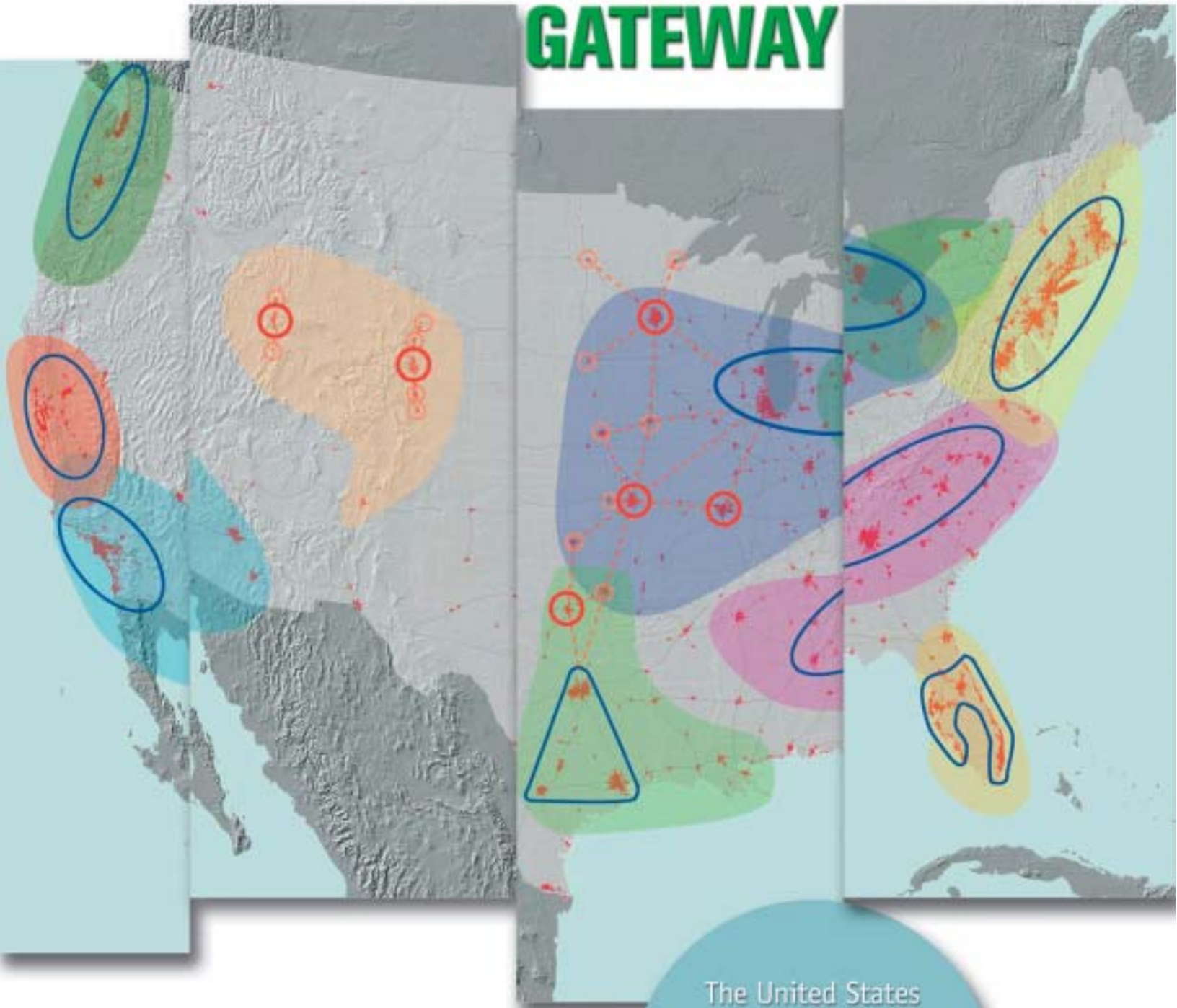


# GLOBAL

# REGIONS

# GATEWAY



The United States  
of America's  
3rd Century Strategy:

**Preserving the  
American Dream**

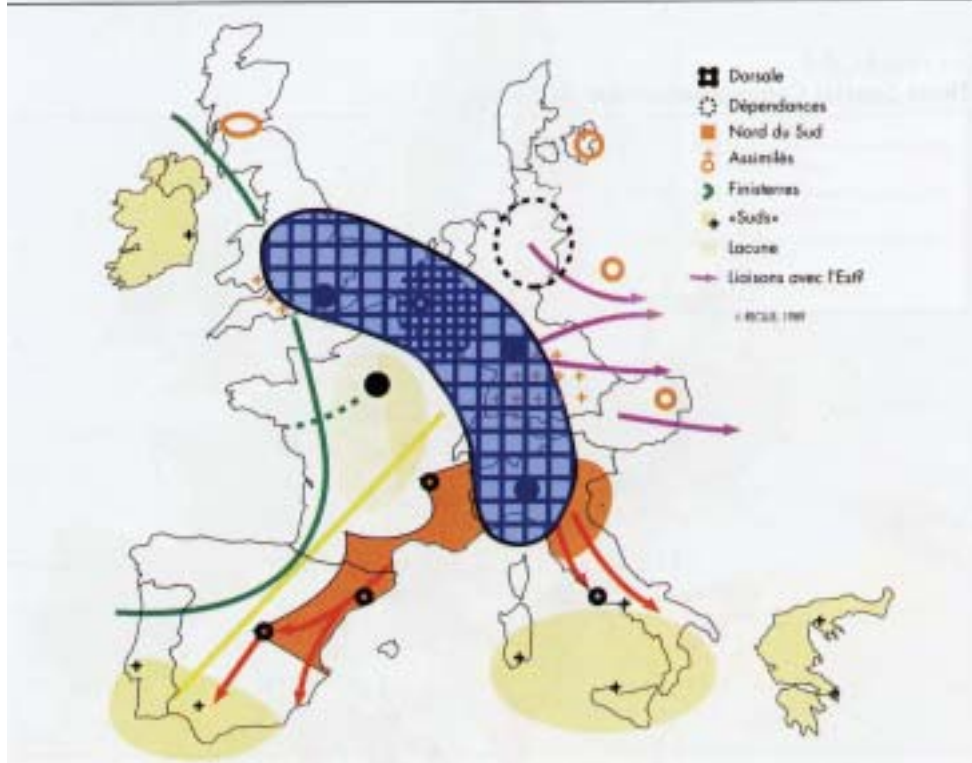
September 2005



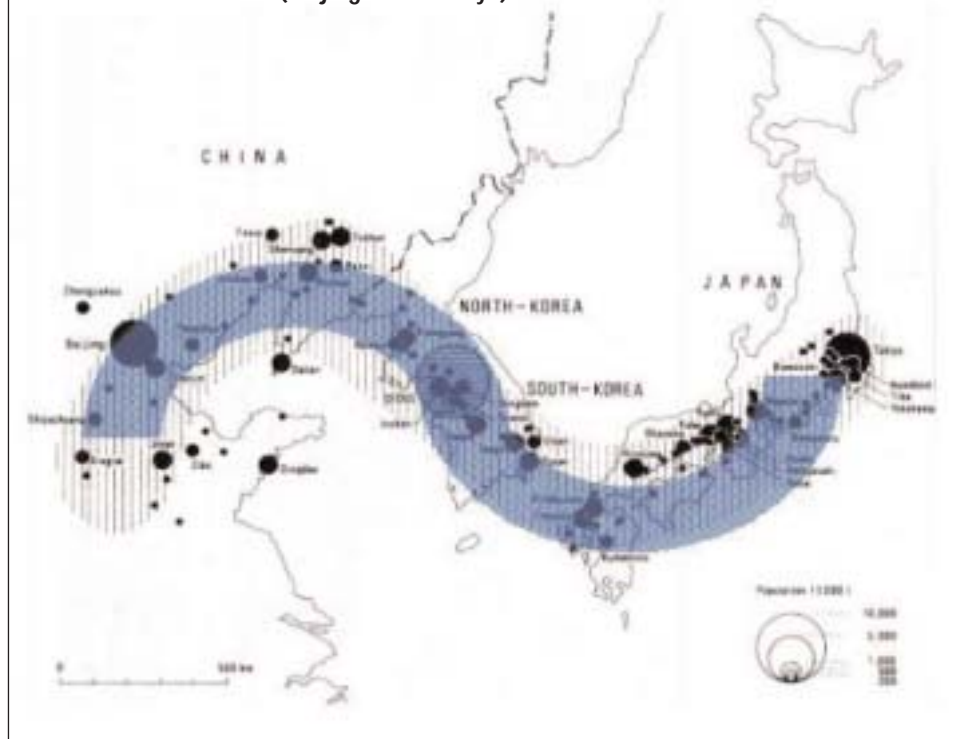
# Table of Contents

Foreword	5
National Trends	7
Threats to Economic Competitiveness	7
Rapid Population Growth	8
Uneven and Inequitable Growth Patterns: Urban and Rural Decline	12
Build-out of Suburban America	14
Metropolitan Infrastructure Reaching Capacity	16
Environmental Degradation and Public Health	18
Emergence of Mega-Regions	19
The Mega-Region Perspective	21
Goals and Strategies	23
Prosperity	24
Equity	31
Sustainability	32
Financing	33
Next Steps Toward a National Strategy	35

The Blue Banana Indicating the (Core) Area with Most Cities with More than 200.000 Inhabitants



Pacific Asia's BESETO (Beijing-Seoul-Tokyo) Corridor



## Foreword

The United States is currently embarking on its third century of growth and development. With its first century founded on Thomas Jefferson's national plan calling for westward expansion, and its second century stimulated by Theodore Roosevelt's plan for improved and expanded energy and natural resource infrastructure to support industrial expansion, the Third Century Strategy is needed to contend with the 140 million additional people expected by the year 2050, and the challenges of competing in a global economy. The following is a proposal for building national cohesion and competitiveness based on a new national growth strategy: the Global Gateway Mega-region.

This project has been inspired and informed by recent European and Asian efforts to develop policies and investments for the entire continent and its regions. Over the past generation, the European Union has initiated a new large-scale approach to planning for metropolitan growth, mobility, environmental protection, and economic development.

Europeans use the umbrella term "spatial planning" to describe this process, involving plans that span regional and national borders, and encompass new "networked cities" spread out over hundreds of kilometers.

The European Union is also mobilizing public and private resources at the continental scale, with bold plans and investments designed to integrate the economies of, and reduce the economic disparities between, member states and regions, and to increase the competitiveness of regions and the whole continent in global markets.

Similar cooperation and infrastructure investment is occurring in Pacific Asia's BESETO (Beijing-Seoul-Tokyo) corridor, particularly through the regional divergence of resource endowments and complementary relationships between cities. Pacific Asia is investing significant sums in new infrastructure and modern production and distribution, expanding and strengthening its network of seaports and airports. Projects include Japan's planning at the regional scale along its 1,400

mile long Shinkansen transportation corridor, and China's mega-regional planning efforts in the Pearl River Delta, an area that represents 1/3 of its exports.

The development of large-scale infrastructure is by no means unique to Europe and Asia. Significant historic precedents exist in the United States, such as Thomas Jefferson's 1807 and Theodore Roosevelt's 1907 national plans. These plans stimulated the major infrastructure, conservation and regional economic strategies that powered America's economic growth in its first two centuries.

Other major strategies and investments promoted in the administrations of Presidents Lincoln, Franklin Roosevelt and Eisenhower, ranging from the Morrill Act Land Grant University System, the Homestead Act, and creation of the national rail and interstate Highway Systems, also had a major impact on the nation's growth.

