



## I-95 Corridor Coalition

# A 2040 Vision for the I-95 Coalition Region

*Supporting Economic Growth in a Carbon-Constrained Environment*

### Executive Summary



I-95 CORRIDOR  
COALITION

December 2008

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## **Executive Summary**

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This report was produced by the I-95 Corridor Coalition. The I-95 Corridor Coalition is a partnership of state departments of transportation, regional and local transportation agencies, toll authorities, and related organizations, including public safety, port, transit and rail organizations, from Maine to Florida, with affiliate members in Canada. Additional information on the Coalition, including other project reports, can be found on the Coalition's web site at <http://www.i95coalition.org>.

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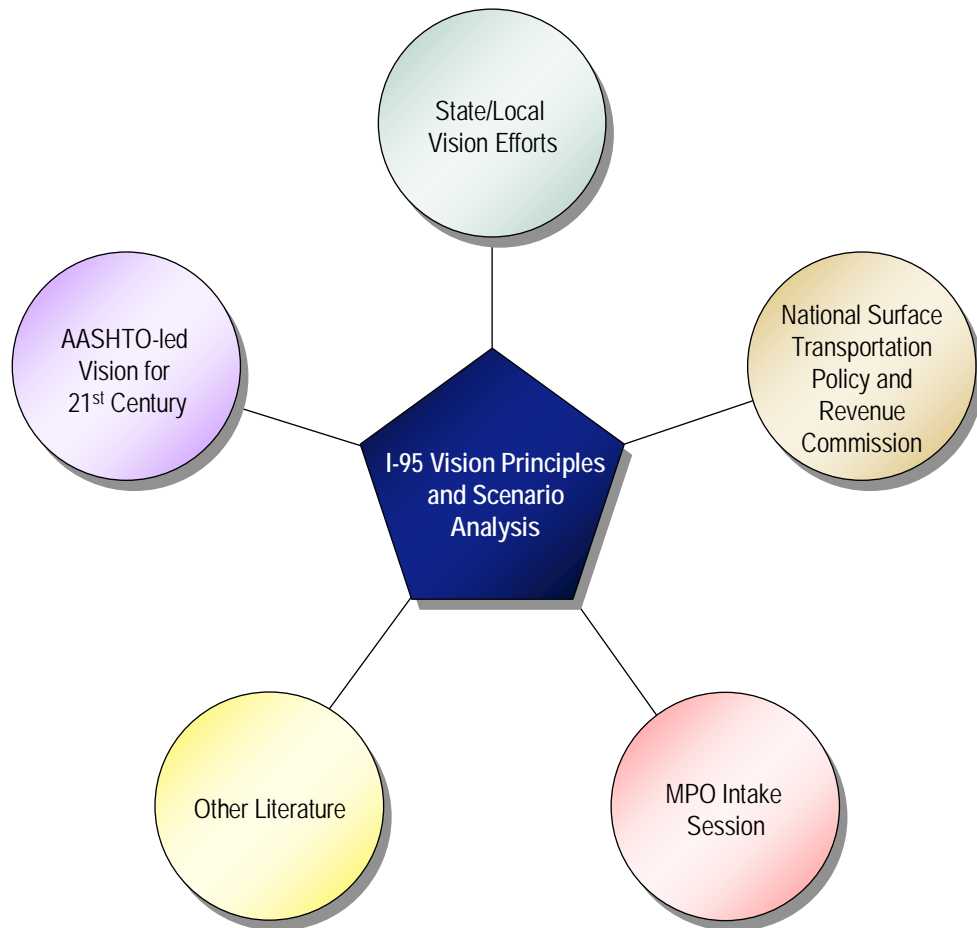
# Executive Summary

## INTRODUCTION AND APPROACH

The I-95 Corridor Coalition's Vision project is a departure from the Coalition's historic role that focused primarily on shorter-term operational improvements in the corridor. In the past, most of the day-to-day issues confronting the Coalition members have tended to be on a subregional scale. Today, however, it is increasingly recognized that there are a range of issues at a larger scale, the most obvious being the movement of people and freight within the north-south transportation corridor along the east coast, involving common concerns ranging from real time operations to improved modal integration and the long-term viability of the system in light of energy and climate concerns. The project, therefore, was designed to formulate and analyze an alternative vision of the future for the entire region – one which accommodates other key values and issues related to climate change, energy, a global economy, and quality of life, while reexamining the traditional modal mix and service options available for passenger and freight transportation in the corridor.

