Transportation Planning from the Bottom Up:

Implications of Conducting Long-range Transportation Planning and Prioritization Efforts in Disunion

REMI User's Conference

October 26, 2017

What Is ARC?

- The Atlanta Regional Commission
- 1947 (Metropolitan Planning Commission)
- First in Nation (multijurisdictional public planning agency)
- Intergovernmental Coordination Agency
- “Conduit for innovation to support the growth and development of our local communities”

ARC Organization

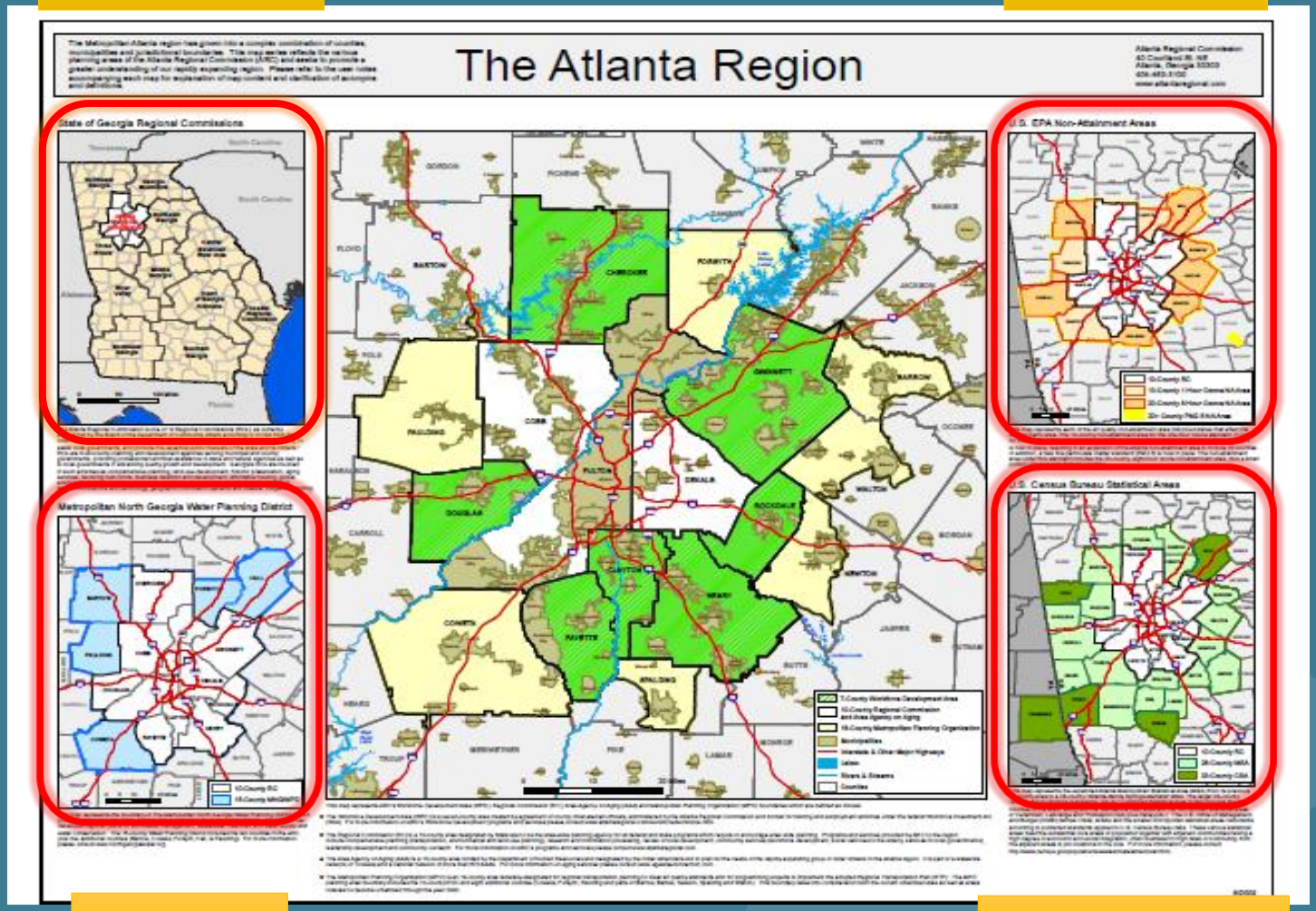
39 ⇔ 10 Chairmen,
12 Mayors, 1 Councilmember,
15 Citizens, 1 DCA

~200 staff

The Atlanta "Region"

10-County RDC

20-County NA



15-County MNGWPD

33-County CMSA

Outline

- Agency's Resolution
- Purpose and Scope of Project
- Regional and sub-regional funding environment
  - Amended Transportation Investment Act of 2010
  - Transit Investment Addendum and Improvements
  - Local Taxation for new funding model
- Model Design and Outcomes

ARC Objectives

- Purpose
  - Produce local long-range demographic, employment and economic forecasts for the 20-county ARC region
- Intent
  - Dedicated to informing public and private policy decisions
  - Focused on research-based analysis
  - Orient stakeholders and decision makers on socio-economic and transportation impacts to our Region
- Goal
  - Continue to lead in regional economic forecasting and policy analysis
  - Provide economic development impact plans and assess travel demand changes to the region's transportation network

Strategic Approach

- Advanced modelling application and tools providing improved technical analysis and compatibility
- Develop new and contemporary tactics for rebranding and financing our transportation system
- Bold decisions demand creative, sophisticated and robust tools capable of supporting these processes
- ARC engagement in performing scenario planning and economic analysis to consult, measure and capture specific impacts to our Region
  - Economic impact analysis to assist and inform impacts or benefits on investments
- Simulate and illustrate major developments in the Region
  - Assess projects of regional impact

Research Team Objectives

- Conduct potential project prioritization plans
  - Assist in developing a project list
- Perform sensitivity tests of the model and projects
  - Measure the reasonableness of economic activity and transportation efficiencies of qualified projects
- Assess the potential economic impact and provide analysis on county-level projects selected for the RTP
- Develop regional and small-area control totals for regional long-range forecasts and travel demand model assets
- Produce data for inter-departmental work programs and external ARC counterparts

EAP Mission

Economic Analysis Progam

The Economic Analysis Program (EAP) of the Center for Livable Communities at the Atlanta Regional Commission (ARC) exists to provide local governments, stakeholders and businesses with customized research plans and economic impact studies that assist agencies with making informed policy decisions on various development scenarios within the Atlanta Region. Our charge is to conceptualize regional opportunities; conduct predictive analysis on regional issues and initiatives; simulate "what-if" inquires through scenario planning and econometric modeling; and produce economic impact studies which information on how an area or region may be influenced by a proposed theory, project or assumption. Through this program, the ARC will provide technical assistance to the metropolitan Atlanta area to include the 20-county MPO, as well as the rest of the state of Georgia, to promote sustainable economic and transportation development.

- **Provide research and analytic capabilities to:**
  - **Local governments**
  - **Stakeholders**
  - **Business community**
- **Assist agencies on policy decision-making**
- **Answer "What-if" inquiries**
- **Explore regional opportunities**
- **Provide technical assistance**
- **Measure sustainable development**

Why REMI?

