



SUSTAINABLE GROWTH MANAGEMENT STRATEGY
FORT BRAGG REGION

June 18, 2014

Sustainable Sandhills Partnership Steering Committee

Outline

- Overview
- Modeling
- Vision
- Implementation
- Q & A



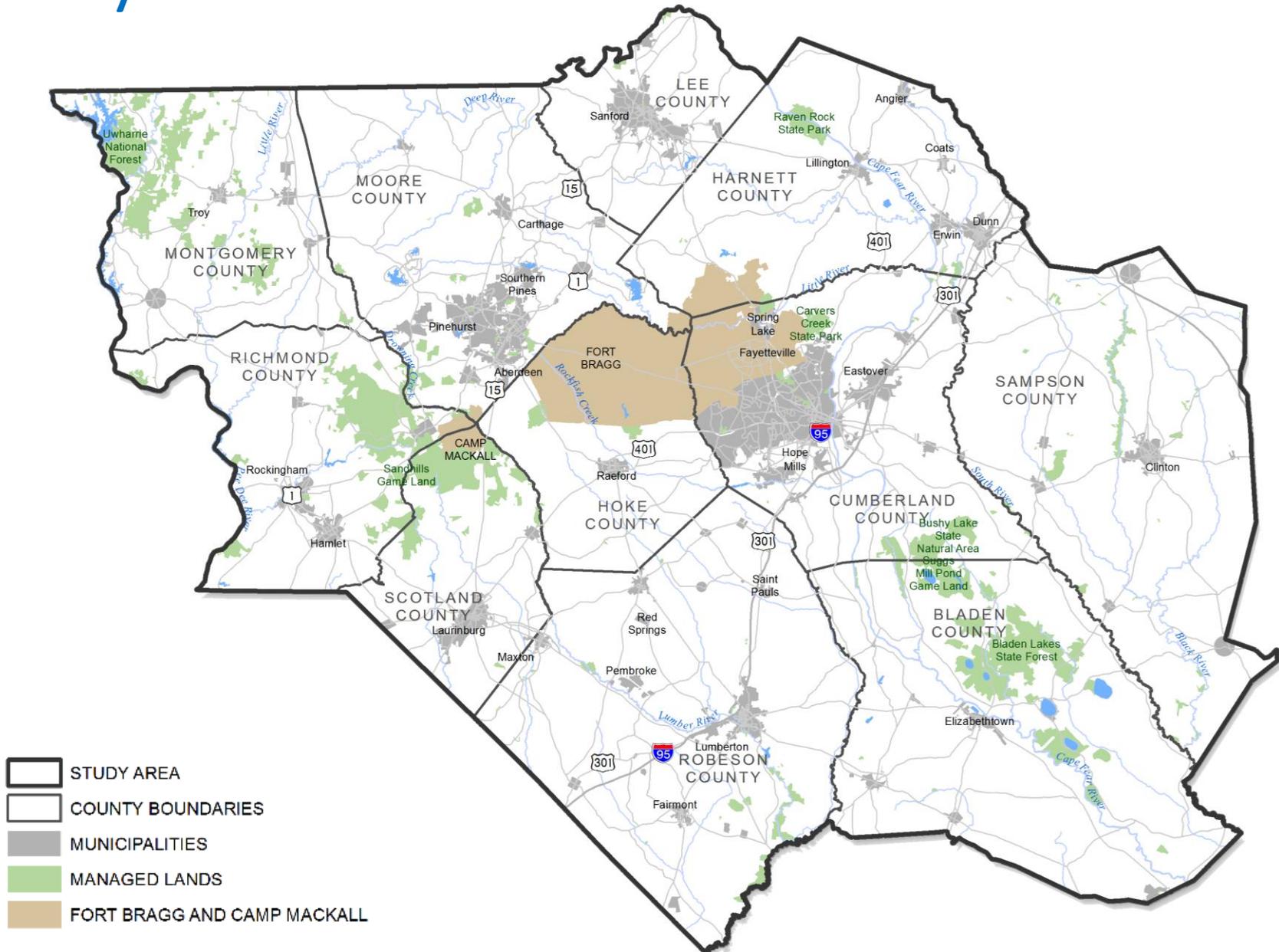
SUSTAINABLE GROWTH MANAGEMENT STRATEGY

FORT BRAGG REGION



Overview

Study Area



CREATING A STRATEGY FOR PROSPERITY

The Sustainable Growth Management Strategy (SGMS) provides the platform for local governments, military interests, agencies, businesses and others to realize **unprecedented coordination** on infrastructure decisions, economic development strategies, critical resource protection, land compatibility and other interconnected issues.

This fosters **more prosperous communities** through sustained mission operability, new quality jobs and smart infrastructure investments.

PLANNING PROCESS

- 1** PROJECT INITIATION
Regional GIS Assessment
- 2** INVENTORY & ANALYSIS
Market Assessment, Regional Maps
- 3** GREEN INFRASTRUCTURE
Green Infrastructure Report and Maps
- 4** SUSTAINABLE LAND USE
CommunityViz Model
- 5** POLICY FRAMEWORK
Implementation Strategies and Action Plan
- 6** FINAL REPORT
Sustainable Growth Management Strategy, Executive Summary

PROJECT GOALS



PROMOTE ECONOMIC
DEVELOPMENT OPPORTUNITIES



ENSURE MILITARY
OPERABILITY



OPTIMIZE LAND USE &
SMART UTILITY INVESTMENTS



PROTECT AND ENHANCE
NATURAL RESOURCES



PROVIDE HOUSING
CHOICES



INCREASE MULTI-MODAL
OPPORTUNITIES



PROMOTE AND ENHANCE
CULTURAL RESOURCES



PROMOTE A
HEALTHIER COMMUNITY



ESTABLISHING A REGIONAL FRAMEWORK AND ...

Comprehensive Regional Growth Plan

Comprehensive Regional Growth Plan for the Fort Bragg Region
Assessment and Recommendations

Local Plans

Moore County
Our Land, Our Home

Complementary Efforts

Cost of Land Use Fiscal Impact Analysis:
The Fiscal Impacts of Compatible and Incompatible Land Use in the Fort Bragg Region

FINAL

Prepared for:
FORT BRAGG REGIONAL ALLIANCE
(Formerly the BRAC Regional Task Force)

TischlerBise
LAND-USE PLANNING CONSULTANTS

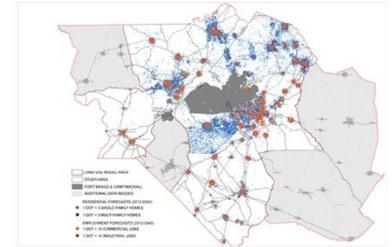
SUSTAINABLE GROWTH MANAGEMENT STRATEGY FORT BRAGG REGION



FINAL REPORT | JANUARY 2014



Regional Growth Model (Community Viz)



Implementation Toolkit

Provide Housing Choices

- Identify incentives to encourage location-efficient development.
- Identify opportunities to create multi-generational and/or mixed income neighborhoods. Support the incorporation of various housing types into existing and new neighborhoods with regulations that allows accessory and attached dwelling units.
- Create Housing Trust Funds at the local level.

Promote & Enhance Culture

- Conduct an assessment of the region's cultural assets to develop a cultural heritage tourism strategy for study area.
- Develop a regional wayfinding system to the region's cultural and historic assets.
- Maintain rural character by preserving contiguous landscapes.

Provide Multimodal Transportation Options

- Identify local funding sources, coordination efforts and opportunities to support bicycle and pedestrian needs.
- Organize and hold a regional greenways conference to build capacity and increase coordination amongst those developing greenways in the region.
- Formulate internal park and ride lots by implementing agreements with businesses, churches, and other organizations.

Promote a Healthier Community

- Preserve the ability for people to remain in their home or neighborhood as long as possible.
- Improve access to healthy foods in all communities throughout the region.
- Include a public health component in local comprehensive, land use and transportation plans.

The Sustainable Growth Management Strategy evolved from the building blocks of the Comprehensive Regional Growth Plan, numerous local plans and complementary efforts. These findings were integrated into a Community Viz Land Use Model. The Regional Growth Management Strategy provides tools that will enable community leaders to make decision that will promote economic development and result in a higher quality of life for our citizens.