This study has capitalized on a range of recent policy-driven transportation studies oriented to developing a long-range vision for transportation as illustrated in Figure ES.1. The AASHTO led vision summit, National Transportation Vision and Strategy for the 21<sup>st</sup> Century, held May 2007 at Cambridge, Maryland culminated just at the time of scoping for the I-95 Vision project, so it was an important initial building block for the project. The team solicited Vision efforts from states and subsequently held an intake session with the larger MPOs in the region and got their input on related vision efforts and scenario testing in their respective regions. Another key resource was the National Surface Transportation Policy and Revenue Study Commission (Commission) data and analytical tools which were used to support technical analyses for this study.

Figure ES.1 Vision Study Approach



## FUTURE DEMAND

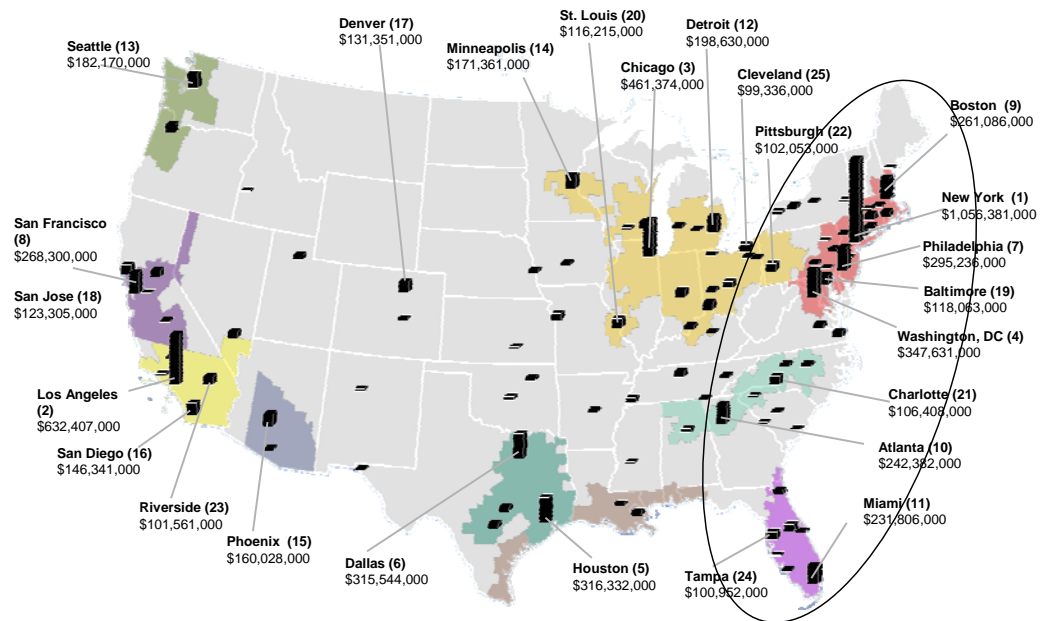
According to 2006 Census population estimates nearly 110 million people lived in the Coalition region. The corridor region occupies 10 percent of the nation's land area but contains almost 37 percent of its population. At 256 people per square mile for the entire corridor region it is over three times more densely populated than the United States as a whole, and notably, densities for many of the states are in the range of many Western European countries. Such densities should, in theory, be capable of supporting higher speed ground transportation in the 100 to 500 mile market. Population within the Coalition region is projected to increase by approximately 36 million people (33 percent) between 2006 and 2040 which will create a Corridor population of 146 million.

