MPOs in the Coalition**

MPO membership in the I-95 Corridor Coalition is relatively new, as reflected in the "affiliated member" status of MPOs. Member MPOs, such as the Delaware Valley Regional Planning Commission (DVRPC), serving the Philadelphia metropolitan area, complimented the Coalition for inviting them to participate in all facets of Coalition activities, including committee memberships. MPOs tend to limit their involvement based on their own staff and fiscal constraints, not from restrictions of the Coalition.

Membership in the Coalition brings a variety of benefits for the MPOs. The earliest MPO members became involved in the ITS architecture and freight activities of the Coalition. MPOs still cite the Coalition's integration of ITS and operations, structured to fit within a megaregions context, as an important tool for their agencies. Coalition networks also help MPOs access data flows beyond their boundaries; megaregions-scale data availability is an important tool for MPO planning and project selection. Staff noted the great value of the suite of tools provided under the Vehicle Probe Project (VPP), which provides comprehensive and continuous travel time information on freeways and arterials. Participating states have provided their own funds and some are extending coverage areas.<sup>39</sup>

Some MPOs cite seed money, accessed through the Coalition, as effective encouragement for joint planning with other member MPOs. Membership in the Coalition gives MPOs direct contact to major corridor stakeholders, such as Amtrak, that they would have trouble reaching on their own. Finally, and most notably, the Coalition provides a forum for coordination on technical policy, freight, and ITS projects across the corridor to address a pressing need of MPOs. This coordination includes air, freight, and rail planning, which are most effective when planned across MPO regions. More generally, MPOs have used the Coalition forum to share best planning practices and needs and projects identified in their short- and long-term plans. The I-95 Coalition Freight Academy trains public section staff to anticipate

<sup>39</sup> I-95 Corridor Coalition, "Vehicle Probe Project." Accessed October, 2014:  
<http://www.i95coalition.org/i95/Projects/ProjectDatabase/tabid/120/agentType/View/PropertyID/107/Default.aspx>

and plan for major trends in goods movement, and “to understand freight as an integral part of the transportation system.”<sup>40</sup> Agencies in the Corridor proposed the Academy and staff have participated in and greatly benefited from attending the “immersion courses.”

Additionally, the participation of MPOs can bring benefits to non-MPO Coalition members and to the Coalition as a whole. For example, aggregated data from member MPOs can provide valuable information to the Coalition in terms of corridor-wide safety, congestion, and demographics.

Through their participation in the Coalition, MPOs are recognizing the value of a megaregions approach to their metropolitan planning mission. The Coalition has specifically targeted MPO boards with education about the importance of megaregions planning for freight in a global economy. The Coalition provides a structure for MPOs to come together, exchange knowledge, and plan together in the areas of freight, critical infrastructure, and security. MPOs that have become heavily engaged in the Coalition value the Coalition’s accomplishments, the benefits of those accomplishments within their MPO, and the MPO role in achieving them.

While the Coalition has engaged MPOs in general coordination activities and specific research studies, joint MPO projects that emerge from the Coalition are small in scale. For example, the North Jersey Transportation Planning Authority (NJTPA) and DVRPC have partnered with the New Jersey DOT to create the Central Jersey Forum, which meets several times per year to integrate land use and transportation planning. An example project of the Forum is a Bus Rapid Transit study for the U.S. Route 1 corridor, which was jointly funded by all three Forum partners. MPOs are entering partnerships with each other slowly; these partnerships include signing agreements between a few neighboring MPOs or partnering for specific initiatives. MPO contacts note that they would engage more if resources permitted.

The Wilmington Area Planning Council (WILMAPCO), the MPO planning for the New Castle County, Delaware and Cecil County, Maryland metropolitan area, actively participates in the DVRPC standing freight advisory committee. According to staff, that has led to a number of important collaborations.

Several MPOs within the I-95 corridor use data from the Coalition’s database to measure performance of congestion management activities. For example, the Metropolitan Washington Transportation Planning Board and DVRPC extensively use the Coalition’s real-time speed and travel time database in performance measurement of their congestion management systems. Additionally, the MPOs in Baltimore, Boston, North Jersey, and Hampton Roads have started to use archived speed and travel time from the database to support congestion management work in their regions.

<sup>40</sup> I-95 Corridor Coalition Freight Academy, “About the Academy,” Accessed October, 2014: <http://www.freightacademy.org/>

“Partners Using Archived Operations Data for Planning” is another important voluntary coordination effort that grew out of the Coalition. According to MPO contacts, this group includes a range of partners from operations staff at DOTs to planning staff at MPOs, from Connecticut and New York State to Florida. The group has met to discuss and agree on a limited set of performance measures, as well as effective means to communicate about them.

The recent surge in MPO participation in the Coalition, concurrent with the Coalition’s inclusion of policy-based programs, shows that MPOs can play an integral role in planning and policy at a megaregions scale. The Coalition leadership recognizes that MPOs will be important implementing agents for many of the Coalition’s strategic goals. However, without sustainable funding for participation in megaregions activities, MPO contacts commented that they may play marginal roles in the Coalition.

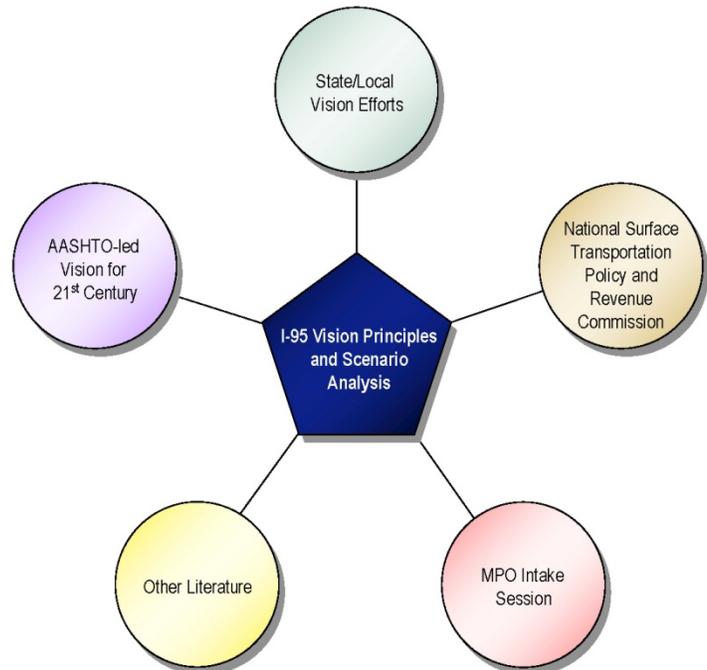


Figure 7:I-95 Vision Principles and Analysis Structure

### Initiative: Corridor Vision

Reflecting the Coalition’s broader emphasis on planning and policy, the Strategic Policy & Planning Committee led a visioning process that culminated in the publication of the [2040 Long Range Strategic Vision for the I-95 Coalition Region](#) (published in December 2008). The Vision, sketched in Figure 7, incorporates the priorities of MPOs, States, and other partners. The Vision study intended to meet long-term corridor transportation and investment needs, given constraints in terms of rising energy prices, climate change (both mitigation of greenhouse gas emissions and adaptation to impacts), and limiting VMT growth. In large part due to MPO input, the Vision was multi-modal with an emphasis on major activity centers and cities. Other focus areas were land use and an increased role for transit. The Coalition reached out to 11 MPOs within the I-95 corridor through webinars, some of which were already actively involved in Coalition activities.

The Vision outlined dramatic actions that would be required to accomplish its goals of improved transportation performance, including doubling fuel efficiency, tripling transit ridership, and transitioning to a new transportation finance system. Many of the implementation actions fall within the jurisdiction of the Coalition’s Federal, State, and MPO members. Therefore, the Coalition has left implementation to other agencies, but works to encourage regional studies that support some of the Vision’s core goals. MPOs report a desire to better implement the Vision, but they are limited by their available capacity to reach out to partners beyond consultation required by Federal law. Currently, the finite nature and funding of the visioning process precludes the Coalition’s monitoring of results.

MPOs that participated in the Vision contributed regional priorities from their own vision plans, and the Coalition priorities in its Vision have since begun to influence the MPOs. DVRPC noted that their own MPO vision recognizes the importance of the I-95 corridor for regional mobility and economic development, and that the development of the Coalition vision and the MPO vision influenced each other. NJTPA staff also noted that their participation in the Vision influenced the structure of the MPO visioning process, which used similar scenario models. Although other MPOs have not concretely integrated the Vision into their own work, the Vision does informally or indirectly inform their planning processes. For example, NJTPA set GHG emissions reduction as a high priority with encouragement from the Coalition's Vision plan, and NJTPA's focus on emission reduction also encouraged the Coalition to more strongly consider the issue. NJTPA also noted concrete links between its smart growth and marine highway initiatives and similar focus areas in the Coalition Vision.

### **Initiative: New York-New Jersey-Connecticut Joint Planning**

In 2008, NYMTC entered into a Memorandum of Understanding (MOU) with four other area MPOs – the NJTPA; the Housatonic Valley Council of Elected Officials (HVCEO) in western Connecticut; the South Western Regional Metropolitan Planning Organization (SWRMPO) in Connecticut; and the Greater Bridgeport/Valley Metropolitan Planning Organization (GB/VMPO) to coordinate planning activities in the New York-New Jersey-Connecticut metropolitan region. The MOU includes efforts toward achieving general consistency of plans through informal communication, regular meetings, and document exchange. Their joint projects have included studies on truck rest stops, working groups on managed lane usage, and a coordinated Household Travel Survey. Through the MOU, MPOs participate, to the extent practicable, in the transportation planning process of the other parties through committee memberships and/or meeting attendance. However, both as a group and individually, the MPOs do not generally bring megaregion-scale concerns before stakeholder and public discussions, as they have enough challenges with engaging the public on metropolitan issues.

### **Other Cross-Sectoral Initiatives**

Although this case study focuses on freight and operations and management, there are other significant efforts focusing on other goals and challenges in the multi-state region, at what can be considered a megaregions scale, including sustainable land use, development and housing, and climate resilience and emergency preparedness. These planning initiatives involve MPOs working with DOTs, local communities, transit agencies, private interests, and representatives of other, non-transportation sectors. The following descriptions of the Sustainable Communities Consortium and Hurricane Sandy follow-up and Vulnerability Assessment and Adaptation Project rely on information provided by NYMTC staff.

### ***New York-Connecticut Sustainable Communities Consortium and Together North Jersey***

In addition to the New York-New Jersey-Connecticut MOU, a consortium that includes NYMTC, SWRMPO, GB/VMPO and HVCEO, along with nine cities, two counties and two planning organizations in New York and Connecticut received a \$3.5 million Sustainable Communities planning grant from HUD in 2010 that is advancing their regional planning efforts and activities in a unique bi-state collaboration. The grant demonstrates the overlapping initiatives that MPOs may undertake while planning on a

megaregions scale. It also emphasizes the fluidity of megaregions boundaries -- this MOU and grant are helping the New York and Connecticut sub-region plan on a larger scale, within the context of the greater I-95 corridor. HUD awarded a similar grant to a consortium in New Jersey for a planning program known as *Together North Jersey*.

The New York-Connecticut Consortium's charge is to further develop livable communities and growth centers around existing and planned transit to enhance affordable housing efforts, reduce congestion, improve the environment and continue to develop economic opportunities. The Consortium has undertaken sixteen planning initiatives throughout the region, including a climate resilience strategic planning study. Although the planning program concludes in 2014, the work of the Consortium members across state lines will likely continue, with the New Jersey consortium, to respond to the ongoing need for regional sustainability planning, according to NYMTC staff.

### ***New York-New Jersey-Connecticut Hurricane Sandy Follow-up and Transportation Vulnerability Assessment and Adaptation Analysis Project***

Funded by an FHWA grant in 2013, staff from the New York, New Jersey and Connecticut DOTs have joined with four MPOs in the states – NYMTC; North Jersey Transportation Planning Authority; South Western Region Metropolitan Planning Organization; and Greater Bridgeport/Valley Metropolitan Planning Organization – and FHWA, are conducting a region-wide vulnerability assessment and adaptation analysis for the tri-state area.

The goals of the project are to examine the effects on the transportation system from Hurricanes Sandy and Irene, and Tropical Storm Lee, and identify strategies to help protect transportation assets from the impacts of extreme weather and climate change. The research team has selected ten transportation facilities for engineering assessment, including the Port Authority of New York and New Jersey's Port Jersey South, Bayonne, NJ; MTA Metro-North Railroad, New Haven Line, Pelham, NY; NJ 37 East Bound Barnegat Bay Bridge; Hugh Carey Tunnel (Brooklyn Battery Tunnel); and MTA Bridges and Tunnels.

According to staff, the work undertaken as a result of the post-Sandy study and as part of NYMTC's ongoing resiliency planning efforts will help create a stronger region supported by more resilient transportation assets that are critical to ensuring recovery and sustainability from future weather events, and by preparation for the potential impacts of climate change.

### **Challenges**

Although the I-95 Corridor Coalition represents a successful model for megaregions coordination, the Coalition faces a number of ongoing challenges in its work. Although the Coalition uses a committee and open membership policy, it still has difficulty ensuring meaningful representation and involvement for stakeholders due to funding constraints. The Coalition has to address both large, complex problems that span the corridor and specific, sub-regional problems within a single forum. As one member stated, "Money doesn't flow to larger problem solving areas," such as cross-MPO expanses covered by the Coalition, making it hard to get funding for projects.