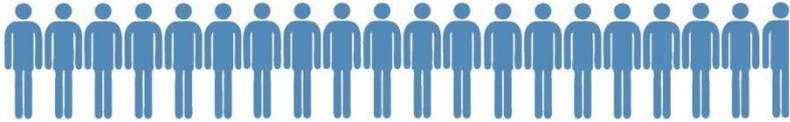
... PARTNERSHIPS FOR LONG-TERM SUSTAINABILITY



GROWTH OPPORTUNITIES & CHALLENGES

Regional Growth 2012-2040

People



296,853 new people

1 person = 50,000 people

Housing



114,867 new units

1 house = 100,000 Units

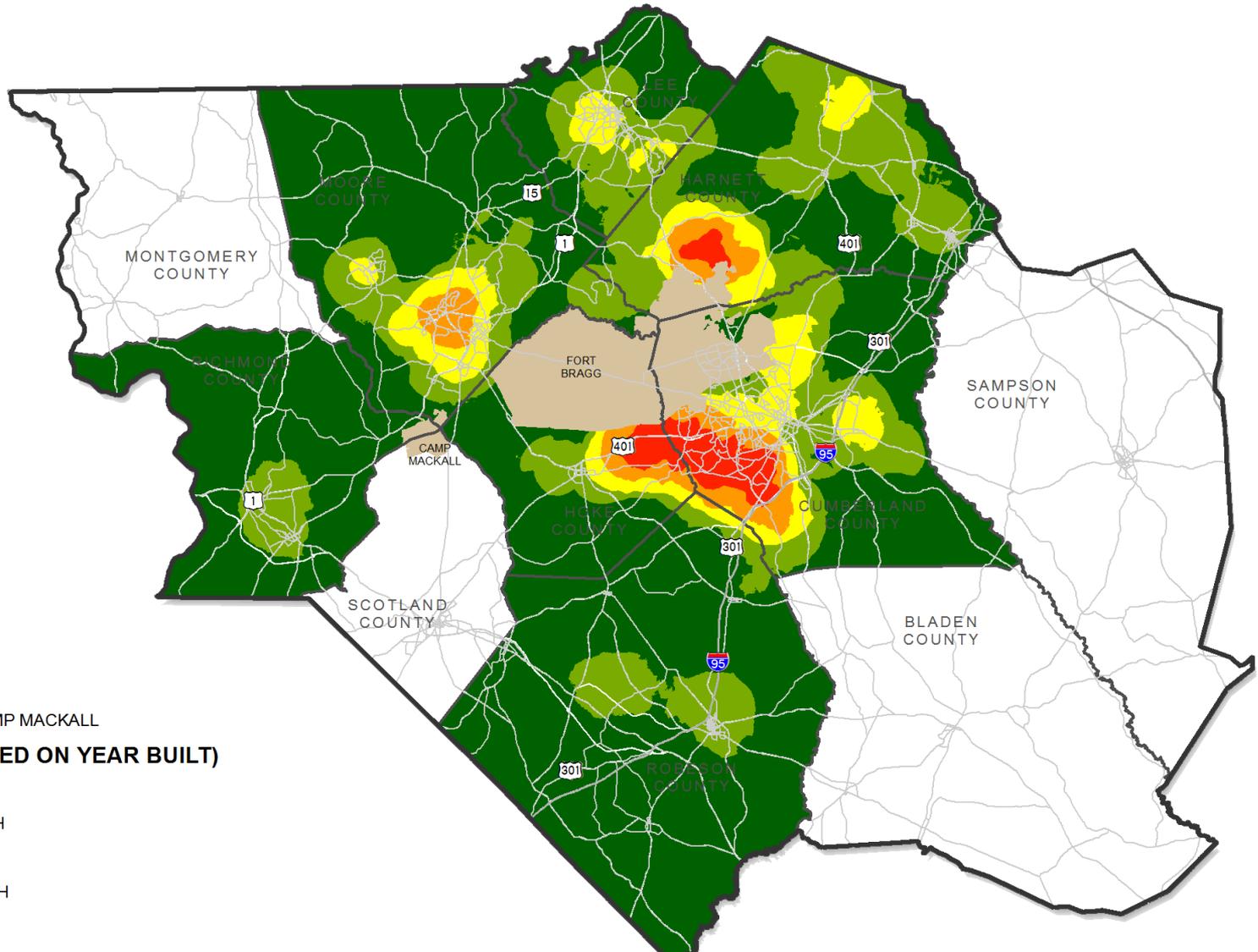
Jobs



166,102 new jobs

1 briefcase = 100,000 Jobs

Growth Trends



STUDY AREA

COUNTY BOUNDARIES

FORT BRAGG AND CAMP MACKALL

GROWTH AREAS (BASED ON YEAR BUILT)

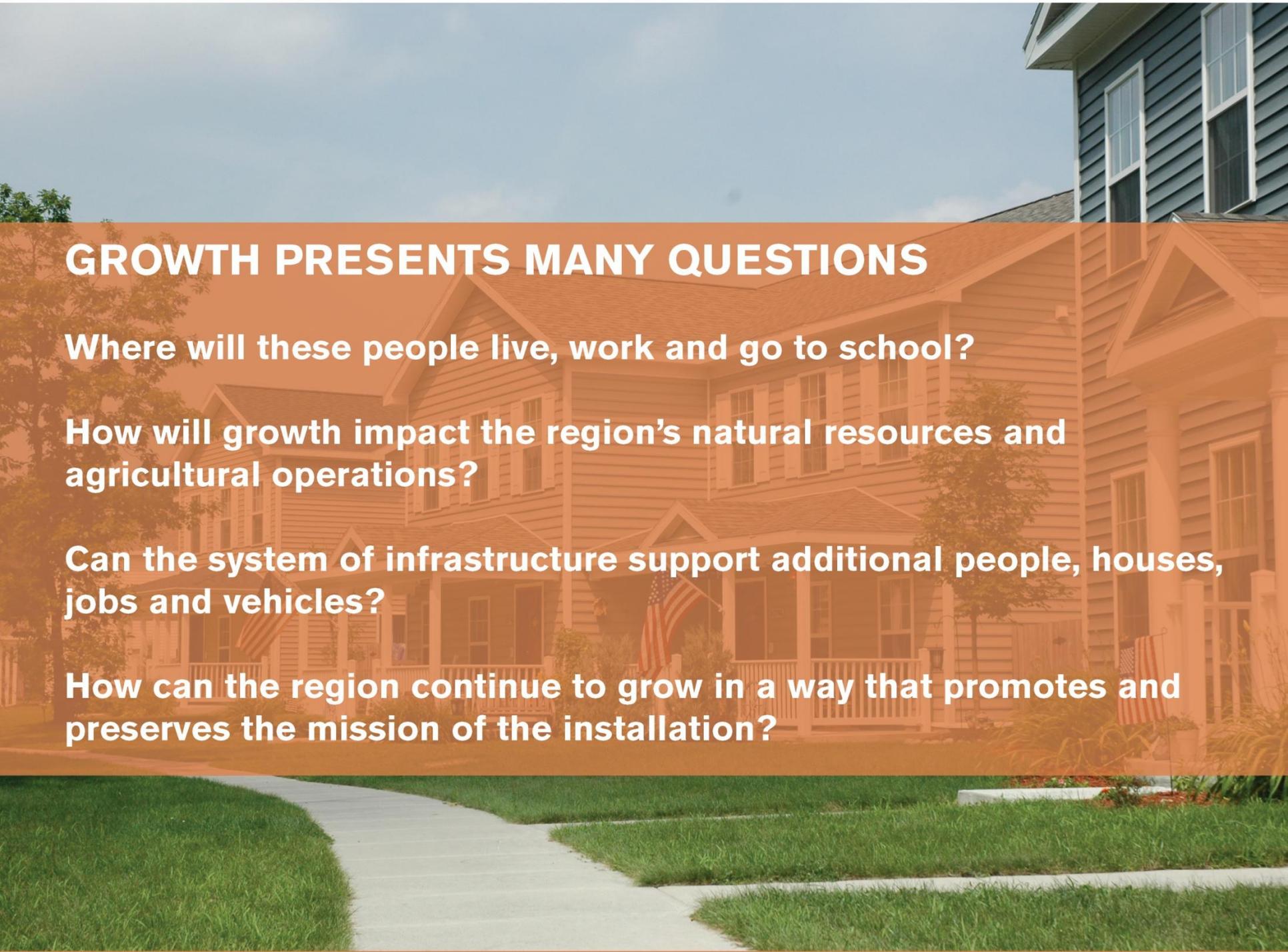
LOW GROWTH

MEDIUM-LOW GROWTH

MEDIUM GROWTH

MEDIUM-HIGH GROWTH

HIGH GROWTH



GROWTH PRESENTS MANY QUESTIONS

Where will these people live, work and go to school?

How will growth impact the region's natural resources and agricultural operations?

Can the system of infrastructure support additional people, houses, jobs and vehicles?

How can the region continue to grow in a way that promotes and preserves the mission of the installation?