- Requirement for dynamic economic analysis
- Economics and demographics of a region are changing over time
  - Projects effect today much differently than the future
- Scoring projects based on travel demand and economics as a complete system
- Every region's travel network and economy is different

REMI Models

PI+

- The next generation Policy Insight® model
- Comprehensive modeling estimating economic and demographic effects
- Up to 169 industry sectors across 3,089 U.S. counties including 6,000+ fully adjustable policy variables updated yearly

TranSight

- Comprehensive tool for evaluating the total economic effects of changes to transportation systems
- Integrates travel demand data, data on emissions, safety valuation factors, etc, and 3 additional transportation-related cost matrices with PI+

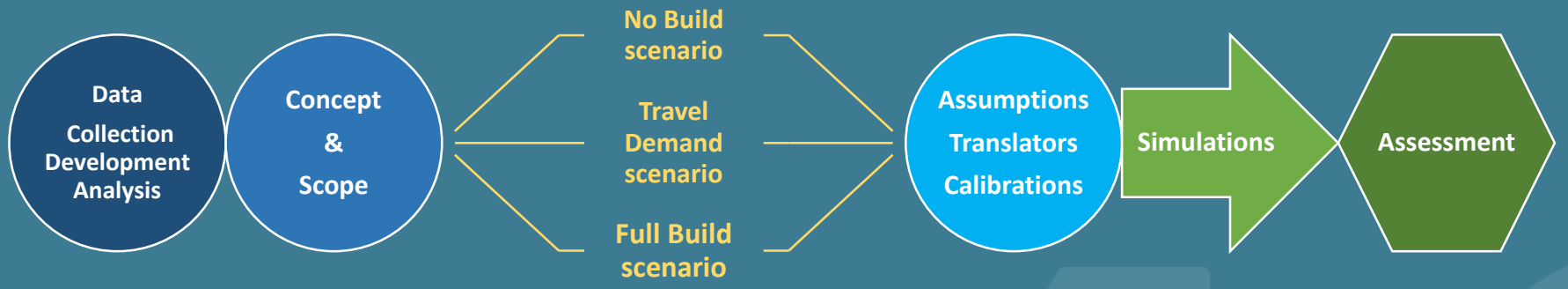
TranSight Specific Features

- Outcome-based Exploration:
  - Customizable
  - Evaluate in different years
  - Execute ROI / B-C / Impact analyses

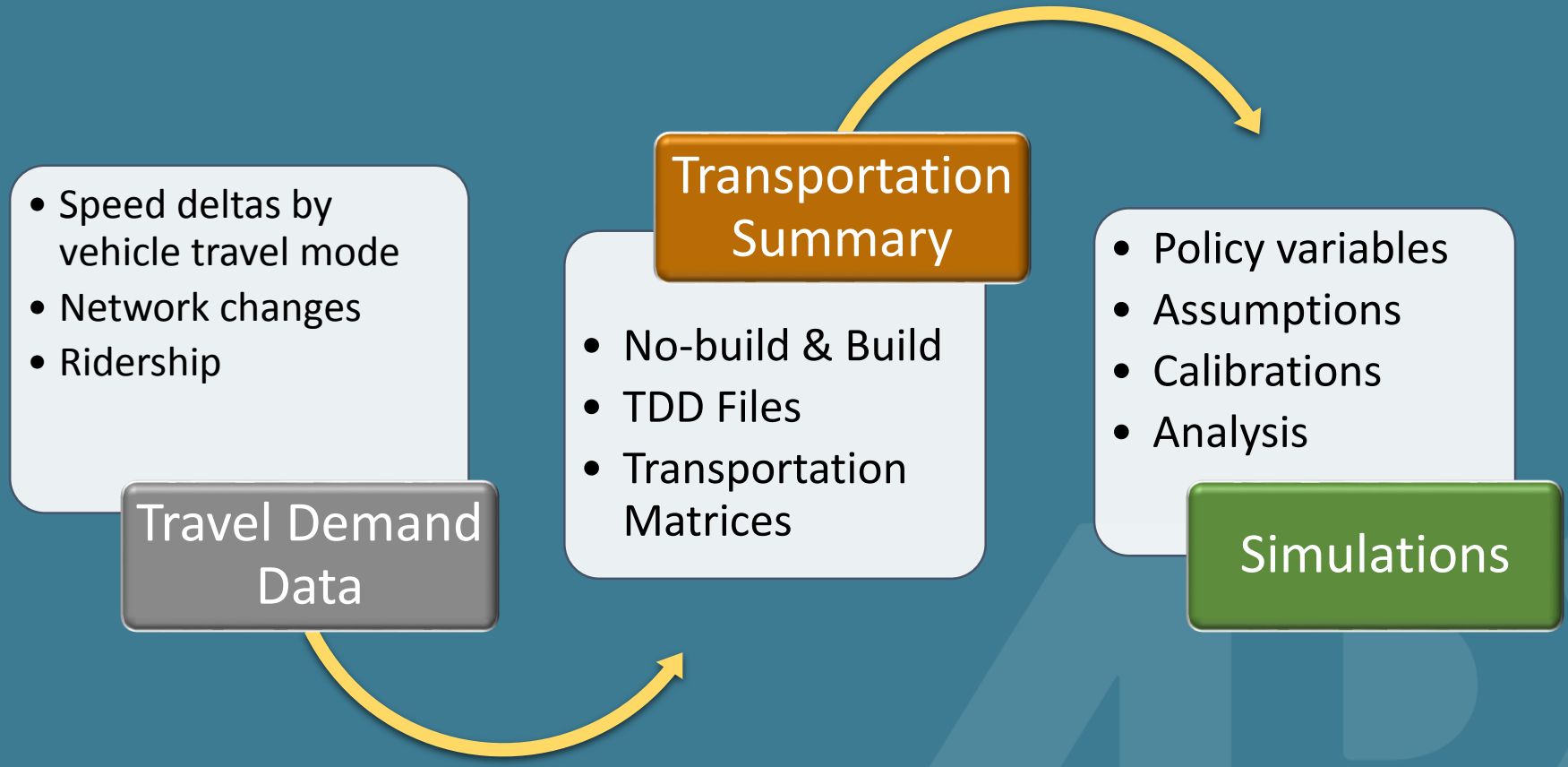
- Transportation Summary:
  - Commodity and labor Access Indices
  - Relative cost factors

- Economic and Demographic Results:
  - Built on the REMI PI+ platform

Framework


Data
Collection
Development
Analysis
Concept
&
Scope
No Build scenario
Travel Demand scenario
Full Build scenario
Assumptions
Translators
Calibrations
Simulations
Assessment

ARC Model Linkages



Scope of Project Tested

- Over the next year or two, funding options will be on a referendum and available for vote at the local government levels
- Purpose
  - Explore county-level local preferred roadway project results against a no-build region travel scenario
  - Intend to show transportation investment influences at a sub-regional level
  - Estimate project plan implications on affected region and quantify inter-regional impacts
- Nearly 400 projects are used for this analysis according to the project's local plan, objective and impact on area

Testing Objectives

- Measure economic activity and transportation efficiency of select projects
- Estimate project's impact and value to the area
- Perform qualitative analysis on area's attractiveness, competitiveness and opportunities
- Standardize policy variables used for evaluating constructability analysis and potential prioritizing of the project and transportation investments
- Contrast local government plan implementation with and without regional transportation coordination

