

Sustainability: From Theory to Reality

Pathways to Urban Sustainability: Lessons From the Atlanta Metropolitan Region

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Talking Points

- Connections (**systems**)
- Major drivers and solutions
(**interdisciplinary**)
- Implementation: case studies
and future trends



- **Sustainability mandates interdisciplinary solutions to economic and social challenges and opportunities**

- **Sustainability mandates a “systems “approach**

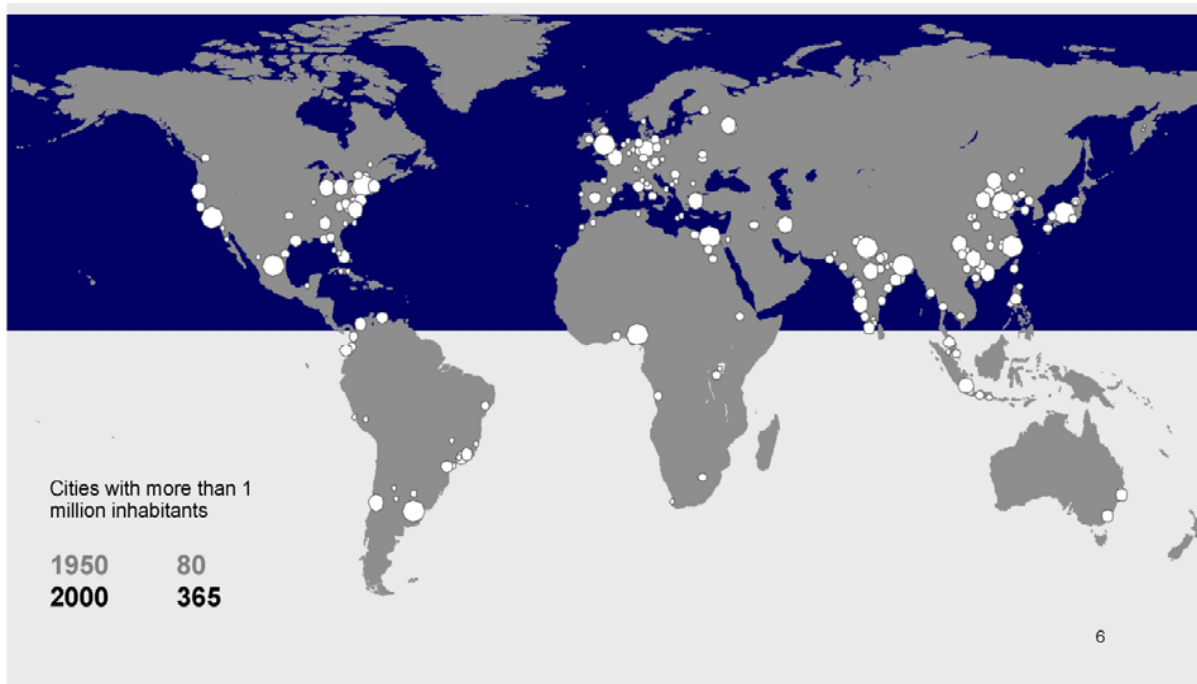
- Greenhouse gas emissions are reduced
- Climate change mitigation and adaptation actions are implemented
- Urban sprawl is minimized
- Non-renewable resources are conserved
- Energy per unit consumption is reduced
- Waste is recycled or disposed in ways that do not damage the environment
- Ecological footprint of cities is reduced

--UN Habitat (2002)