SUSTAINABLE GROWTH MANAGEMENT STRATEGY
FORT BRAGG REGION

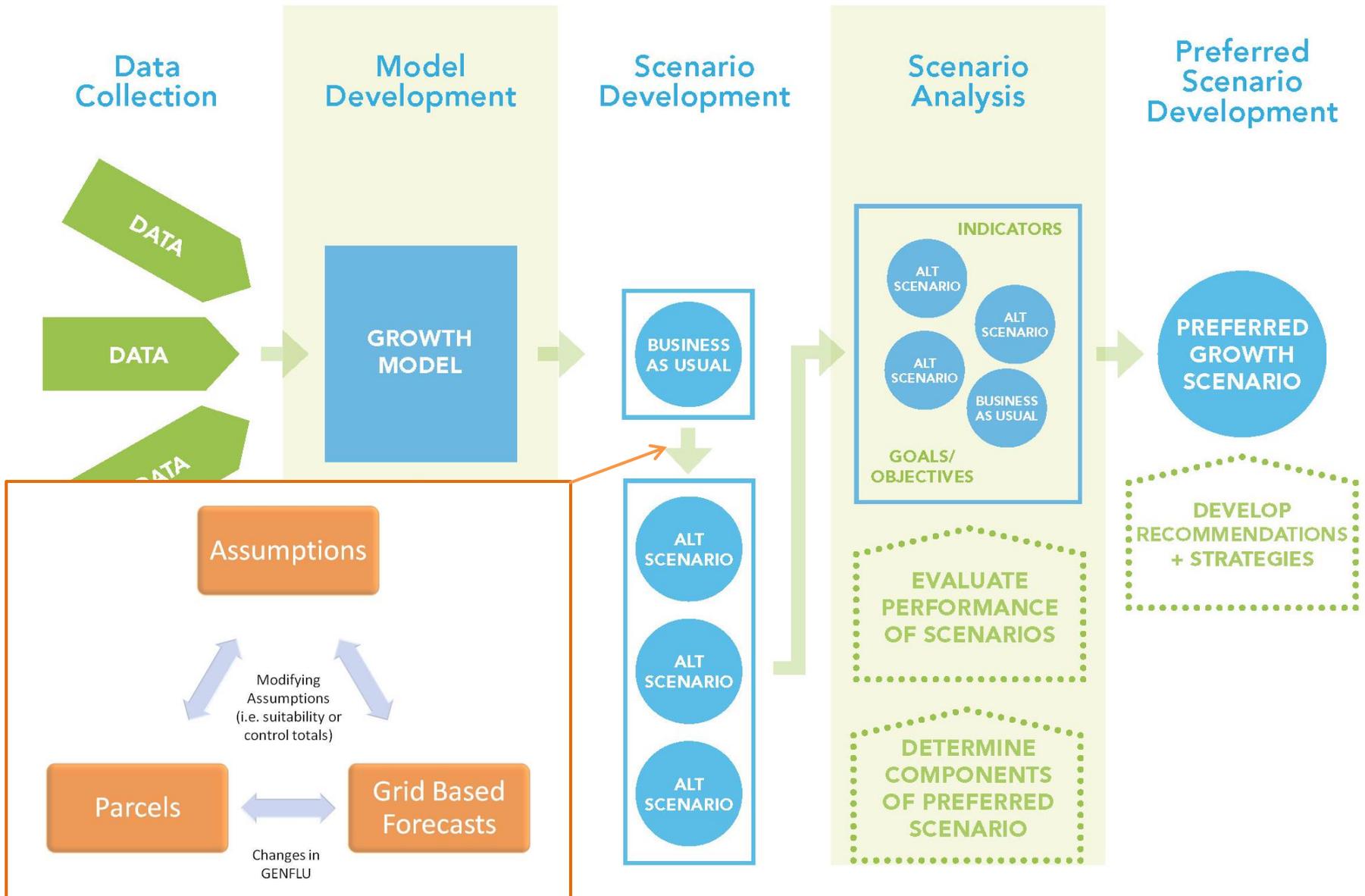


Modeling

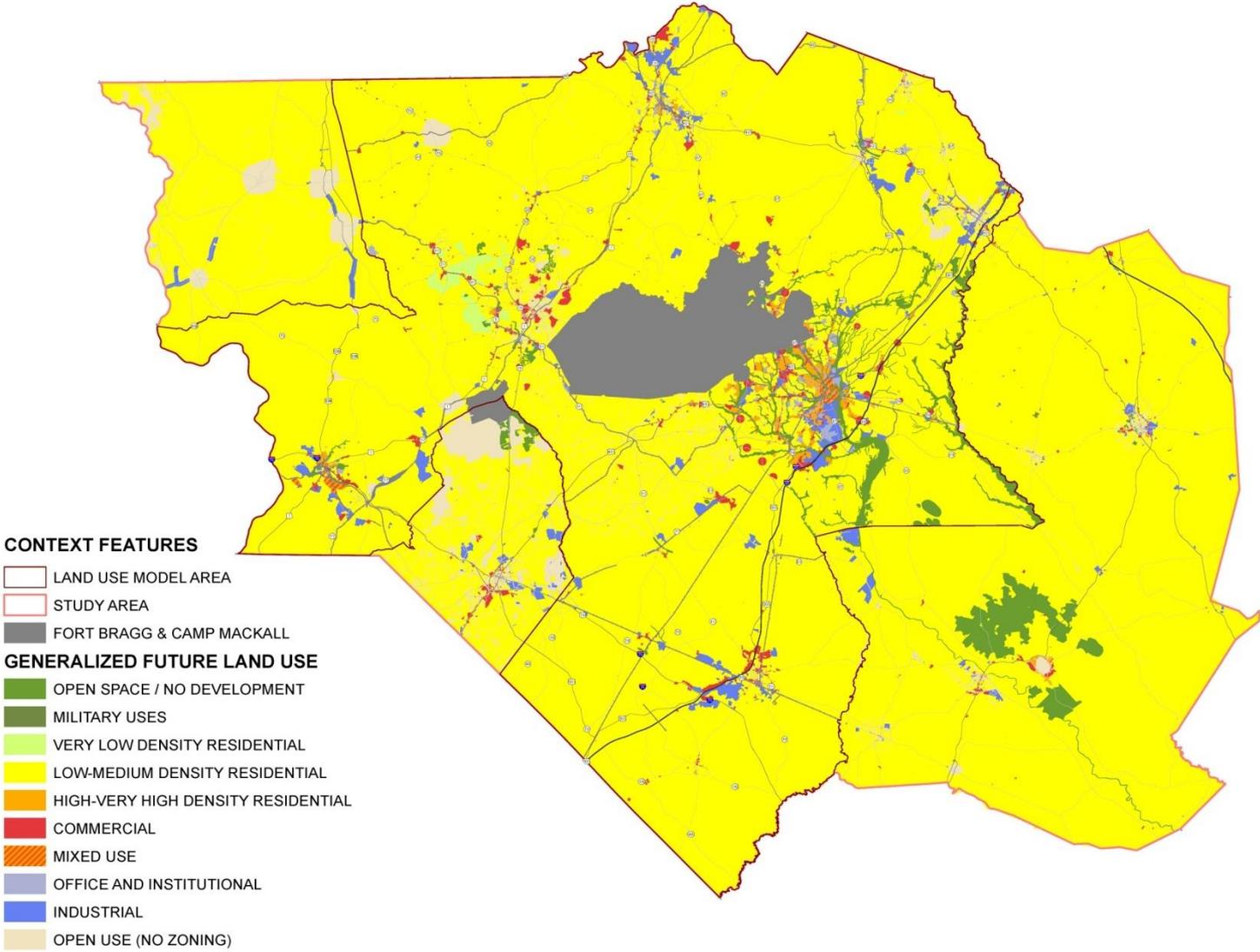
One method to help communities learn about the potential impacts and trade-offs of future growth & development is through a process called scenario planning.