These previous efforts had significant impacts on defining the growth and economic development of the entire country, but these transportation infrastructure systems are reaching capacity limits. A new vision is needed in our third century, which would create the foundation of the nation's future economic competitiveness, job development and quality of life. As we celebrate the bicentennial of Jefferson's national plan, and the centennial of Roosevelt's national plan, it is time to create a Third Century perspective by 2007.

Of late, the United States has delegated most economic development and planning initiatives to municipalities and has no current national plans or strategies at a comparable scale to its international counterparts. Yet, the US population is expected to grow to 430 million by 2050, a 40% increase over current levels. Consequently, in less than 50 years we will need to build half-again as much housing and as much commercial development and infrastructure as we have over the past two centuries. And if recent growth patterns continue, this would require that we develop four times as much land as we have in the past 250 years.

*How can all of this growth be accommodated in metropolitan regions that are already choking on congestion and approaching build-out under current trends and policies?*

*How can we improve the competitiveness and livability of our own emerging constellation of networked cities?*

*How can the United States reduce the growing disparities in wealth and population between fast growing coastal regions and vast interior rural areas and declining industrial cities?*

*How can the federal government promote creation of regional strategies designed to address these concerns?*

## National Trends

The 3rd Century Strategy considers six key demographic, economic and spatial trends that will shape the nation's growth in coming decades:

### Seven Major American Trends

1. Threats to economic competitiveness
2. Uneven and inequitable growth patterns
3. Rapid population growth
4. Build-out of suburban America
5. Metropolitan infrastructure reaching its capacity
6. Environmental degradation and public health
7. Emergence of Mega-regions

### 1. Threats to Economic Competitiveness

With its technological supremacy and solid innovation capacity, it is no wonder that the United States ranks consistently as the most globally competitive country in the world, according to the World Economic Forum's Global Competitiveness Report and IMD International's World Competitiveness Yearbook. Yet, growing capacities for innovation and efficiency abroad are intensifying competitive pressures on US industry. While domestically, job losses, eroding infrastructure, and energy dependence challenge our ability to maintain global economic dominance.

#### Job Losses

Declines in manufacturing jobs, followed recently by the migration of information technology jobs abroad, has resulted in a virtual stagnation in job growth over the past 5 years. Since 2000, the nation has lost almost 3 million manufacturing jobs and over half a million information services jobs.

Not only are these jobs leaving the United States, there has also been an apparent weakening of the nation's available scientific and technical workforce. Research and development workers as a percentage of the total workforce, has been declining since the late 1980s, while the need for them has been rising. Graduate study in engineering and the physical sciences, including computer sciences, is also static or declining, with an increasing proportion of graduates being international students, and an increasing proportion of whom return to their native country upon completion.

The world is entering an era of global workforce competition, with educational attainment and labor force quality in direct, head-to-head competition between global trade regions. Using Thomas Friedman's observations that "the global competitive playing field is being leveled", the United States must contend with the vulnerabilities and competitive challenges that emerge from job loss through investments in both innovative new industrial sectors and value-added production structures within traditional sectors.

These new industries are dependent on an infrastructure system that can sustain economic growth, and connect the region to take advantage of improved competitive advantages. As the global economy restructures, economic development patterns have enabled the United States to capitalize on just in time production and delivery.

#### Infrastructure Limits

With insufficient funding going towards both the maintenance and expansion of the infrastructure system, Americans lose billions of dollars per year in fuel, time, and productivity, not to mention quality of life issue. The advantages that we currently enjoy in goods movement will be lost. These are essentially increases in the cost of doing business in the US, thereby impacting our national competitiveness.

#### Energy Dependence

While the 1970s led to a great deal of energy innovation and conservation, the United States remains among the least competitive countries in terms of its energy use and efficiency. With the highest per capital energy usage among OCED countries and the lowest oil prices, the country is vulnerable to the impacts of steadily rising energy prices. Given increasing consumption and sprawling growth patterns, efficiency and innovation focused on energy independence will become a requisite component of the nation's future global competitiveness.



## 2. Rapid Population Growth

Similar to our economic competitors in Pacific Asia, the United States is experiencing rapid population growth. The Census Bureau forecasts that the nation's population will grow by 40% to 430 million by 2050. In contrast, most European countries are expected to lose significant numbers of residents, due to declining birth rates and limited immigration. This means we must build half again as much housing, commercial and retail space, and the infrastructure needed to support these activities in the next half century, as we have in the past two centuries.

### POPULATION TRENDS

#### US Population Trends: 2005 to 2050

As other industrialized countries face projected population loss in the coming fifty years, the United States is poised for tremendous growth. In the past ten years alone, the population of the United States has grown by 15%, from 246 million in 1990 to 282 million in 2000. While estimates vary, most trends show the United States population growing by almost 40% to about 430 million people by 2050.

Immigration plays an important role in this projected explosive growth. The notion of attaining the 'American Dream' is alive and well, and entices people to thrive and prosper much as it has done historically. As the United States continues to open its doors to immigrant populations from around the world, Hispanic and Asian communities are seeing second and third-generations born in this country.

#### Locations of Major Population Increases/Decreases

Looking at historical population settlement patterns sheds light on current and future population patterns. While early settlers clung primarily to the coasts and in compact urban regions, the availability of rail transportation and the automobile forever changed settlement patterns, allowing people to set up homes in the interior of the country and in highly decentralized metropolitan areas.

The Great Plains offered great farming potential in these times, and the abundance of fertile and free land encouraged people to move to the Plains and other areas of the interior West. Yet, outside of a handful of growing metropolitan areas and amenity

regions, very little of the nation's rapid growth expected by 2050 will occur in the Plains and other isolated rural regions. As younger residents move out of these areas, their populations will become increasingly elderly. Between 2000 and 2025, counties in the Great Plains that lost population between 1990 and 2000 are projected to show a further loss of 6%. Based on the forecasted trends between 2000 and 2025, the trends for 2025 to 2050 show a continuing population loss, amounting to a 13% projected population decline in these counties.



Fast-growing Sunbelt states, such as California, Texas and Florida, are expected to see sustained rapid population growth, with an additional 6 million people in each state projected by 2025. Assuming that the trend of immigrant populations settling in the West, Southwest and Southeast continues as people follow the work opportunities and established family ties in these areas, these numbers will continue to grow by 2050. Particularly, counties in Georgia, Nevada, Arizona and other states in these regions are likely to see population increases upward of 35% by 2025.

While most central cities will continue to grow only at a moderate pace, many metropolitan regions surrounding these urban cores are expected to experience remarkable growth over the next 50 years. As the city of Philadelphia continues to lose population, for example, its adjacent suburbs and areas further outside of the city continue to grow in population. While not all cities are projected to lose population, counties adjacent to cities will see a similarly large increase in population in the coming 50 years. In general, however, the number of people living in urbanized areas, as opposed to rural areas is projected to continue rising, signaling an increase in the amount of urbanized land in the coming decades.

The Northeast Corridor, anchored by Boston, New York, and Washington, has been a dominant region within the United States since its founding. Most of the counties in this area will continue to experience population growth through 2050, and the amount of urbanized land will increase.

### HOUSING TRENDS

### Household Size

Over the past fifty years, the country has witnessed significant changes in household size and composition that continue to impact living patterns. Today, less than one-quarter of all households are composed of the traditional 'married with children' family structure. However, average household size appears to be leveling off at 2.6 people per household. This means that the number and type of housing units necessary to accommodate smaller households will increase. A variety of housing types will also be required to accommodate the personal choices of various sub-groups within the population. For instance, as baby-boomers age, housing will have to reflect the retirement needs of this large cohort.

The overall trend toward smaller household and family size, however, is not reflective of the composition of immigrant households: over 70% of recent immigrant households are headed by married couples. Immigrant households are also likely to have larger families: twice as many foreign-born headed households as native-born headed households had five or more people living in them. The traditions and patterns of foreign-born populations will certainly affect the household trends through 2050.

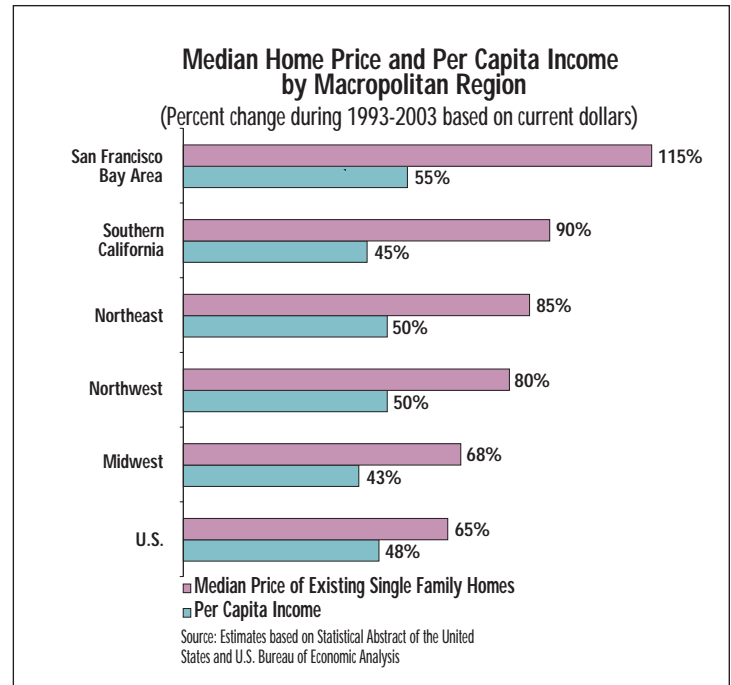
### Housing Construction and Values



Between 1990 and 2000, the nation's housing inventory increased by 13%, most of that in the fast-growing West and Southwest. Housing construction through the next 50 years will continue to mirror this trend, as these two areas of the country are expected to continue growing faster than others.

Even with the continuing trend towards smaller household sizes, newly constructed housing has yet to reflect this. In fact, new houses are larger than ever. The number of homes with four or more bedrooms has increased from 1990 to 2000 by 17%, with over 37% of new houses providing more than four bedrooms, even as the average household size hovers around 2.6. This trend