GOALS

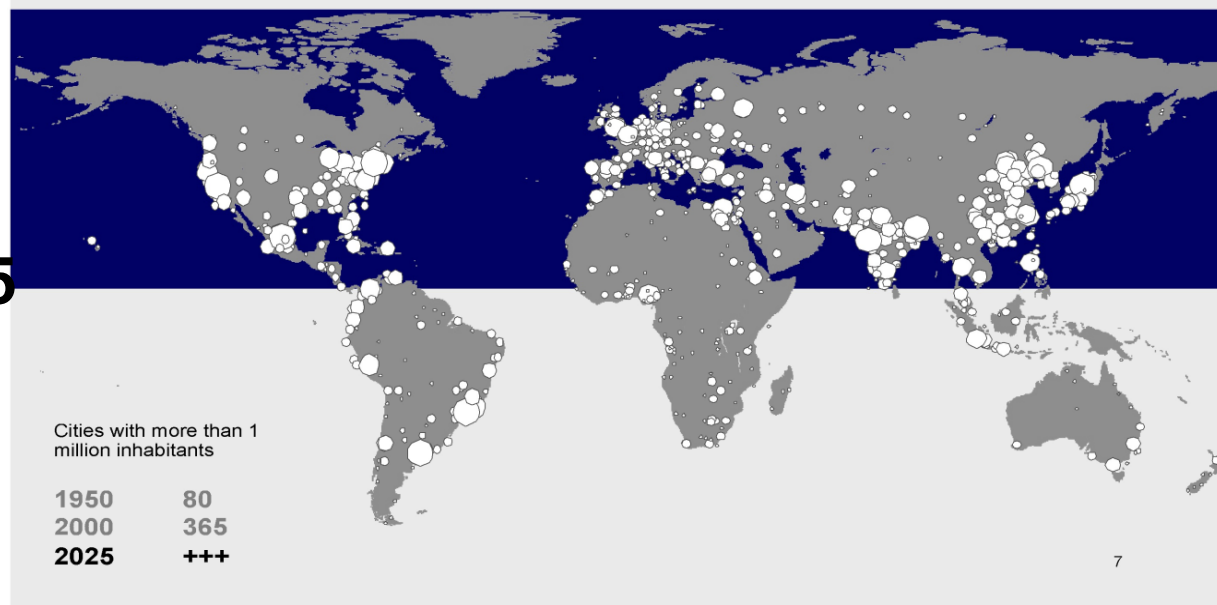
- Growing and balanced economy.
- Environmental, natural and cultural resources.
- Infrastructure and services to support efficient growth and development patterns.
- Access to adequate and affordable housing.
- Coordinate land use planning & transportation planning.
- Coordinate local planning with service providers, other communities and state and regional plans.

WHY?



Cities with more than 1 million in 2000 . . .

. . and in 2025





Systems

Approach ?



A system is a group of interdependent and interrelated components that form a complex and unified whole to serve some purpose through the performance of its interacting parts.



Atlanta's Infrastructure Needs

Global Mobility Needs

Megaregion Mobility Needs

Regional Mobility Needs

City and County Mobility Needs

Community and Neighborhood Needs

Personal Mobility Needs

What is Infrastructure?



Making places livable



**Touching our lives
everyday**



Failing us



**Connecting us to
the world**

Enabling Sustainable Mobility

The important questions are not about engineering, but about **ways to live** – health, education, housing, waste, and social needs.



Infrastructure Needs in Atlanta

Airport for the future

New runway? A second airport? Land side accessibility?

Intermodal Transportation

High Speed Rail

Commuter Rail

The BeltLine

Where mobility, active living and quality of life meet

Livable Centers Initiative

Linking \$\$\$ to principles

Midtown



Infrastructure Needs in Atlanta

Expand Marta

Construct the Multi-Modal Passenger Terminal

Peachtree Streetcar

Expand Pedestrian Access throughout the City

**Establish street design standards
(pedestrians and alternative modes)**

Connect Redevelopment Opportunities



- Get the price right
- Integrate transit, cycling, and walking as viable alternatives
- Fully coordinate land use and transportation planning
- Public education and information
- Stage policies for the long term

Enabling Sustainable Mobility

The mobility system is not only a system of transport... **it's the whole understanding of a city**



The future of mobility has to be considered in terms of **integrated systems, for each piece** – bikes, cars, taxis, subways, rail, buses.