Growth Modeling Approach

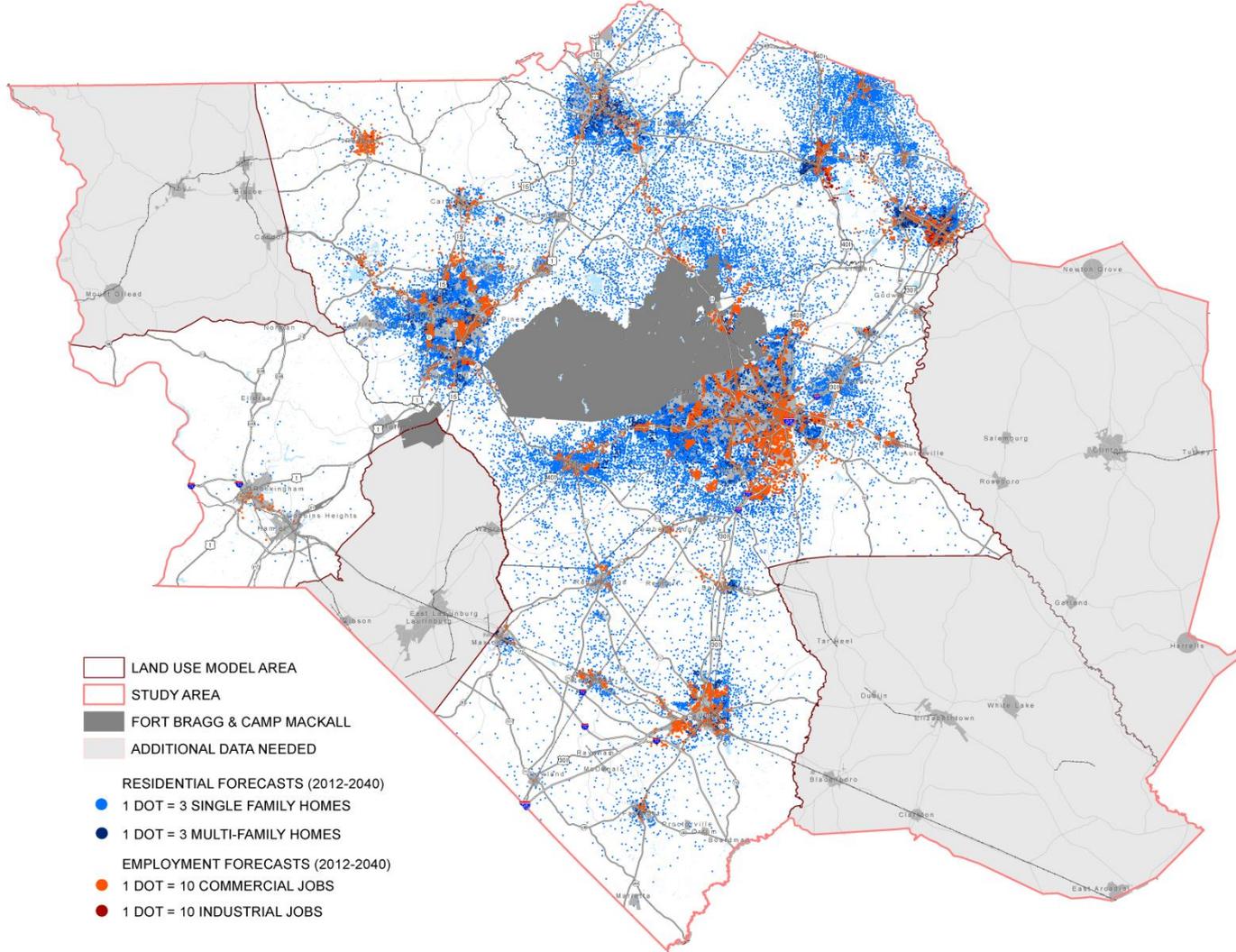


Business-as-usual (BAU)



BAU: Grow according to existing, adopted plans.

Business-as-usual (BAU)



LandDesign.

Date: 12/5/2013 | LD # 101086
Data Source: ICGNDMAP, Esri



BUSINESS AS USUAL SCENARIO (BAU)
DRAFT DWELLING UNIT AND EMPLOYMENT FORECASTS (2040)
FORT BRAGG REGIONAL GROWTH MANAGEMENT STRATEGY



Disclaimer: This map was created with the best available data. However, it is possible that the data used in the development of this map is not current, accurate, or complete. The user does not warrant a high level of accuracy or reliability in the data used in the development of this map. The user is responsible for verifying the data used in the development of this map. The user is responsible for verifying the data used in the development of this map.

BAU: Grow according to existing, adopted plans.

HOW WE GROW MATTERS

Our Current Path

 4,830

NEW HOMES IN
HIGH NOISE ZONES



24,810 ACRES

CRITICAL TO CONSERVE LAND
IMPACTED BY NEW DEVELOPMENT



74,985

JOB GROWTH IN
MUNICIPALITIES



64,251 ACRES

WORKING LANDS
IMPACTED



210,408 ACRES

NATURAL ASSETS
IMPACTED

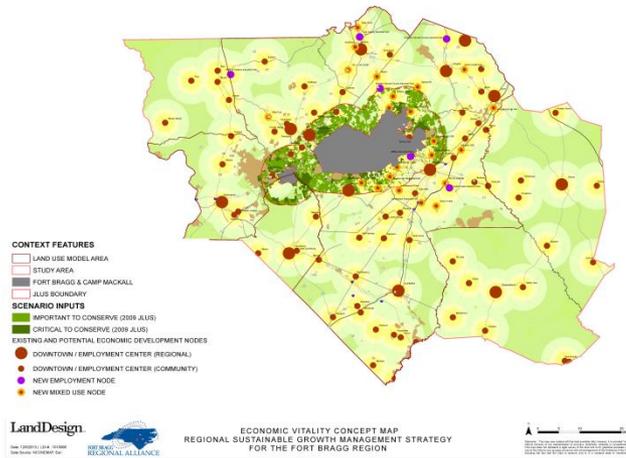


441,900 ACRES

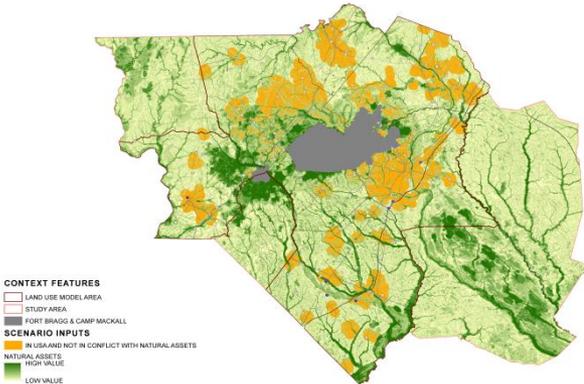
URBAN FOOTPRINT



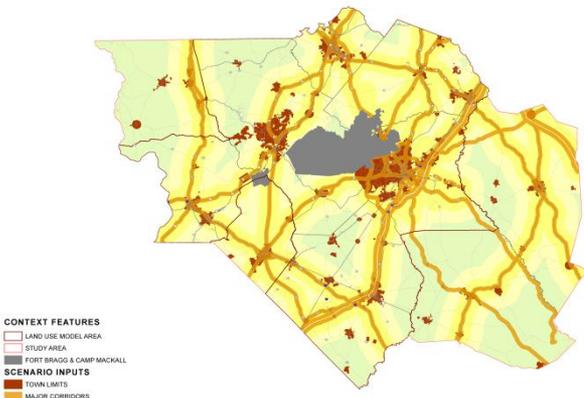
Three Alternatives



Economic Vitality: Protect the mission & working lands. Encourage economic development in new & existing centers.



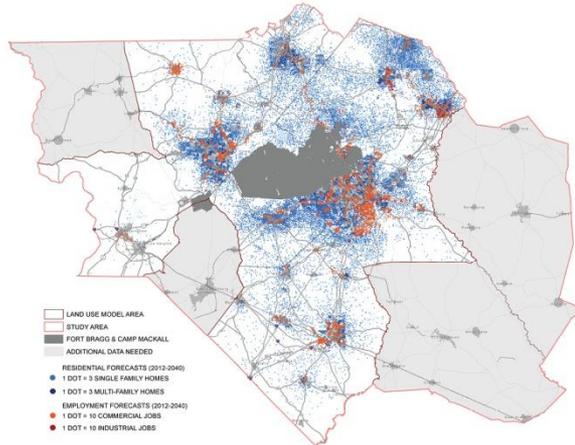
Natural Assets: Protect high priority natural assets. Encourage growth in areas with existing utilities.



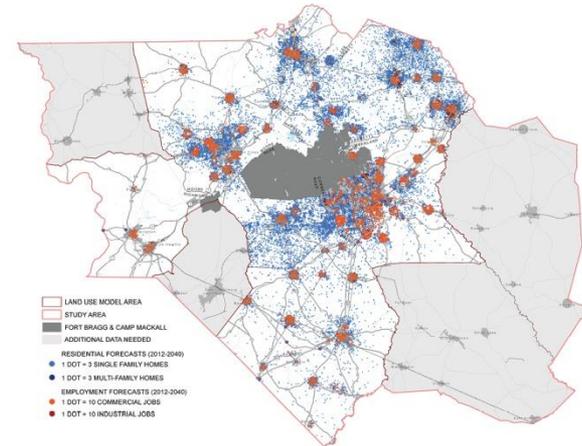
Towns & Corridors: Reinforce existing towns. Promote growth along major corridors with existing infrastructure.

WHAT IF WE DO THINGS DIFFERENTLY?