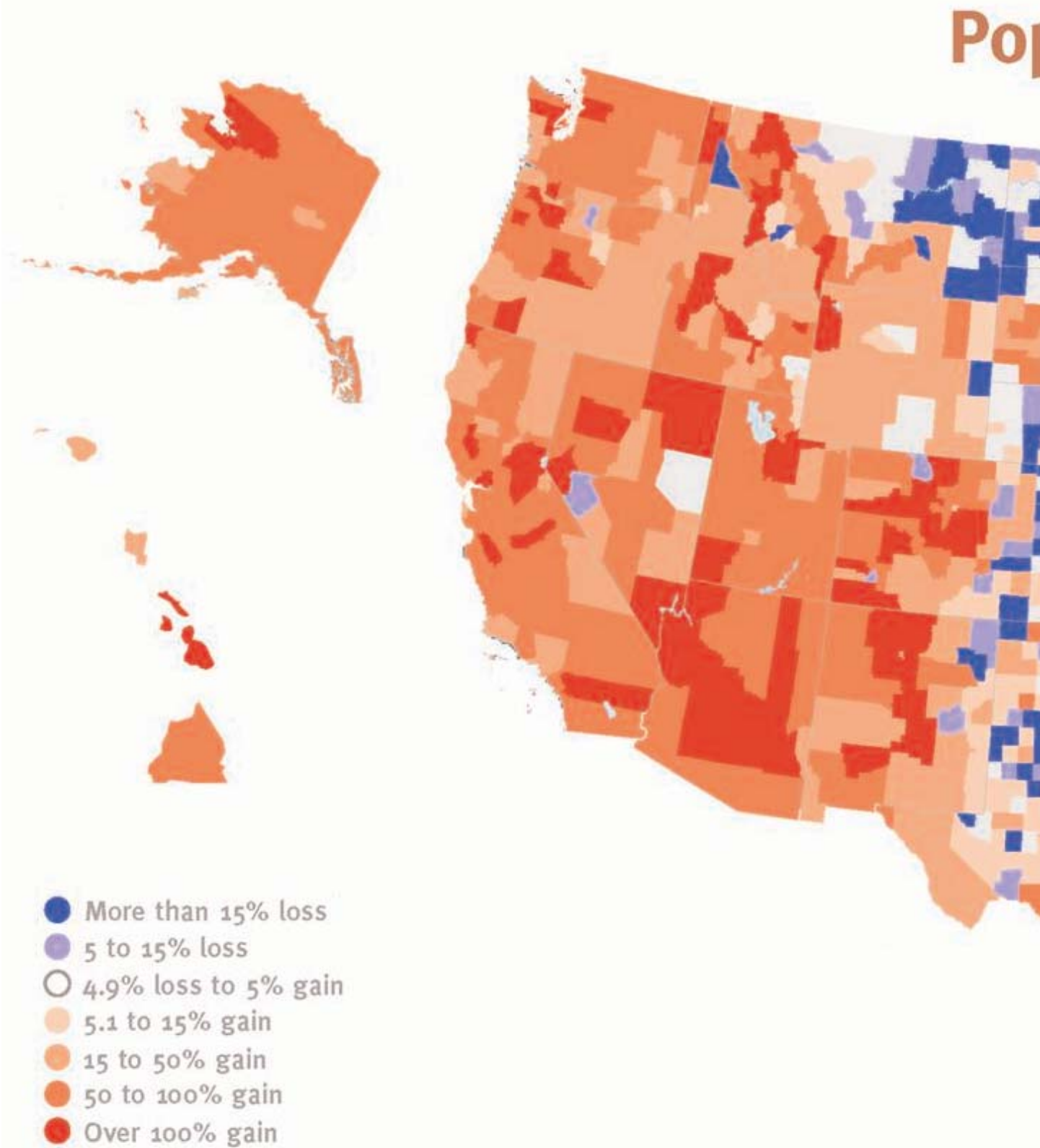
has been driven in part by local zoning measures and housing markets that promote larger single-family housing units and discourage smaller single or multifamily units. Without significant policy change, aging baby boomers will find their choice of smaller housing units limited, and growing numbers of metropolitan residents will continue to commute longer distances to larger, less expensive homes on oversized lots.



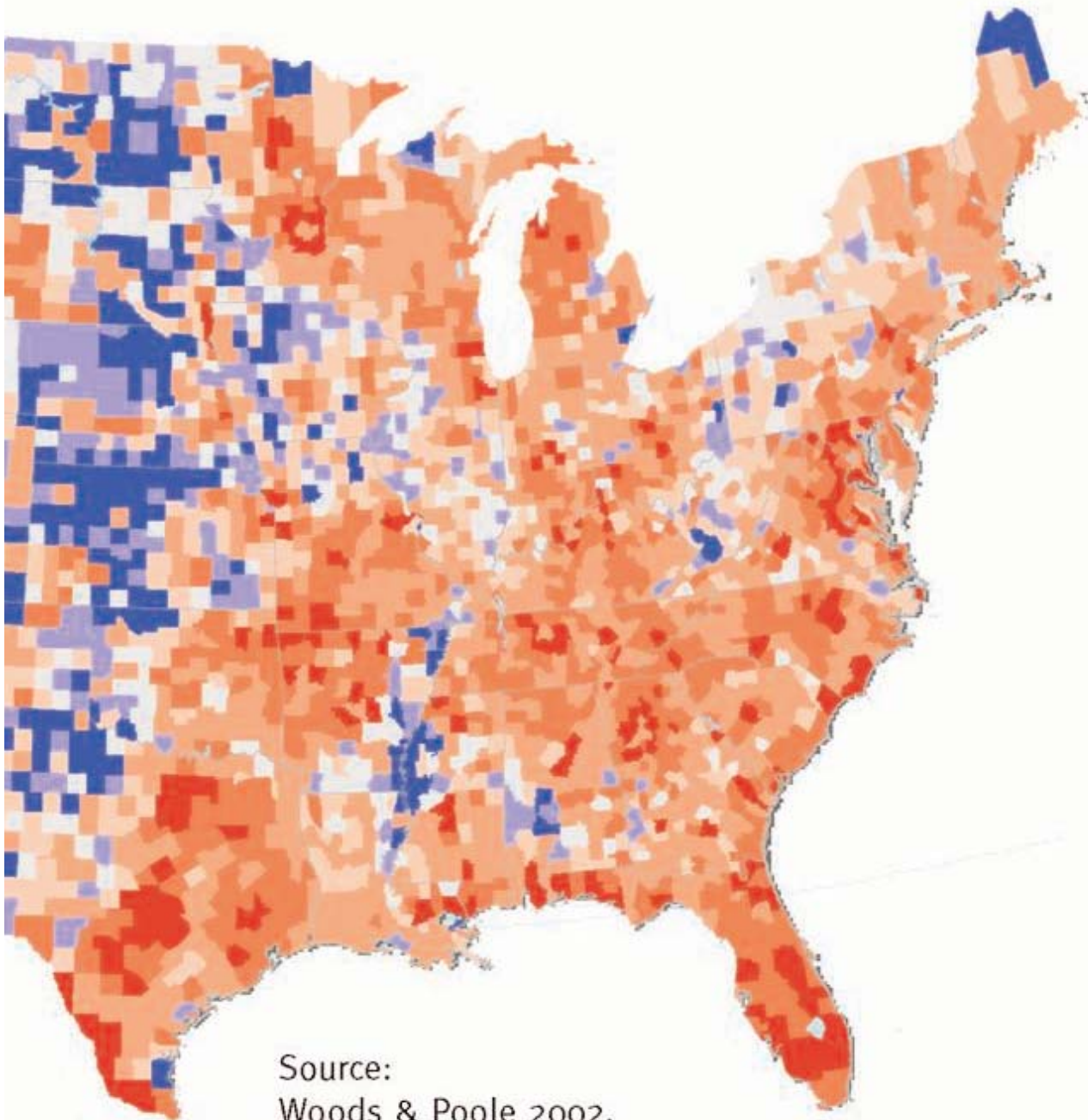
### Housing Costs

Housing costs have also had an upward trend during recent decades. Outpacing increases in per capita income throughout the country, the median price for a single family home in the nation went up 65% from 1993 to 2003, with the national per capita income rising by 48%.

This trend is particularly evident in the country's mega-regions where home prices have increased at twice the rate of income. In the San Francisco Bay Area mega-region, for example, incomes rose by 55%, while the median cost of a single family home increased by 115%. These disproportionate increases amplify the affordability struggle that has emerged in rapidly growing mega-regions.



# Population Change, 2000-2050



Source:  
Woods & Poole 2002,  
ESRI

### 3. Uneven and Inequitable Growth Patterns: Urban and Rural Decline

#### What about Bypassed Regions?

- Interregional competition and border wars to lure companies from one area within a region to another: Done using tax incentives, and carried out without regard to the quality of the jobs they create.
- Inefficient land use patterns
- High levels of highway and air congestion
- Increasing levels of environmental pollution
- Decreasing funds from state and local government budgets as funds are used for inefficient purposes

Since 1970, virtually all US population and economic growth has been in large metropolitan regions. Within these regions, most growth has been in the outer suburban rings. At the same time, many parts of the country have experienced decline, a trend that is expected to continue. These areas include:

- **Large rural regions:** Where resource-based economies or ground water reserves are in permanent decline, leaving them without the means to support even basic services.
- **Declining major and second-tier cities:** Across the country, a number of large urban centers and second-tier cities have experienced decades of decline. Several of the nation's largest urban centers, including Philadelphia, Baltimore, Pittsburgh, Cleveland, Detroit, St. Louis and New Orleans, have lost a third or more of their populations since 1960, as their economic base has eroded.
- **Inner-cities and inner-ring suburbs:** Even as the outer ring suburbs of most metro regions have grown, many inner-cities and inner-ring suburbs have lost residents, tax base and economic activity, while poverty has become highly concentrated.

#### DISPARITIES IN WEALTH

In many parts of the country, recent growth patterns have exacerbated inequalities that threaten the sustainability of our communities. High housing prices and limited affordable housing stock in cities, rural areas and suburbs in-between have led to long commutes, traffic congestion and a more economically segregated population. Research indicates that the problems associated with inner cities are spreading into suburbs and rural areas.

Lack of investment in schools and other community infrastructure, as well as inadequate planning to accommodate attainable housing for the nation's workforce will exacerbate local conditions. A strategy is needed to ensure that growth occurs in a more equitable way, so that the needs of Americans in all parts of the country are more fairly met.

#### Interpreting the Wealth Index

The per capita change in income between 1990 and 2000 clearly indicates that the nation's wealth is increasingly concentrated in urban areas and wealth levels in coastal areas and leisure destinations are increasing relative to the country as a whole.

While most large metropolitan areas are expected to grow and prosper, a number of both urban and rural regions are expected to experience slow growth of population and jobs, and in many cases, significant reductions of both. The largest of these regions is the High Plains, encompassing parts of 10 states and stretching from the Dakotas and Montana to West Texas and New Mexico. Other bypassed regions include large areas of Northern New England and Upstate New York, the Appalachians, the Mississippi Delta, the Rio Grande Valley and the high deserts of the inter-mountain West. Many of these regions have high concentrations of African-Americans, Native Americans, Latinos and poor Whites who will be increasingly disadvantaged as economic opportunities in these areas decline.

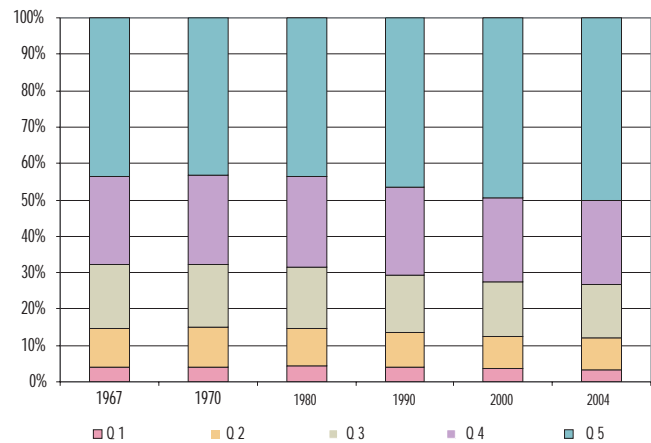
Similar trends will emerge in a number of older urban regions, such as Buffalo, St Louis, Cleveland, Detroit and second-tier cities across the country. Many of these central cities have lost as much as two-thirds of their population since 1970, and can anticipate further decline, even as the nation as a whole grows and prospers.

In contrast with the United States, the European Union has been investing vast sums to promote development and redevelopment of comparable bypassed areas of Europe. These investments have produced dramatic results in revitalizing the economies of Ireland, Spain, Portugal and Greece, and formerly depressed cities and regions in Europe's periphery. Similar strategic investments in America's bypassed cities and regions could produce comparable results in these places.

The widening income and wage gap that has developed with the economic restructuring of the past several decades is creating a perplexing issue for the country. Since 1980, the share of aggregate household income earned by the top fifth of the households has risen from just under 44% to over 50% in 2004. Meanwhile, the incomes of the middle 60th percentile households have declined from 31.5% to 26.8% in the same period. Similarly, the share of aggregate household income for the bottom fifth of the households declined over 20 percent, to just 3.4% of total aggregate household income in 2004, from the 4.3% recorded in 1980.