The 16 Coalition states and the District of Columbia contributed \$5.1 trillion to the national gross domestic product (GDP) in 2006. This constitutes 38.7 percent of the nation's GDP. If the Coalition region were accounted as a separate country, it would constitute the third-largest economy in the world. The corridor has

42 of the nation’s top 100 metropolitan areas based on population and economic activity. The nation’s top 25 metro areas as measured by GDP are shown in Figure ES.2. Eleven of the top 25 and 5 of the top 10 metropolitan economies (i.e., New York, Washington, D.C., Philadelphia, Boston, and Atlanta) in the United States are in the I-95 region.

The development of metropolitan areas in the region are pretty well understood; less well understood are the new patterns formed where such metropolitan areas tend to blur together into larger complexes. These complexes have recently been labeled as “megaregions.” The Regional Plan Association has identified 10 such megaregions in the United States, 3 of which are in the I-95 region as shown in Figure ES.2

Figure ES.2 Megaregion Trade Areas and GDP of Major U.S. Cities



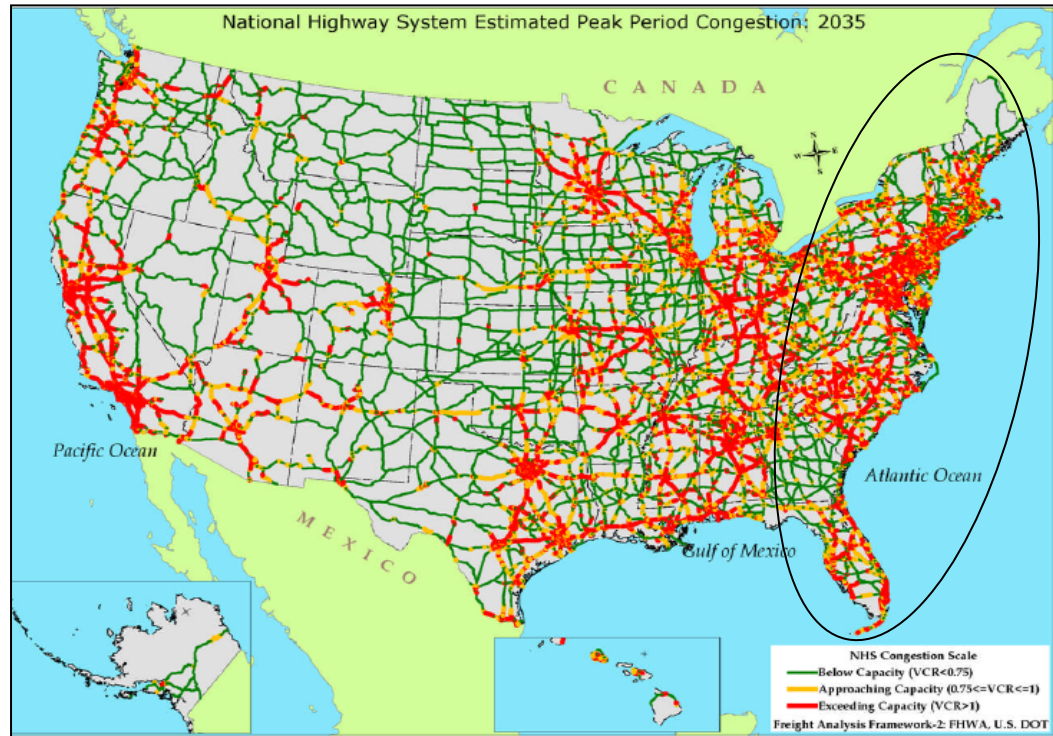
Source: Cambridge Systematics, Inc. based on data from “MetroNation: How U.S. Metropolitan Areas Fuel American Prosperity.” Metropolitan Policy Program, Brookings Institute, Washington, D.C.; and U.S. Census economic data.