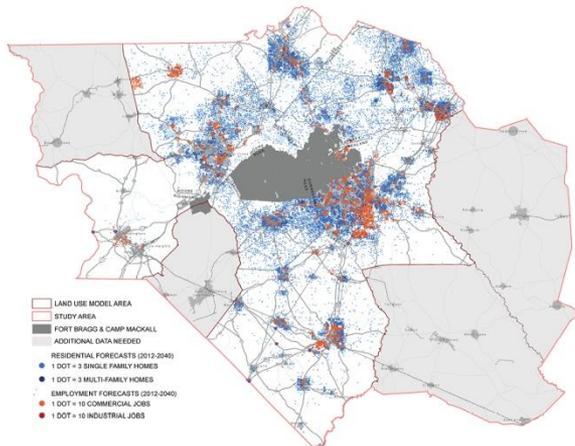
A Better Path Forward...



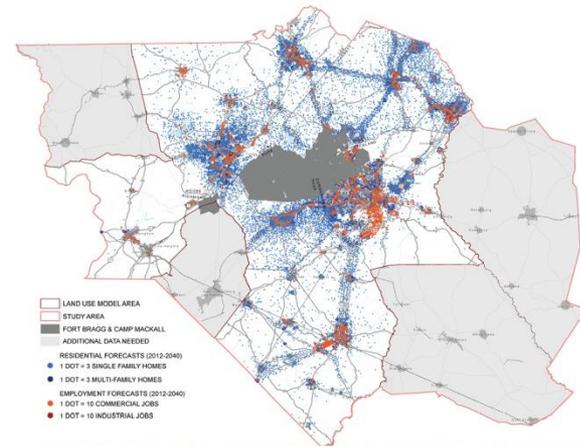
BUSINESS AS USUAL



FOCUS ON ECONOMIC DEVELOPMENT



FOCUS ON NATURAL ASSETS



FOCUS ON EXISTING INFRASTRUCTURE

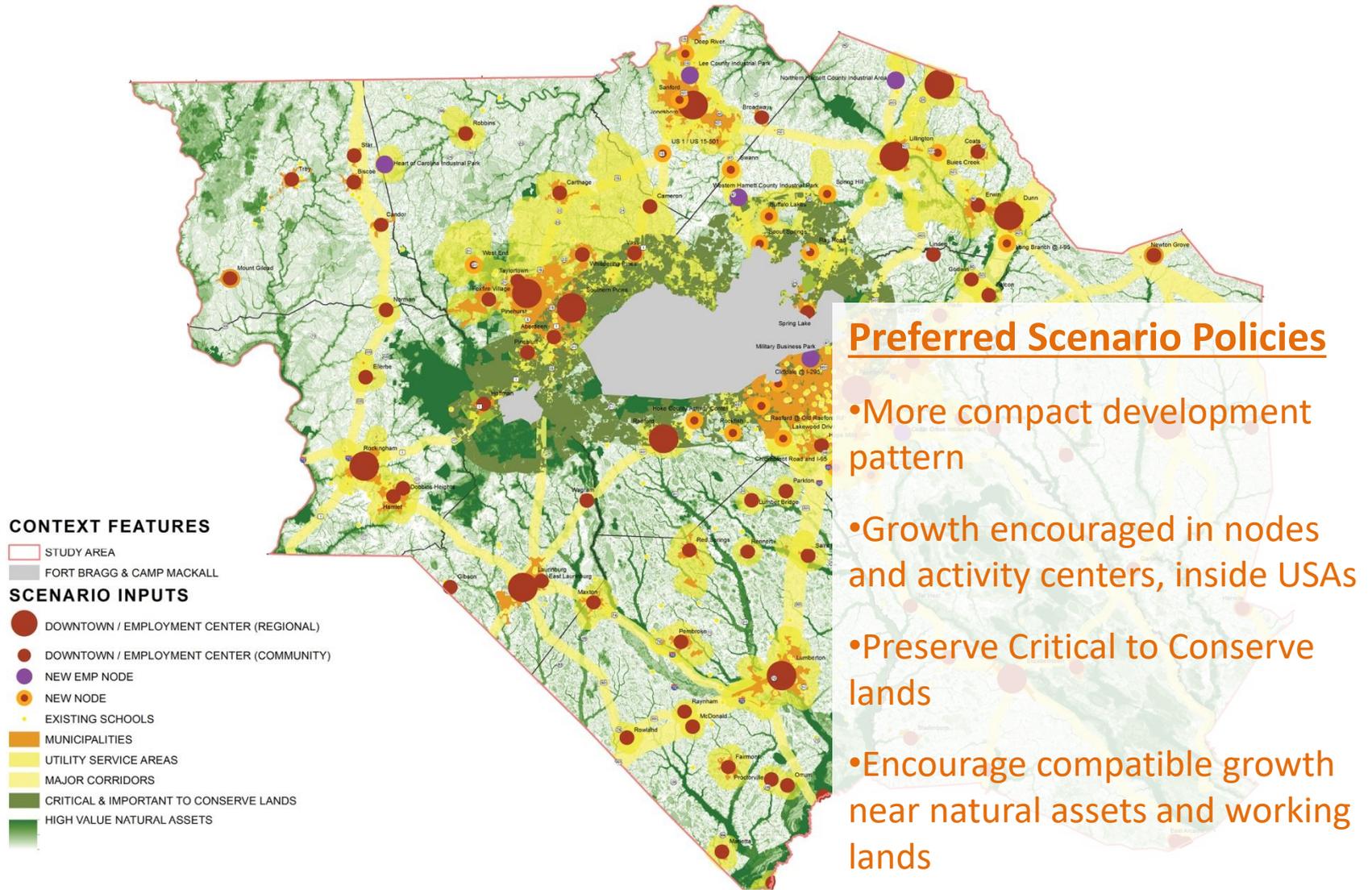
SUSTAINABLE GROWTH MANAGEMENT STRATEGY
FORT BRAGG REGION



Vision

OUR REGION, OUR FUTURE

Vision for the Future



SUSTAINABLE GROWTH MANAGEMENT STRATEGY

FORT BRAGG REGION

REPORT CARD*

	BAU	EV	NA	TC	PS
Promote Economic Development & Optimize Land Use					
Acres of working lands impacted	64,251	35,263	● 45,005	● 49,125	● 31,957
Number of new jobs in municipal limits	74,985	106,841	● 77,588	● 107,313	● 137,204
New revenue in municipal limits	\$103,917,129	\$154,443,310	● \$114,326,798	● \$171,134,113	● \$213,705,336
Urban footprint (acres developed)	441,900	368,930	● 400,360	● 367,350	● 287,060
Ensure Mission Compatibility					
Number of new homes in High Noise Zones	4,830	2,642	● 3,417	● 4,798	● 1,438
Number of new homes in Flight Buffer**	4,066	3,079	● 3,103	● 4,677	● 2,210
Number of new homes in 500ft Fly Zone**	7,376	5,397	● 5,936	● 7,093	● 5,127
Number of new homes in 1000ft Fly Zone**	1,882	1,398	● 1,387	● 1,311	● 905
Acres of critical to conserve lands impacted by new development	24,810	10,070	● 16,350	● 21,230	● 6,050
Acres of important to conserve lands impacted by new development	69,969	24,469	● 48,889	● 55,870	● 21,689
Protect and Enhance Natural Resources					
Acres of new impervious surface in critical watersheds	2,884	2,786	● 2,889	● 2,908	● 2,601
Acres of natural assets impacted	210,408	173,383	● 147,396	● 172,265	● 112,611
Number of new homes near Priority Habitat Corridors	6,340	4,478	● 3,042	● 5,800	● 2,187
Number of new homes near Smoke Awareness Areas	2,158	1,096	● 857	● 1,800	● 319
Acres of prime agriculture lands impacted by new development	126,722	66,830	● 109,603	● 93,497	● 64,382
Provide Housing Choices					
Number of new homes in municipal limits	30,447	40,036	● 34,572	● 53,082	● 63,797
Promote and Enhance Culture & Recreation Assets					
Development along scenic byways (Homes + Jobs)	6,769	10,264	○ 5,565	● 5,829	● 17,693
Reduce VMT and Increase Multi-modal Opportunities					
Transit Propensity Metric	1.00	1.43	● 1.06	● 1.52	● 1.91
Make Smart Utility Investments					
Number of new homes in utility service areas	78,781	85,553	● 92,991	● 91,353	● 98,422
Number of new jobs in utility service areas	138,650	155,403	● 140,984	● 147,337	● 162,116
Utility Demand inside utility service areas	40,492,750	44,698,700	● 44,395,350	● 44,938,800	● 48,922,900
Utility Demand outside utility service areas	13,305,500	9,099,550	● 9,402,900	● 8,859,450	● 4,875,350
Promote a Healthier Community					
Number of new homes within a 10-minute drive of health care facility	43,035	44,544	● 48,691	● 53,750	● 49,054
Number of new homes within a 10-minute walk of an existing school	19,234	27,126	● 24,399	● 27,191	● 50,509

Results Key

- = Worse Than Business As Usual
- = Less than 10% change from Business As Usual
- = Significant Improvement Compared to Business As Usual
- = Best Performance for an Alternative (other than the PS)
- = Best Improvement Compared to Business As Usual

Scenario Key

- BAU**
Business As Usual Scenario
- EV**
Economic Vitality Scenario
- NA**
Natural Assets Scenario
- TC**
Town & Corridor Scenario
- PS**
Preferred Scenario

*See back for description of methodology used to calculate indicators.