This restructuring is largely based on the decline of manufacturing and infrastructure construction jobs due to global competition and minimal federal infrastructure initiatives. These sectors had accounted for a large number of well-paying jobs and their decrease has caused a significant impact on wages and income. These trends, together with the fact that

U.S. Household: Share of Aggregate Income by Income Quintile



the majority of the nation's workforce does not have the educational attainment levels to enter the labor market for higher skill and better paying jobs, leave many workers in the lower skill, service sector, which is currently the fastest growing segment of the job market.

Metropolitan areas undergoing economic restructuring have the most pronounced income and wage gaps. These areas also experience rapid immigration, which has created an additional disparity in terms of ethnicity. Children are also disproportionately affected by poverty. The United States ranks first among developed countries with the highest rate of children living in poverty.

With income and wage disparities becoming more pronounced, and their effects being distributed disproportionately within many urban areas, resolving the social equity gaps that arise from economic restructuring and immigration is a difficult challenge. Strategies that not only resist exacerbating existing disparities, but work to reconcile them, are needed for the sustainable and equitable growth of the nation.



## 4. Build-out of Suburban America



Since 1970 the vast majority of the nation's economic and population growth has occurred in 30 large metropolitan regions, primarily in their sprawling outer rings. Many of these places are approaching "build-out," by way of increasing traffic congestion, limited housing production and

conflicts between development and "green infrastructure," such as public water supplies and wildlife habitat.

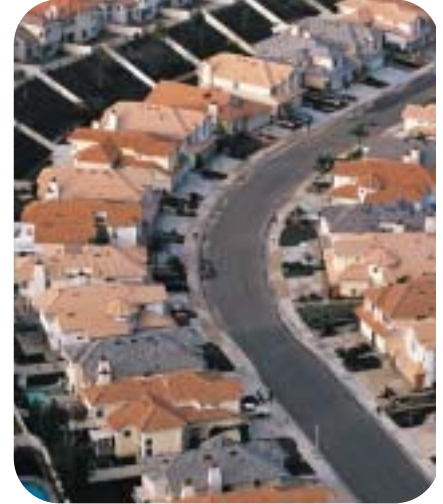
In less than three centuries, 46 million acres of America's virgin landscape have been converted to urban uses. In just 25 years, that number will more than double to 112 million acres. If current growth and land consumption rates continue, another 100 million acres of America's landscape will become urbanized by 2050. We will urbanize land at a rate seven times faster than our population will grow. Considering that it takes \$100,000 to urbanize one acre of land, this future growth will cost between \$14 and \$17 trillion dollars.

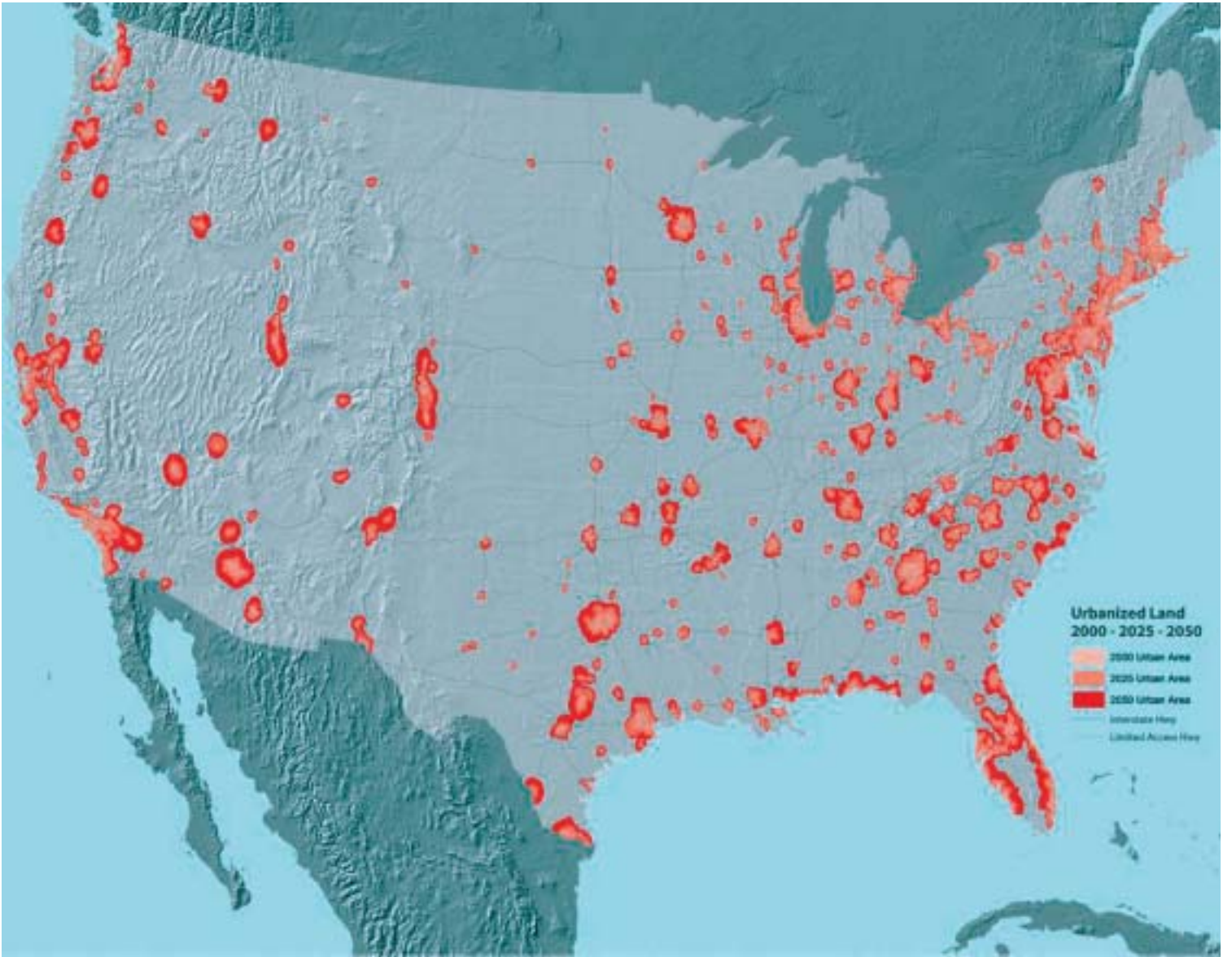
Many cities and inner-ring suburbs are now experiencing infill development and renewed population growth. Yet if present

trends and policies continue, the vast majority of expected growth would occur in new outer rings of low-density metropolitan sprawl. The building-out of America will take a toll on more than just the national treasury – it will have dramatic effects on the nation's economy, environment and quality of life.

Our sprawling pattern of growth is contributing to inescapable road congestion, which leads to increased shipping times and costs. Farmland near urban areas is constantly disappearing underneath residential subdivisions and big-box retail outlets while ozone alerts threaten almost every large metropolitan area.

Every year, commuters will have to drive farther to work road congestion, which leads to increased shipping times and costs. Farmland near urban areas is constantly disappearing underneath residential subdivisions and big-box retail outlets while ozone alerts threaten almost every large metropolitan area. Every year, commuters will have to drive farther to work and children will become dependent on the need to be escorted everywhere by automobile.





## 5. Metropolitan infrastructure reaching its capacity

All over the US, metropolitan infrastructure of all kinds, most of it built in the last half of the 20th century, will reach its capacity limits in the first decades of our third century. Unless new capacity is created in roads, rails, airports, seaports and other systems, the nation's economic potential will be artificially stifled. Federal transportation investments over the past decade have been largely focused on maintaining the current stock of highway, rail, airport and seaport infrastructure, not on expanding the capacities of these systems.

### INFRASTRUCTURE CONSTRAINTS

#### Transportation is the Backbone of a Strong Economy

America's economic might after World War II was in no small part due to the efficiency and capacity provided by the Interstate Highway System, which brought unparalleled access and mobility to almost every corner of the country. The capacity of that system in and around metropolitan areas is nearly at its limit.

President Eisenhower envisioned a national highway system that would facilitate free-flowing, inter-city and national mobility for passengers, goods and essential military needs, with metropolitan beltways that would permit long distance travel around congested urban areas. The system that Eisenhower envisaged of 40,000 miles is now complete, with the exception of a few very short gaps. The nation completed one of the most ambitious transportation programs that the world has ever seen.

What Ike didn't anticipate was that within half a century the nation's metropolitan regions would build-out around their interstate links, and that most Americans would use the interstate highways as part of their daily commutes in order to avoid traveling long distances on local roads. Meanwhile, the national rail freight system was allowed to wither in the last half of the 20th century, with the result that most goods are now moved by truck. Despite the proliferation of new outer beltways and radial highways, and the constant expansion of its capacity, much of the interstate system is now highly congested and consequently inter- and intra-regional passengers and freight encounter growing delays and unreliability. American transportation

officials are finally reaching consensus on the simple fact that the U.S. cannot build its way out of congestion with new roads.

#### Increasing Mobility

Over the last 50 years, Americans have become increasingly mobile. The increase in miles traveled per person has been most pronounced in car and aircraft travel. This increase in mobility has led to growing challenges in keeping transportation corridors congestion-free. Vehicle miles traveled (VMT) per year has increased from 8,685 per person in 1969 to 13,476 in 1999, the equivalent of driving from New York to Kuwait and back.

The U.S. Department of Transportation has estimated that since 1970:

- **Population** has increased by 30%
- The number of **licensed drivers** increased by 64%
- **Registered vehicles** have increased by 87%
- **Vehicle miles traveled** have increased by 125%
- **New miles of road** have increased by only 6%.

If the significant increase in road congestion experienced throughout the country in the last decade continues, it will eventually lead the system to a breakdown. The trends are unmistakable and are predicted to continue if significant policy measures that channel more resources into high capacity transportation systems are not implemented.

In the past decade as we have moved toward a global economy, the productivity increases in the movement of global goods enables products abroad to be sold in the United States at a lower cost than the producing country. The strategy of "transloading" – i.e. the use of rail and truck interactivity – reduces inventory cost by 18 to 25%. The increase in congestion on rail and trucks is threatening these gains.

In the face of highway congestion, UPS and FedEx have begun shifting their transcontinental traffic onto trains. While the railroads appreciate this influx of new business, they are often unable to meet the stringent timetables demanded by global logistics providers. Decades of under-investment have left the national railroad and highway networks congested and in a poor state of repair.

## Nationwide Congestion Costs

In 1999 the Texas Transportation Institute (TTI) did a nationwide study on congestion. It looked at the nation's 68 largest urban areas and found that:

- Traffic congestion costs motorists **\$78 billion** annually – the average motorist lost **\$625 a year** in wasted time and fuel sitting in traffic.
- From 1982 to 1999, the amount of time wasted in these areas due to traffic congestion rose from 1.9 to **4.5 billion hours**.
- Even with increasingly fuel-efficient engines, **6.8 billion gallons** of fuel were wasted in these cities in **1999 alone** due to traffic congestion.
- **94%** of Americans believe it is important to have uncongested roads.



Along with the realization that America does not have enough capacity to support increasing car usage, the Department of Transportation reported that a 93% increase in investment by all levels of government would be needed to meet the \$94 billion a year estimated cost to maintain and improve highways and bridges.

## Air Travel Congestion

Highways are not the only mode experiencing congestion related delays. If flights are delayed at any of several key airports, delays are felt throughout the nationwide system. The Federal Aviation Administration recently forced airlines at Chicago O'Hare airport to reduce the number of flights they offer or face stiff penalties.

In fact, in the year 2000, airline flight delays cost Americans 142 million hours in lost productivity and \$9.4 billion in annual costs. Given current investment plans airline flight delays are projected to rise to 231 million lost hours and \$15.2 billion in annual costs in 2012.