## CONTINUING A “BUSINESS AS USUAL” APPROACH TO TRANSPORTATION WILL LEAD TO DIRE CONSEQUENCES

Extrapolating current land-use, travel patterns, mode use, and vehicle miles of travel (VMT) trends out to 2040 would have the following major implications in the I-95 Coalition region:

- A 70 percent increase in VMT.
- An 84 percent increase in urban Interstate delay (hours per 1,000 VMT) and nearly 50 percent increase in delay across all Federal-aid systems. The results are illustrated in the FHWA FAF2 map in Figure ES.2 showing increased congestion spreading widely by 2035 (source FHWA FAF2) without significant capacity addition.
- Despite improving fuel economy in line with current CAFÉ requirements, highway fuel consumption and GHG emissions are estimated to increase 34 percent due to approximately 70 percent VMT increases and system performance degradation.
- Transit, intercity passenger, and freight rail struggle to hold market shares without greater investment.
- Truck volumes could nearly double according to FAF2 trend demand projections; these levels of truck volumes are probably not physically or environmentally sustainable in the region.
- Increasing highway and rail bottlenecks constrain interstate commerce and economic productivity.

Figure ES.3 Congestion Spreads Widely under “Business as Usual” Assumptions



Source: Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework (FAF-2).

## AN ALTERNATIVE VISION FOR THE I-95 REGION

Building on the AASHTO Vision effort and other sources discussed above, a set of vision principles were developed by a collaborative process within the I-95 Coalition to guide an alternative vision for the region from that represented by current trends. A key feature of the principles was the goal of accommodating mobility and economic development while doing so within a smaller carbon footprint and with much less energy use while also promoting land use and quality of life objectives. The principles are summarized below:

### **Economic, Environmental, Energy Vision Principles:**

- Sustain and enhance I-95 regional economic vitality and global competitiveness;
- Support a reduced carbon footprint for the I-95 region;
- Support a sustainable and secure energy future for the region; and
- Support transportation friendly land use development.

### **Transportation Vision Principles:**

- Invest in a 21<sup>st</sup> Century multimodal transportation system for the I-95 region that provides mobility for an increasing population and supports economic growth;
- Support seamless integrated intermodal passenger and freight systems for I-95 corridor region travel;
- Increase the corridor share of passenger miles of travel and freight ton miles that are handled on non-highway modes;
- Support AASHTO's safety goal to reduce fatalities by one-half by 2030;
- Implement advanced operations and technology solutions to support these goals; and
- Increase investment in the I-95 region's transportation infrastructure utilizing all potential revenue and financing mechanisms.

## **WHAT WOULD IT TAKE TO ACHIEVE VISION?**

Achievement of the 2040 Vision principles for the corridor region will require fairly dramatic changes (political, institutional, financial) from the business as usual approach implied by existing trends. Analyses for this study suggest it will require:

- Doubling the fuel efficiency of the region's vehicle fleet and increasing use of alternative fuels.
- Reducing the region's VMT growth to 1 percent per year in line with AASHTO's sustainability goal of cutting; this represents only a 40 percent growth as opposed to the trend projection of 70 percent growth to 2040.
- Implementing the Commission's most aggressive assumptions regarding use of nonhighway modes:
  - Tripling of transit ridership in region supported by transit oriented land use development patterns;
  - Increasing rail passenger ridership approximately eight fold in concert with implementing the 2050 passenger rail vision as presented by the Passenger Rail Working Group to the Commission;
  - Twenty percent increase in ton miles carried by freight rail; and
  - Aggressive short-sea shipping and seamless intermodal connections.
- Deploying aggressive operations with Vehicle-Infrastructure Integration (VII), including both in-vehicle and roadside technology deployment and implementing roadway pricing to manage demand.
- Even with an aggressive investment in the other modes, nearly 15,000 lanes of additional highway capacity needs to be added to improve system performance; much of this is assumed to be managed capacity (e.g., HOT lanes or truck lanes).



- More than doubling surface transportation investments – from about \$32 billion to \$71 billion annually. This assumes roughly doubling of transit investment in real terms, roughly doubling private and public freight rail investments, and a five- to six-fold increase in passenger rail capital investment in the corridor as shown in Table E.1.
- Transitioning to a new financing system as illustrated in Figure ES.4; a VMT fee replaces the fuel tax, congestion fees are added to manage demand, carbon fees are implemented to help stem rise in GHG emissions, and other fees are implemented as needed to increase infrastructure investment.