Cases and Trends



PRODUCTION



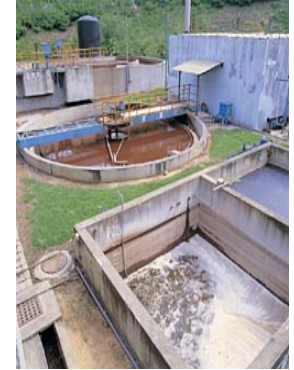
PACKAGING



DISTRIBUTION



CONSUMPTION



DISPOSAL

Farming Scale

Crown Rot
Diseases

High Production
Costs

Yield Loss

Production
Standards

Natural Pest
Control

Labor Standards

Certification

Accreditation

Ethylene

Temperature
Control

Humidity Control

Increased Cargo
Care

Cartons

Pallets

Trays

Plastics

**Centralized
Purchaser**

Port to Purchase
Center

Local Distribution

Impulse Purchase

Small Market
Share

Higher Price

Lower Sale

**Sanitary sewer
system impacts**

Water
Consumption



Preparing for the Future in
Troup County, Georgia

Assessment Report 2008



Quality Growth Audit



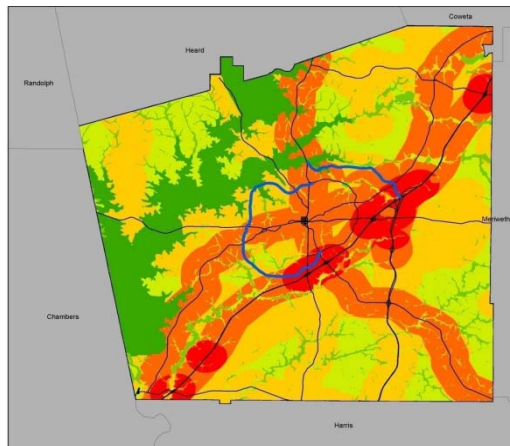
Preparing for the Future in Troup County, GA: A Spatial Strategy for Sustainability

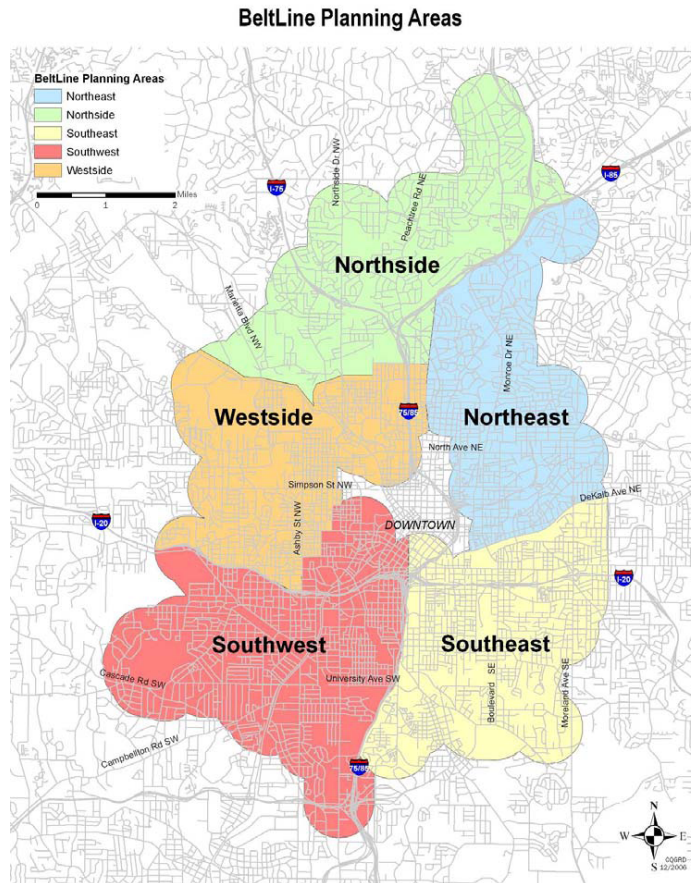
Troup County and the cities of Hogansville, LaGrange, and West Point have undertaken a two-year planning initiative (2007-2009) with Georgia Tech designed to set the course for a sustainable future.

Quality growth audit, population projections, transportation and land use analysis and land suitability analysis, community input (A systems approach).

Recommended changes to codes, ordinances, and development review processes. Troup County and the Cities adopted a development review scorecard and have created a non-profit entity designed to implement the recommendations of the study.

Ricky Wolfe, Chairman, Board of Commissioners, Troup County, GA





Atlanta BeltLine Health Impact Assessment:
HIA study areas
Image source : CQGRD

Atlanta BeltLine Health Impact Assessment (HIA)

The primary goal of the project was to measure the health impacts of the project on affected populations, especially disadvantaged and vulnerable groups, through both quantitative and qualitative analyses and metrics. It has been hailed as one of the best efforts undertaken to date.

Sustainability and Planning : A Matter of Scale

Megaregions represent a new context for American planning.