Although 2001 saw a decrease in congestion levels due to the 9/11 terrorist attacks, the FAA (Federal Aviation Administration) expects air congestion to return to pre 9/11 levels by 2005.



## Congestion Impacts on Goods Movement

Along with affecting travel time and overall quality of life, congestion poses a serious threat to the manufacturing and freight sectors of the US economy. In 1999, transportation-related goods and services generated 11% of our total Gross Domestic Product (GDP). With the exception of the World War II period, growth in the GDP and vehicle miles of travel have increased in direct proportion to one another – evidence of the strong link between transportation and the economy.



The US Department of Transportation has found:

- In the last 30 years, vehicle miles of truck travel have increased by 225%.
- By 2020, experts believe that there will be a near doubling of trucks on the road over current numbers.

The effects of doing little to combat highway congestion have tremendous impacts on freight delivery and its role in the nation's productivity and performance in the global economy. These effects include slower shipments, higher costs and less reliability.

## 6. Environmental degradation and public health

Sprawl and congestion not only have spatial land use implications, but their impacts also affect the health of natural resources and urban environments, as well as the people who live in them. More efficient land use patterns and better-integrated natural resource systems can limit further damage and strain to the natural environment. There are also lifestyle impacts connected to these trends that create public health risks for residents of urban and suburban areas.

If current land use trends continue to 2050, sustaining natural resources will become more challenging as farmland, water resources, and biodiversity come into conflict with rapid urbanization in both growing and declining regions of the country.

### Farmland

Farmland in areas close to urbanized areas are especially threatened by development that consumes high quality farmland. Not only the farmland itself, but the communities built on them are at risk as the increased mechanization of agriculture, consolidation of farm holdings and growth of large agribusinesses accelerate the decline of smaller farms that have sustained families and rural communities for more than a century.

### Water

Per capita, Americans use twice the amount of water of other industrialized nations. Water resources in the United States are spatially inconsistent across the landscape. The greatest population increases are expected to occur in the most water-deficient regions of the country, causing further strain on the nation's water resources.

### Wildlife Habitat

'Biodiversity Hotspots' represent eco-regions of the country where habitat and a variety of limited species of plants and animals have continued to thrive despite encroaching development and land conversion. However, many of these areas exist within regions that are projected to experience the most growth in the coming decades, thereby bringing them under the threat of ongoing habitat and species loss.

The protection and efficient use of natural resources is essential in balancing the needs of future population growth and land use development. Through an appropriate mix of infrastructure and policy, future growth can be supported without compromising the sustainability of each of these resources

### Air quality related Health Risks

Emissions of particulate matter (PM), ozone (O<sub>3</sub>) and smog-forming nitrogen oxides (NO<sub>x</sub>) from idling cars, diesel trucks, cargo ships and trains have been monitored and regulated across the country for their damaging effects on the environment. Projected increases in congestion suggest that air pollution will continue to be a severe problem in these areas with pervasive health effects on urban and suburban residents. There has been a consistent correlation between elevated levels of exposure to these elements and an increase in mortality rates, asthma, cancer, lung disease, and other chronic cardio-respiratory infections and diseases.

### Public Health

Land use decisions, such as those that favor urban sprawl, can have profound effects on the public's health. The increases seen in the last decades in obesity, stress, asthma, diabetes, and cardiovascular disease are in large part caused or worsened by prior land use decisions.

For example, recent studies indicate that there is a link between the built environment and obesity, in that people who live in typical car-oriented suburbs tend to be more overweight than residents of denser, more compact neighborhoods. While residents in more walkable communities also drive, they have more options to use public transportation and to conduct short trips on foot, thereby driving 18% fewer miles per week than their counterparts in less walkable areas.

Those in more sprawled developments have fewer opportunities for walking as part of their daily routines, thereby exacerbating obesity and related health risks, such as heart problems, Type II diabetes and cancer. Areas in which a variety of buildings with different uses exist side by side are more likely to give residents a sense of community and belonging, which is essential to overall health.

## 7. Emergence of Mega-regions

Most of the nation's rapid population growth, and an even larger share of its economic expansion, is expected to occur in eight emerging Mega-regions: large inter-connected or "networked" metropolitan areas, each of them spreading over thousands of square miles, and located in every region of the country. These Mega-regions are becoming America's economic engines: centers of technological and cultural innovation where the vast majority of immigrants who are driving population and economic growth will assimilate into America's economic and social mainstream.

Each of these mega-regions is a gateway to the global economy with seaports and international airports serving as the pivot for growth. In the global marketplace, the ability to take advantage of geographic and infrastructure provisions of just-in-time production, particularly high value-added production, and just-in-time delivery is and will continue to be dominant force influencing the growth patterns of global gateway mega-regions worldwide.

### POLYCENTRISM, MEGALOPOLIS AND WORLD CITY NETWORKS

Polycentric urban structures have emerged over the past fifty years as changing development and work patterns have transformed American cities, which were traditionally mono-centric with housing and businesses tightly concentrated near the center. The development of new transportation technologies starting with the electric streetcar in the late nineteenth century allowed middle class workers to live farther from their places of work. Meanwhile, America's downtowns became congested and experienced diminishing economies of scale. Eventually, it no longer made sense to travel downtown for everyday goods, and commercial centers emerged outside of the traditional core. This was the first evidence of a polycentric city.

After World War II, suburbs began to flourish and real estate developers found a new market in catering to suburbanites with the creation of shopping malls. Over the next decades, jobs and offices followed retail and housing out to the periphery, reinforcing the importance of sub-centers within polycentric

cities. In 1992, journalist Joel Garreau coined the phrase "Edge City" for the concentrations of development around suburban highway interchanges that continue to play an important role in the modern urban structure.

### Gottman's 'Megalopolis'

In 1961, French geographer Jean Gottmann determined that the Northeast Corridor of the United States represented a new form of urban geography known as a megalopolis. (Gottmann also identified the Chicago to Pittsburgh region and San Diego to San Francisco as emerging examples of megalopolis). The single metropolis with a dominant center, its suburbs, and a surrounding countryside was giving way to a more polycentric organization. Megalopolis provided a framework of centers for these suburban satellite developments, many of which had neither the size nor function traditionally associated with central places.

Gottmann used other important characteristics to define the megalopolis, including an increase in the intensity of functional interactions that are the basis of urban life, which are more important than geographic proximity. The extent to which ideas were exchanged through media, newspapers, travel and business helped to determine the size of megalopolis. Efficient communications and transportation were vital and commuters often traveled to several centers in the course of a day. Megalopolis also exhibited increased employment in the services sector, which improved its position as an economic hinge and transaction space for the region where ideas and goods were exchanged.

Today, almost 40 years after Gottmann first identified the Northeast megalopolis, highways crisscross our metropolitan areas and phrases like "reverse commute" and "cross-county connector" are the buzzwords of transportation planners. Only a few rail transit systems have adapted themselves to this quintessential new polycentric urban form. While agencies are quickly adding bus routes to link regional subcenters to central cities, the vast majority of these urban networks are served only by the automobile.

### 'Global Cities'

Saskia Sassen identifies "Global Cities" as an emerging type of urban network. Although Sassen prefers to consider Global Cities as distinct places (i.e., New York Global City is the five



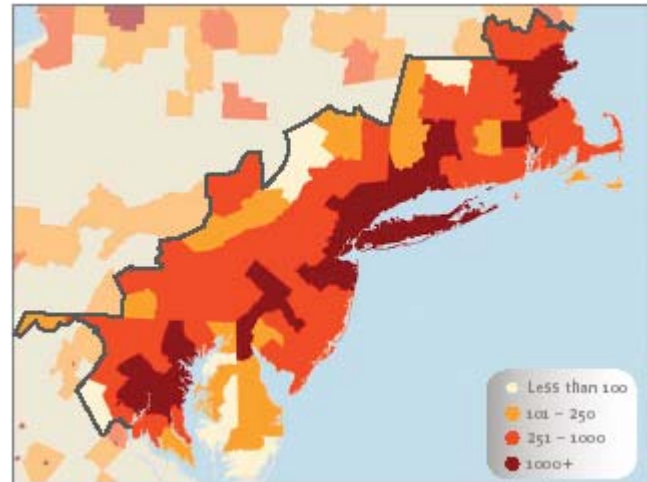
Source: Jean Gottmann, *Megalopolis*

boroughs and, specifically, Manhattan), they share characteristics with the definition of megalopolis. Specifically, Global Cities are those which play a role as an economic hinge for a very large region and, sometimes, an entire nation. The global exchange of ideas, commerce, culture and fashion tends to occur primarily between these cities. As trade becomes more global, economic activity will likely continue to gravitate toward these centers. The integration of air and rail service is critical to an inter-modal transportation system. Currently, airports are the hubs of our intercity transportation network, yet the vast majority of them can only be reached by private car or shuttle bus.

### Economic Regions

This argument holds that competition on the global scale is primarily an urban phenomenon, in that urban centers support the nation's global competitiveness. Jane Jacobs offers an expanded perspective, in "Cities and the Wealth of Nations",

**Northeast Corridor, as Designated by Gottmann's Original County Boundaries and Density Scale**  
Updated with 2000 Population Square Mile



outlining how cities develop trade networks that grow into economic regions. For these regions to thrive, cities must remain flexible and creative in order to constantly innovate and keep their economies up to date.

Avoiding stagnation through developing new technologies and exports is key. Yet, it is critical that all levels of the production and supply chains be engaged in mega-regions. Through value-added assembly and distribution, highly specialized sectors that are integral to innovation are not the only source for an economic region's health. A focus on value-added assembly and distribution works to incorporate all levels of the workforce that may not otherwise have the skill set needed to be a part of the global economy.

## The MEGA-Region Perspective

### The Mega-region perspective seeks to:

1. Promote relationships between existing metropolitan areas
2. Support sustainability and long-term vitality
3. Streamline transportation and land use patterns
4. Build new infrastructure systems for people and goods
5. Foster better economies
6. Re-establish upward social and economic mobility
7. Encourage cost-saving measures through cooperation

### Competitiveness and Cohesion

The Mega-regions of the United States are located in every part of the country, delineated largely by common history, geographic location, and topography. Between now and 2050, more than two-thirds of the US population growth and economic growth will occur in Mega-regions.

These networks are emerging as the new competitive units in the global economy. Already, Europe and Asia have begun to make major public and private investments in inter-modal transportation, broadband communications and other infrastructure to increase capacity, strengthen transportation and economic synergies between their component centers. Each world region has built new high-speed rail networks that are integrating the economies of formerly isolated regions, and in the process creating new highly competitive economic units.

A fundamental goal of the 3rd Century Strategy is to promote the creation of regional infrastructure organized around the anticipated needs of the nation's growing Mega-regions, and gateways to global markets.

### A New Strategy for America

As the number of economically competitive regions grows around the world, America's cities need to band together in order to strengthen their role in the global economy. It no longer makes sense for one city to lure companies from within the region when they could just as easily relocate across the country or across an ocean.

The United States will face a number of decisions over the next fifty years. Americans will have to decide whether they want

America by Design or American by Default. Our current direction is heading towards a nation whose competitiveness is threatened by inefficient urban forms and declining rural communities.

The Mega-region points us in a different direction, in which urban areas and their surrounding regions work together to address common concerns and share their complementary strengths. This strategy will produce an America that is environmentally sustainable, socially equitable, and competitive in an increasingly global economy.