MPO contacts identified limited time and resources as the largest constraint on megaregions planning. The contacts also recognize the benefits of megaregions planning, both through activities led by the Coalition and through partnerships they engage outside the Coalition. Many MPOs have begun pursuing such activities on a small scale, such as attending megaregions conferences or formulating agreements with neighboring MPOs. However, as staff and financial resources become increasingly limited, it becomes difficult for MPOs to maintain communications and coordination with peer MPOs. One advantage of Coalition membership is that the Coalition has already done much of the initial coordination of megaregions stakeholders. They also have a staff and committee structure to carry out studies, which takes some of the capacity burden off of MPO staff. If Federal planning regulations further encouraged MPOs to formally coordinate or engage in megaregions planning, coordinated activities would take on elevated importance and the MPOs would have a justification for devoting resources to megaregions planning.

Finally, the I-95 Corridor contains several very large cities, focused on meeting their own needs within their own constraints, and facing the challenges of coordination of agencies within their metropolitan area. For example, there are more than ten MPOs within or adjacent to the New York—Newark, NY—NJ—CT metropolitan area. Several MPOs within the New York City TMA are actively collaborating to jointly plan for issues that affect them, as documented earlier in this case study.

### Lessons Learned

The I-95 Corridor Coalition demonstrates the progress of a megaregions-scale coalition that has broadened their mission and membership to meet the evolving needs of their corridor. Several lessons can help apply the Coalition's structure and experience to other megaregions wishing to establish a similar megaregions-scale planning approach or organization.

- **Coalitions provide a guidance and facilitation role.** While the I-95 Corridor Coalition cannot require or fund large-scale, interregional planning, the Coalition can make it easier for its members to engage in this type of planning. The Coalition provides inter-regional data, communication tools, best practices, and regional visions, which can aid MPOs and States in two dimensions. First, the Coalition can help MPOs better fulfill their missions of transportation planning within their metropolitan region. Second, the Coalition can help MPOs work with each other and with non-MPO partners to address current and future extra-regional issues.
- **The Coalition's shift towards a multi-modal and policy focus attracts MPO involvement.** The recent increase in MPO membership in the Coalition coincides with its broadened focus on policy and planning for multiple modes along I-95. MPOs had a role in encouraging this shift through their own multi-modal activities. As the Coalition undertook more studies related to new policy arenas, MPOs have become more engaged in Coalition activities.
- **Megaregions can help MPOs to meet needs that they cannot meet on their own.** MPO participants in the I-95 Corridor Coalition praise the Coalition for providing inter-regional data, opening access to key stakeholders, and planning for transportation issues that extend beyond the MPO boundary. The development of shared performance measures, an emerging area for the Coalition, would also be beneficial for MPOs.

- **MPO priorities are influenced by Federal requirements and available resources.** Several MPOs recognize the benefits that megaregions planning would bring to their region. Yet, they are constrained to address all Federal planning requirements before they can expend time or resources on megaregions. The MPO members and partners (including local governments, transit providers, modal agencies, and advocacy groups) determine the organization's top priorities, and generally these members and partners will not prioritize megaregions. Rather, MPO staff can begin to nurture the interest in megaregions through recognition of its importance. If, for example, megaregions were included as a planning factor, MPO staff might more easily be able to devote resources to plan for and invest in megaregions programs.
- **The definition of a megaregion is fluid.** Although the I-95 Corridor geographically exceeds many definitions of a megaregion, the Coalition uses a multi-agency structural model that can apply to multiple scales. Many Coalition members consider themselves key participants in megaregions efforts at multiple scales, such as the northeast corridor and the greater I-95 corridor. MPOs have expressed the view that coordination across multiple scales is effective and works to broaden the Coalition's scope of activities.

## Greater Niagara Case Study

The Greater Niagara megaregion contains the urban areas of Toronto, Hamilton and Niagara Falls (Ontario, Canada) and Buffalo, Rochester, Syracuse, and Niagara Falls (New York, United States). The bi-national megaregion (known collectively as the Greater Golden Horseshoe) has a population of nine million people, the result of significant urban growth and sprawl in the past century. Although the region spans two countries, it shares a common language, history, and culture. Key economic industries in the megaregion include higher education, medicine, tourism, viniculture and automobile manufacturing.

The Niagara Frontier Region shown in Figure 3 is a major international trade corridor, linking Southern Ontario, Canada with the eastern U.S. via New York State. This corridor traverses the Niagara region of New York and provides important commuter access and through the North America Free Trade Act



(NAFTA), economic activity and trade between the U.S. and Canada. The region is a central component of the Greater Golden Horseshoe, which combined is the third largest population region in North America. In 2010, 12.9 million motor vehicles traveled between the U.S. and Canada through the Buffalo-Niagara Gateway and the number of Vehicle Miles Traveled (VMT) in the Niagara Frontier Region has steadily increased over the past several years.

Figure 8: Niagara Frontier Region

With a large population and a major international border crossing, the megaregion relies strongly upon its shared transportation infrastructure network for efficient mobility of people and goods. This network includes:

- Four international bridges
- Two rail bridges
- Four major railways and rail passenger service (and commuter rail)
- Two major highway road corridors
- Inter-city bus
- Four major airports
- Welland Canal and ports

Additionally, the U.S./Canada border crossing handles over \$1.4 billion in goods movement each day and processes approximately 200 million people per year. The trade between the New York state and Ontario alone is over \$20 billion annually. Collectively, the megaregion serves as an important economic gateway between the U.S. and Canada. Annual trade between Canada and U.S. in 2013 for all modes of transportation was \$632 billion for all of Canada and \$308 billion for Ontario alone. Annual trade

between Canada and U.S. in 2013 for just land modes of transportation were \$568 billion for all of Canada and \$289 billion for Ontario alone. In 2013, 86% of the land mode trade that occurs between the US and Ontario crossed at either the Niagara crossings in the megaregion or to Michigan at the Windsor or Sarnia crossings.

### **Planning in the Megaregion**

The [Greater Buffalo-Niagara Regional Transportation Council](#) (GBNRTC) is the Metropolitan Planning Organization (MPO) for Erie and Niagara Counties. GBNRTC plays a leading role in pursuing bi-national planning strategies to meet transportation needs across the megaregion. One of GBNRTC's five Planning and Coordinating subcommittees is devoted to cross-border planning. Additionally, the MPO has created a bi-national regional travel model to support travel forecasting on both sides of the border.

GBNRTC has a strong focus on performance measurement for emerging areas, such as sustainability and greenhouse gas emissions (GHG). The MPO performs GHG analyses in performance reviews for transportation projects. GBNRTC also has initiatives in areas of operations, safety, security, environmental impacts, and community development, and is working with the New York State Department of Transportation to refine performance measures at the state and regional level in response to Federal legislation as well as sound planning practices.

The [University at Buffalo Regional Institute](#) (part of the State University of New York) and the [Border Policy Research Institute](#) (part of Western Washington University) have published two [Border Barometer](#) reports to present data and analysis on cross-border economic flows. Comparing three key U.S./Canada crossings, these reports present indicators on border performance, such as measures of porosity, border infrastructure, and organizational capacity. These data help agencies within the Niagara region measure their performance in relation to the Cascade Gateway and the Detroit/Windsor crossing.

### **NITTEC**

GBNRTC is also a participating agency in the [Niagara International Transportation Technology Council](#) (NITTEC), which is the region's most established bi-national institution. NITTEC, composed of 14 member agencies and 17 affiliate members from New York and Ontario, was formed to provide an integrated corridor management approach to improve mobility, reliability, and safety across the megaregion. NITTEC's goals are to: improve regional and international transportation mobility; to promote economic competitiveness; and to minimize adverse environmental effects related to the regional transportation system.

Participating NITTEC agencies have entered into a Memorandum of Understanding (MOU) that establishes each MOU stakeholder's willingness to cooperate and coordinate with other stakeholders to improve regional and cross border transportation mobility. Through its operations control mission and cross-border activities, NITTEC demonstrates the impact of agencies coming together to address challenges with causes and impacts that span jurisdictional borders.

NITTEC serves as the operational component of the transportation program, as GBNRTC has traditionally provided a planning focus. GBNRTC and NITTEC have increasingly cooperated on initiatives to advance

planning and operations in the binational region, sharing data, traffic simulation capabilities and intergovernmental coordination activities. GBNRTC provides all funding for NITTEC internal operations and typically, ITS equipment through the Transportation Improvement Program. Canadian transportation agencies also serve on the NITTEC board but do not currently participate in direct funding for NITTEC operations.

NITTEC contains several committees covering topics of border crossing, construction coordination, incident management (separate committees for Ontario and western New York), strategic planning, technologies and systems, and provides a traffic operations center. NITTEC covers operational functions for traveler information, border management, congestion management, incident management, system monitoring, data tracking, and performance measure reporting. NITTEC also provides its members with a communications structure for major events that will increase traffic across the border, weather, and emergency management. In the future, NITTEC plans to increase coordination through further unifying bridge operations and border protection. The organization is also working to retune signals to improve the efficiency of major corridors.

In the interest of effective cross border travel in the megaregion, NITTEC created the Border Crossing (BC) Committee, which strives to achieve the condition whereby the traffic load on any border crossing at peak travel times is in proportion to its capacity in relation to all border crossings. The BC serves as the forum for developing an evolving Decision Support Tool, monitoring performance, communication with their respective organizations, and providing input to and updating the Border Crossing Corridor Management Plan.

NITTEC and GBNRTC track performance measures for six operational categories that relate to the Council's objectives. Each objective, correlated with category areas such as traveler information or incident management, contains performance measures such as web site hits for traveler information sites and monthly average incident detection arrival time. NITTEC publishes an Annual Activity and Performance Report for each calendar year that details data relative to each of its performance measures within all six categories. Participating agencies use these standardized measures across both nations and target quantifiable short- and long-term goals to improve performance based on these measures. Additionally, the MPO has its own performance measures for areas like pavement management and congestion that feed into TIP project selection. Through working with partners in NITTEC, GBNRTC can more easily share these measures to help guide implementation actions, and to encourage greater consistency in tracking progress throughout the region.

### **Western Golden Horseshoe Municipal Network**

A new initiative has emerged in Ontario to advance coordinated planning in the region. The initiative recognizes that the issues, challenges and opportunities facing the Western Golden Horseshoe are not singularly municipal, regional, provincial, or Federal. Further recognizing the growth momentum occurring in the Western Golden Horseshoe, the regions of Peel, Halton, Niagara, and Waterloo and the City of Hamilton formed an alliance to advance common perspectives regarding the challenges and opportunities facing this area. A primary focus is to improve the competitiveness of the Western Golden

Horseshoe, meet the requirements of growing populations and play a role in the provincial, Federal and global economy.

This has led to formation of overarching regional efforts to champion and work with provincial and Federal governments to advance a unified vision of a Western Golden Horseshoe Transportation and Trade Network. GBNRTC participated in the May 2014 Workshop to provide a New York-side perspective. The Charter for the Western Golden Horseshoe Municipal Network was approved by the Network municipalities in February 2014 and is expected to advance common perspectives regarding the need for transportation infrastructure to create a more efficient and connected network for the movement of goods and people. The ultimate goal is to establish integrated multi-modal transportation network that:

- Maximizes the potential of air, rail and marine goods movement modes;
- Provides efficient connections to hubs, employment lands, and markets;
- Addresses projected highway capacity issues;
- Incorporates an inter-regional multi-modal transit network;
- Is planned and implemented in a manner that respects the importance of environmentally sensitive areas; and
- Is planned in a cooperative manner with active participation by municipal citizens, provincial and Federal governments and interest groups including the private sector.

### **Evolution of the Bi-National Transportation Strategy**

GBNRTC has pursued collaborative, cross-border transportation planning since the 1990s. [Regional Niagara](#), the regional municipal government just west of the U.S./Canada border, and GBNRTC have established a subcommittee to pursue joint, border-related planning initiatives. Staff from both organizations produced the “Strategic Transportation Directions” report in 2002, which provided an overview of the megaregion’s transportation systems, factors that caused traffic growth, plans to improve area transportation systems, and coordination mechanisms for transportation planning and operations. This report became the precursor to the consultant-prepared Bi-National Transportation Strategy.

In June 2001, leaders from New York State and Ontario came together for the New York-Ontario Economic Summit to encourage free trade along the New York/Ontario border and discuss the need for more engagement in cross-border planning. The Summit led to a Memorandum of Understanding (MOU) to establish a Bi-National Working Group with representatives from [NYSDOT](#), [Ontario Ministry of Transportation](#), FHWA, [Transport Canada](#), and local planning and bridge authorities. While GBNRTC did not institute nor lead the working group, their model of cooperative planning, as established through years of working with Regional Niagara, helped advance the progress of the Bi-National Working Group.

The working group does not have a formal staff or budget but rather relies on in-kind commitments of staff or financial resources from member agencies. The types of commitments and work activities depend upon the expertise and priorities of the agency representatives. NYSDOT and the Ontario

Ministry of Transportation have also provided funding to engage a consultant to support the group, namely for the Bi-National Transportation Strategy.

A primary purpose of the Bi-National Working Group was to develop the [Bi-National Transportation Strategy](#). Published in 2005, the Bi-National Transportation Strategy for the Niagara Frontier is a planning document that “develop[s] a strategic action plan of synergistic opportunities to address existing problems and to meet future needs of border crossings along the Niagara Frontier in order to support trade and tourism.” It also contains the vision that, “People and goods move safely, securely, and efficiently within the bi-national Niagara region via a transportation system that is unified, provides multimodal alternatives, is environmentally sensitive and supports economic growth.”