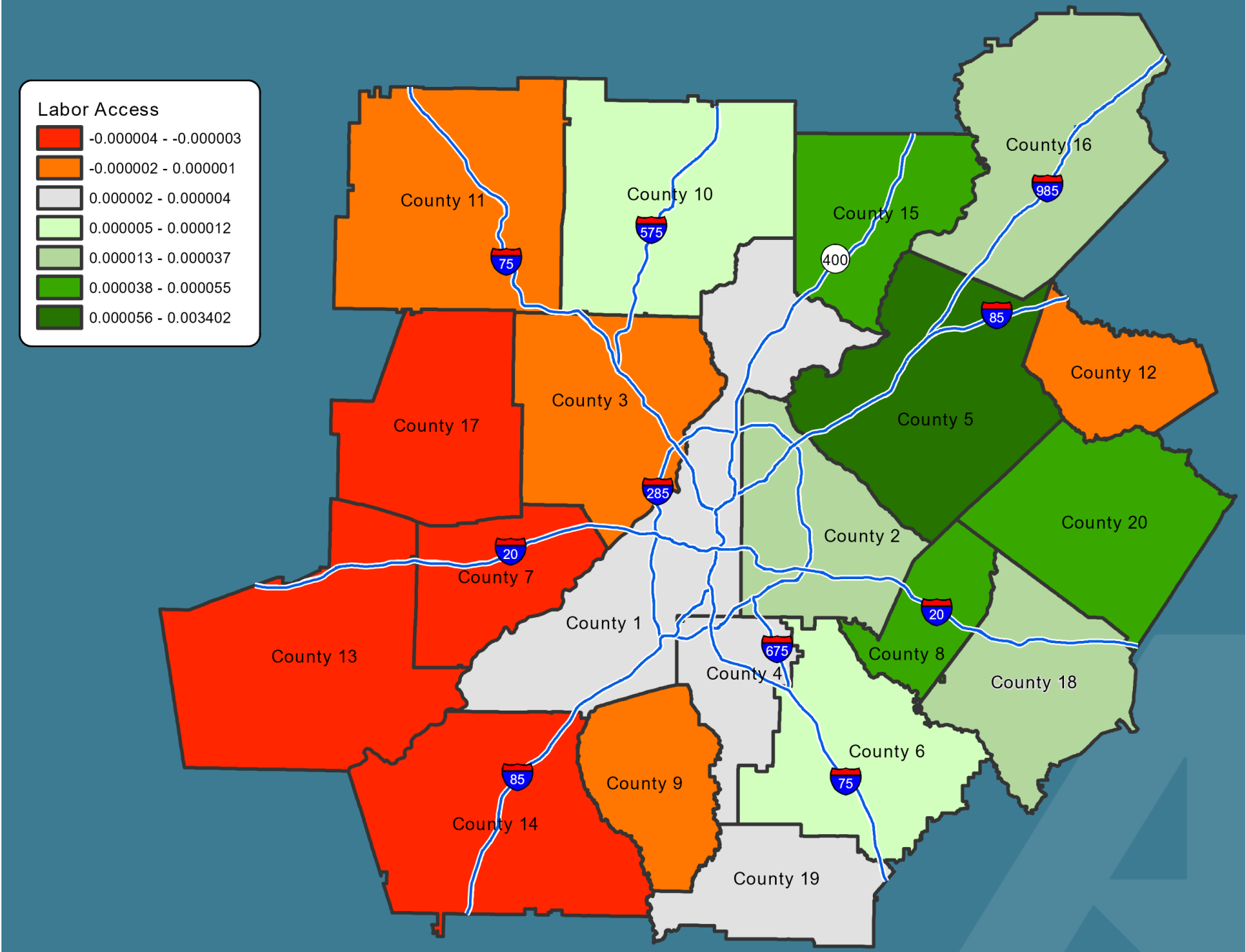
Project Framework

- Project required a model run using 2015 SE data
- Base will be the latest 2016 network
- Two travel demand model runs with a TranSight model run interpolated between both 2030 and 2040 SE networks
- Opening year was assumed at 2031
- Assumed network conditions were same for project until 2030
- Results explained in differences by 2040

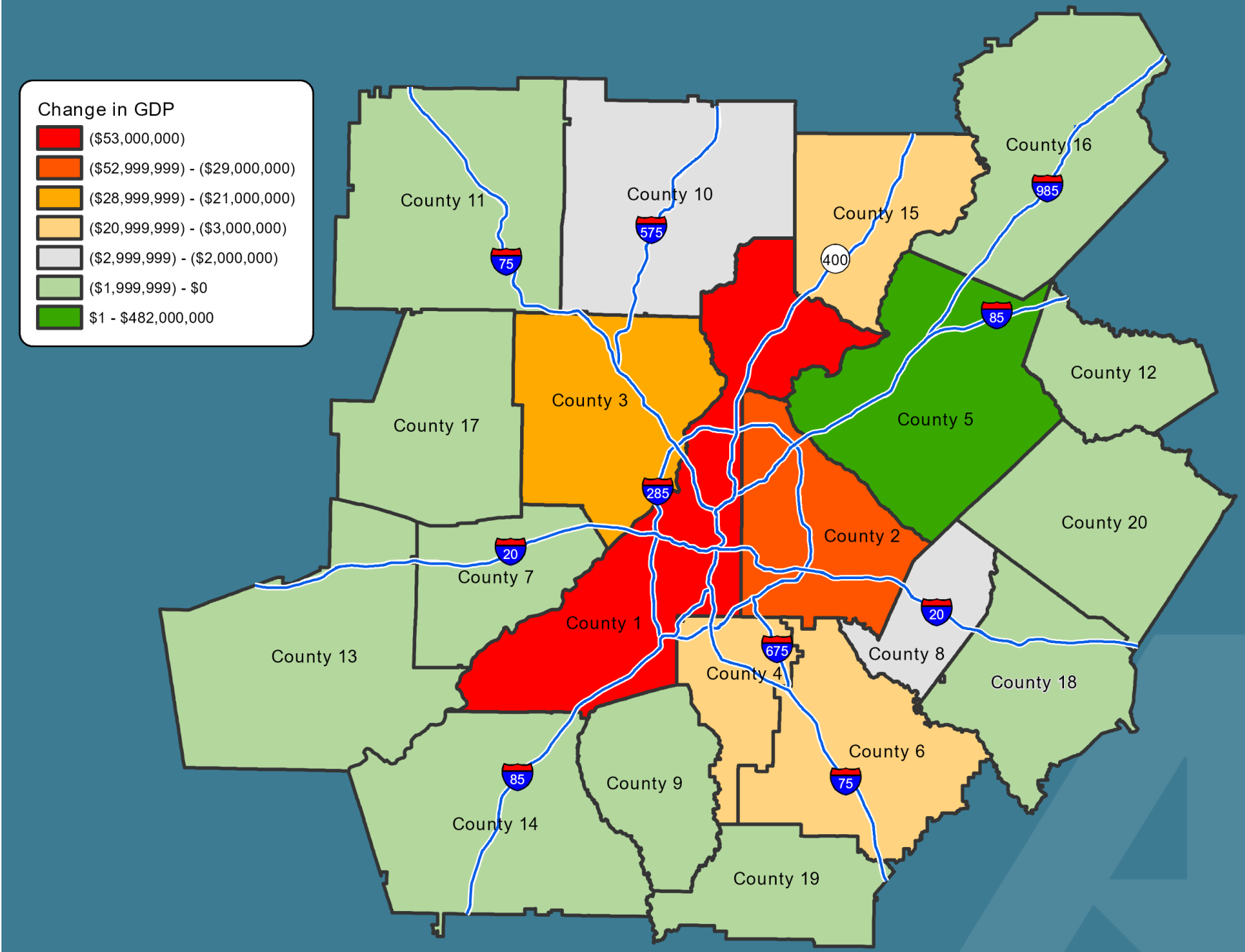
Methodology

- Conduct a county-level transportation forecast using TBM model
  - Model long-range transportation roadway capacity and new connectors, maintenance and operational improvement, and safety enhancement
  - Develop post-processing script combining performance measures of defined O-D zones
- Import transportation network changes into the REMI model
- Incorporate revenue and investment streams using REMI model's policy variable(s)
- Simulate the county's transportation plan's network changes
- Measure the reasonableness of economic activity and transportation efficiencies of qualified projects