**Flight Buffer, 500 ft and 1000 ft. Flight Zones from RLUAC Telecommunications Tower Study 2008

The number of homes and jobs forecasted kept constant between scenarios (114,867 homes, 166,102 jobs).

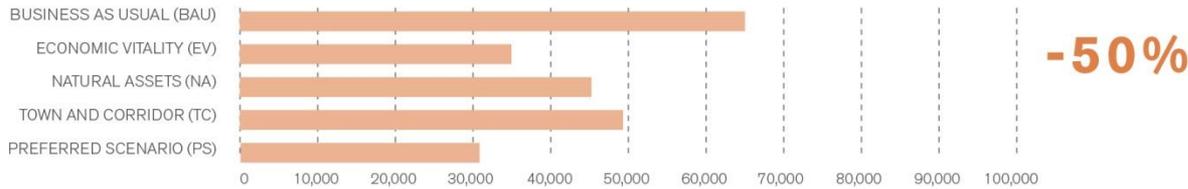
UNDERSTANDING OUR CHOICES



PROMOTE ECONOMIC DEVELOPMENT

REDUCED IMPACTS

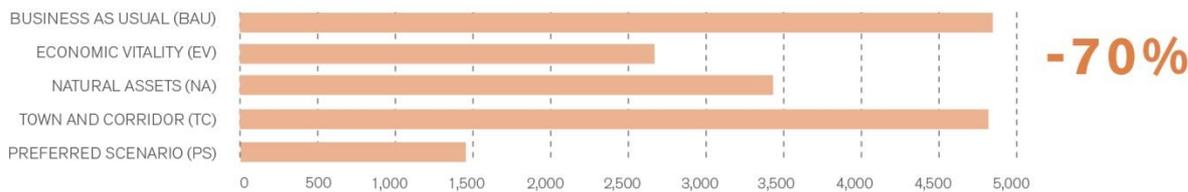
Acres of Working Lands Impacted



ENSURE MILITARY OPERABILITY

REDUCED IMPACTS

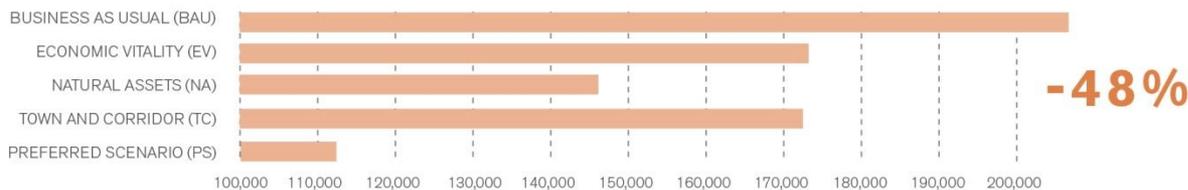
Number of New Homes in High Noise Zones



PROTECT AND ENHANCE NATURAL RESOURCES

REDUCED IMPACTS

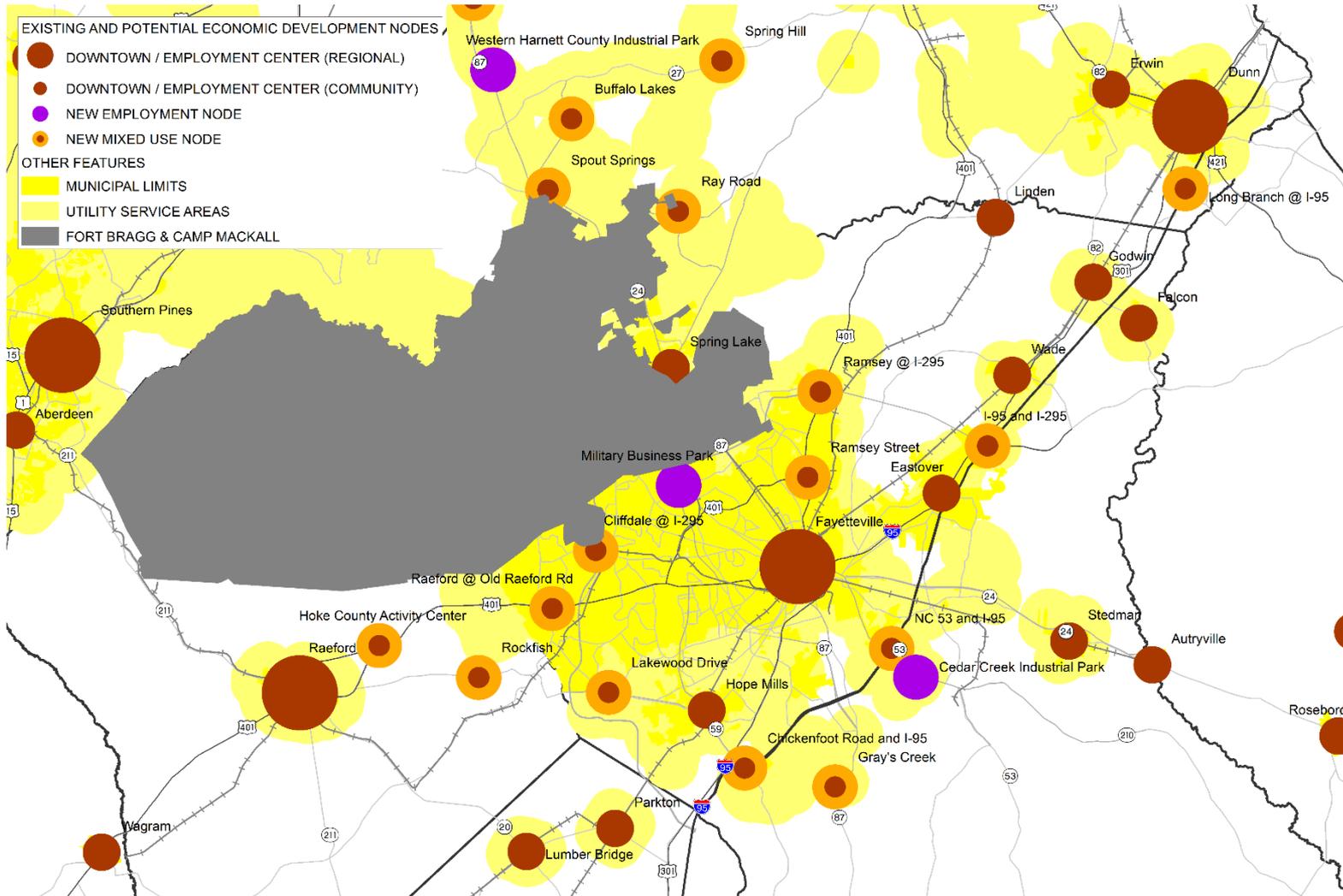
Acres of Natural Assets Impacted



To help evaluate the trade-offs of each alternative a set of indicators were developed based on established regional goals and with input from the Advisory Committee.