The key issues for the megaregion, as addressed in the Transportation Strategy, include:

- Improvements for existing infrastructure
- Border crossing congestion
- Connectivity between population, economic, and recreation centers
- Mode choice
- Network redundancy to accommodate high traffic periods

The strategy contains specific goals to achieve the vision, identifies opportunities and constraints in terms of existing infrastructure and capacity, and puts forth strategy initiatives to meet objectives. For each initiative, the strategy identifies responsible agencies and timeframes for completion. The document contains ongoing or planned capital projects and operational approaches from each member agency that align with overall strategy objectives, such as projects included in individual TIPs or long range metropolitan transportation plans (MTPs). While the strategy provides an approach similar to that of the MPO’s TIP, it does not utilize a formal selection process or designate funding.

A potential implementation mechanism for the Bi-National Strategy suggested was a Bi-National Transportation Coordinating Group, which would effectively function as a bi-national MPO. The working group included the proposal for this new coordinating group as a recommendation in the Strategy document. The group would have included an executive committee, a steering committee, and other committees to cover industry, bridges, emergency services, local municipalities, and border agencies (see Figure 2). Figure 2 demonstrates one potential structure and hierarchy of a Bi-National Transportation Coordinating Group.

Although agencies crafted draft governance principles detailing the organization of the group in 2006, GBNRTC staff report that the agencies have not yet pursued implementation, although individual agencies are addressing some of the group’s functions informally. A “virtual” structure seems to be more feasible in the short term. The virtual organization includes meetings with working group partners and cooperation on implementation of bi-national projects. Even without a formalized group, the GBNRTC and its partner transportation agencies have established effective relationships, including working groups, and produce strategies and plans, using their virtual organization.



# Niagara Bi-national Transportation Coordinating Group

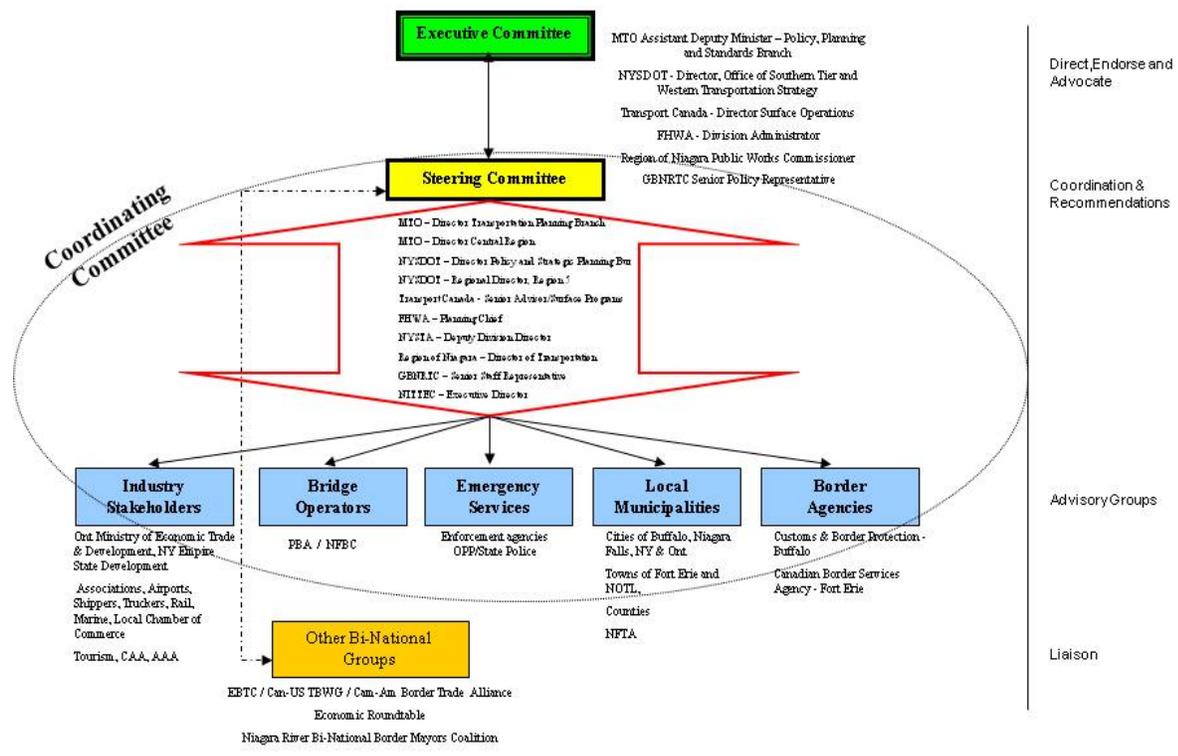


Figure 9: Proposed structure of Niagara Bi-national Transportation Coordinating Group. Image courtesy of GBNRTC.

## Border Crossings

The border crossing in the Niagara megaregion present management issues that must be addressed collectively by agencies across the region. Planning for cross-border mobility includes travel to the border, crossing infrastructure (bridges), and border management. The infrastructure to transport goods and people across the border must be well-integrated with the surround transportation network for local and regional mobility. The megaregion’s transportation network spans multiple jurisdictions and includes both long distance and local traffic, adding to the challenges of coordination with border infrastructure.

The border crossing infrastructure must also consider changing travel patterns based on regional growth and emerging trends. This includes new procedures for processing goods and people at the border and new trends in passenger flows. The border management must consider security, predictable travel times, technology/ITS, and conflicting agencies and priorities.

According to staff contacts, the Peace Bridge demonstrates a key advance processing capabilities. In early 2014, the Buffalo and Fort Erie Public Bridge Authority (PBA) announced the official commencement of the Phase 2 Commercial Pre-inspection Pilot at the Peace Bridge international border crossing for U.S.-bound trucks. The pilot is being conducted as a partnership between the U.S. Department of Homeland Security, Canada's Ministry of Public Safety and Emergency Preparedness, and the PBA. As part of the bi-national U.S.-Canada Beyond the Border Accord, this initiative follows the successful conclusion of the Phase 1 "Proof of Concept" Commercial Pre-inspection Pilot previously conducted in Blaine, Washington.

This initiative provides an innovative, technology-driven solution to border management; assuming full implementation beyond the pilot phase, the concept will provide real, immediate, and much-needed congestion relief for the Peace Bridge corridor. Pre-inspection can vastly improve the way the border functions, without sacrificing the security, sovereignty, or trade of Canada and the United States. According to staff contacts, this is an important component of ongoing efforts to advance several important projects at the Peace Bridge, all of which will lead to a more functional and efficient border crossing.

The concept of Peace Bridge pre-inspection for U.S.-bound commercial cargo vehicles, often referred to as "pre-processing," dates back nearly 20 years to the 1995 Shared Border Accord. Over that time, pre-inspection has evolved as a result of various bilateral agreements and operational advancements, including the development of the Ontario-based Peace Bridge Commercial Vehicle Processing Centre, and extensive border security and procedural changes that followed the terrorist attacks of 9/11.

### **Rail in the Niagara Region**

In support of the megaregion's multimodal objectives, the Niagara region has several existing and planned rail projects to maintain and enhance goods and passenger movement. Currently, Amtrak and VIA Rail, Canada's national passenger rail service, both serve the Niagara megaregion. VIA Rail offers service between Toronto and Niagara Falls, Ontario, with connections to other major cities in Canada and to Amtrak service in the US. Amtrak offers passenger rail service from New York City to Buffalo and Toronto on its Maple Leaf line, with service to Albany, Syracuse, Rochester, Niagara Falls, and other intermediary destinations. The region also contains the second largest rail center in the world with a convergence of several major freight rail networks and related support infrastructure.

[GO Transit](#) is Ontario's interregional public transit service and the megaregion's only commuter rail system. Go Transit offers bus and rail service to Toronto, Hamilton, Niagara Falls, and surrounding cities. GO includes seven train lines with commuter passenger service and numerous bus routes for local connections. GO has an expansion study to examine the addition of new tracks and service throughout the Ontario region; the operator has demonstrated service between Niagara Falls, Ontario and Toronto's Union Station.

On the U.S. side of the border, State and Federal agencies are studying the possibility of high-speed rail in the Empire Corridor. The [Empire Corridor](#) project covers a 463-mile corridor from New York City to Niagara Falls. Planning studies have indicated the need for better connectivity within the GGH and with

the rest of New York State. The BiNational Transportation Strategy indicated both short and longer term initiatives to strengthen binational trade and travel. The New York State Rail Plan, the New York State Senate Task Force on High Speed Rail and the Empire Corridor West Railroad Transportation Plan, under development, all discuss rail passenger services and potential opportunities for improvements to infrastructure and operations. An intermodal transportation project is underway in Niagara Falls, New York adjacent to the Whirlpool Bridge that will provide significantly upgraded rail passenger border crossing facilities.

## Freight

GBNRTC completed the [Niagara Frontier Urban Area Freight Transportation Study](#), which addresses economic and industry trends that impact the region's multi-modal freight network. Adopting a broad outlook on the region's freight system, the study examined how the region could capitalize on increases in goods movement through Vancouver and also through the Port of New York/New Jersey as an inland port distribution site. Working with bi-national partner agencies, GBNRTC created a study that demonstrates how global economies impact local infrastructure; the findings of the study contain significant implications for both sides of the border. The study identified benefits of one location serving two nations:

- Reduction of tariffs by utilizing more favorable codes and foreign trade zones.
- Encouragement of foreign companies to ship components; instead of finished products to the region for assembly with potential locally source components.
- Addition of value to goods heading to and from Canada, as well as goods to and from third countries. (Truck traffic via Buffalo to rise 90% from 2010-2035).

Further planning efforts recommended formation of an International Trade Gateway to serve the region. According to staff contacts, key features of the Gateway would include:

- Integrated center for transshipment, storage, collection and distribution of goods;
- A regionally centered convergence point for rail lines, truck routes, water shipping routes and air transport modes and facilities;
- Soft infrastructure assets related to trade – customs brokerage, Third Party Logistics, and legal financial approaches, with an added emphasis on workforce development, education and training to ensure the strength of industry clusters served; and
- Possible single regional location or simply a philosophical and political connection of all of a region's public and private sector assets.



**Figure 10: International Trade Gateway**

**Other Bi-National and Corridor Planning Efforts**

In addition to convening the Working Group, transportation agencies in the megaregion have several additional efforts underway to coordinate transportation-related infrastructure and policy across the international region. These include the following examples:

***Niagara-Greater Toronto Area (NGTA) Corridor Planning Study***

The Ontario Ministry of Transportation (MTO) has completed Phase 1 of the Niagara to GTA Corridor Planning and Environmental Assessment Study to enhance transportation capacity from the Niagara border crossing to the Greater Toronto Area. Such capacity would be necessary to accommodate future growth in the movement of goods and people. The study contains a vision of a multimodal transportation system to support compact, vibrant communities, a competitive economy, and a protected environment. This study has been carried out within the context of the Growth Plan for the Greater Golden Horseshoe (June 2006) released by the Ontario Ministry of Infrastructure. The MTO is working to provide for the efficient movement of people and goods to meet the objectives of the province's Growth Plan.

The Growth Plan also provides the strategic policy framework for the transportation system in the GGH that provides for more transportation choices, promotes public transit and active transportation, and gives priority to goods movement on highway corridors. Under this policy framework the NGTA study is designed to explore all modes of transportation for facilitating the efficient inter-regional movement of people and goods. The NGTA study area is in a strategically important location critical to Ontario's long term economic competitiveness as part of the Ontario-Quebec Continental Gateway and Trade Corridor, ensuring the efficient movement of people and goods between Ontario communities and U.S. markets.

GBNRTC participates in the Study as a member of the Municipal Advisory Group and has provided information from the regional travel models and binational planning perspectives.

### *Mohawk-Erie Multimodal Transportation Corridor Study*

A joint effort of the NYSDOT and the New York State Thruway Authority, the Transportation Corridor Study covers a 400 mile corridor from Buffalo to Albany with the goal of identifying transportation improvements and policies to support existing demand. The study also aims to help with emerging business opportunities. According to staff contacts, strategic transportation investments are needed that promote connectivity of key components of the multi-modal network to support goods movement, regional economic drivers and exporters, growing tourism opportunities, and quality of life. The study suggested a benefits-based framework for multi-modal project prioritization that will offer an approach to assessing the strategic economic and community value of multimodal projects as an input into project planning and programming.

Transportation organizations in the region also collaborate on the Niagara Bi-National Economic Roundtable report, published in 2003; the Ontario-New York Memorandum of Understanding and Cooperation, and Federal border working groups. In addition to the formal planning activities in the Niagara megaregion, other transportation, trade, and tourism groups in the region share strong relationships. This includes bridge operators on both sides of the border.

GBNRTC staff note that they are constantly seeking new best practices in cross-border and other megaregions planning. In addition to examples from other U.S. megaregions, they frequently look for examples from the European Union, where planning for international megaregions is well-established. Domestically, the Niagara region looks to Southern California and specifically at the San Diego area, planned for by the SANDAG MPO, whose strategies are detailed in a case study in this report.

### **Lessons Learned**

The GBNRTC, along with its many transportation partners across the megaregion, strives to meet the challenges and transportation needs of a population and economic center spanning two countries. The MPO staff identified several recommendations for other regions seeking to conduct effective megaregions planning, particularly for bi-national entities:

- **Designate a focused core group for issues management.** Through strategically identifying a small group of leaders, the entity can more effectively manage complex transportation issues facing the megaregion and assign tasks to subcommittees or working groups with more specialized expertise. GBNRTC also reports success with concentrating management on concrete activities such as bridges and border crossing, which helps to bring stakeholders to the table.
- **Enlist a larger group of stakeholders for consultation and implementation.** The success of a bi-national entity relies upon the support and feedback of a diverse set of stakeholders, representing interests from across the region. The stakeholder group should reflect diversity in terms of geographic area, modal interest, and freight and passenger transport.
- **Use an interdisciplinary approach to achieve consensus.** GBNRTC and its partners address many facets of transportation planning from a bi-national perspective, including infrastructure, ITS,

border crossing and trade policy, and transit. In encompassing a broad array of topics and stakeholders, the bi-national entity can more easily achieve support from stakeholders and leaders to make consensus-based decisions.