- **Funding**
- **economic competitiveness,**
- **environmental issues**
- **policy and project selection**
- **Multi-jurisdictional Planning**

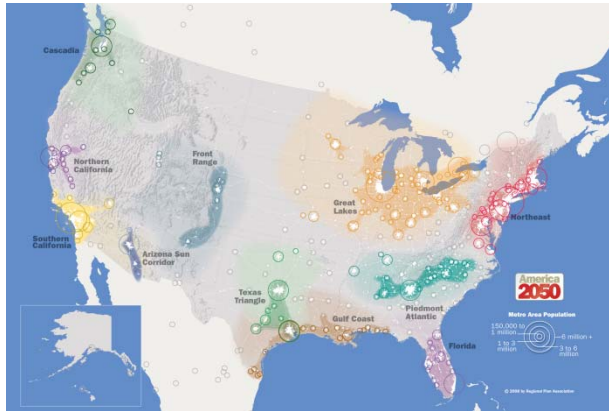


Image source : CQGRD

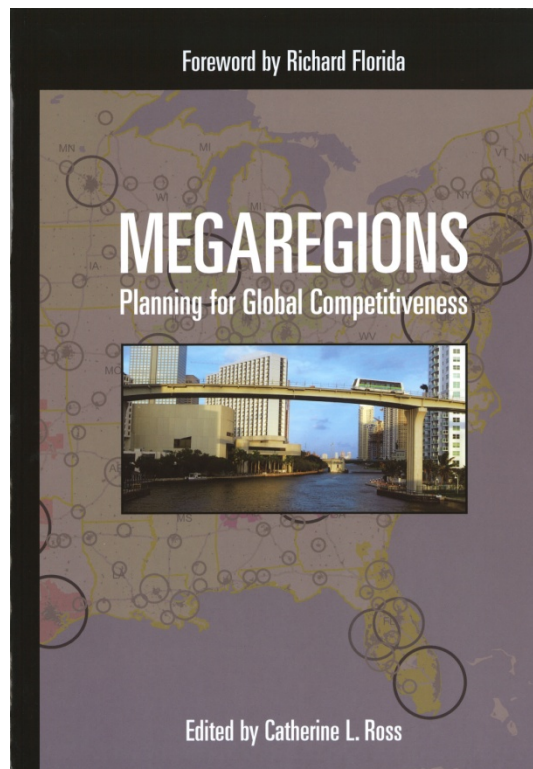
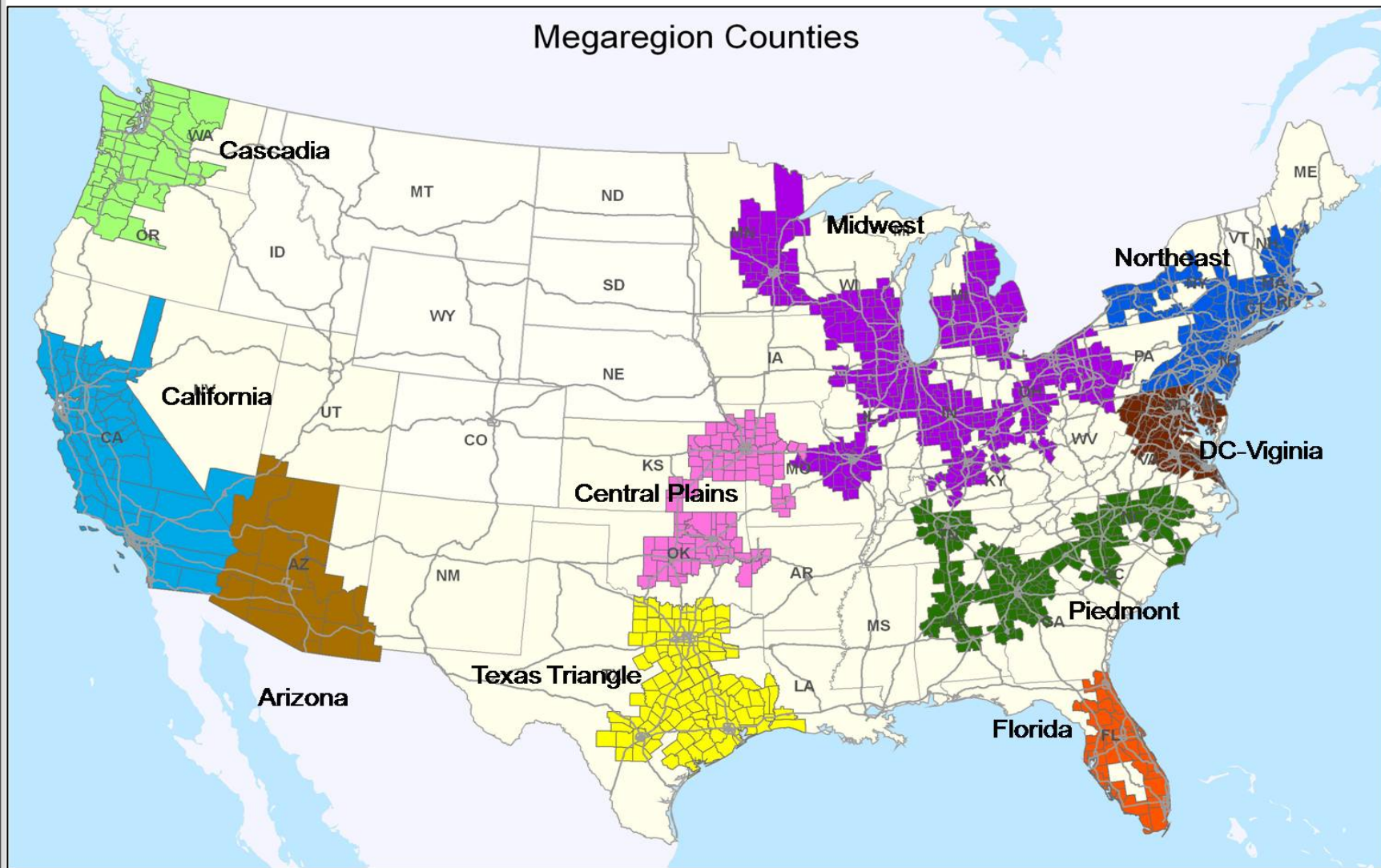