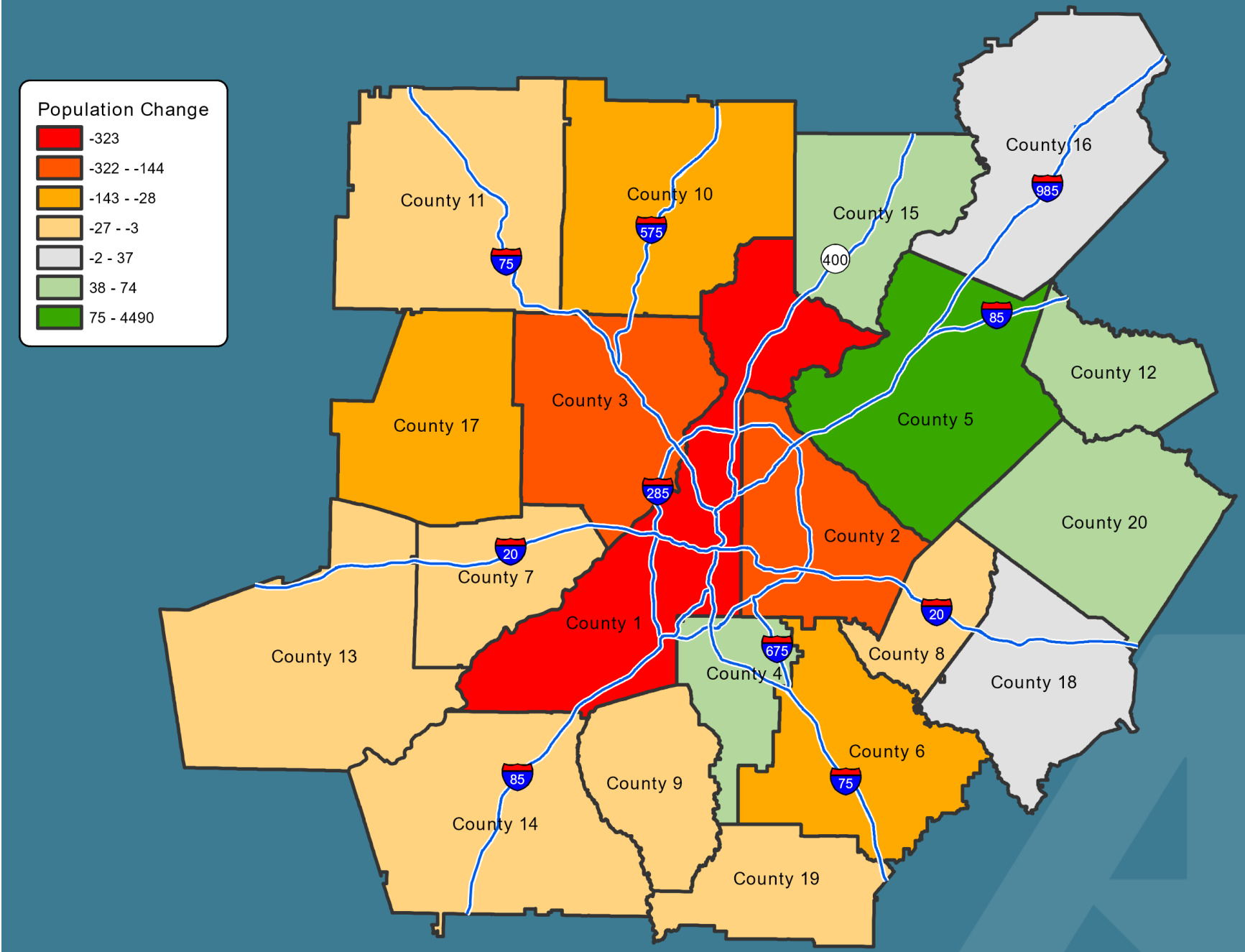
Regional Labor Access



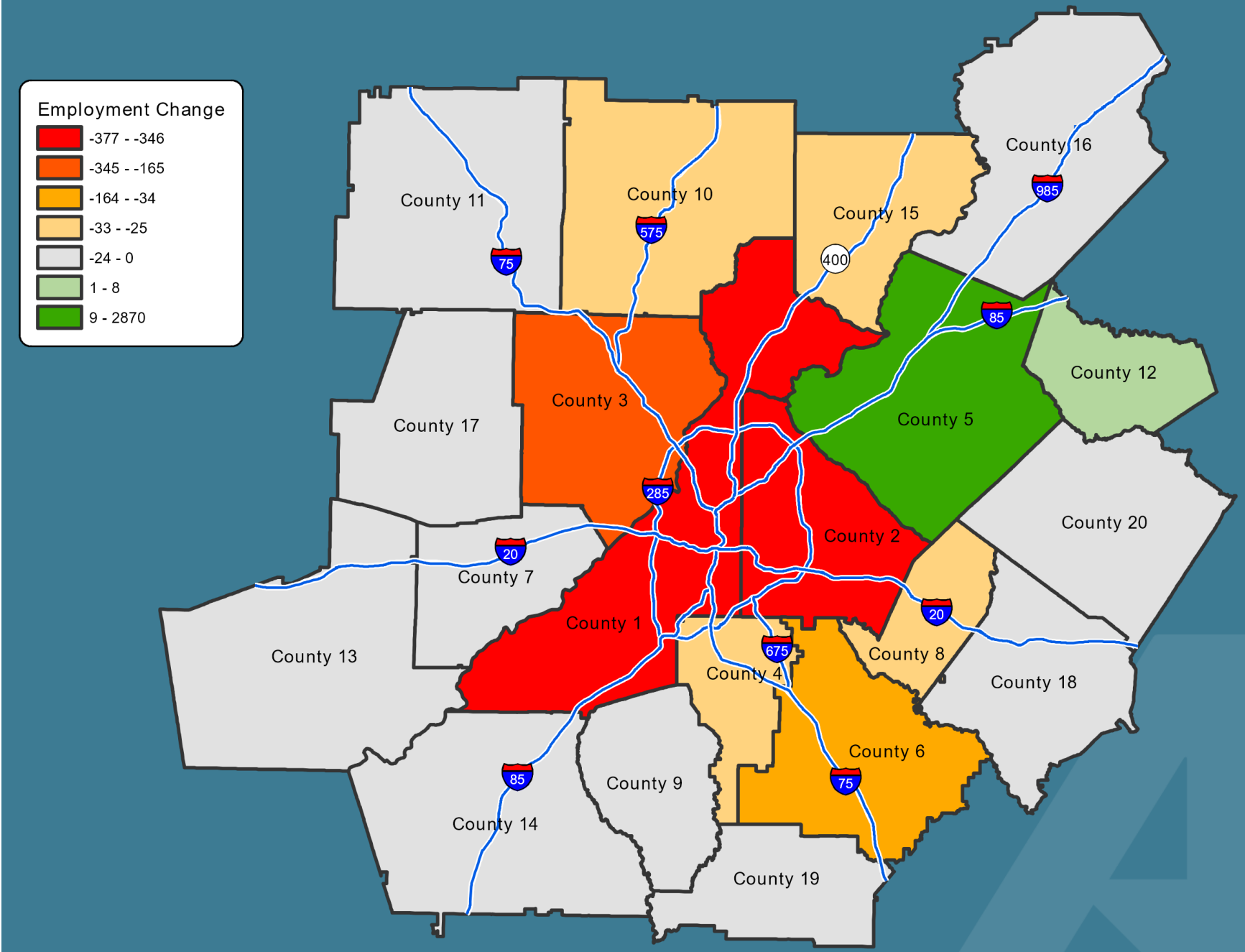
Regional GDP Impacts