In addition to the recommendations from GBNRTC, the research team identified several other lessons for other findings relevant to megaregions planning:

- **Expand MPO performance measures to megaregion.** GBNRTC measures performance for its transportation projects according to a variety of traditional and non-traditional factors. Also, regional institutional and agency partners also measure performance of operations or cross-border economic flows, providing a more robust array of measures. Their experience in performance measurement and their close relationships with partners will help them to expand these measures to a megaregions scale. The MPO can more easily adapt measures to fit goals of the Bi-National Transportation Strategy, NITTEC, or other megaregions initiatives. According to MPO staff, the performance-based approach in MAP-21 legislation offers a context for integration of performance measures into the planning and project programming process.
- **Take advantage of existing relationships and funding.** The creation of the Bi-National Working Group and the subsequent development of the Bi-National Transportation Strategy would not have been possible without the foundational relationships between GBNRTC, Regional Niagara, the members of NITTEC, and other transportation organizations. Instead of creating multiple duplicative initiatives or funding structures, the partner organizations around the Niagara megaregion utilize existing working groups and communication networks to address border management, operations, and other management issues. The members use their own funding mechanisms to pay for megaregions projects, according to need and ability.
- **Adapt existing institutions to develop new working groups.** The “virtual” Bi-National Transportation Coordinating Group provides an informal, inexpensive means for MPOs, transportation agencies, and government organizations to work together on key transportation issues. While the partners have not formally devoted budget or staff time to an official coordinating group, they can continue to coordinate on cross-border issues using an informal structure. The “virtual organization” may be a useful alternative for other actors that have identified joint megaregion-scale challenges but are not ready to create a formal megaregions institution.
- **Learn from peer agencies.** GBNRTC looks to its peer agencies for new strategies on addressing megaregions and cross-border challenges. Through both international and domestic examples, the Niagara region benefits from the experience of its peers in technical megaregions issues.

## Piedmont Atlantic Case Study

The Piedmont-Atlantic megaregion covers parts of Georgia, Alabama, South Carolina, North Carolina, Florida, and Tennessee, and includes the major metropolitan areas of Atlanta, Raleigh/Durham, Charlotte, and Birmingham (pictured in Figure 11). The megaregion was home to approximately 14.8 million people in 2000, with projected growth to 20.5 million in 2025. The area is characterized by a low cost of living, which has attracted rapid growth, resulting in significant urban sprawl and expensive infrastructure needs.

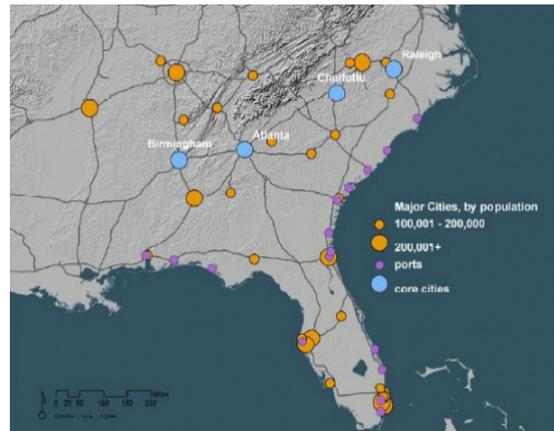


Figure 11: Piedmont-Atlantic Megaregion Map

The Georgia Institute of Technology (Georgia Tech) started the Center for Quality Growth and Regional Development (CQGRD) in the early 2000s, which eventually led to the development of the Piedmont Alliance for Quality Growth (PAQG) in 2009. PAQG consists of mayors, academics, private business representatives, and other interested parties around the six-State megaregion. PAQG pursues a cooperative approach to continued quality growth and economic health in the megaregion. Specifically, PAQG seeks to address ecologically-responsible land use practices, rapid population growth and related infrastructure challenges, diminishing and contentious water supply issues, availability and reliability of public transit, and inter-city rail. PAQG creates a forum to bring together diverse stakeholders from multiple States and metropolitan areas. PAQG recognized that city leaders will better tackle challenges related to population growth and the infrastructure if they work as a unit, rather than independently. PAQG sought to use joint leadership to build support for developing new infrastructure around water, transportation, and energy, and to enable regional global competitiveness.

### Evolution of PAQG and Summits

CQGRD hosted several summits related to megaregions from 2005 to 2009, including one co-sponsored by American 2050 in March 2009. The March 2009 summit brought together Shirley Franklin, who was the mayor of Atlanta at the time, and Pat McCrory, who was mayor of Charlotte. The two mayors acted as catalysts to initiate PAQG. They convened a leadership group consisting of other mayors and representatives from universities and private industry to plan a series of future summits focused on regional growth and economic issues in the Piedmont Atlantic megaregion. Under the continued leadership of Ms. Franklin and Ms. McCrory, both of whom no longer serve as mayors, the leadership group has organized summits in Charlotte, Greenville (SC), Macon (GA), and Atlanta. These summits included expert presentations on high-speed rail, water, and energy, as well as discussions for leaders to craft strategies for the future. The summits provide government and business leaders with a chance to both learn about new developments related to growth and infrastructure issues and discuss these issues with regional peers and partners.

## Roles and Responsibilities

The PAQG leadership group has the primary responsibility of planning upcoming summits. The group meets in person or by phone on a regular basis. CQGRD at Georgia Tech has served as the administrative arm of PAQG during its early years and will continue to do so in the near future. Transportation organizations attend summits and may be featured as presenters, depending on emphasis of the summit subject matter. Past summits have included State DOT, MPOs, and railroad industry representatives as speakers and panelists. However, there are no transportation representatives among the leadership group.

The Atlanta Regional Commission (ARC), the MPO for the 18-county Atlanta region, was one of the earliest MPOs to be involved in PAQG. The ARC has pursued innovative transportation and land use planning to address major air quality nonconformity and congestion issues in the region. They have paired land use strategies with transportation planning to address rapid sprawl. The planning approach and related strategies that ARC has pursued can be useful for addressing the broad and complex land-use challenges faced across the megaregion. ARC has attempted to solicit participation from other MPOs, with limited success. PAQG representatives expressed interest in examples of MPO involvement in megaregions from elsewhere in the U.S. MPOs will have an implementation role in any actions to emerge from PAQG activities.

Overall, PAQG serves as a forum for ideas and discussion about quality growth throughout the megaregion. Through generating dialogue about megaregions ideas, PAQG members hope to inspire action among summit participants within their organizations.

ARC has also explored the concept of megaregions. In 2008 and 2009 ARC undertook a long term visioning process called 50 Forward, which consisted of a series of quarterly forums to look at trends and issues that would affect the region over the next 50 years. One of the forums dealt with Megaregions<sup>41</sup> and was held during ARC's annual state of the region breakfast, around the time that PAQG was formed.

## Projects in the Piedmont Atlantic Megaregion

PAQG has made significant progress in advancing megaregion awareness and discussion through their summits, but the group lacks the formal organization, staff, and funding to take on megaregions-scale projects. PAQG has no designated funding to implement specific strategies. Instead, PAQG encourages research on relevant megaregions topics and supports activities occurring elsewhere in the megaregion. Several projects of interest around the Piedmont Atlantic megaregion include the following:

- Georgia and South Carolina are planning a new port in Jasper County, South Carolina, approximately seven miles north of Savannah along the Savannah River. The port was first

<sup>41</sup> For information on the ARC Megaregions Forum: see <http://www.atlantaregional.com/about-us/public-involvement/atlanta-fifty-forward/fifty-forward-future-forums/megaregions-forum>; and the white paper, "[Megaregions: A Vision for Metro Atlanta.](#)"

proposed in 2007, with construction to be completed in 2025 or later. The 1,500 acre port is expected to cost approximately \$500 million and bring new economic growth to both States.

- Georgia, South Carolina, and North Carolina Departments of Transportation have engaged in a joint study on rail passenger service. The study, funded by the American Reinvestment and Recovery Act (ARRA) continues a passenger rail study between North Carolina and Virginia.
- The Tennessee and Georgia Departments of Transportation have advanced a study to plan for high-speed passenger rail service between Atlanta, Chattanooga, and Nashville. The DOTs are working on a Tier 1 Environmental Impact Statement for the Atlanta to Chattanooga corridor.

### **Leadership and Growth Opportunities**

The structure and participants of PAQG suggest the importance of committed and visionary leaders in creating concrete actions to advance megaregions goals. The leadership of CQGRD and the history of innovative programs within the Piedmont Atlantic's metropolitan areas brought credibility to PAQG and attracted participant agencies that are decision makers in the region. In later stages of these collaborative efforts, MPOs in particular could have an important role in advancing ideas and programs that arise from PAQG's summits, due to their role in planning for Federally-funded transportation projects.

The Piedmont Atlantic megaregion shows leadership in collaboration between government, business, and non-profit interests in the PAQG. The summits feature a mix of speakers and topics that can engage actors across public and private sectors. For example, the March 2010 Summit featured a private-sector engineer speaking about water issues and a former North Carolina DOT State Cabinet member speaking about high speed rail. As the PAQG continues to discuss pivotal, cross-cutting regional issues, members can potentially become involved in peer review of each other's major projects. Business and non-profit representatives in PAQG, such as energy producers and watershed interest groups, could review of megaregion-scale transportation infrastructure plans and projects. In the short term, this could take the form of strategic review of metropolitan transportation plans with a focus on megaregions-scale projects and programs.

Over the long term, transportation agencies affiliated with PAQG could potentially prioritize investments to meet the needs of the larger megaregion, extending beyond the State and metropolitan area planning boundaries. According to ARC staff, a possible direction could be an organization focused on the I-85 corridor, perhaps similar to the I-95 Corridor Coalition, led by the state, MPOs along the corridor, or both.

The organic evolution and membership structure have also presented some challenges for PAQG. First, as noted previously, involvement from transportation organizations and other topical experts is understandably more occasional than consistent, as it would be within the established statewide and metropolitan transportation planning processes supported by the Federal planning requirements. The rotating topics at PAQG summits and the lack of implementation projects may deter ongoing involvement from transportation groups. Second, some key cities and regions located within the megaregion have not been engaged in PAQG activities. This might be due to the PAQG's informal means of growth and recruitment, or similarly, to the relative early stage of the alliance. Third, the diverse,

multi-disciplinary members of PAQG are well-positioned to bring megaregions strategies back to their cities, States, and MPO regions for implementation, but they may face challenges in setting priorities that commit staff time and ultimately, investment resources to megaregions planning efforts. Many of these members may have pressure to devote planning and investment resources to projects within their boundaries. The lack of dedicated funding and administrative staff also makes it difficult to specifically recruit the involvement of local governments, transportation organizations, or other key stakeholders.

PAQG has convened ongoing meetings of its leadership group, hosted regular summits covering critical megaregions issues, and formally and informally encouraged projects that improve quality growth and economic development around the megaregion. These can be considered early and initial steps along the spectrum of planning for megaregions identified in this report.

There are some important new examples of coordination. In November 2013, ARC, and the Birmingham, Hampton Roads, and Nashville area MPOs, met with all of the Piedmont area State DOTs, leaders from several cities, private sector stakeholders, national peer MPOs, and research experts in the two day FHWA and FTA Transportation Planning Capacity Building “Megaregions and Freight Movement Peer Exchange” in Atlanta. The exchange was hosted by ARC, the Center for Quality Growth and Development at Georgia Tech, and the Atlanta Chamber.<sup>42</sup> Also, ARC and the Regional Planning Commission of Greater Birmingham have recently met to explore opportunities for planning collaboration along the I-20 corridor.

<sup>42</sup> FHWA. “Megaregions Freight Movement Peer Exchange,” November, 2013. Summary report and video: [http://www.fhwa.dot.gov/planning/megaregions/reports/freight\\_movement/](http://www.fhwa.dot.gov/planning/megaregions/reports/freight_movement/)

## Southern California Case Study

### Structure and Governance

The Southern California megaregion includes six counties (Los Angeles, San Bernardino, Riverside, Imperial, San Diego, and Orange) and encompassed a population of approximately 21 million in 2000. The population is expected to grow to 28 million by 2030. The megaregion contains the largest ports in the U.S. and key international border crossings. The megaregion's gross domestic product (GDP) is \$900 billion, representing the majority of California's economic activity and seven percent of the U.S. GDP.

As the Southern California megaregion plans for future growth, issues for transportation include:

- International borders and trade
- Goods movement (regional, State, national, and international)
- Ability to leverage funds for transportation infrastructure
- Reduction of greenhouse gas emissions

The megaregion has not developed a formal organizational structure or institution to address or discuss these and other transportation issues. Rather, transportation stakeholders from across the megaregion convene to address specific issues through the production of plans and projects described later in this case study. Individual organizations take leadership roles in megaregions plans or projects, based on the organizations' expertise, geographical or jurisdictional context of issues and problems to be addressed, and the project proposed. The informal structure of megaregions activities works well for the organizations involved, preserving independence while also fostering collaboration on key, cross-regional issues.