With the implementation of these bold transportation strategies, the region will also be on path to achieve GHG emissions reductions of 60 to 80 percent by 2050 as compared to 2005 levels by a combination of fleet fuel efficiency improvements, alternative fuels penetration, VMT growth moderation, and aggressive operations delay reduction strategies, as shown in Figure ES.5. The cumulative benefits of these transportation measures represent a 70 percent reduction in highway emissions by 2040, consistent with reaching the 60 to 80 percent GHG emission reduction goals by 2050 as sought in multiple state climate plans, proposed Federal cap-and-trade legislation, and international climate discussions.

**Table ES.1 Investment Needed to Achieve Strategic Vision for I-95 Region**

Mode	Annual Surface Transportation Capital Investment; I-95 Region (2005 Constant \$ Billions)	
	Current Trend	Vision
Transit	\$8	\$15-\$19
Passenger Rail	~ \$0.8	~ \$4-\$5
Freight Rail	~ \$1	~ \$2
Highway	\$22	\$47
<b>Total</b>	<b>\$32</b>	<b>\$71</b>

Figure ES.4 New Financing Model for Region

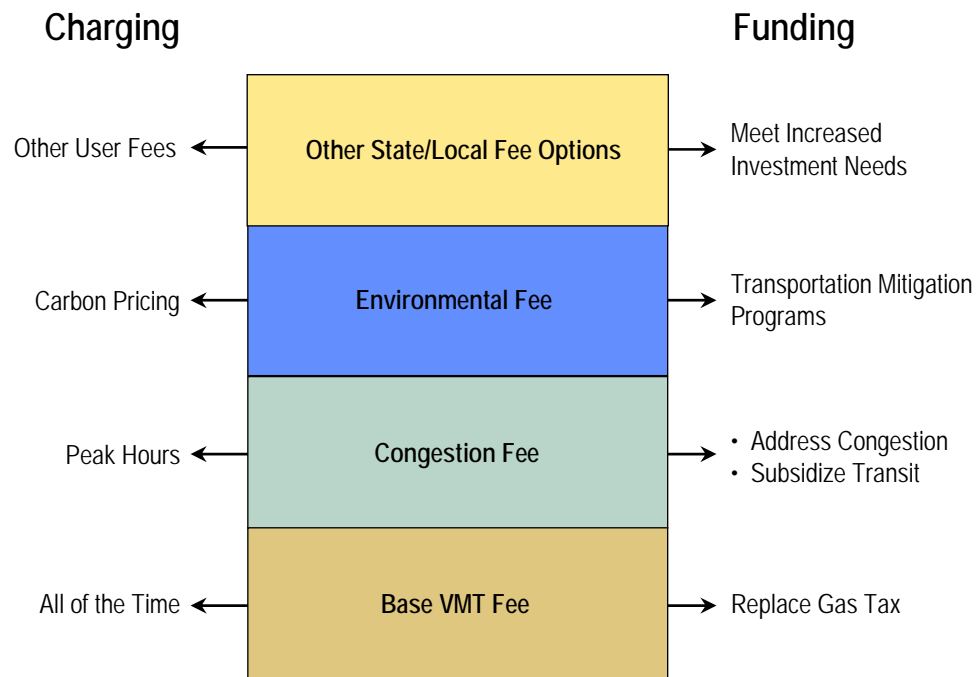
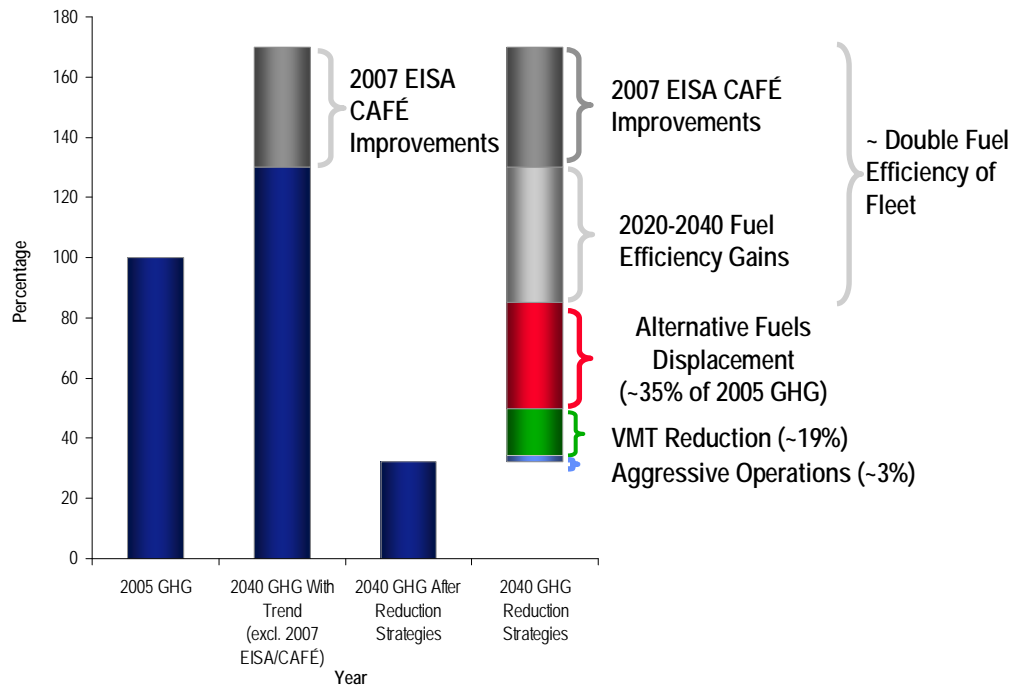