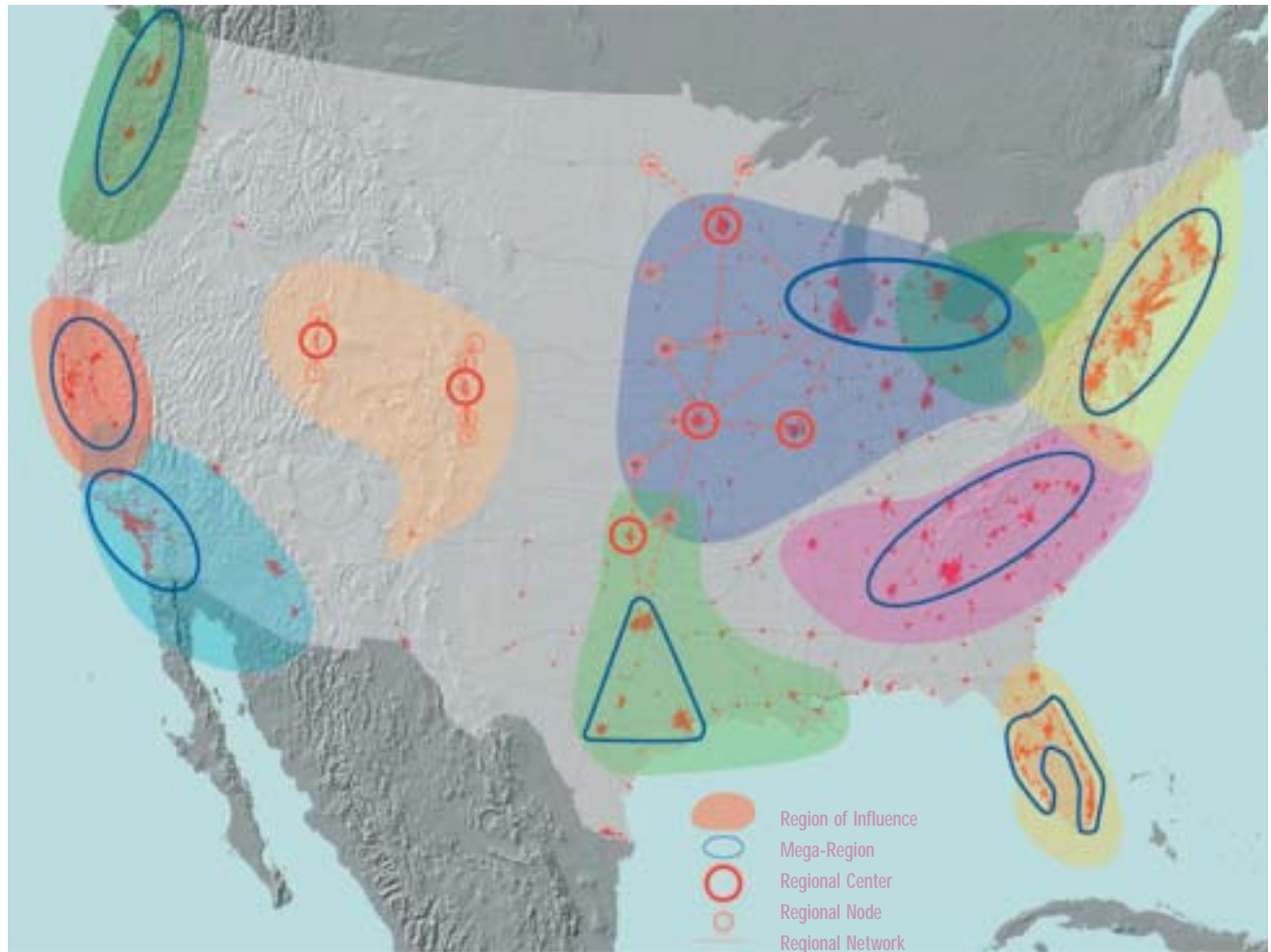
The Mega-region also presents a new opportunity for cooperation between cities and regions within the United States. As metropolitan regions in the United States grow together, many diseconomies have emerged, such as congestion in transportation networks, which affect the economic vitality and quality of life of these regions. The Mega-region model is based upon the idea that if the cities in these colliding regions work together they can create a new urban form that will increase economic opportunity and global competitiveness for each individual city and for the nation as a whole.

In order to create these Mega-regions, component metropolitan areas will cooperate in the formation of a structure that takes advantage of the complementary roles of each metropolitan area, while fostering the integration of core issues. By combining the unique advantages of these individual cities and investing in a more efficient regional infrastructure, the United States can create Mega-regions that are globally competitive. The collision between metropolitan regions in the United States has affected the economic vitality and quality of life in these regions.

Combined efforts are needed to address common concerns in the areas of transportation, economic development, equity and environmental protection. The Mega-region model will contribute to improving social and economic cohesion, a better territorial balance, and will support more sustainable development by emphasizing collaboration on important policy issues and infrastructure investments. In addition, Mega-regions will be important instruments for facilitating economic growth and job creation in surrounding regions, including underperforming areas.

New, innovative methods are needed to boost the economic future of both the currently vital places as well as the under-performing areas. Only by linking these areas can the country continue to be successful. There have been some instances of regional cooperation within these metropolitan areas, where the central city and the suburbs are beginning to work together to

further environmental, economic and transportation goals. However, with the exception of alleviating environmental pollution, there has traditionally been little collaboration between metropolitan regions. Larger scale linkages and investments are the keys to long-term global competitiveness.



# Goals and Strategies

## Prosperity, Equity, Sustainability and Financing

The 3rd Century Strategy encompasses long-range strategies to achieve three broad national goals for prosperity, equity and sustainability through the following objectives to:



Prosperity



Equity



Sustainability



Financing

- **Facilitate the emergence of nine new Mega-regions** that can compete with similar emerging networks of cities in Europe and Asia.
- **Create capacity** for a growth pattern that is consistent with the economic restructuring that is occurring within mega-regions.
- **Provide an infrastructure system** that creates the resiliency, redundancy and capacity needed to respond to national security and homeland security needs.
- **Develop cohesion strategies** to mitigate the spatial and economic disparities both within and between mega-regions and bypassed regions.
- **Protect and reclaim** important nationally significant natural and energy resource systems, and **promote less land-consuming** patterns of growth.
- **Initiate environmental mitigation** of pollution and public health risks.
- **Promote a new financing and decision-making framework** that incorporates a variety of organizations and funding mechanisms.



## Prosperity

The future prosperity and competitiveness of the nation will be built around emerging mega-regions. As centers of global trade, finance and manufacturing, these areas will continue to attract knowledge networks and high-technology workers. Spatial planning efforts focused on improving livability in these areas will enhance the quality of life, while infrastructure investments will serve to maintain these networks and sustain population and job growth.

### The nation's prosperity strategy will include:

- ❶ Developing new and emerging industries
- ❷ Facilitating higher value-added production in existing industries;
- ❸ Fostering the development of logistics jobs which drive mega-regions; and
- ❹ Creating a growing and upwardly mobile employment base through the construction of infrastructure financed by user fees.

### OBJECTIVES

1. Facilitate the emergence of nine new Mega-regions that can compete with similar emerging networks of cities in Europe and Asia.
2. Create an infrastructure capacity that is consistent with the growth patterns and the economic restructuring occurring within mega-regions.
3. Ensure that the infrastructure system creates the resiliency, redundancy and capacity needed to respond to national security and homeland security needs.

### STRATEGIES

#### Investment in Urban Networks to Increase Capacity and Create Redundancy

Competitiveness will be bolstered through the development of communications, infrastructure, and logistics networks for the flows of information, people and goods within the region. Investments in transportation and logistics networks will increase capacity and provide the restructuring that is imperative within manufacturing and other industries to expand the competitiveness of mega-regions in the new economy.

A significant problem with passenger transportation in the United States is that planes, trains and automobiles have always been viewed as separate, unrelated systems that compete against each other. Each of these modes has unique characteristics that make them the best choice for trips of certain distances. Rather than competing for travelers in the same corridors, trains and planes should be used to complement each other in a larger, integrated transportation system. Multi-modal transportation systems must be reconfigured as truly inter-modal systems that capitalize on the specific advantages of each mode.

The key to unlocking America's latent transportation capacity is the seamless integration of air, road and rail. The vision for American transportation in the next century is one where every mode of travel is used interchangeably to move people and goods from one point to another in the least amount of time with the least amount of congestion. Inter-modal connections will relieve congested airports, and the resulting transportation redundancy will provide increased options to make mobility less vulnerable to natural disasters and terrorist attacks and disaster. By having different options for intercity and intracity transportation, an attack on transportation infrastructure would only temporarily cripple one leg of the infrastructure "tripod" of road, rail and air.

Such a network will also provide greater options for freight movement. Finally, development focused around rail stations will shape and redirect urban growth in more efficient, less sprawling patterns.

This strategy is essential to providing inter-modal transportation choice, access and flexibility throughout the mega-region and even between mega-regions, thereby expanding opportunities

for economic growth and competitiveness both regionally and nationally.

## Goods Movement

Goods movement, or the transportation of freight cargo by ship, truck, rail, and air, is a vital component of the United States economy. 58% of the nation's economy, including manufacturing, construction, wholesale and retail trade, are highly dependent on transportation.

In 1998, 13 billion tons of raw materials and finished goods were shipped through the nation's highways, airports, waterways, pipelines and ports. The amount of materials and products transported each year is expected to continue rising, to a projected 19 billion tons by 2020, as relative transportation costs decrease and the international economy takes advantage of cheaper labor and material costs in locations scattered across the country and the globe.

In the United States, the growing volumes of transported goods compete with increasing passenger traffic for capacity on a transportation system that is not growing apace. Trucks comprise a substantial portion of rush-hour traffic on the highways of the nation's largest cities. Coastal cities with major nearby seaports, such as Los Angeles, New York, Oakland, Houston, and Seattle, are subjected to even greater amounts of truck traffic, as goods shipped from abroad to the nation are funneled through a handful of major ports. Metropolitan airports face capacity shortages as both passenger traffic and air cargo volumes increase.



Even passenger rail service in many corridors is affected by the growing freight rail industry.

The result of the growing demand for transportation capacity, coupled with a nearly static supply, is traffic congestion and delay.

Congestion threatens the functioning of a strong economy. Regions and even countries plagued by chronic congestion forfeit their economic competitiveness, as shipping delays increase production costs and reduce reliability. Congestion also has environmental effects, as idling cars and trucks consume more fuel and produce more emissions than is necessary. Finally, the social costs of congestion and delay have negative effects on quality

of life and on a region's relative desirability as a place to live and work.

Many regions are approaching the problem with investments in dedicated goods movement facilities. In Los Angeles, for example, the recently operational Alameda Corridor carries container cargo on trains from the Ports of Los Angeles and Long Beach to downtown railyards in a virtual "freight subway" with no street traffic crossings, eliminating thousands of truck trips per day. Other regions are evaluating truck-only lanes or dedicated truckways to both facilitate the transportation of goods and eliminate conflicts between truck and passenger traffic. These ideas promise to improve access to markets and households in ways that strengthen the economy and reduce pressure on passenger facilities.

## Airports and High Speed Rail

Many of the nation's busiest airports are located within a few miles of existing passenger rail service. This is important for two reasons. First, rail acts as a very important, high capacity travel mode to get passengers to airports quickly while avoiding highway congestion. Second, high quality High Speed Rail (HSR) service can replace air service between cities that are within the same mega-region, e.g. between Boston, New York and Washington DC or Los Angeles, San Diego and Las Vegas. This reduction in air trips will free up landing spots at airports, allowing airlines to serve more long haul routes where larger planes make air service more profitable.

Many of the advantages that made rail travel the preferred method in the 19th century are



still an advantage today. Rail has the highest potential passenger capacity of all travel modes. It consumes less energy and produces less pollution per passenger mile than either air or private automobile. Train stations are generally found in the heart of the city, which means that they are within a short walk, bus or taxi ride of a region's employment center. Finally, a rail passenger can arrive at the station 10 minutes before departure, purchase a ticket and be on his way.