California has a tradition of strong regional planning directives that concentrate planning and financing authority at the County, regional, or metropolitan planning organization (MPO) level. The [San Diego Association of Governments](#) (SANDAG) brings together the governments of 18 member cities and San Diego County. In addition to its authority as the MPO to plan for transportation policy and investments for the region, SANDAG also has authority to build transportation infrastructure, and does so for all projects developed for the region's extensive transit and rail systems. It serves as a State Consolidated Agency, a Council of Governments, and a Regional Transportation Planning and Funding Allocation Agency, and manages air quality conformity and congestion management programs for the county. SANDAG's authority extends beyond the transportation realm to include waste management, housing,

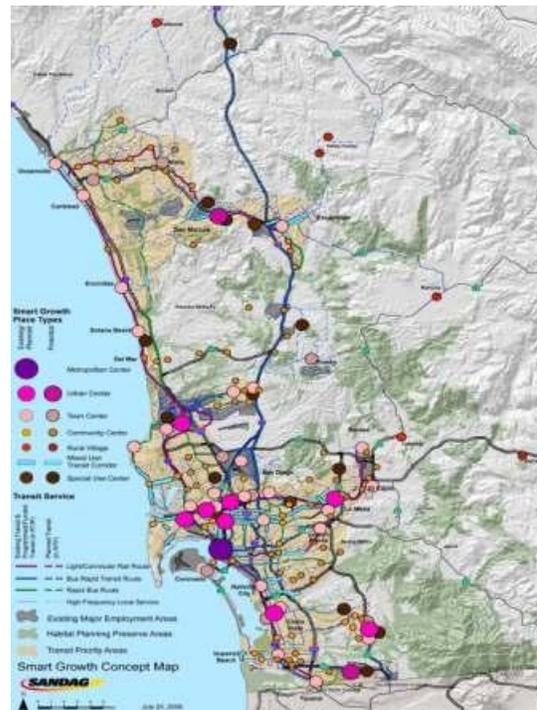


Figure 12: San Diego area map

data, and habitat conservation and provides a great deal of flexibility for planning and implementing programs.

Although SANDAG staff describes a degree of geographic and cultural separation from other parts of Southern California, megaregions issues like freight, border commerce, and compliance with State greenhouse gas and smart growth legislation establish the importance of working closely with planning partners outside its formal jurisdiction.

California provides the authority for voters to approve county taxes for transportation purposes. All six counties in the Southern California megaregion have a special transportation sales tax that they can use to leverage state and Federal funds. In San Diego County, voters first approved the [TransNet](#) half-cent sales tax in 1988, and re-approved it in 2004 for a 40 year period (by a two-thirds majority). The tax supports highway, transit, and local road projects (SANDAG designates approximately one-third of tax revenue to each of the three project categories). SANDAG also uses congestion pricing and tolling as a source for locally-based financing of infrastructure.

### **Congestion Relief**

Congestion related to transportation is a major challenge for the megaregion. The region's roads, ports, airports, and border crossings already experience high levels of traffic and congestion. Automobile and truck vehicle miles traveled (VMT) is expected to continue to outpace population growth over the next several decades, further exacerbating congestion. Regional leaders view congestion as a critical impediment to improved economic competitiveness.

### **Goods Movement**

Goods movement is one of the megaregion's priority means to maintain the economic competitiveness. While goods movement does not generally attract vocal support from the public, transportation agencies across the megaregion recognize its importance in terms of the regional economy. The Long Beach and Los Angeles ports account for the vast majority of goods movement in the megaregion, and the activities affecting these ports impact goods movement throughout the megaregion. Although SANDAG is an active participant in megaregions freight coordination, the MPO generally does not play a leadership role for freight issues due to the prominence of the Los Angeles and Long Beach ports within the planning jurisdiction of the Los Angeles area MPO, the Southern California Association of Governments (SCAG). The exception is for international surface freight, where San Diego County has a major land port presence.

In Southern California, the need to coordinate freight was the impetus for formation of the megaregions-scale working group composed of seven transportation agencies around Southern California to develop the [Multi-County Goods Movement Action Plan](#) (MCGMAP). The availability of approximately \$2 billion in California bond funds dedicated to goods movement provided additional motivation to address freight-related impacts. The bond was based on a ballot initiative passed in 2006, which also included \$1 million to address freight impacts. Participating transportation agencies that convened into the MCGMAP Technical Advisory Committee (TAC) in 2004 include:

- [Los Angeles County Metropolitan Transportation Authority](#) (Metro)
- [California Department of Transportation](#) (Caltrans)
- [Orange County Transportation Authority](#)
- [Riverside County Transportation Commission](#)
- [San Bernardino Associated Governments](#) (SANBAG)
- SANDAG
- [SCAG](#)
- [Ventura County Transportation Commission](#).<sup>43</sup>

The study covers San Diego, Los Angeles, Ventura, San Bernardino, Riverside, and Orange Counties, and includes the Ports of Los Angeles and Long Beach, airports, rail, and highway corridors. The seven agencies created the plan to address environmental, congestion, and economic concerns related to goods movement. The participating agencies developed the MCGMAP to provide a consensus-driven, feasible plan that would be credible, supportable, and fundable. It compiled existing freight and passenger data across the planning region, assessed growth in freight demand, and evaluated impacts. MCGMAP then identified strategies for improving goods movement and for mitigating impacts on local communities and environment. The result is an action plan with institutional and funding arrangements to support implementation. Individual transportation agencies will be responsible for implementing projects within their county, including overseeing appropriate local planning processes and environmental analyses. Although the MCGMAP does not supersede existing RTPs or STIP, the plan's findings and recommendations will be reflected in future RTPs of the MPOs and County short- and long-range transportation plans.

Caltrans published its Phase I and II GMAPs in 2005 and 2007, respectively.<sup>44</sup> The State GMAP outlines the guiding principles for statewide goods movement and the implementation steps to spend \$3 billion for goods movement available from the 2006 transportation bond. The MCGMAP is consistent with the State GMAP and includes all projects listed on the State GMAP for southern California. However, the MCGMAP goes beyond requirements from the State GMAP by including other projects unique to the region. While the MCGMAP provides strategic approaches to gaining funding for projects, it does not propose a specific funding plan.

In addition to its work with the MCGMAP, SANDAG is in the process of creating a Regional Freight Strategy to define and plan for the region's future role in global trade. As an interim measure, SANDAG has a [Goods Movement Action Plan](#) (GMAP) listing prioritized freight projects based on objective criteria. The GMAP includes projects for air cargo, border, maritime, pipeline, rail, and highway as well

<sup>43</sup> The participating agencies include MPOs (SANBAG, SANDAG, SCAG), County Transportation Authorities and commissions that work with MPOs (Riverside, Ventura, Orange), and the State DOT.

<sup>44</sup> The California [Goods Movement Action Plan](#) offers overall guiding principles for goods movement in the State and a list of priority projects. The MCGMAP TAC and SANDAG used these principles and projects as key elements in their GMAPs, which they then supplemented with their own regional priorities.

as cost-estimates and rankings by mode. SANDAG developed the evaluation criteria to reflect the goals of its RTP as well as of the State GMAP.

### **International Border Crossing**

Goods movement across the U.S. and Mexican border is a critical component of regional freight and economic activity – contributing both to congestion concerns and to development opportunities. The megaregion’s economic ties span the border, and transportation organizations collaborate to plan for border crossings that can accommodate the region’s goods and passenger movement. The border spans two counties and MPO regions in Southern California (San Diego County, which is part of SANDAG, and Imperial County, which is part of SCAG).

SANDAG serves as a leader for transportation issues related to border crossing, due to the MPO’s jurisdiction over two major crossing points and the prominence of those border crossings within its overall transportation system. SCAG and other partners around Southern California look to SANDAG for leadership in international border logistics and planning and also coordinate closely with SANDAG on its related planning activities. For example, a representative from Imperial County sits on the SANDAG Board of Directors as an advisory member.

SANDAG works closely with the U.S. Customs and Border Patrol Agency, the Mexican Consulate General, and other Federal, State, and local authorities responsible for managing Otay Mesa, the region’s most significant border crossing for freight, on a Binational Strategic Plan. The Plan calls for a second port of entry at [East Otay Mesa](#), which would be a toll-financed border crossing and offer another alternative to the highly-congested existing crossings. Cross-border financing for infrastructure is a challenge. Currently 1.4 million trucks and \$29 billion in goods pass through the existing Otay Mesa crossings annually. Delays in personal travel and freight movement had an estimated loss value of \$7.2 billion. The new Otay Mesa East Port of Entry (POE) project includes the following:

- Program Development Study
- Environmental Document
- ITS Study
- Bi-national Traffic and Revenue Study

The first stage of construction recently commenced for the new state highway (State Route 11) that will connect to the new Otay Mesa East POE.

### **Sustainability**

While the megaregion focuses many of its collaborative activities on goods movement and mobility, the MPOs also have a responsibility to ensure the environmental sustainability of their plans and actions, and those of their transportation partners. The San Diego region and its partners are pursuing environmental policies and programs, directed by statewide legislation. As legislated by California’s Senate Bill (SB) 375, SANDAG is required to implement sustainable transportation practices in the region to reduce greenhouse gases to 1990 levels. SANDAG’s [Sustainable Communities Strategy](#) (SCS) is contained within its Regional Transportation Plan and incorporates actions to assist the region to meet Greenhouse Gas (GHG) Emission targets set by the [California Air Resources Board](#) (CARB).

One of the MPO's key sustainability strategies is the direction of future growth towards urban centers and corridors, which SANDAG has designated hierarchically throughout the County. The SCS also uses multimodal transportation options, transportation demand management strategies, HOV lanes, and other options. SANDAG applies the statewide requirements to manage growth and reduce greenhouse gases to relevant plans and programs across the region. This important first step can help inform and guide environmental sustainability efforts across the megaregion.

SANDAG also reports working closely with other MPOs across California to strategize on technical issues related to implementing requirements from SB 375. The collaboration helps to ensure consistency in greenhouse gas targets and reduction strategies across the State. The MPOs want to use the same tools and forecasting methods as other California MPOs to produce stronger plans and SCSs to submit before the CARB for review. SANDAG has worked with California MPOs beyond the Southern California region as well as those within it on related technical issues, noting that these relationships will improve the MPOs' abilities to collaborate on megaregions issues in the future.

## Lessons

The Southern California megaregion presents several lessons for peer MPOs and their partners as they initiate coordination across MPO boundaries. These include a strong focus on regional priorities, which in this case are international and national freight mobility; coordination of priorities across levels of governments; and the consideration of long-term environmental needs for the region.

1. **Identify priority areas for coordination.** In the case of Southern California, its role as an activity center for international goods movement requires coordinated planning and management from agencies at multiple levels of governance. Transportation organizations in Southern California focus on goods movement and border crossings as the mobility priorities to keep the megaregion economically competitive.
2. **Recognize goods movement as inherently inter-regional.** In developed urban areas without many new, large-scale projects, transportation agencies may lack the impetus and resources to coordinate across metropolitan boundaries. Nevertheless, goods movement necessitates inter-regional coordination; the concept of megaregions planning is an invaluable framework to help transportation agencies achieve this essential coordination for and eventual investment in goods movement projects.
3. **Coordinate local, regional, and State priorities.** The Southern California megaregion must ensure that plans and projects completed at the megaregions level are consistent with current and future plans and programs at the MPO level and with overall State policies. California's regional planning directives provide an overall authority and structure for regional governance that supports progress in these complex areas. Furthermore, State plans and priorities for freight and greenhouse gas emissions reductions have helped to guide megaregions plans and strategies, such as the MCGMAP. Southern California successfully balances State goals with regional needs. Additionally, counties and MPOs must work with local government agencies (both U.S. and Mexican), Federal agencies, private entities, and other partners to ensure that MPO projects and programs consider local connections and goals. This requires MPOs to

simultaneously pursue and balance local interests with those outside their formal planning boundaries.

4. **External requirements invite greater inter-regional collaboration.** State legislation has brought MPOs together to share strategies and best practices in support of high level statewide priorities. SANDAG reports working with MPOs across the State to address the requirements of SB 375. Although MPOs can better meet challenges by working together, it can be very important to have external support from statewide policies or programs. While activities may not directly relate to megaregions in the same way as freight or high speed rail, they do establish the institutional and technical working relationships and structures for communication between MPOs essential to continuing to address interregional transportation in the future.
5. **Integrate environmental sustainability into planning.** California's SB 375 links the reduction of greenhouse gas emissions to regional transportation planning. Through this requirement, SANDAG and other MPOs in the megaregion must create a Sustainable Communities Strategy that governs land use and transportation growth to reduce GHG. Many of the strategies within the SCS also will help develop a multi-modal transportation system with local connections that can strengthen the overall mobility of the megaregion. The SCSs that SANDAG and its partners have developed to guide growth in their MPO regions will also drive environmentally sustainable practices at the megaregions scale.

## Sun Corridor Case Study

The Sun Corridor megaregion encompasses the corridor between Tucson and Phoenix, Arizona, home to 5.5 million residents in 2013. The Sun Corridor's natural resources and quality of life have attracted a high level of growth, and a projected 85 percent of the State's population will live within the corridor at build-out. The population in the corridor is expected to grow to 7.4 million by 2025. Although this case study focuses on planning for the Sun Corridor, which falls entirely within the Arizona, it also highlights related efforts directed toward establishing new inter-regional connections from Phoenix and Tucson to Las Vegas, Los Angeles, Salt Lake City, and the Denver Front Range metropolitan areas; to Mexican border crossings and ports; and to the I-11 corridor.