Image source : CQGRD

- Megaregions are extended networks of metropolitan centers and surrounding areas of influence.
- A framework for cooperation, planning and development encompassing economic sustainability and competitiveness. efficient competition, economies of scale and product and service differentiation.
- Megaregions provide a sustainable framework enabling coordinated transportation, housing, energy policy and natural resource management in cities and regions.

- Synchronize transportation policies with policies for housing, land use, energy, the economy and the environment.
- Encouraging land-use patterns that contribute to higher density
- Implementation of megaregion freight and person transport planning
- Explore the implications of multi-sectoral planning integrating housing, transportation and sustainability
- Promulgate climate change policy focused on reducing carbon emissions in megaregions, cities, towns (cap and trade)

Final Map of Megaregions



Source: Ross, Catherine, Delineating Existing and Emerging Megaregions, July, 2009

Funded by the Federal Highway Administration, USDOT

CENTER FOR QUALITY GROWTH AND REGIONAL DEVELOPMENT

Megaregion Statistics

	Area	Population (2008)	Employment (2008)	GRP (2008)	CO ₂ emission (2002)	Fortune 500 companies' revenue (2008)	Patent (1999)
Megaregion	29.60%	76.54%	76.98%	81.47%	67.82%	92.07%	86.77%
Non- megaregion	70.40%	23.46%	23.02%	18.53%	32.18%	7.93%	13.23%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Funded by the Federal Highway Administration, USDOT

21st Century Requires

.....a web of seamless connectivity, metropolitan centers **linked** by roads, high-speed rail, commuter rail, water resources, alternative technologies, regional economic initiatives, connected international gateways a more perfect union.

Mayor's **Megaregion Forum**

- Starting Small

Piedmont Alliance for Quality Growth

- MOU
- Implementation Focus
- WET

Piedmont Alliance for Quality Growth HUD Community Challenge Planning Grant

\$2,000,000.00

Applicant City of Macon

Project Title: Piedmont Alliance for Quality Growth (PAQG): Multi-jurisdictional Smart Growth Models for the I-85/75 Corridor

Georgia Tech

Clemson

UNC Charlotte Urban Institute & RENCI at UNC Charlotte)