Location of Intensity



Location of Intensity

CONTEXT FEATURES

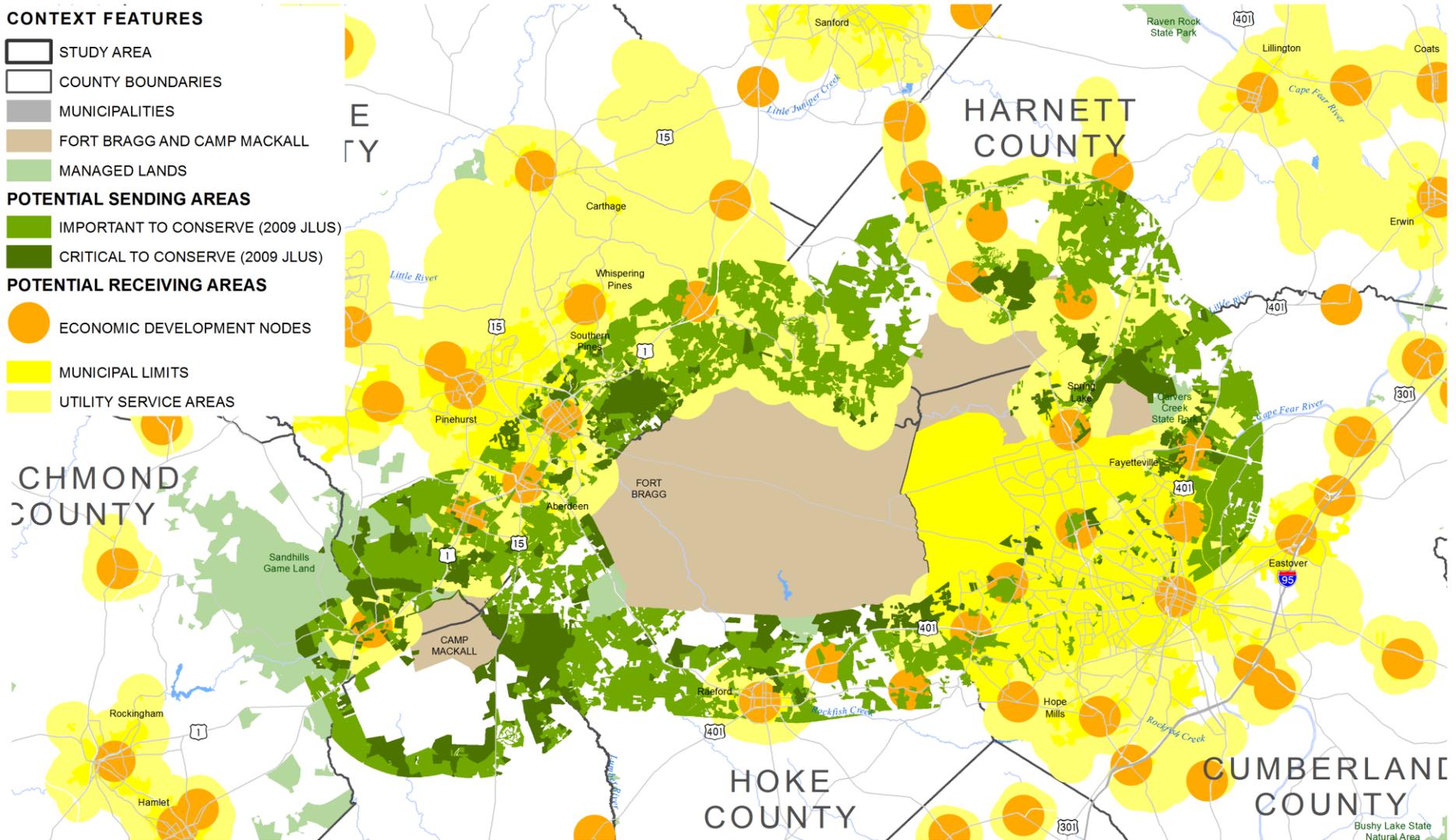
- STUDY AREA
- COUNTY BOUNDARIES
- MUNICIPALITIES
- FORT BRAGG AND CAMP MACKALL
- MANAGED LANDS

POTENTIAL SENDING AREAS

- IMPORTANT TO CONSERVE (2009 JLUS)
- CRITICAL TO CONSERVE (2009 JLUS)