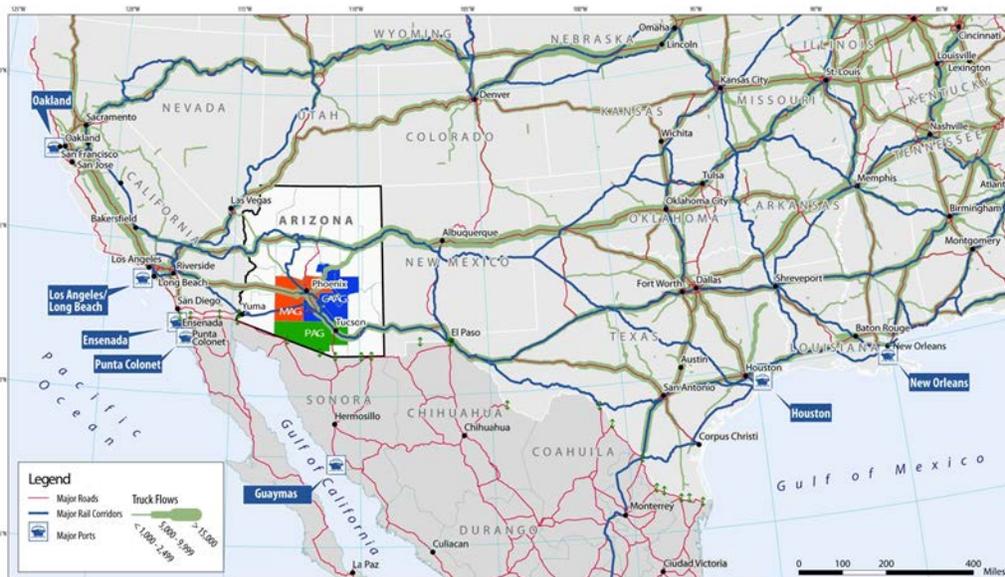


Figure 13: Arizona Sun Corridor

The single-state makeup of the megaregion facilitates partnerships between MPOs and the Arizona Department of Transportation (ADOT) for megaregional-scale planning. These partnerships have led to the creation of a formal Joint Planning Advisory Committee, informed plans for freight and passenger travel on roads and rail, and offered insights into the potential for megaregions initiatives building from the foundation of institutional roles and responsibilities established the current Federal framework for transportation planning.

### Key Issues

The following issues are driving collaboration and transportation planning in the Sun Corridor:

- *Freight Economic Development Opportunities:* Although approximately one-third of the nation's freight is transported through Arizona, more than 62 percent of that freight simply passes through without any economic benefit to Arizona. Key freight connections include Mexico and the Intermountain West Region.

- *Intercity rail:* The region has a goal to institute new intercity passenger rail between Phoenix and Tucson, with eventual connection to Nogales on the Mexican border and other points outside the region.
- *Land use and natural resource management:* The rapid population growth forecasts are threatened by currently unsustainable land use practices, thresholds for water availability, and concerns for protecting other natural resources.

## Partnerships

Established in 2009, the Joint Planning Advisory Committee (JPAC) connects the three Arizona Councils of Governments (COG) within the megaregion to organize transportation planning activities and studies. Members of the Phoenix area Metropolitan Planning Organization (MPO), the [Maricopa Association of Governments](#) (MAG); the Tucson area MPO, the [Pima Association of Government](#) (PAG); and the MPO for Pinal and Gila Counties, the [Central Arizona Governments](#) (CAG); signed a Memorandum of Understanding (MOU) and a charter to create JPAC and combined planning efforts. Each COG appoints a few of its board members, who are elected officials from jurisdictions within the COG, to serve as JPAC members. JPAC does not have dedicated official staff, but instead relies on staff dedication from its members. While the JPAC is still relatively new, its members have a history of participating in joint planning studies and plan to enhance opportunities for joint activities and general collaboration in the future.

In addition to the JPAC, local government and transportation agency officials from the Sun Corridor are involved in other partnerships that consider transportation needs beyond Arizona. The [Western High Speed Rail Alliance](#) is working to determine the feasibility of, plan for, and develop a high-speed rail network throughout the Rocky Mountains with connections to the Pacific Coast. The Alliance was founded by MPOs, who plan to work with their respective State DOTs to create a rail network connecting their metropolitan areas. The member MPOs come from Phoenix, Las Vegas, Salt Lake City, Denver, and Reno. MAG and PAG are both also involved in the Four Corners Council of Governments, which meets on an annual basis to discuss issues and policies spanning New Mexico, Colorado, Arizona, and Utah. The Four Corners COG focuses on rural planning and economic development issues, including rural transportation safety, livability in rural areas, and transportation planning with Tribes.

MPOs in the Sun Corridor demonstrate the importance of megaregions planning through their participation in these partnerships. The JPAC shows a good model for MPOs, working with separately defined metropolitan areas and budgets, to collaborate on large-scale projects and studies. FHWA may even consider culling structural elements of JPAC's organization as criteria to incentivize MPO coordination more broadly. These elements may include the MOU structure that allows the MPOs to share staff resources and jointly fund planning studies through UPWP Federal planning funds. Participation in groups like JPAC, the Western High Speed Rail Alliances, and the Four Corners COG provides a forum to discuss issues of mutual concern and to negotiate the logistics of planning for and funding inter-regional projects.

## Freight Transportation Framework Study

As a megaregion within a network of regional and international activity centers, Arizona transportation planners are using a megaregions perspective to take advantage of freight opportunities in Long Beach and Mexico and add value to the freight routes passing through the Sun Corridor. The first focus project of the JPAC has been the [Freight Transportation Framework Study](#), an effort initiated by MAG with implications for the entire Sun Corridor. ADOT finished the Statewide Freight Plan in 2008, prompting MAG to create a Framework to bring the Statewide Plan to a regional level. Freight is a top priority across the Sun Corridor because the public perceives freight as closely linked to job creation. The Freight Framework Study assessed freight needs for the Sun Corridor and made recommendations on policies and long-term infrastructure investments. The Study considered both the primary freight connections of



Long Beach and Los Angeles and the emerging connections of seaport expansions in Mexico, such as Guaymas and Punta Colonet. The Mexican government solicited bids to develop a large container port, the size of the Los Angeles port, in Punta Colonet, which would open a major alternative port to connect China to the United States (currently Los Angeles and Long Beach ports are the two busiest ports in the U.S.). The Framework Study looked at the possibility of an inland connection to Punta Colonet to further improve connections between Asian imports and the rest of the U.S. The Freight Transportation Framework study identified freight economic development opportunities on a local and regional level. The study identified 16 freight focus areas in the Sun Corridor that are current or future freight activity centers (see Figure 3).

Figure 14: Freight Focus Areas

The Freight Transportation Framework Study follows MAG's other Framework Studies, which are cross-cutting, long-term visions to identify and prioritize future transportation needs within a defined mode or sub-regional area expected to experience intense growth over the next 30 to 50 years. The Framework Studies provide an opportunity for MPOs and State DOTs to conduct transportation planning in greater depth and over a longer time horizon than the MTP process allows. One way that MAG coordinates funding for these studies is to enlist the financial support of jurisdictions within the study area; the requirement of funding from these local governments increases their commitment to implement the recommendations of the Framework. Other examples of Framework Studies include MAG's [Regional Transit Framework Study](#), the [I-10/Hassayampa Valley Transportation Framework Study](#), the [I-8/I-10 Hidden Valley Transportation Framework Study](#), the [Central Phoenix Transportation Framework Study](#), and the [Wickenburg Transportation Framework Study](#). MAG's Framework Studies have fed into the

Building a Quality Arizona ([BqAZ](#)) planning process, which has created a draft comprehensive statewide multi-modal transportation planning framework.

The Framework Studies allow one lead agency to bring together an interdisciplinary group of partners to intensively examine a future transportation issue that cannot be sufficiently addressed within the MTP planning process. MAG and ADOT have begun to work through the logistical challenges in managing and funding these studies, which can prove instructive both for FHWA in providing future guidance on long-term planning studies and for other MPOs engaging in similar work.

### **State Rail Plan**

The [Arizona State Rail Plan](#) establishes a vision for a “safe, secure, efficient and cost-effective passenger and freight rail network.” The draft plan, created by ADOT, has goals to improve mobility and access, support economic growth, promote sustainable transportation and land use coordination, preserve the environment, and provide safety and security for passengers and freight. The Plan also proposes a process for evaluating recommendations from the State Rail Frameworks and prioritization of rail opportunities, with intercity passenger rail as the highest priority. The State Rail Plan has a Phoenix-to-Tucson alternatives analysis, and also includes connections to Las Vegas, Los Angeles, and the Denver Front Range metropolitan areas as part of a multi-state megaregion. ADOT hopes to finalize the Rail Plan by the end of 2010.

### **Defining and Planning for a Megaregion**

The Sun Corridor may be one cohesive unit within Arizona, but the region has infrastructure and economic ties that extend across the southwest United States and into Mexico. The overlapping large scale geographic areas point to the key observation that there is no current single or simple definition for a “megaregion.” Rather, the definition of a megaregion is fluid and takes form as MPOs, DOTs, and other public and private sector partners perceive critical unmet transportation needs outside their formal jurisdictions and attempt to address these needs through broadly based transportation planning. Participation by the Arizona DOT and MPOs in partnerships that extend outside of Arizona’s borders is a manifestation of this situation.

The Freight Framework Study established study goals that demonstrated several technical components of megaregions planning. The goals included developing a commodity flow summary with freight flows from California and Mexico; developing an inland port market assessment to determine economic benefits to the Sun Corridor; and identifying current and future funding sources to finance projects that arise from the Framework. The preliminary data collection for the study included interviews with key freight stakeholders; an inventory of land use patterns, consumers, and freight generators; identification of freight needs and deficiencies; and a review of relevant Federal, State, and local policies. MAG and its partners identified goals to address a large-scale issue and established a concrete methodology to realistically meet the needs of a large and complex megaregion. These types of goals and data may also inform future megaregions efforts, in the Sun Corridor and elsewhere, that pertain to other megaregions issues.

Since the completion of the Freight Transportation Framework Study, the JPAC formed a freight and logistics working group that will continue to develop a cohesive freight economic development plan for the Sun Corridor Megaregion.

### Roles of Transportation Agencies

MAG sees its role as providing information to the public, to help State and County leaders identify their needs and priorities for infrastructure development. The MPOs participating in JPAC therefore can offer guidance on megaregions efforts that reflect both metropolitan-area and broader statewide goals. Transportation officials stress the importance of ownership over megaregions activities by participating organizations and their partners, which are based on collaboration and bottom-up planning that has been ongoing in Arizona for the past several decades.

The Sun Corridor megaregion shows promise for continued adaptation of the Federal framework for transportation planning and infrastructure to meet broader megaregions needs. This is based in large part on the lead role that the MPOs and Arizona DOT have taken in establishing partnerships to conduct important aspects of planning for the megaregion. The partnership structures, agreements, technical analysis, and collaborative funding that enable megaregions-scale activities in the Sun Corridor may be instructive for other regions.

### Key Lessons

The Sun Corridor case, founded upon the work of the MPOs involved in JPAC and the Arizona DOT, offers several instructive lessons for collaboration to meet megaregions needs. These lessons can be helpful as models for other MPOs pursuing megaregions planning or inter-MPO coordination. They may also be used for FHWA to consider best practices and incentives for MPOs and State DOTs working within the current framework.

- **Partner with close neighbors and network widely.** The JPAC started with a defined megaregion, consisting of two major metropolitan areas, and is leveraging that partnership to connect with other metropolitan areas nationally and internationally. This allows the Sun Corridor to take ownership over the planning process while thinking broadly beyond the State's borders.
- **Concentrate on a small-scale collaboration to build relationships.** JPAC is starting with one concrete project, the Freight Framework Study, with a long-term time frame. They can use this single project to work through any issues that arise in the course of inter-MPO planning. By starting small, they may best be able to apply lessons from their initial efforts to expand in the future.
- **Use successful tactics from one metropolitan region to expand across the megaregion.** MAG's framework studies have effectively helped the Phoenix region plan for specific modes on a time horizon beyond that of their RTP. Using this proven approach, MAG is enlisting its JPAC partners to consider freight, a truly megaregional concern, across the Sun Corridor.
- **Recognize that megaregions are fluid and may be defined by unmet, multi-regional transportation needs.** In the Sun Corridor, the need for freight connections, inter-city passenger rail, and high speed rail linkages to other major metropolitan areas have spurred partnerships

and collaborations between MPOs, transportation providers, and other stakeholders. The boundaries of these partnerships expand as other metropolitan areas see the benefits of large-scale project planning.

- **Encourage flexible megaregions collaboration.** Using the lessons from the Sun Corridor, FHWA should encourage MPOs and other transportation organizations to collaborate appropriately for their region. In Arizona, intra-State MPO collaboration, through the JPAC and coordination with ADOT, was a logical first step in megaregions planning for transportation organizations. Later, agencies may need greater incentives to expand their collaborative efforts.