When comparing travel times from city center to city center, trains enjoy a significant advantage over planes trips within the mega-region. At shorter distances HSR is more cost effective than air for passengers and transport operators, and door to door travel times are shorter. Further enhancing that advantage, average travel distance to airports is 21 miles, but only 12 miles to rail stations. Additionally, 56% of all commercial flights in the US are within mega-regions, indicating that an efficient HSR network within mega-regions could become a key component of the American passenger transportation system.

Meanwhile, airports across the country are struggling to increase capacity with costly terminal expansions and environmentally unacceptable new runways, which can take 10-15 years to construct. For example, the state of Illinois is trying to fund a \$6.1 billion renovation of Chicago O'Hare airport in order to increase its capacity. In Frankfurt, Germany, opposition to a third runway forced airport operators to pursue improved rail connections.



The result has been new relationships between air and rail operators, shifting domestic flights

to rail and freeing up much needed airport capacity. More and more European airports are finding air capacity solutions by looking to the ground: by creating HSR stations at the airport, some of the continent's most congested hubs are transferring passengers to rail for the completion of their voyage. These Air-Rail interchanges also function as regional office centers in polycentric urban regions, providing desirable location advantages with outstanding transportation connections. Worldwide, there are 70 Air-Rail connections in operation and 230 planned.

Through agreements with railroads enabled by new HSR connections, Air France and Lufthansa have been able to discontinue flights on the Paris-Brussels, Frankfurt-Cologne and Frankfurt-Stuttgart routes by "code sharing" with railroads. As airports across Europe link up with HSR networks, the continent will enjoy the economic benefits of higher capacity.



Currently there are three US Air-Rail connections in operation including Baltimore, Newark and San Francisco. There are Air-Rail connections under construction in Providence, Milwaukee and Harrisburg – this does not even include rail public transit connections to airports. The potential for air-rail connections to relieve airport congestion is enormous. For example, in Northern California, over 281 intrastate flights to Oakland and San Francisco International Airport could be transferred to HSR. This new airport capacity would allow for more long-distance flights that bring business

from outside the region, further enhancing Northern California's economic ties around the globe.

The Southern California Mega-region is currently developing plans for an Intra-Regional High Speed Rail system using magnetic levitation (Maglev) technology to connect its regional airports to other transportation centers, in Los Angeles, Riverside, San Bernardino and Orange Counties. While increasing capacity, comfort and reliability, the system will cover over 275 miles of Maglev corridors and move up to 500,000 riders a day.

### Investment in Human Capital

Given that workers fuel competitiveness, investment in human capital will be a necessary outcome of this strategy. Currently, the low-skill service sector is not as adequate in supporting less educated workers as the declining manufacturing sector once was. Investing in the high-technology sector is only part

of the solution to developing competitive economic sectors in the United States. Investment in human capital that goes beyond the high technology sector will be an important outcome in developing a national strategy that provides the necessary infrastructure for global competitiveness, while also having equity implications for less educated workers.

## The Logistics Industry

Investing in infrastructure systems for mega-regions to develop their logistics networks is integral to the prosperity, equity and sustainability goals within this strategy.

The logistics sector introduces an important opportunity for investment in infrastructure and job growth that does not require a college education, yet yields higher pay than the service sector. The strategies used in the expansion of logistics networks involve creating a regional system of dedicated truckways, expanded rail capacity, just-in-time production, just-in-time delivery and value-added assemblage and distribution to create a wage/labor structure for all members of society.



Developing the requisite infrastructure to offset the congestion created by goods movement serves sustainability goals in reducing traffic and improving public health and quality of life concerns.

Global gateway port regions that have experienced significant drops in per capita income relative to other metropolitan regions over the last two decades are especially primed to develop their logistics industry. The wholesale trade, warehousing and transportation sectors in the Southern California mega-region, for example, represent over 8% of its total employment, and have contributed more than 12% of total job growth, with wages that make it the third highest paying job sector.

## Mega-regions and Global Competitiveness

Mega-regions may have a particular role to play in creating economic competitiveness in the United States industrial sector. US industries often find themselves at a disadvantage in head-to-head competition with lower cost regions in Asia and Latin America, where wages and permissive regulatory environments reduce the costs of production.

However, as economist Michael Porter has pointed out, inner cities and metropolitan regions can also take advantage of competitive advantages in knowledge and technology to be more efficient in production. Older urban areas have spatial and development patterns that may foster competitive economic clusters. Mega-regions may provide an opportunity to translate these advantages to a larger scale

while controlling costs of housing, infrastructure and environmental impacts.

In addition to advancing technology, coupling and chaining industrial activity to take advantage of “just in time” production and delivery can also be an essential element of cost reducing strategies. The capacity to move goods quickly and “on demand” is becoming a serious obstacle that individual firms are facing. Transloading strategies, discussed previously, offer time savings that result in direct cost savings ranging from 18 to 25%.

Efficient provision of these services from airport or seaport to firm, from unit to unit within a firm, or from firm to firm on a limited and congested transportation system is among the greatest challenges of a global economy competitive strategy. This challenge can only be met with Mega-region development patterns and infrastructure investments.

## Energy Independence

Though its population accounts for only 5% of the world's population, the United States consumes 26% of the world's energy. The inexpensive and plentiful energy supplies that Americans enjoy influence consumption, land use patterns, and encourage automobile use, which in turn result in rapidly growing energy demand.



Transportation accounts for one-fourth of all of the United States' energy consumption, including two-thirds of all oil. Each year, the country imports over \$50 billion of foreign oil, and spends an additional \$40 billion on military protection of foreign oil fields and sea lanes.

Concerns around being overly dependent on an increasingly insecure energy source has led the United States to make a call for “energy independence.” But, with less than 3%

of the world's proven oil reserves located domestically, ending its dependence on foreign oil is a pipe dream. Recent moves to drill in Alaska's pristine wildlife refuges will not yield enough oil to guarantee future independence from foreign oil.

In addition to economic, political and environmental costs, United States' dependence on foreign oil presents an impending challenge to the growth and

competitiveness of the nation. The country's economy is largely based on the use of relatively cheap oil for all of its manufacturing and transport needs. This creates a vulnerability that is based not simply upon increasing scarcity, but upon the concentration of oil in countries where political disruption, terrorist attack, economic shock or embargo is a possibility. With this, a significant variable in the country's competitiveness appears to lie in foreign hands.

### Alternative Energy Strategy

Thus, a more sustainable goal is not only to be independent of foreign oil, but of oil in general through a portfolio approach towards investment in a variety of alternative energies.

Diverting certain government subsidies to the oil and gas industry towards investments in cleaner burning hydrogen fuel cell, solar, wind, bio-fuel, and other alternative energy sources would be the first step in weaning the United States off of oil.

This would also spark private investment in new technology, research and development in alternative energy, providing a new industry and opportunity area for the country to focus its economic growth. Additionally, the development of cleaner energy technologies would serve to reduce air pollution and its associated environmental and public health problems. Technological developments for creating a “hydrogen economy” may ultimately address both the energy security and environmental concerns associated with our current “carbon economy”.

Energy security can no longer rely on the resiliency of global oil markets, but must be grounded in investment in a variety of alternative energy sources. A shift from foreign oil dependence to domestic energy independence is critical to the nation's long-term economic competitiveness.

### Land Use Policy

Land use policy also plays a role in reconciling the country's growing energy demand. With 60% of all US oil consumption attributed to the transportation (be it the personal vehicle or trucks used in goods movement) improved coordination of land uses to transportation can serve to reduce vehicle miles traveled. These strategies entail the encouragement of land uses such as housing, job centers, shopping and recreation to be more conveniently located, allowing for non-motorized options, mass transit and minimized automobile use.

Rapidly growing areas are taking positive steps towards guiding regional growth to curb the suburban sprawl trend, and its accompanying health, quality of life and environmental effects. In the Southern California Association of Government's (SCAG) “Compass Growth Vision”, growth is focused in existing and emerging centers, along major transportation corridors, and

around existing and planned transit stations. San Diego has embarked on a similar regional growth visioning process with its Regional Comprehensive Plan, geared toward integrating land use and transportation in order to create mixed-use developments and walkable communities that further serve to preserve open space and stable residential areas. Northern California examples of regional land use planning initiatives include San Francisco's Regional Livability Footprint Project and the Blueprint Project in Sacramento.

The land use patterns created by these regional growth visions can have significant impacts on energy use. The Compass Program focuses on infill development in strategic opportunity areas that make up about 2% of the SCAG region. By implementing this “2% Strategy” over the “no plan” status quo, it is estimated that the region will reduce its fuel consumption by over 1.6 million gallons per day. Regional performance analyses indicated that 53% of this reduction in VMT is attributable to land use directed at more compact, transit-oriented, and mixed use development patterns. Incorporating goods movement and logistics strategies to these land use strategies would further improve energy efficiency.

Increases in oil prices from \$10 a barrel in 1998 to over \$50 a barrel in 2005 still do not reflect the true cost of the country's energy consumption. And while the higher prices have not changed America's consumption habits or adversely affected its global standing, change is imperative for the long-term viability of our economy, standard of living, and environmental quality. A shift towards domestic petroleum substitutes and land use strategies that harness growth is integral in striving for energy independence before a true oil shock occurs.

The Compass 2% Strategy has defined a shared vision that can guide land use decisions, transportation investments and housing development for the next 30 years. Local and regional actions, together, can result in profound tangible benefits to the mega-region's future. The following data highlights several of the key benefits attributable directly to the Compass land use actions. The percentages shown are the percent of total benefits that the Plan provides due to the Compass 2% strategy land use policy.

Energy Benefits		Percentage of Plan Benefit
Vehicle Miles Traveled (VMT) Reduction	7,000,000 miles*	54%
Vehicle Hours Traveled (VHT) Reduction	340,000 hours*	20%
Hours in Delay due to Congestion Reduction	180,000 hours*	12%
Fuel Consumption Reduction	858,240 gallons*	53%
Reactive Organic Gas Emitted	2 tons*	70%
Transit Ridership Increase	200,000 boardings*	30%
Housing Benefits		
Housing Production Increase (2010-2030)	400,000 units	
Housing Affordability (Reduction in Housing Costs)	20-35% per unit	

\*per day in 2030





## Equity

At a time when local and regional boundaries in the United States are highly pronounced, a national growth strategy can serve to unite and dissolve perceived divisions. In developing a successful spatial and economic strategy that focuses competitive energies abroad to Europe and Asia, a stronger sense of regional and national cohesion will ultimately emerge.

### OBJECTIVE

1. Develop cohesion strategies to mitigate the social, economic and spatial disparities within and between urban and bypassed regions.

### STRATEGIES

#### Social and Economic Equity within Mega-regions

The first step in this process is to build cohesion and equity within regions. Focusing on economic development in communities in need will not be successful unless there is a tie into changes in the economic base of the region. Regional prosperity strategies include developing new opportunities in logistics, value-added manufacturing bases, and infrastructure construction.

These growing sectors within the mega-region provide upward social and economic mobility to unskilled workers through better pay and on-the-job training, with defined skill ladders for career development and better standards of living.

These opportunities will ultimately serve to minimize growing wage and income disparities, thereby creating more equitable prosperity opportunities regardless of educational attainment. At the same time, they will complement higher wage sectors thereby creating balance throughout the mega-region in terms of development patterns, housing cost reductions and better quality of life.

#### Spatial Equity within Mega-regions

Linking areas within the Mega-region is not only a matter of connecting economic regions. It must also be implemented spatially through land use and development patterns that include mixed use and mixed housing prices with common spaces that bring groups together and create patterns of affordability for all. Transportation systems and community facilities must be accessible to greater parts of the mega-region and function efficiently for all members of society.