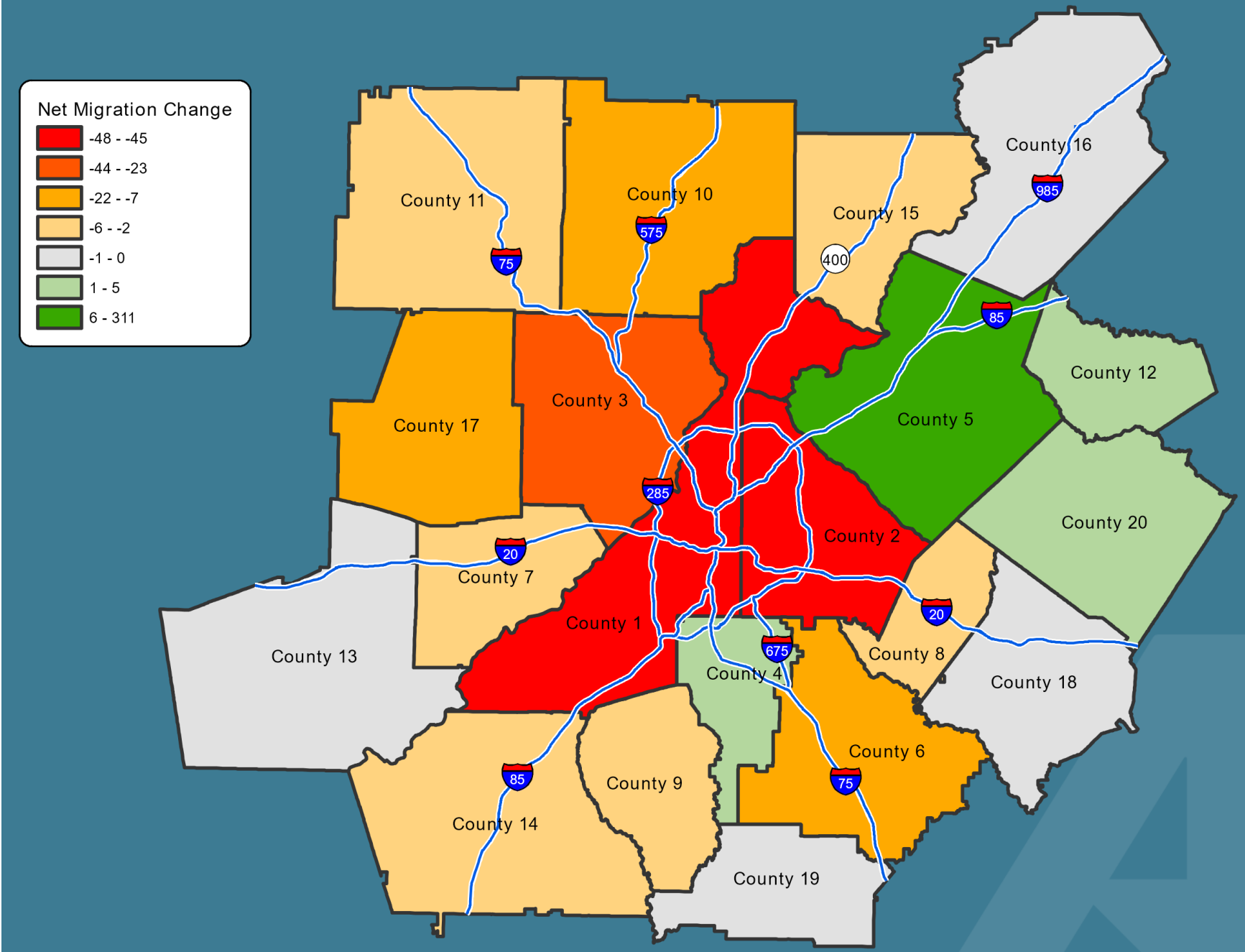
Regional Population Impacts



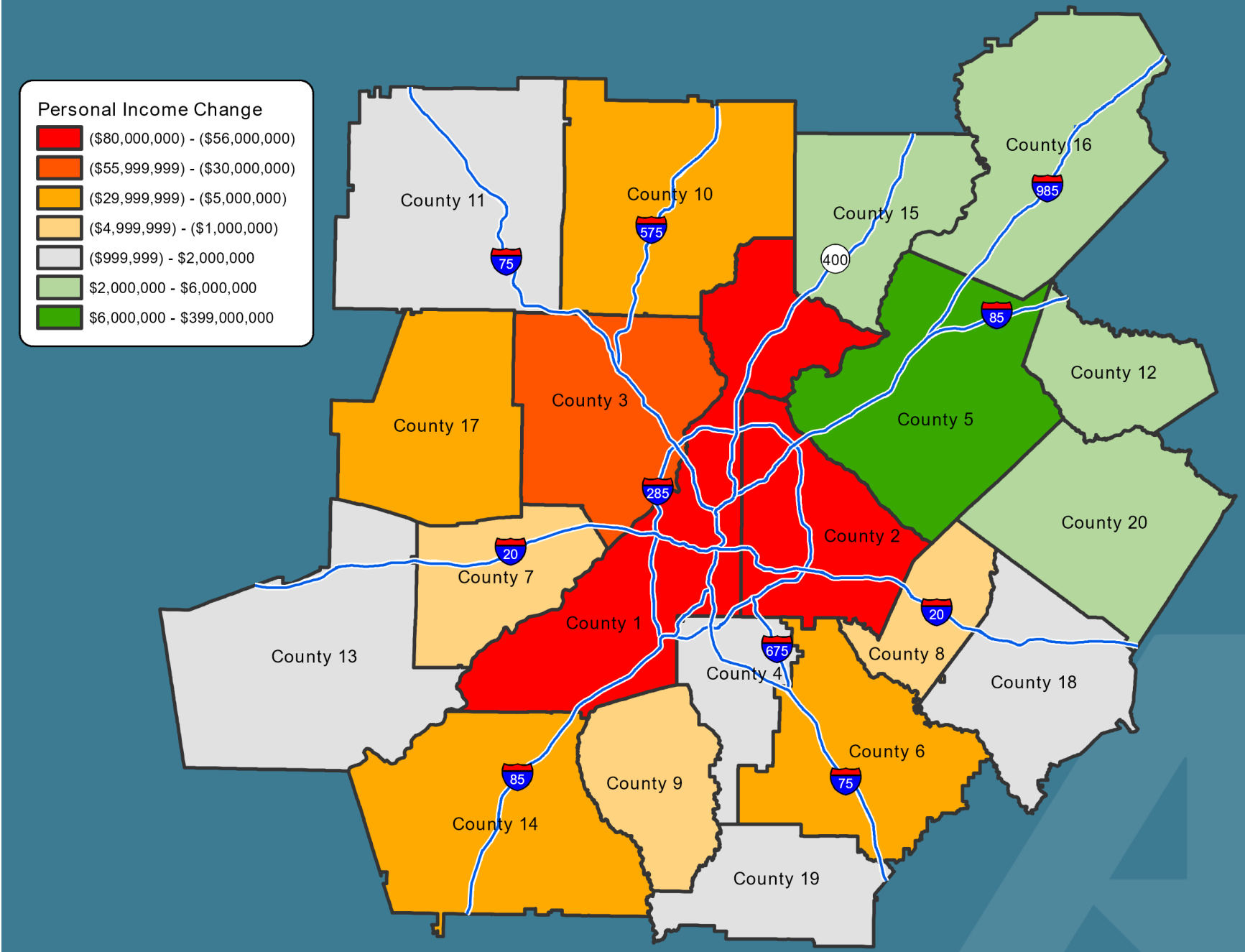