## Conclusion: Synthesis and Findings

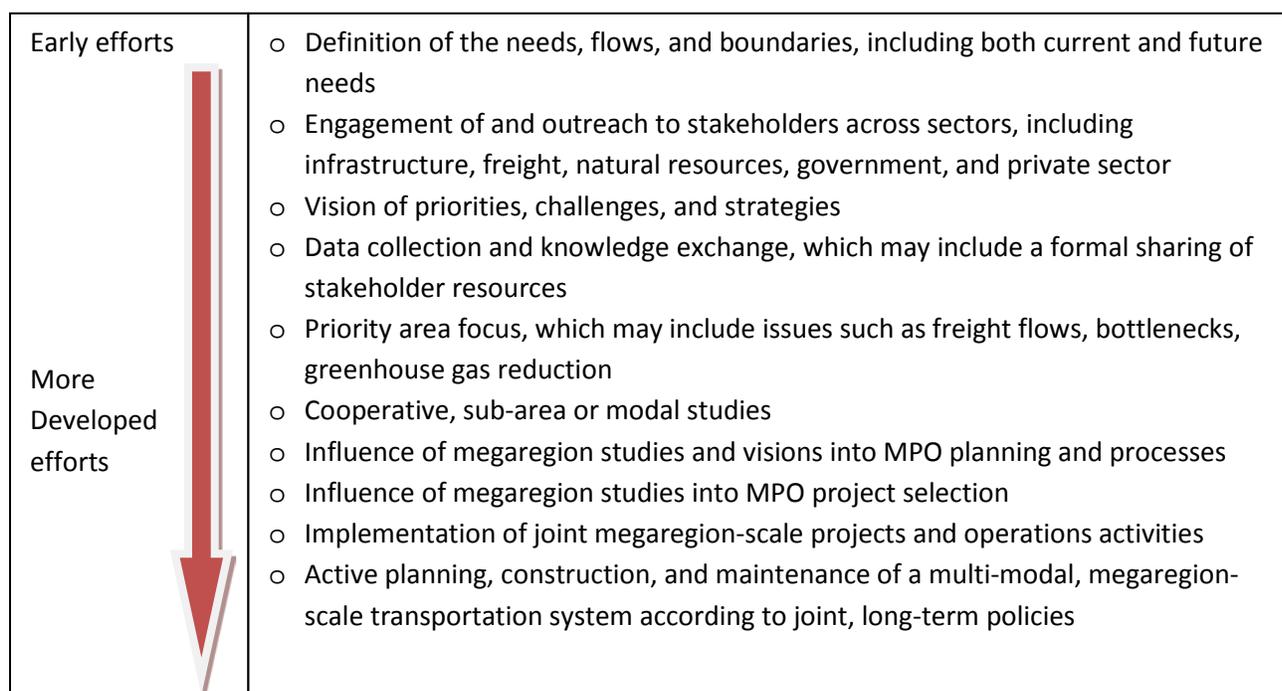
The seven case studies of emerging megaregions initiatives demonstrate innovative ways MPOs and their partners are currently adapting the foundation provided by the Federal planning framework to play significant roles in transportation planning on a megaregions scale. While the case studies represent only a few examples of many megaregions-scale planning initiatives emerging nationally, the planning techniques and institutional structures for governance will be useful for peer agencies as they recognize the challenges and opportunities involved with planning for megaregions.

**Megaregions organizational structures** range from formal institutions with staff, funding, and legal standing to informal voluntary coalitions formed for one-time or continuing purposes, to alliances or committees that provide forums for coordination. All structures initiate thinking about megaregions and may or may not lead to next steps and movement along the continuum defined earlier.

## Evolution of Planning Initiatives for Megaregions

The case studies demonstrate the beginnings of a pattern of evolution, suggesting a continuum of activities related to planning for megaregions, as shown in Figure 3. Although these stages may occur sequentially, they may also occur in any order, or some stages may be completed without undertaking others.

The continuum begins with an initial recognition of transportation needs to extend beyond a focus on a metropolitan area's formal boundaries to formation of early partnerships with stakeholders across the megaregion. In a later stage of the continuum, a more fully-developed megaregion initiative might complete joint plans and implement megaregions-scale projects, a task that could take decades of coordination and planning, or not be undertaken for a multitude of local reasons. Some MPOs and partners may complete activities toward the end of the continuum, perhaps creating formal institutional structures or undertaking joint projects, but might not have undertaken earlier stages, such as convening leaders to build consensus or developing a vision plan. The stages may be completed flexibly - megaregions planning participants will prioritize stages along this continuum according to their own unique regional contexts.



**Figure 15: Continuum of Stages for Planning at a Megaregions Scale**

While no case study demonstrates accomplishment of all stages of the continuum, several have advanced through joint goal-setting to engage in targeted megaregions-level studies or establishing formal or informal organizational structures. Other institutions are noteworthy for their early achievements in engaging stakeholders from throughout the megaregion, which may facilitate success in the later stages of the evolution of megaregions initiatives. Examples such as the Central Florida MPO Alliance show evidence of the flexibility of this continuum. The Alliance emerged out of specific work on a regional project (Interstate 4 improvements), representing an advanced stage along the planning continuum, although the Alliance may not have undertaken some aspects of coordination at some of the earlier stages. Figure 2 compares the activities and progress along the continuum of the megaregions initiatives evaluated in the case studies, based on discussions with MPO representatives and review of relevant plans and documents.

		Definition of the needs, flows, and boundaries	Engagement and outreach of stakeholders	Vision of priorities, challenges, and strategies	Data collection and knowledge exchange	Priority area focus	Cooperative, sub-area or modal studies	Studies and visions into MPO planning and processes	Influence of megaregion studies into MPO project selection	Implementation of joint megaregion-scale projects	Multi-modal, megaregion-scale transportation	
Megaregions planning initiatives	Piedmont Atlantic	Full	Full		Part	Part						
	Central Florida MPO Alliance	Full	Full	Full								
	Sun Corridor	Full	Full	Part	Full	Full	Full	Part				
	Colorado Front Range	Full	Full	Part	Full	Full	Full	Part				
	Buffalo-Niagara	Full	Full	Full	Full	Full	Part	Part				
	Southern California	Full	Full	Part	Part	Full	Full	Part				
	I-95 Corridor Coalition	Full	Full	Full	Full	Full	Full	Part				
	Mature Megaregion Initiative	Full implementation of all stages										
	Paler cells indicate partial completion of stage											

Figure 16: Evolution of Case Study Megaregions Initiatives

Across this continuum, planning efforts for megaregions demonstrate a range of participation levels and structures. Participation varies in terms of number of participants, types of organizations represented, and level of personnel that participates. In the Piedmont Atlantic megaregion, municipal leaders initiate megaregions efforts and partner with business and academic experts to attract participants to megaregions summits, including the FHWA Peer Exchange. Summit leaders define and advance the agenda and discussions.

On the other end of the continuum, the I-95 Coalition uses a committee structure that allows many stakeholders to participate in relevant studies and incorporates flexibility to adapt to the Coalition’s needs and emerging trends. The Coalition expands the number and types of opportunities for member participation through this committee structure. However, even large and well-organized structures are

challenged to address the numerous detailed and specific issues that face the large overall region as well as its component sub-regions. There are advantages to both structures, and both are challenged to develop, evolve, and act on a long term program of actions.

## Megaregions Planning Activities and Motivating Factors

The megaregions structures outlined above are largely determined by the motivations for involvement of MPOs and other participants. In most cases, this represents a need to identify and focus on transportation issues that transcend MPO boundaries, such as freight or economic competitiveness, as outlined in the [Case Study Introduction](#). Once established, megaregions planning initiatives are not an end in themselves; rather, they can foster new activities to address the needs of MPOs and other participants to meet their own needs by looking outward, beyond their formally-designated metropolitan area, State, local, or modal boundaries. Both motivation and the planning activities that follow help attract and expand participation and shape the future direction and outcomes of planning for the megaregion.

The following observations are drawn from the case studies and analysis presented in this report, and are offered to assist peer MPOs and their partners as they consider how they might contribute to planning on a megaregions scale.

- **Visioning is an effective method to help regional stakeholders think broadly and strategically about needs and interests.** Visioning allows consideration of issues that transcend any one organization's boundaries or responsibilities; but this comes with both advantages and limitations for megaregions institutions. Visioning is:
  - Open to multiple interests and helps the megaregion define its long-term opportunities, needs, and priorities.
  - Can link directly to specific projects, studies, or joint MPO efforts.
  - Allows consideration of new or challenging goals, over a long time horizon.

Since the exchange of ideas, debate of priorities, and movement toward consensus are not directly tied to near term expenditure of scarce resources, visioning supports candid exchanges on critical strategic choices – problems and opportunities. A megaregions scale can fit well, and be introduced in a collaborative manner, in contrast to more immediate debates about funding priorities for the long range plan or TIP, which must balance revenues and expenses, or immediate debates about spending to meet needs within versus outside the metropolitan area.

However, visioning often lacks a structure for implementation and ability to demonstrate immediate, concrete benefits for participants. This can be overcome by eventually linking the visioning to established planning processes within the MPO's boundaries, with the long range plan determining the direction of the metro area and guiding fiscally constrained investments in the TIP.

- In the I-95 Corridor and Central Florida megaregions, leaders attracted participation by connecting the megaregions visioning with the goals and visions of individual organizations, such as MPOs.

- Visioning leaders may successfully enlist MPO participation in planning by asking them to share elements of their MTP goals, visioning or scenario planning efforts. Conversely, for MPOs undergoing visioning efforts, the megaregions effort may help them better conduct visioning in their own region and open new options for accomplishment of goals, for example to improve freight flows and related economic opportunities.
- **Planning topics of priority interest can provide an initial impetus for stakeholders to come together in a megaregions forum.** Topics can respond to Federal priorities or emphasis areas, such as freight, safety, air quality, or ITS, or originate at the local level. MPOs may have funds set aside to plan for these areas but not directly for megaregions planning in general. Other topics that attracted attention in the case studies related to megaregions include traffic data coordination, operations, air quality nonconformity, high speed rail, and land use and development patterns. Among the case studies, megaregions institutions that focus on freight appear to produce initial tangible project outcomes.
  - Freight is a natural entry for megaregions discussions because freight stakeholders are often private companies with financial incentives to cooperate with partner agencies and transportation needs that clearly are not restrained by metro or statewide boundaries.
  - MPOs currently convene or oversee freight-related technical committees, freight planning advisory committees, and freight data collection, all of which could potentially be expanded to consider freight needs and projects on a megaregions scale.
- **Megaregions planning processes and institutions that begin with one focused project or issue may have greater success in drawing support from multiple parties and evolving further along the continuum.** Megaregions groups often evolve from one common project or area of interest, such as freight, operations, or a major interregional infrastructure project. Establishing the relationships and governance structure for one plan, study, or project can set the stage for future megaregions work. Several case studies demonstrate mature megaregions efforts that evolved organically from a smaller effort.
  - Central Florida MPO Alliance started with an interstate project but was able to move on to the SunRail and to consider high-speed rail, which are more ambitious projects that can attract additional stakeholders to the collaboration.
  - Many activities of the Niagara megaregion evolved out of their existing coordinated operations management approach (through NITTEC) and completion of the Bi-National Transportation Strategy.
- **Megaregions are beginning to recognize the value of performance measures and performance-based planning for the future.** MPOs engaged in early efforts to plan for megaregions recognize the importance of measuring their progress across jurisdictional boundaries, although these efforts are at early stages. Performance measures can play a role in aligning planning across States and TMAs, beyond shared visions and goals. As one example,

NITTEC tracks measures for operational categories across the jurisdictions of its fourteen member agencies. Progress by MPOs, and their DOT and transit partners to develop performance based planning processes, including in response to the MAP-21 emphasis on performance management, has the potential to carry forward into their efforts related to megaregions. This is an important opportunity for research and technical assistance.

- **State policy, regulations and guidance can support, shape and strengthen megaregions activities and planning.** As demonstrated in the case studies, State legislation has compelled or encouraged MPOs to align megaregions scale planning and projects with State goals and objectives. For example, SANDAG created a Sustainable Communities Strategy that influences their long-range planning for megaregions, based on requirements of California’s Senate Bill 375.<sup>45</sup>

## Boundaries, Definition, and Scale

While some megaregions participants quickly reach consensus over practical definition of boundaries and definition for planning, most continue to define and discuss the definition of their megaregions throughout their planning efforts. Unlike the legally defined boundaries for MPOs and DOTs, megaregions boundaries exist only as useful for planning and project development, and are shaped both by technical data and analysis, and political support. The case studies suggest several lessons about the boundaries and scales of megaregions:

- **The scale of a megaregion often shapes its planning activities and organizational structure.** The issue of scale is closely related to the planning stages along the continuum defined earlier. In the case of the I-95 Corridor Coalition, the vast scale of the corridor has necessitated a clear structure and organized means of coordination to ensure meaningful involvement for stakeholders across the corridor. In comparison, the Central Florida case study demonstrates how various planning participants within one metropolitan region are working together across multiple topics in a manner way that will likely be instructive if megaregions-scale efforts evolve and expand in the future.
- **MPOs and partners need flexibility in defining boundaries for megaregions planning initiatives.** The boundaries and scales of megaregions are fluid and must be defined differently by each megaregion, or in some cases for each project within a megaregion. MPO leaders emphasize the need for flexibility to fit megaregions work within changing regional priorities and Federal guidance. For example, the Sun Corridor megaregion is working with an intra-state group on a freight study but also partners with other State and international stakeholders for rail and larger freight issues. Some MPOs might participate in multiple megaregions or undertake one initiative within a large megaregion and another within a sub-region.

<sup>45</sup> Institute for Local Government, “The Basics of SB 375,” Accessed October, 2014: <http://www.ca-ilg.org/post/basics-sb-375>

For example, NYMTC and NJTPA are involved in the broader initiatives of the I-95 Coalition as well as climate resilience and smart growth planning within the New York-New Jersey-Connecticut sub-region.

## Governance and Structure of Megaregions Institutions

Figure 2 in the [Case Study Introduction](#) describes factors that affect how participants develop structures or institutions to guide planning at a megaregions scale. Within those case studies, there are two basic models of megaregions structure and growth: 1) project-based; and 2) coordination forums.