#### Intra-regional Equity

Developing social, economic and spatial equity within mega-regions is important. Connecting these to the country's bypassed rural and urban areas is critical. With diminished links to innovative economic development, these bypassed regions have been removed from the global economy and remain in a state of stagnation, resulting in mega-regions finding little use for them in order to bolster their own growth.

Yet, establishing a national cohesion strategy that connects geographically and economically separated regions benefits both bypassed regions and mega-regions. Improved infrastructure networks serve to build stronger relationships that utilize the competitive advantages of each area to help expand and disperse growth and development at all levels of the production chain. Drawing cohesion between mega-regions and bypassed regions is essential to their own growth, and thus to the competitiveness of the nation as a whole.



## Sustainability



### OBJECTIVES

1. Protect and reclaim important nationally significant natural resource systems and promote less land-consuming patterns of growth.
2. Initiate environmental mitigation of pollution and public health concerns

### STRATEGIES

#### Sustainable Natural Resource Management

Both cities and their surrounding regions can take steps to protect and promote the sustainable use and management of natural resources. As populations grow, homes expand and vehicle miles traveled increase, energy consumption is sure to skyrocket. Yet with investments and innovations in wind, solar, hydro electric, hydrogen and biomass energy America's Mega-regions can grow more sustainably, while weaning off of non-renewable foreign energy sources.

#### Land Use Policy Tools

Growing sustainably requires managing land use patterns that could lead to uneven and inefficient growth. Smart growth tools such as infill development and adaptive reuse within the existing urban fabric can mitigate the effects of sprawl such as the consumption of prime natural and farmlands, as well as encourage more walkable and transit-oriented communities. Strategies include financial incentives for infill development, while discouraging inefficient growth at the periphery.

#### Emission reduction programs

Specialized regional agencies, such as air quality and water districts can serve to promote energy conservation and emission reduction programs. Infrastructure investments in dedicated truckways serve to reduce delays and emissions from idling cars and trucks. Improvements, such as retrofitting tracks, trains and cargo ships with cleaner technologies can also help to improve air quality.





## Financing

### OBJECTIVE

1. Promote a new financing and decision-making framework that incorporates a variety of organizations and funding mechanisms

### STRATEGIES

#### Framework for Cooperation

Governing the mega-region is no small task. As it is, challenges to regional governance include a minimal direct authority, decreased incentives for compliance and often divergent and opposing goals within subregions. Nonetheless, the emergence of the mega-region requires a new and improved framework for governance and cooperation. Cohesion is another key element of this strategy. Improved governance relationships developed between the federal government and regions, as well as between individual states and regions will create a new system that places greater importance in the structures and needs of regions as the building blocks to a national strategy.

#### National

The framework for the 3rd Century Strategy could be advanced in a number of different and complementary ways. Ideally, the President, as did his predecessors, will make this effort a priority goal, and use his “bully pulpit” to advance federal, state, regional and civic efforts to complete the regional plans and strategies that will be building blocks of the strategy.

Government agencies could take positive steps in reshaping their policies and programs to enable these prosperity, equity and sustainability strategies. The Department of Housing and Urban Development could reframe its approach towards growth and housing to consider the specific trends occurring in mega-regions. The Environmental Protection Agency may evolve and adapt its regional environmental strategies to this scale. The Department of Transportation might reauthorize funds for transportation and aviation that focus on intermodal transporta-

tion policies and user-based financing structures that bolster global competitiveness. And Congress could rethink its inter-governmental funding principles to support financing instruments that will advance this effort.

#### Regional

Governors, members of Congress, mayors and regional officials across the country could promote their own strategies with coordination from either new or existing coordinating groups, such as American Planning Association, the National Governors Conference or the National League of Cities.

Universities could also become involved in conducting research and offering policy explorations. While, foundations could lead efforts in pursuing and promoting policy initiatives and strategies.

The process could also be kick-started by existing or new regional agencies or civic groups organized around emerging mega-regions or urban and rural regions that could create their own regional plans and strategies. This would mirror the voluntary process used in the European Union, which is shaping similar policies and investments. A new ad hoc coordinating council could be established to manage these voluntary efforts.

#### Governance Structures

There are three models for this a new mega-regional governance structure. The first would not differ too greatly from the current regional governance structure in place across much of the United States. Metropolitan areas would take the initiative through their existing MPOs and regional planning agencies to bolster partnerships. With federal financing, they would work to increase wealth and create mechanisms for financing infrastructure in the region that will require new systems of enterprise funding that complement traditional sources, to build and maintain needed infrastructure for the competitiveness, cohesion and livability of these regions.

A state-mandated governance structure would maintain regionalism as the foundation for governance. States would mandate that all cities and counties in a given region join a Regional Council (RC). Unlike the existing model, participation in the RC would not be voluntary, thus resulting in expanded authority and guidance on the part of the council. Mandatory participation would ensure that cities, counties and other member agencies actively engage in dialogue to develop a

Comprehensive Regional Plan for the region, which would represent and protect both local and regional interests. A state led region would be difficult, however, in cases where a mega-region is at the multi-state level, further complicating attempts to connect mega-regions and bypassed regions.

Finally, a community-based structure would represent the bottom-up approach, with the initiative coming from the local level. Under the notion that the overarching function of government should be to develop the individual in society and to facilitate community building by opening and broadening political discussions to value all perspectives, this structure would involve the formation of strategic partnerships within cities and regions. The organizing scale of the mega-region will be established through networks, with different parts of the region continually feeding back to each other on regional issues and interests. The goal is to scale down the institutions of government and governance to allow greater interaction between individuals within their communities to establish greater access to these networks, and effect changes that are beneficial to individuals and politically viable within the mega-region.

Overall, developing cohesion will occur through cooperation between groups and agencies focused on achieving similar goals. Within all of the governance structures, existing interests competing for funding, especially in the area of transportation, must work to integrate a shared vision that builds a viable policy instrument for initiatives that go beyond seeking funding but also develop a coherent national public policy.

### Financing Mega-regions

The proposed new infrastructure systems and development outlined in this paper could cost trillions of dollars. Much of these systems could be financed through user fees and public private partnerships. Employing modest payroll or other taxes to finance some of these investments could generate trillions of dollars of new economic capacity for the whole nation. The expected doubling of the national economy by 2050 would expand the gross domestic product by more than \$14 trillion (in constant dollars). Redirecting even a small share of the growth of tax revenues in these strategic investments could secure the nation's economic future.

In addition, financing for this governance system should be based on the basic concept of Return on Investment (ROI), both

public and private. Investments should be on networks that are efficient and increase productivity, while generating affordable outcomes in housing and transportation. Both public policy and private investment decisions should be based on producing a maximum ROI. Thus, a goal-oriented, performance-based decision making process that supports this objective is integral to the strategy. Government policies and tax structures will reinforce this approach.

For over a hundred years, the United States has financed major infrastructure projects through a "top-down" system, with major funding from the federal government complemented by state resources. Based on general public agreement of national priorities, this model financed several generations of growth and paid for one of the world's great infrastructure systems. However, it is now coming to an end, as the needs of maintaining aging infrastructure systems outpaces federal and state funding, to say nothing of new capacity expansion. Today, we witness a debate between "donor" and "donee" states over the fairness of federal transportation funds, even as the total amount of federal dollars falls far short of estimated needs. As a result, we find ourselves increasingly starved for capital for infrastructure systems.

To provide more funding for system maintenance and expansion, metropolitan regions are exploring new and innovative financing systems to raise new funds. Public authorities use their tax-free status to attract private dollars through bond issuances, sales and lease-back arrangements. New user fees, such as container fees, congestion pricing or HOT lanes on toll roads, link charges to those who benefit most from new investments, creating new revenue streams. Value recapture models, such as tax increment financing, allow increases in land values to finance infrastructure investments.

The Federal government is advancing instruments such as TIFIA, the Transportation Infrastructure Innovation Act, to stimulate the development of these projects. However, mega-regions have a critical role in this emerging system, by providing a vital link between state and federal government and local jurisdictions, which in many cases have the last say over land use decisions. They transcend political boundaries and capture the true economic and social geography of emerging communities; and have the size, capacity, and expertise to undertake complex planning strategies.

## Next Steps Toward a National Strategy

1807 1907 2007

In 2007 America will celebrate the bicentennial of Jefferson's national plan, and the centennial of Roosevelt's second national plan. An ambitious goal would be to initiate preparation of the 3rd Century Strategy in 2005, with the goal of completing this effort by 2007, the centennial and bicentennial of Roosevelt's and Jefferson's national plans. The federal government could play a crucial role in this process, through collaborations with existing and emerging regional bodies involving:

**A "bottom-up" process:** The 3rd Century Strategy could emerge from a "bottom-up" network of inter-connected regional strategies, encompassing each of the emerging Mega-regions and both growing and declining urban and suburban regions across the country.

**Federal coordination and incentives:** Ideally, the federal government will help coordinate and "incentivize" these planning efforts, and provide "bully pulpit" leadership from the White House, but rely on local and regional initiative to drive the development of each region's own strategies. The Federal government will also need to broker networks and provide financial incentives and transfer payments in order to build cohesion between mega-regions and bypassed regions. It should be noted, however, that in the event that the federal government chooses not to lead this effort, local plans and strategies coordinated through a voluntary leadership council could achieve many of these outcomes.

**Strategic investments in infrastructure:** The federal government could also lead in coordinating plans for national and regional inter-modal, high-speed transportation networks, as it did in promoting creation of the national rail and interstate highway systems. It is anticipated that the heart of these networks would be several regional high speed rail systems, organized around emerging mega-regions. These systems would be integrated with networks of airports, rapid transit systems and dedicated goods movement systems that will eventually need to be inter-connected in order to create an overlay and multi-modal component to the national highway system.

**Public-private partnerships:** These investments should be made through partnerships between federal, state and regional government and private investors. Wherever possible, user fees, tolls and fares should cover a substantial portion of the cost of developing and managing these systems. Plans for these infrastructure systems should be closely coordinated with strategies for urban and regional development, to ensure that future development patterns support, and are supported by, infrastructure investments.

**Education and research:** Regional strategies could promote investments in major higher education and research institutions needed to maintain the nation's competitive advantages in technology and create a life-long learning system to help skilled workers adapt to economic change. Workforce education at community colleges and through on-the-job training in logistics and just-in-time manufacturing processes would also provide less skilled workers with opportunities for jobs and advancement that complement innovative growth industries.

**Environment, smart growth and quality of life:** Regional strategies could also identify the important natural resource systems that sustain public water supplies, biological resources, sense of place and recreational opportunities. Future growth could also be designed to reuse formerly used sites and to reclaim and restore impaired landscapes and natural resource systems.

**Demonstration projects:** Federal and state governments could invest in demonstration projects that can test innovative transportation, land use, environmental and other strategies.

**Non-profit organization:** A 501c(3) non-profit organization could be created to promote emerging mega-regions, and advance policies and strategies for national cohesion and competitiveness.

## CREDITS

This document builds upon “Toward an American Spatial Development Perspective”, a report drawn out of the research and findings of a graduate planning studio at the University of Pennsylvania in the spring of 2004. Discussions, workshops and roundtables in the United States and abroad have since explored America’s nine emerging mega-regions and their impact on global competitiveness for the next century.

This has been a collaborative work of:

Armando Carbonell, Co-Chairman, Department of Planning and Development, Lincoln Institute of Land Policy

Mark Pisano, Executive Director, Southern California Association of Governments

Robert Yaro, President, Regional Plan Association

Pria Hidisyan, Editor

Welma Fu, Senior Graphics Designer