Regional Employment Impacts



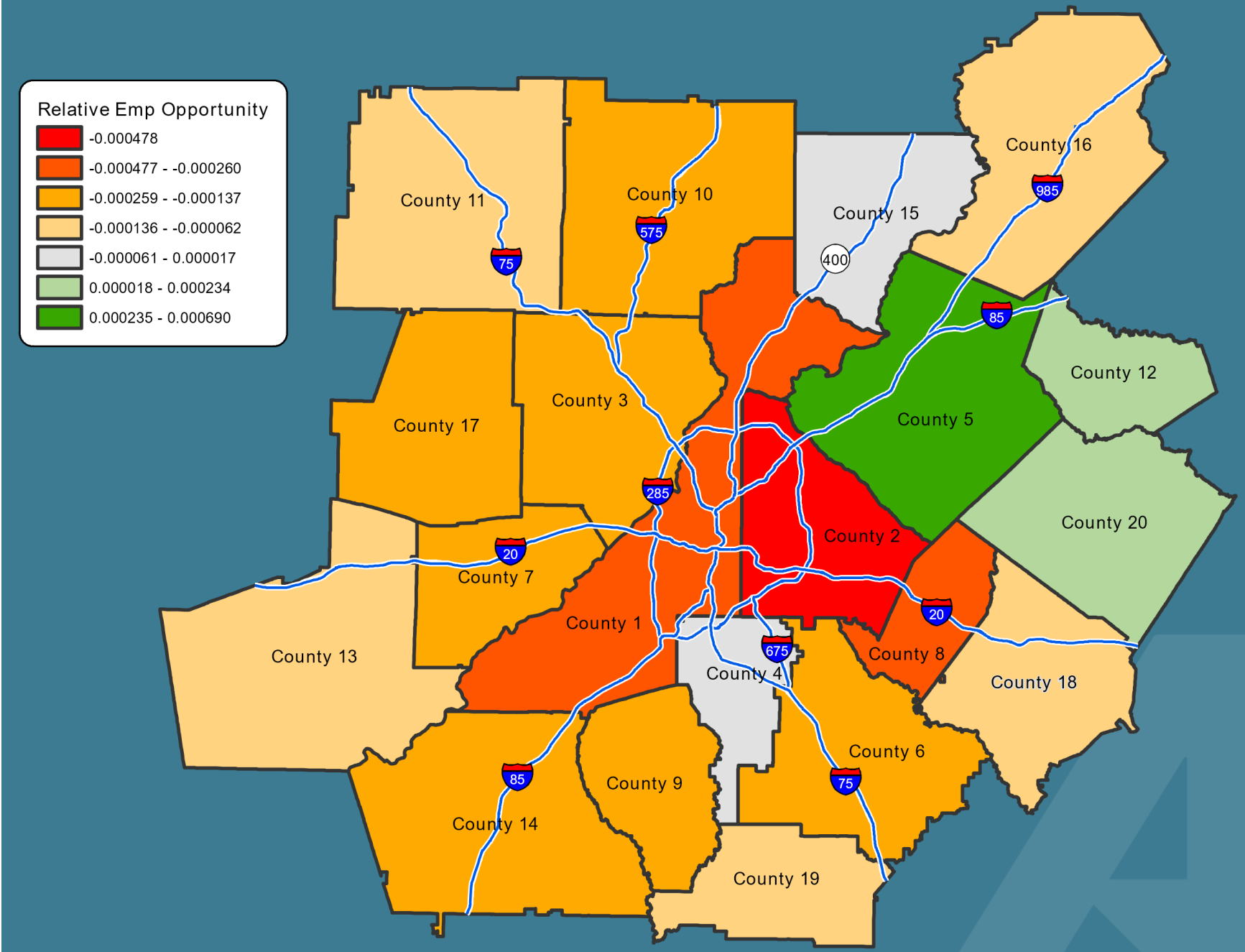
Regional Migration Impacts



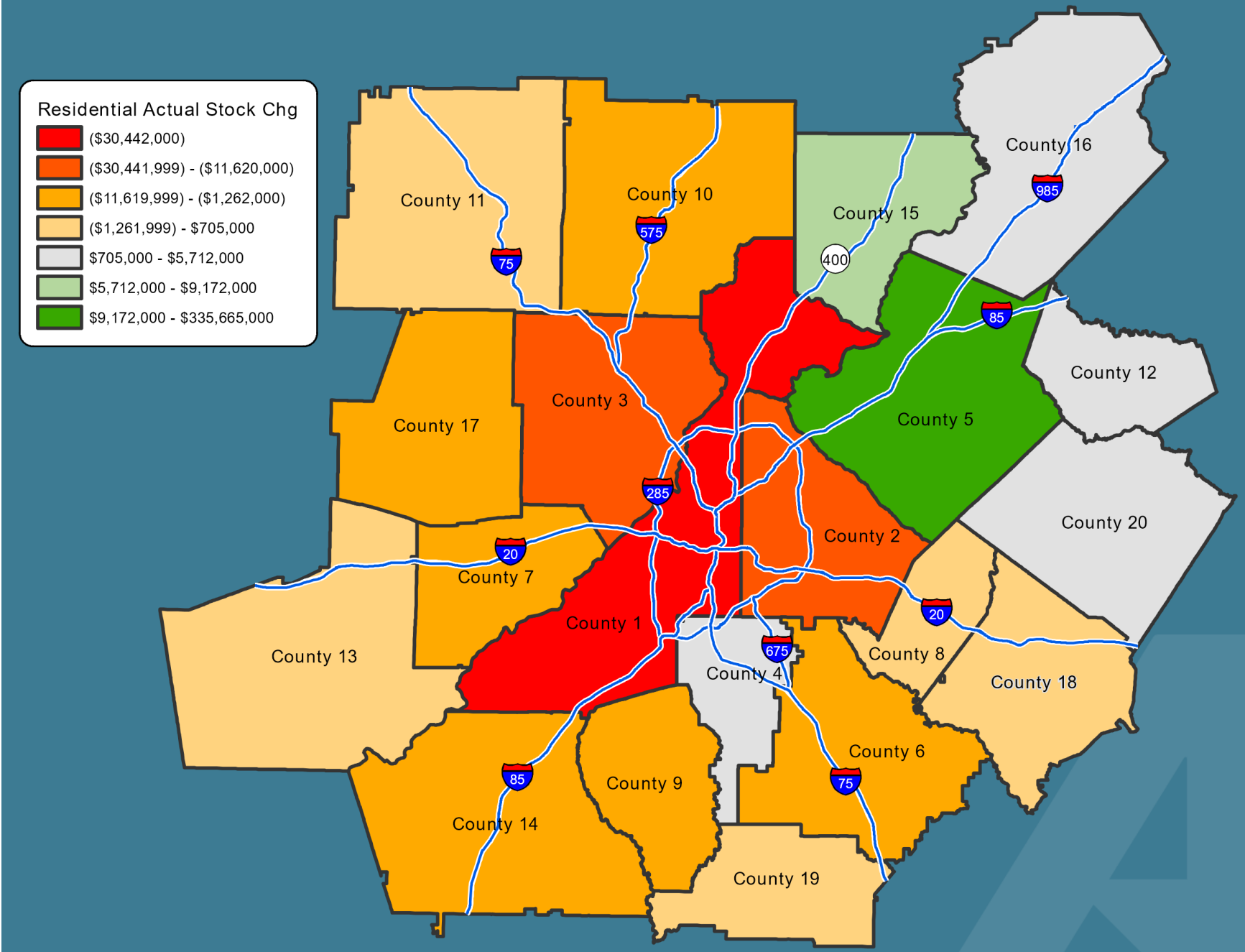