- **Project-based megaregions institutions are initiated as stakeholders come together for specific** megaregions-scale projects. Relationships and structures developed in the course of the project work lead to a more formalized megaregions structure, agreement, or institution, which can then adapt to pursue new topics.
  - Benefits:
    - By virtue of convening around a specific problem or task, the group often brings sophisticated insight and context to project planning not possible from any one organization.
    - This level of analysis can save financial and staff resources, reduce planning time and duplication, and produce stronger results through shared ideas and expertise.
  - Examples include:
    - In the Central Florida MPO Alliance, two MPOs joined to work on an interstate project that spanned the MPO regions.
    - Stakeholders in the Front Range megaregion came together for a CDOT implementation study to examine the relocation of freight rail to a corridor separated from the population centers along the Front Range. The advanced collaboration and consideration of the costs and partnership needs of a large-scale infrastructure project will promote streamlining of this very large project in the future, should it continue.
  
- **Megaregions institutions and structures serve as a coordination and communication forum across an identified megaregion or corridor.** Often these forums begin with a focus on a specific topic or concern, such as ITS, and expand to include a large number of programs.
  - Benefits:
    - Participants can apply structured communication and coordination for other uses.
    - Low barriers to entry and participation.
    - Easy to expand topics of interest to address shared needs and attract new types of participants.
  - Examples:

- The I-95 Corridor Coalition and the Piedmont Alliance for Quality Growth are two megaregions institutions, representing different scales and levels of evolution along the continuum described above; each provides a valuable forum to discuss megaregions issues and will continue to evolve to meet the needs of its participants.

Both types of structures or institutions can guide and facilitate coordination and cooperation among MPOs and other stakeholders by:

- Providing tools and data for MPOs to use in their own regions;
- Providing a forum for communications between MPOs, State DOTs, transportation providers and authorities, and other key regional stakeholders; and
- Leading studies or other projects that bring stakeholders together to address a common issue and work toward a common result.

Some MPOs have used signed agreements, such as MOUs and MOAs, to formalize partnerships with other MPOs, State DOTs, and other megaregions stakeholders. MPOs have used these agreements to commit Unified Planning Work Program (UPWP) funds or other staff resources to megaregions-scale projects and to form joint committees for megaregions projects and studies.

In bringing multiple stakeholders together, efforts to plan for megaregions may have to compete with coordination efforts within the metropolitan region. Several of the case studies highlight successful efforts of a single large city or a pair of cities in which a metropolitan or regional institution brings multiple stakeholders together to address problems across a wide metropolitan area (one that contains several MPOs). In many cases, the multiple MPOs serving major metropolitan areas and cities may be challenged to coordinate among themselves; these demands to work together will likely take precedence over megaregions planning. MPOs that have dedicated capacity, funding, or other incentives to work on megaregions planning might be better equipped to work across regions on these issues. Due to its public and private sector joint leadership, the Central Florida MyRegion.org model has been extremely successful in bringing stakeholders together from outside of their jurisdictions or sectors to work across borders and to develop and act on a larger scale transportation vision.

## **MPO Roles and Recommendations**

MPOs participate in and help develop megaregions institutions or organizational structures and processes out of the need to engage in planning and coordination to respond to infrastructure and mobility issues that extend beyond MPO's individual planning boundaries. MPOs initiated the creation of megaregions institutions in the cases of the Joint Planning Advisory Committee in the Sun Corridor and the Central Florida MPO Alliance. MPOs have the potential to encourage stakeholders in other sectors to participate in coordination on megaregions-scale issues that can include but not necessarily be limited to direct transportation concerns.

In other cases, MPOs are more recent participants that become engaged because the MPOs recognize the benefits of megaregions planning or because other regional leaders recognize the importance of

metropolitan area transportation systems in planning to meet the mobility and economic development needs of the megaregion and seek out participation by MPOs. The following observations from the case studies recognize opportunities and challenges from MPO participation in megaregions initiatives.

- **Megaregions institutions rely upon MPOs to implement studies or programs that arise from transportation planning efforts for megaregions.** MPOs can incorporate information or recommendations from these studies or programs in their Plans or TIPs and plan to allocate Federal, State, or local funding to policies, strategies, projects, or additional studies that address megaregion-scale needs. Some of the MPOs studied successfully incorporate strategies and products (developed by megaregions institutions) into their plans. Other MPOs link their visions and goals to those of the broader megaregion but have not yet planned to include megaregion-scale projects in their long range plans or TIPs.
- **MPOs are more likely to participate in megaregions planning institutions if there is a clear and tangible benefit to the MPO.** Federal and State regulations, policies, and programs, combined with local needs, shape priorities the MPO reflects in the metro plan; local government members of the MPO and modal transportation agency partners often concentrate on localized needs and projects for their formal jurisdictions. While MPO staff may appreciate the long-term benefits of megaregions planning, they often lack the budgetary flexibility to devote time or resources to planning or investing in these efforts. However, several megaregions institutions or structures effectively recruit MPO participation by offering the following benefits:
  - MPOs that view megaregions-level collaboration as assisting them to more efficiently and effectively meet their existing responsibilities are more likely to become involved. This may include completing regional freight plans, as in the Sun Corridor; collecting data from neighboring MPOs, as in the I-95 Corridor; or completing the Multi-County Goods Movement Plan, as in Southern California.
  - The megaregions coalitions, committees, and alliances offer forums for the coordination and discussion of important cross-regional issues, such as freight and ITS. MPOs generally do not have another platform for coming together to address these issues at this geographic scale. In several cases, relationships gained through megaregions efforts facilitated sub-regional MPO coordination. As evidenced in the I-95 Corridor Coalition, MPOs that came together as part of a large corridor effort also coordinated with their neighboring MPOs for regional projects, including the climate resilience and smart growth examples in the case study.
  - A megaregions framework would support global competitiveness by serving economic and transportation infrastructure links between metropolitan regions.
  - A megaregions-scale can be adapted to simultaneously address social, economic, environmental, and infrastructural issues, as well as to address links between these sectors within a region.

The following are recommendations to consider for MPOs interested in pursuing megaregions transportation planning.

- MPOs and other leaders of megaregions initiatives may consider defining megaregions based on forecasted trends and shared needs across the larger region, with flexible boundaries and participation to accommodate future changes of needs or expanded focus.
- Open and regular communication has been the cornerstone of success for the successful case study megaregions efforts. Leaders of megaregions initiatives were able to articulate a purpose for meetings to keep participants engaged. Establishing shared priorities and goals and discussing intersections between projects of regional significance are two examples of low-cost discussion topics or strategies to bring and retain stakeholders at the table.
- One MPO representative recommended that a designated small management group was instrumental in the accomplishments and organization of its megaregions activities. A core group of stakeholders can more efficiently manage megaregions issues and designate subcommittees or working groups, composed of participants from multiple sectors and areas, to address specific problems or topics.
- Megaregions coordination can help MPOs address challenges in creating accurate cost estimates and revenue forecasts. MPOs can consider improving communication across boundaries to improve estimates and seek consistency for large-scale projects.
- MPOs could consider including transportation stakeholders from outside the region in consultation related to major plans and projects within the metro area. Surrounding MPOs, transportation authorities, resource and regulatory agencies, and others could offer important perspectives and identify opportunities for coordination on MTPs, large-scale infrastructure projects, and studies of regional concern, such as freight studies or commuter rail.
- MPOs and other participants in megaregions planning could look to existing coalitions or institutions for models of structures to use to coordinate and manage cross-boundary issues for megaregions. Organizations like NITTEC currently bring together representatives from multiple jurisdictions and sectors to manage operations and communications for transportation systems across the Niagara megaregion.

## Roles for Other Actors in Megaregions Transportation Planning

In examining how different MPOs successfully participate in megaregions initiatives, the case studies also reveal the important and complementary roles of State DOTs, Federal resource and regulatory agencies, the public and other stakeholders. The following observations summarize the importance of stakeholder involvement.

- **State DOTs help coordinate megaregions institutions and facilitate MPO collaboration.** Specifically, State DOTs can serve two primary functions for megaregions institutions:
  - State DOTs can coordinate Statewide plans with neighboring States that share megaregions ties.
  - State DOTs can coordinate relationships and communications between MPOs and resource agencies within States. State DOTs have the opportunity to encourage consideration of megaregions and can use their broader perspective to coordinate transportation planning and programming between MPO regions.

While MAG took the lead on the Framework Studies, for example, in the Sun Corridor, the effort was able to expand and take on a megaregions scale with the support of ADOT.

- **Federal resource agencies are important partners for MPOs in instituting a megaregions planning approach.** Federal resource agencies consider ecosystem-wide benefits or impacts of transportation plans, and may prefer to consider larger areas by consulting with MPOs for transportation plans and projects. Resource agencies with jurisdiction over a large area can work with MPOs and State DOTs to craft mitigation strategies at a megaregions level; these strategies may be more effective than piecemeal strategies.
- **Megaregions-scale visioning overcomes the challenge of public involvement at the megaregions level.** Most case studies and early stage megaregions institutions or structures examined in this report are focusing on coordination between major transportation players in the megaregion. The research team did not identify established strategies to involve the public directly in megaregions-scale planning. There are a few examples of region-wide, large-scale visioning, such as in Central Florida and the I-95 Corridor Coalition, where a designated non-profit organization, working with MPOs, conducts a wide outreach campaign to attract participation in the vision.

Additional stakeholders to bring into megaregions initiatives include transit agencies, local government agencies, businesses, and non-profits.

- Business and non-profit representatives could review megaregion-scale transportation infrastructure plans and projects from the perspective of economic development and jobs creation, among other considerations. The Piedmont Atlantic megaregion has enlisted several strong industry and non-profit participants, who have facilitated important strategy lectures and discussions at megaregions summits. The high level of private sector interest, including the Atlanta Chamber, shippers, and logistics industries, was apparent in the FHWA Atlanta Megaregions Peer Exchange.<sup>46</sup>
  - Individual transit agencies have an important role in developing intermodal connections with rail and aviation. As high speed rail becomes more widespread, transit agencies must be at the table to ensure that regional mobility and local connections are maintained or enhanced. Specifically, transit may provide the “last mile” for a high speed or commuter rail passenger trip or work trip to a logistics distribution center for a multi-modal freight shipment across the globe.
- Cities and counties are interested in maintaining their jurisdiction over projects and funding within their boundaries as well as supporting their role in a vibrant megaregion. Megaregions planning and institutions could provide incentives or make clear the benefits for local agencies

<sup>46</sup> FHWA and FHWA Transportation Planning Capacity Building Program, “Megaregions and Freight Movement Peer Exchange,” Atlanta, Georgia, November 2013. Accessed October, 2014: [http://www.fhwa.dot.gov/planning/megaregions/reports/freight\\_movement/](http://www.fhwa.dot.gov/planning/megaregions/reports/freight_movement/)

to participate. The role of a major city like Atlanta as an engine for an energetic approach to megaregions was apparent in the Atlanta Peer Exchange.

## Next Steps

This report showcases several ways in which MPOs can lead and participate in megaregions transportation planning. Although activities, motivations, and structures will vary, the case studies demonstrate how MPOs and their partners are offering diverse models of successful approaches to participation in planning for megaregions. Each activity assists the MPOs and the megaregions progress through the continuum of megaregions planning, with some regions looking far ahead to an eventual megaregions-scale, multimodal transportation system, perhaps developing with a similar 3-C (Comprehensive, Cooperative, and Continuing) planning process to that employed successfully by MPOs within their planning boundaries, around the country.

The underlying finding of this analysis is that the Federal planning framework can be adapted to provide a supportive foundation for undertaking megaregions-scale planning activities; MPOs cite the need for flexibility in future definition and structure of megaregions initiatives. The sections above briefly highlight some recommended actions for MPOs that are interested in pursuing megaregions planning.

This report opens several topics for further research in the areas of megaregions-scale transportation planning.

This report focuses on planning for megaregions with significant leadership by MPOs. A companion report for FHWA focuses on the relevance of megaregions transportation planning for rural areas and how regional planning organizations and other planning agencies serving non-metropolitan and rural areas can help address the relevance of megaregions for non-urban constituencies.<sup>47</sup>

Additionally, the roles of State DOTs and other regional and national stakeholders are only briefly considered in this report and may be expanded upon in future research, particularly in terms of coordination with MPOs and regional transportation planning organizations.

Other areas of future research may include:

- Successful examples and lessons from planning, constructing, and funding megaregional infrastructure (interstates, air, railroads, green infrastructure)
- Impacts of infrastructure on megaregions economies and industries
- Incentives or structures for collaboration between MPOs and State and local governments
- Dissemination of models of multi-state or interregional collaboration, nationally and internationally

<sup>47</sup>H. Peckett, Daddio, D, and Lyons, W, "Role of Regional Planning Organizations in Transportation Planning Across Boundaries," Report for FHWA, June 2014. Accessed October, 2014:  
[http://www.fhwa.dot.gov/planning/megaregions/reports/regional\\_planning\\_organizations/fhwahep14043.pdf](http://www.fhwa.dot.gov/planning/megaregions/reports/regional_planning_organizations/fhwahep14043.pdf)

- The role megaregions transportation to accomplish cross-sectoral goals, in addition to economic development and global trade, including climate resilience, emergency response, ecological protection, energy conservation, or public health.

FHWA is playing a central role in supporting research and implementation in the area of transportation planning for megaregions, and planning across boundaries.<sup>48</sup> Through continued support of research, supplemented with new incentives and technical assistance for MPOs, FHWA can assist MPOs and other transportation planning agencies to successfully plan for the megaregions-scale challenges that the country will continue to face in the future.

<sup>48</sup> FHWA, "Planning Emphasis Areas for Federal Fiscal Year 2015," Accessed October, 2014: [https://www.fhwa.dot.gov/planning/processes/metropolitan/mpo/fy\\_2015/index.cfm](https://www.fhwa.dot.gov/planning/processes/metropolitan/mpo/fy_2015/index.cfm)

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