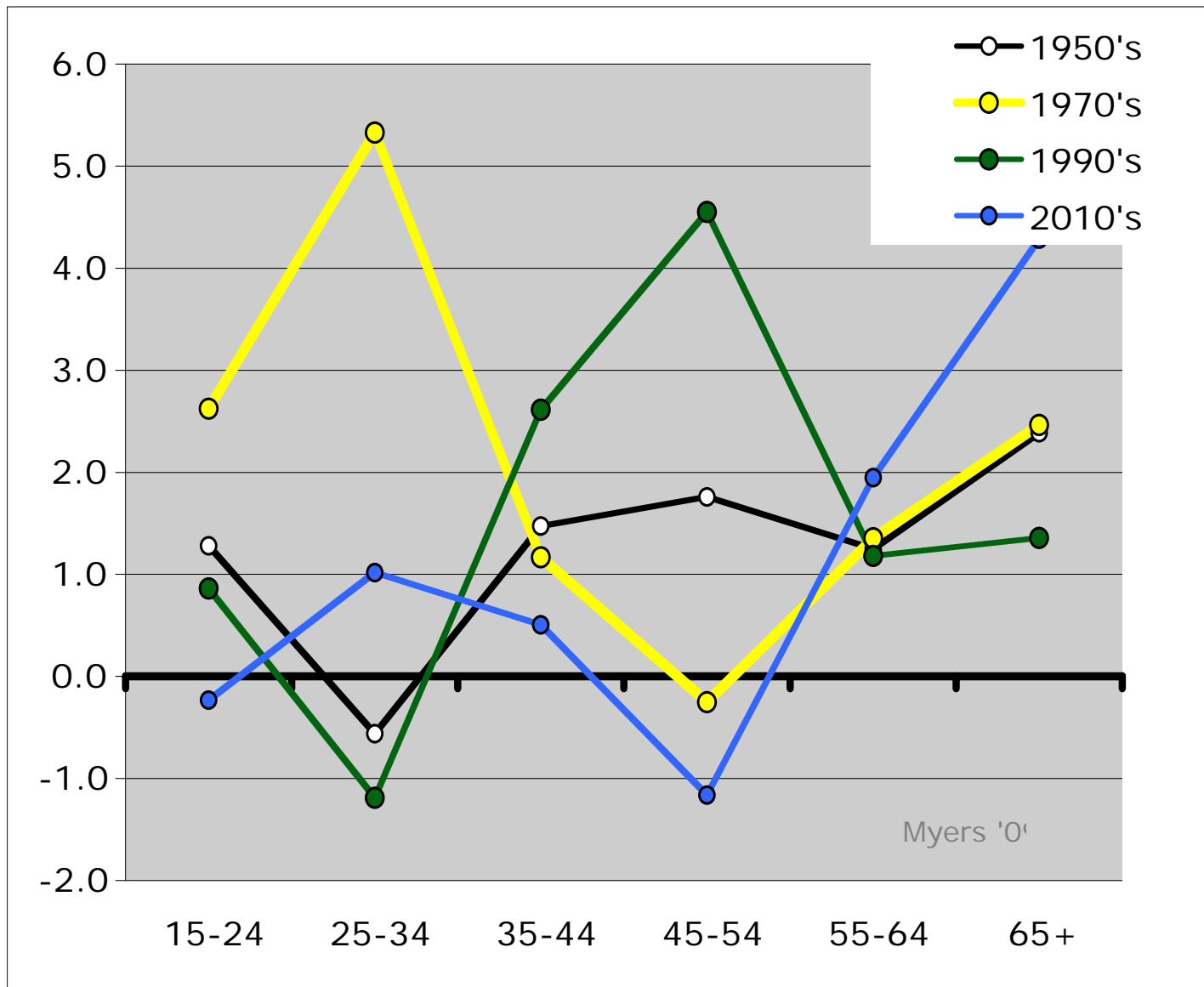
Six state area connected by a corridor

- The
Demographic
Driver

The Baby Boomers Surge Forward

Age Group Increase as Percent of US Population at End of Each Decade

Myers, USC



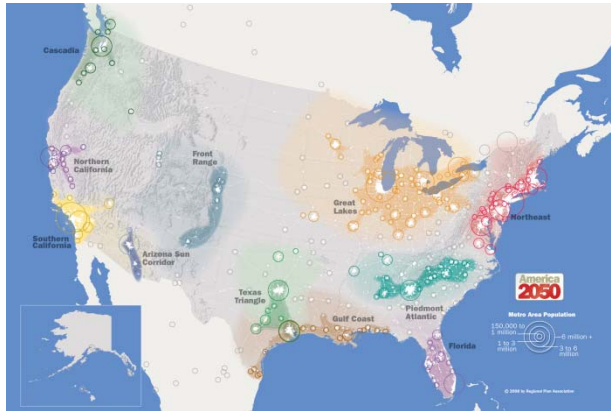


Image source : CQGRD

- **Future directions for developers:**
 - Compact development and need for more green infrastructure to preserve the natural environment.
 - Public/private partnerships at the federal, regional and local level especially in implementing financial options and framing policy.
 - Smart Growth and Transit oriented development
 - Design focused on diversity, linkages to public space, building social capital, access to green space to promote physical activity and climate change mitigation.

Image source : CQGRD

- Allow county zoning power exclusively in areas within specified proximity of state transport facilities.
- Limit zoning powers to building heights, number of stories, or size of buildings, lot coverage, yard size, population density, building location, building use, and land use
- Develop financing and tax strategies to create “communities of opportunity” in partnership with developers
 - good schools,
 - affordable housing,
 - transportation,
 - employment
 - supermarkets
 - public space



Transit-Oriented Development, Sacramento, California
SOURCE: Sacramento Regional Transit District

Compact, walkable communities centered around high quality transit systems offering a high quality live-in environment without complete dependence on a car for mobility.



Transit-Oriented Development, Portland, Oregon
SOURCE: Cool Town Studios

Figure 7. Combining the Benefits of Diverse Neighborhoods with Transit Orientation





Blue Reef Cottages
SOURCE: Harley Haddow

Construction and durability of residential and commercial buildings will have different impacts in cities that are growing versus those that are declining.

The development community will construct buildings that require less energy to heat and cool as the possibility of a carbon tax under consideration.



Eco-city of Dongtan on Chongming Island, China (Image source: http://images.usatoday.com/news/_photos/2007/02/16/ecocity-topper1.jpg)



Hammarby Sjöstad: A community in Stockholm, Sweden (Image source: <http://www.cooltownstudios.com/images/sweden-stockholm-hammarby.jpg>)

Ecological cities and regions have the following characteristics:

- Different agricultural systems such as agricultural plots within the city (suburbs or centre). This reduces the distance food has to travel from field to fork.
- Renewable energy sources, such as wind turbines, solar panels, or bio-gas created from sewage. Cities provide economies of scale that make such energy sources viable.
- Various methods to reduce the need for air conditioning (a massive energy demand), such as planting trees and lightening surface colors, natural ventilation systems, an increase in water features, and green spaces equaling at least 20% of the city's surface. These measures counter the "heat island effect".



Eco-city of Dongtan on Chongming Island, China (Image source:

http://images.usatoday.com/news/_photos/2007/02/16/ecocity-topper1.jpg)



Hammarby Sjöstad: A community in Stockholm, Sweden (Image source:

<http://www.cooltownstudios.com/images/sweden-stockholm-hammarby.jpg>)

Ecological cities and regions have the following characteristics:

- Improved public transport and land-use integration to increase pedestrianization and reduce car emissions.
- Optimal building density to make public transport viable but avoid the creation of urban heat islands.
- (Smart Growth).
- Green roofs
- Zero-emission transport
- Zero-energy building
- Sustainable urban drainage systems or SUDS
- energy conservation systems/devices
- Xeriscaping - garden and landscape design for water conservation

Smart Corridor Ways

Exempt status

Charging stations, utilities along roadways and integrated into smart intersections

Enhanced mobility zones

Large intermodal distribution logistics centers

Variable Metropolitan Planning Organizations (MPO Designations)

Climate change (Cap and Trade Greenhouse Emissions Markets and Financial Tools)



Serenbe Community: Chattahoochee Hill
Country, Georgia

Image source

:<http://www.serenbecommunity.com/newsletters/2007-11/nav/header.jpg>

- Land development respects natural topography
- Extensive use of native plant species to promote sustainable landscaping
- Home building standards include energy efficiency, low maintenance, air quality, water conservation, and resource-efficient building materials and systems
- Collection, treatment and re-use of waste water for irrigation
- Natural storm-water management through the use of pervious surfaces
- Organic farming on-site through a 25-acre farm to promote community supported agriculture
- Land conservation with 80% of the 40,000 acres preserved for green space

Thank you

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