Regional Personal Income Impacts



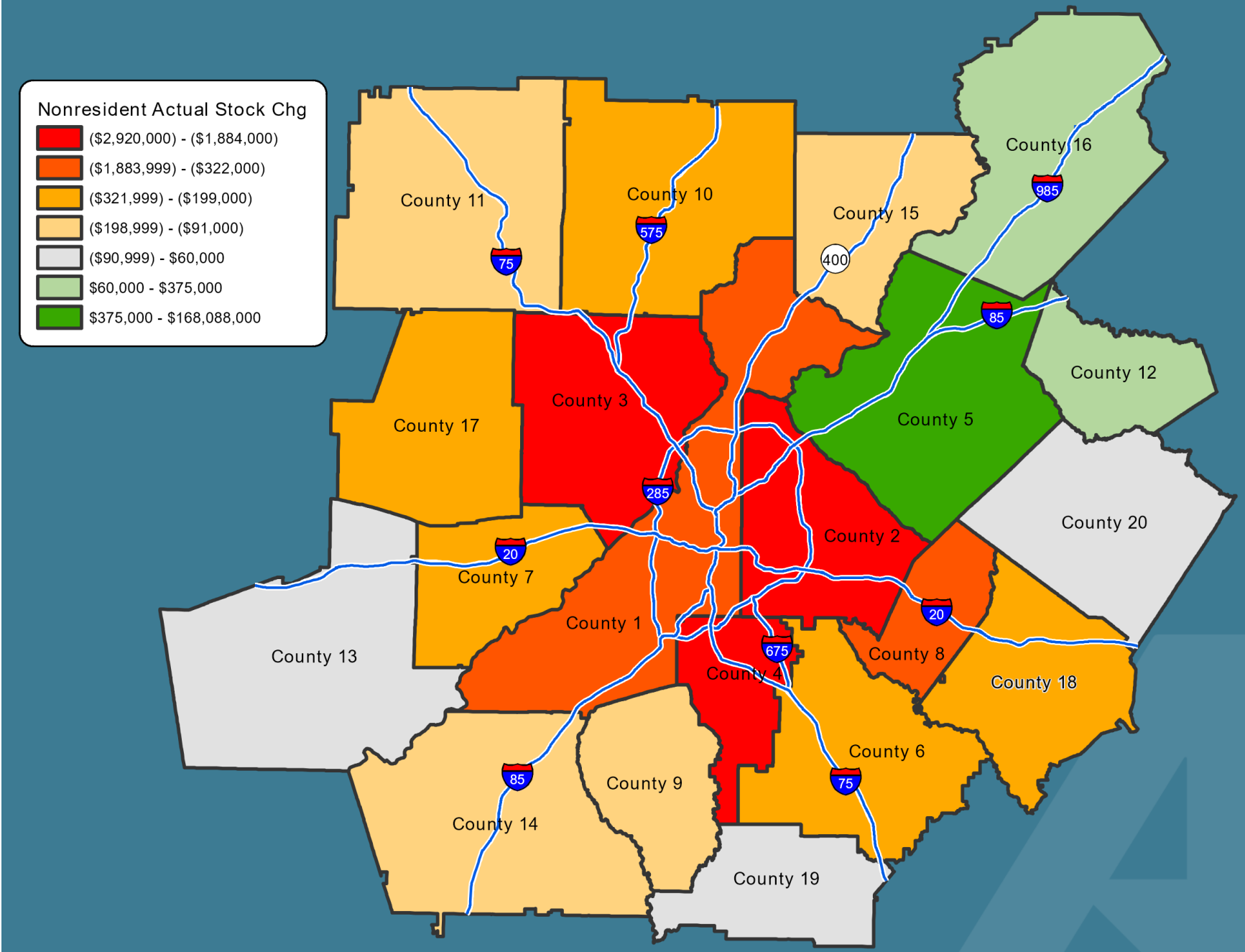
Regional Relative Employment Opportunity Impacts