Figure ES.5 Potential Green House Gas Emission Reductions in I-95 Region from Transportation Strategies



## VISION STUDY CONCLUSIONS AND OPPORTUNITIES

The I-95 Vision Study has underscored the broadening of the Coalition in terms of its geographic scope as well as its functional interests. What began with a Northeast focus on the real-time highway operations of I-95 has evolved to an East Coast regional umbrella addressing all modes of transportation as well as the economic vitality and environmental quality issues which are influenced by and which in turn affect transportation.

The I-95 Coalition has reached a new milestone with this 2040 Vision study in reaching a surprising degree of consensus on the transportation, energy, environmental and economic challenges, and opportunities confronting the eastern seaboard region of the United States. The 2040 vision principles and a vision driven scenario that were developed and analyzed for this study illustrate a multimodal path forward for transportation that supports regional economic growth while substantially contributing to emerging energy and GHG emission targets. This bold alternative (to current trends) vision for the corridor region would require implementation of aggressive multimodal investment, institutional, and operation and management strategies as described in the preceding sections. As a point of departure, the I-95 Vision Study offers the opportunity not only for a collaborative vision of the future but for advocating measures that would enhance the quality of transportation, the vitality of the economy, and the contribution of the broad corridor-wide region to issues of climate change and energy. Some of these opportunities may be corridor-wide and others may involve regional geographies or even traditionally competitive areas where a collaborative forum enhances not only the whole but each of the coalition entities individually as well. The most promising opportunities for the Coalition to advance the corridor vision seem to be in the following areas:

- Providing a **regional and systems perspective** that supports coordinated policy, planning, and investment decision-making by state DOT and member agencies.
- Advocating and facilitating **intermodal** approaches in the corridor for both passenger and freight movement.
- Developing **multistate funding approaches** for highway and rail corridor capacity and bottleneck relief. Strategies could range from streamlined pooled funding mechanisms to regional infrastructure banks.
- Providing a laboratory for development and testing of **advanced operations/VII concepts**.
- Hosting and coordinating a pilot/development program for an East Coast, multistate, **VMT user-fee revenue collection system**. The Commission recommended that the next surface transportation legislation provide funding for accelerated development of a VMT-based revenue system.
- Providing a forum for Coalition states to discuss, shape, and coordinate strategies addressing **climate mitigation and adaptation**.

Finally, although there is relatively little that the Coalition can do *on its own* in terms of implementing specific legislative or policy actions that will be necessary to advance this Vision, the Coalition's key role of alerting, informing, testing, and facilitating is not to be dismissed. It is a role that can well improve the likelihood that the established institutions of the region – governmental and nongovernmental alike – will take heed, will define the challenges, and formulate policies and plans of action consistent with the Vision articulated in this report, but at a scale and within a scope consistent with their own geographic and functional realms.