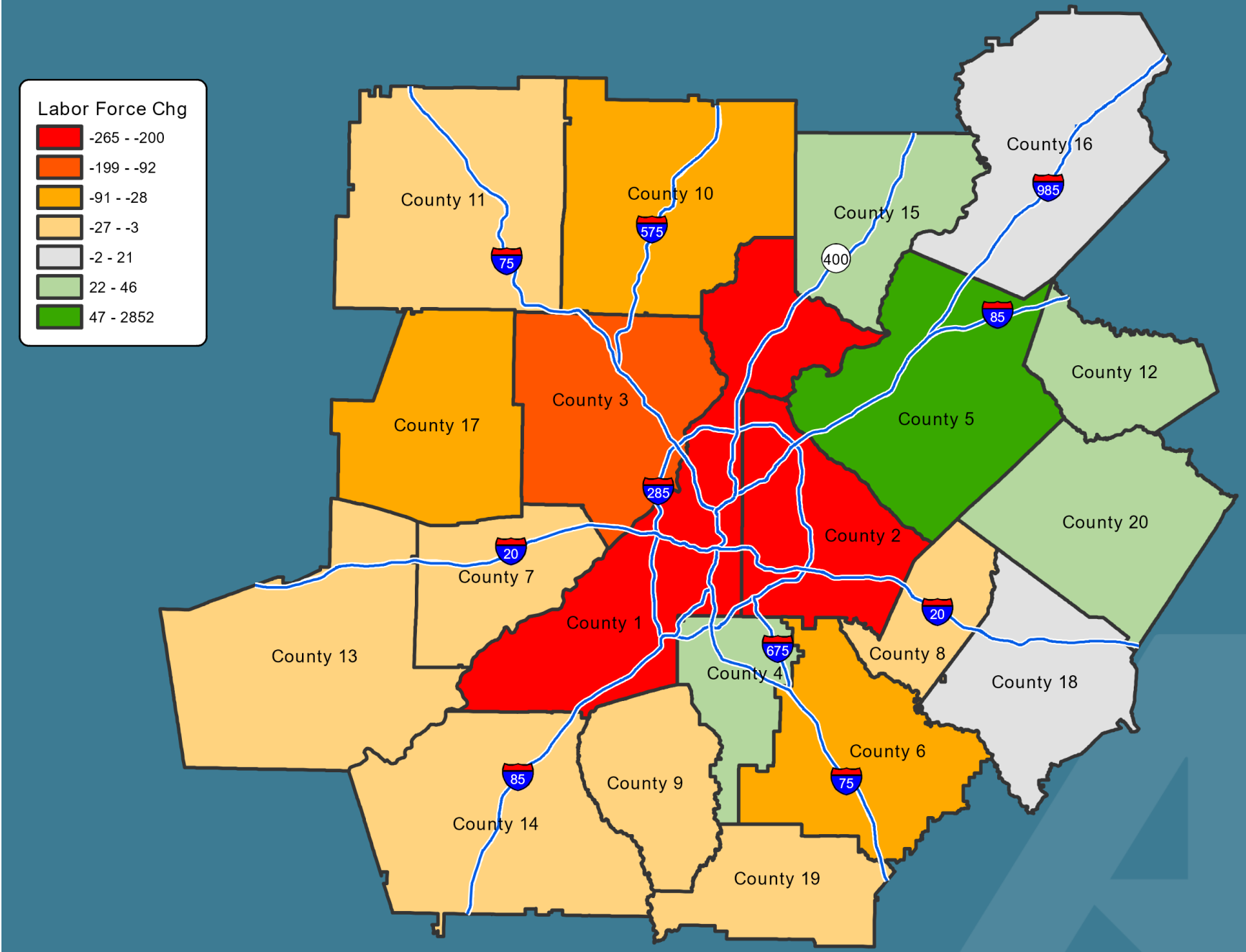
Regional Residential Capital Stock Impacts



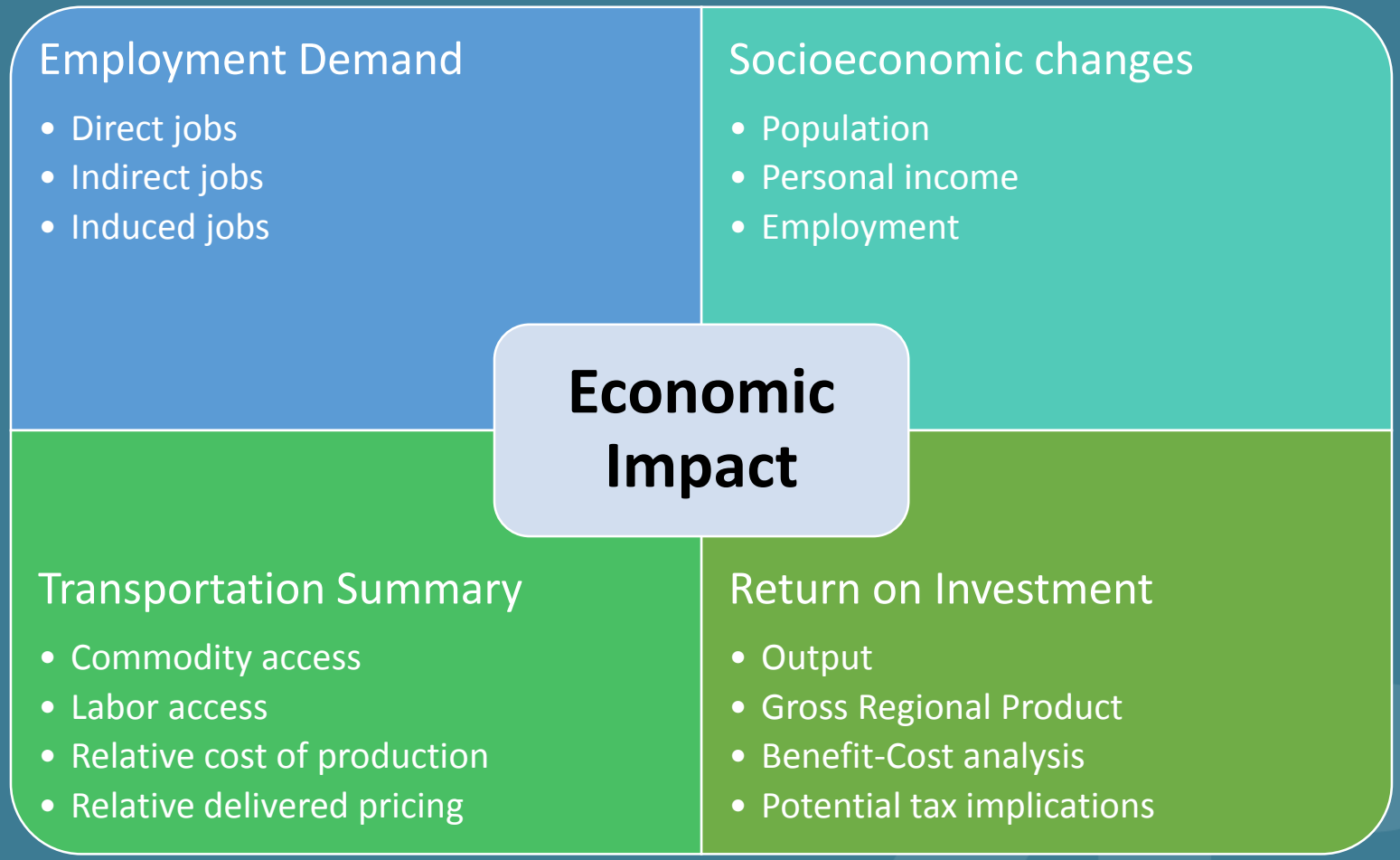
Regional Nonresidential Capital Stock Impacts



Regional Labor Force Impacts



Project Conclusions



Project Outcomes

- Illustrate regional impacts of local transportation projects
- Initiate dialogue communicating the significance of regional planning to transportation investments at the local level
- Testing at what scale projects will impact various local governments from a regional perspective
- Engage local government officials on the economic impact on regional transportation network and planning landscape
- Inform decision-makers on type of economic activity taking place when operating in a contained environment

How Can You Get Involved

1. Education & Workforce Development
   - (Education Committee)

2. Transportation Funding and Regional Transit alliances
   - (CQG, ULI/LCC, Advance ATL)

3. Housing Affordability
   - (Zoning or Economic Development Committee)

4. Engage Millennials
   - (Strategic Relations Committee)

5. Economic Competitiveness
   - (Regional Competitiveness Strategy)

Putting it all together

- Compare the different model calibrations and visually explore the model results
- Examine components of the assumptions implemented to create an alternate control
- Review the purpose and objectives for conducting this scenario work and our findings
- Communicate and collaborate on findings to promote insightful and innovative transportation planning
- Engage the public and private partnerships at all levels to conduct healthy dialogue and capture constructive feedback

Recap