POTENTIAL RECEIVING AREAS

- ECONOMIC DEVELOPMENT NODES
- MUNICIPAL LIMITS
- UTILITY SERVICE AREAS



Mix of Uses



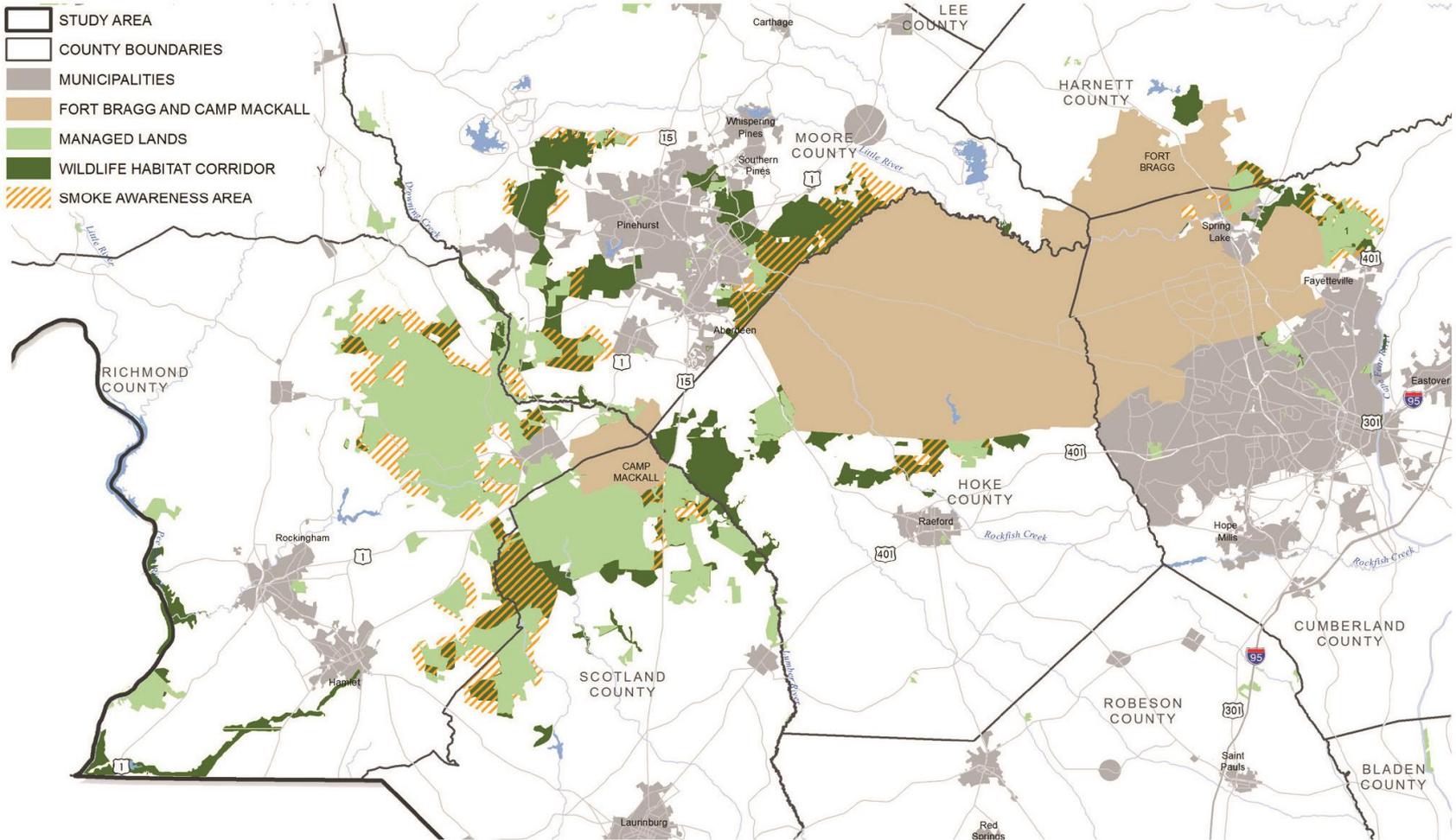
Less of This



More of This

Connectivity

Build on Existing Efforts

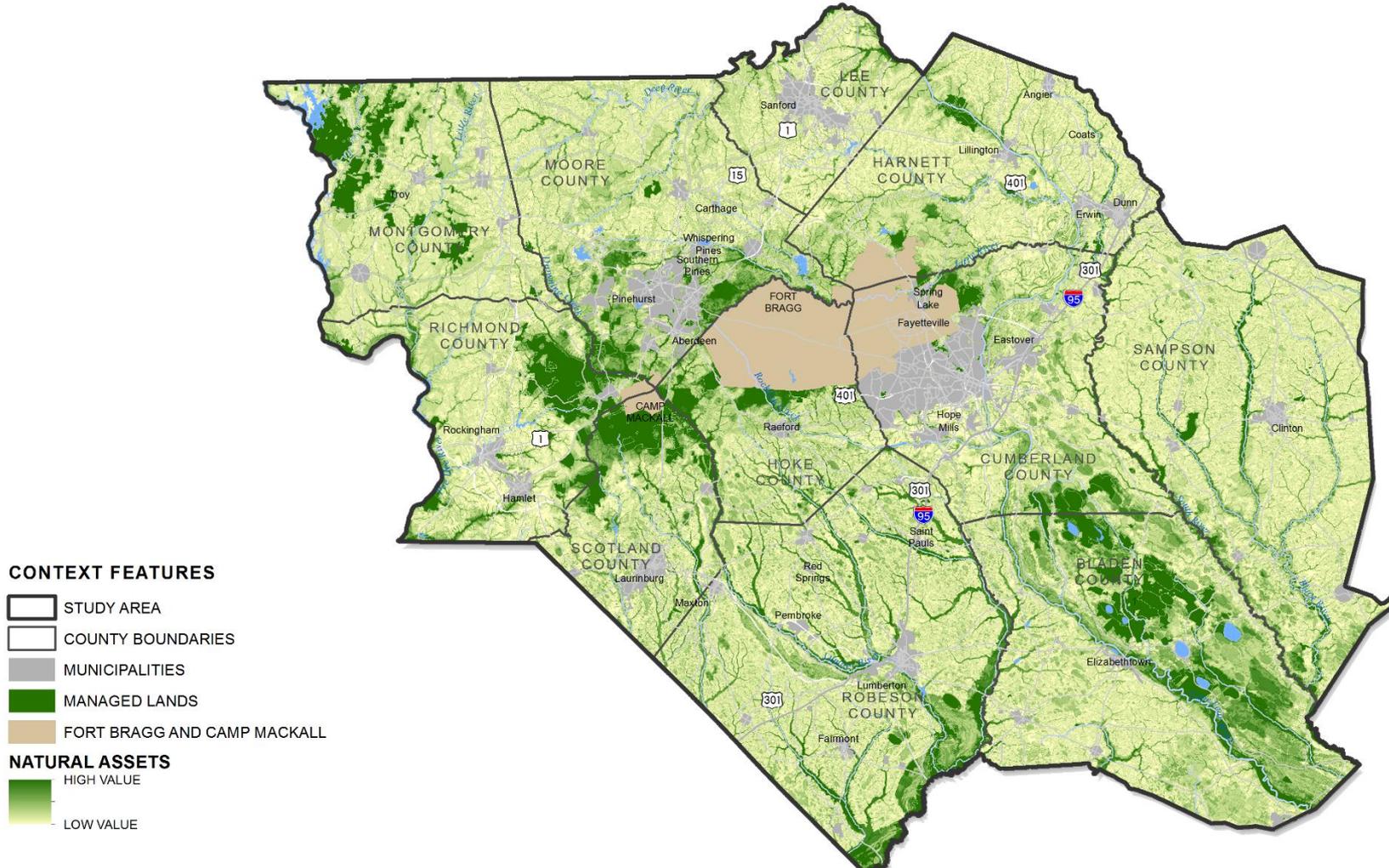


WILDLIFE HABITAT CORRIDORS are the most critical areas for the movement of wildlife between existing protected lands. Smoke Awareness Areas are locations that may experience smoke from controlled burns every 1-4 years. .

DATA SOURCE: U.S. FISH AND WILDLIFE, N.C. SANDHILLS CONSERVATION PARTNERSHIP

Connectivity

Natural Assets



Green Infrastructure Inputs

Green Infrastructure Element	Description/Rationale	Source	VALUE
Significant Natural Heritage Areas	Areas identified by the NC Natural Heritage Program as supporting rare and high-quality native plants, animals, and/or natural communities. Includes wetlands, gardens, creeks, bays, nature trails, forests and other natural areas	from DENR and (July 2013.)	1
Potential Upland Habitats	Sites identified by biologists from aerial photography as upland longleaf pine habitats.	Identified by biologists from 2008 aerial photography.	1
Rare Species Habitats	Habitats (and potential habitat areas) identified by Natural Heritage biologists.	Created by National Heritage Program biologists. Last updated: November 2009.	1
Red-Cockaded Woodpecker (RCW) Foraging Habitats	Areas where RCW search for and acquire food; typically a ½ mile buffer around trees used for nesting and roosting.	Consistent with 2009 status of RCW clusters in the Sandhills region.	1
Red-cockaded Woodpecker (RCW) Corridors	Land areas through which RCW are known to disperse in order to establish breeding status in new territories or fill vacancies in existing groups.	RCW Working Group of the NC Sandhills Conservation Partnership. Last updated: March 2010.	1
Tier 1 Animal Guild Habitats	Contains habitat with sufficient connectivity to support a “guild” – a group of indicator species.	Derived from the Landscape Habitat Indicator Guild work of Steve Hall at the Natural Heritage Program. Last updated: March 2010.	1
Tier 2 Animal Guild Habitats	Contains habitat with sufficient connectivity to support guilds. Broader habitat types with lower priority compared to Tier 1 guild layer.	Derived from the Landscape Habitat Indicator Guild work of Steve Hall at the Natural Heritage Program. Last updated: March 2010.	1
Sparsely Settled Habitats	Often serve as important wildlife corridors and as connections between higher quality habitat areas.	Derived from the Landscape Habitat Indicator Guild work of Steve Hall at the Natural Heritage Program. Last updated: March 2010.	1
Wetlands	Wetlands are important habitats that function as corridors, aid in flood prevention and enhance water quality. While not ideal for small-scale investigations, NWI data are adequate to identify the broad extent of wetlands on a regional basis.	USFWS National Wetlands Inventory (NWI) project. Last updated: 1999.	2
Aquatic Significant Natural Heritage Areas	River and stream habitats with significant ecological resources (e.g. rare species); includes 300 foot buffer.	CGIA in cooperation with state agencies. Last updated: February 2011.	2
Stream Buffers (Other Streams and Riparian Resources)	All streams in the statewide data set; includes a 100 foot buffer.	CGIA, in cooperation with the North Carolina Division of Water Quality. Last updated: September 2002.	2
Floodplains	Shows boundaries of 100-year floodplains (areas adjacent to rivers or streams that are subject to a 1% annual chance of flooding).	Majority of data created by the NC Floodmapping Program. Last updated: January 2008.	2
Active Recreation	Sites used for outdoor activities, active recreation (excluding gamelands), and small, usually urban-area facilities. Includes boat landings, archery/ shooting ranges, ballfields, golf courses, parks, and playgrounds.	Data compiled by Sustainable Sandhills from various sources. Last updated: December 2009.	1
Bodies of Water	Bodies of water with recreation value, such as lakes, reservoirs, rivers, creeks, and boat landing sites.	Data compiled by Sustainable Sandhills from various sources. Last updated: December 2009.	2
Cultural/Historic/Arts	Properties and sites with historic value (e.g., battlefields, historic sites and districts, archeological sites, etc.), or those associated with cultural or arts activities or facilities.	Data compiled by Sustainable Sandhills from various sources. Last updated: December 2009.	1
Institutional	Includes schools, churches, and cemeteries	Data compiled by Sustainable Sandhills from various sources. Last updated: December 2009.	1
Trails	Made up of cycling, walking, scenic and paddling/water trails.	Data compiled by Sustainable Sandhills from various sources. Last updated: August 2009.	1
Boat Landings	Includes public and private canoe/kayak landings and boat ramps (especially those associated with paddling or water trails).	Data compiled by Sustainable Sandhills from various sources. Last updated: December 2009.	1
Hunting Safety Buffer	150 yard buffer around the State’s Game Lands to help minimize potential conflicts between hunters and residents.	Created by WRC. Reflects most recent State Gamelands layer.	1
JLUS 5-Mile Review Area	A 5 mile area around Fort Bragg and Camp Mackall delineating the area reviewed as part of the Joint Land Use Study (JLUS).	Buffer created by ERM to reflect the study area of the Fort Bragg JLUS, June 2011.	1
Protected Land	Land placed under easements or maintained by an organization or government agency for open space activities. Comprised of forests, gamelands, and easements related to scenic, agricultural and other uses.	Data compiled by Sustainable Sandhills from various sources. Last updated: Fall 2013	1
Farmland	Active farmland (including row crops, pasture, livestock, and other types of agriculture, but excluding forestry).	One North Carolina Naturally Conservation Planning Tool (CPT), Viable and Threatened Farmland Assessment. Last updated: Summer 2008.	1
Agri-tourism	Properties and sites used for public interaction with agricultural-based activities, including but not limited to pick-your-own sites, farm markets, wineries, and gardens.	Data compiled by Sustainable Sandhills from various sources. Last updated: December 2009.	1
Forest Lands	Forest lands provide habitat and corridors that allow animals to travel between habitats.	One North Carolina Naturally CPT, Important Forestlands Assessment. Last updated: January 2009.	1

Context

Conservation/Cluster Development



Conventional Development



Cluster Development

Context

Context Sensitive Rural Development



Conservation Development in Weddington, NC

SUSTAINABLE GROWTH MANAGEMENT STRATEGY
FORT BRAGG REGION



Implementation

STRATEGY TOOLKIT

The toolkit includes a set of sound, voluntary, implementable recommendations and strategies that connect the **region's vision** with the policies, programs, projects and plans needed at local and state levels to achieve that **future**.



STRATEGIES FOR PROSPERITY



Ensure Mission Operability Recommendations and Strategies

RECOMMENDATION MO1

Utilize the Fort Bragg Regional Growth Model to proactively plan for growth in the 11-county region.

As part of this process a land use model was built that measures growth and development impacts based on future population projections in the region. The Model has numerous applications for local governments. Local planners should use the Preferred Scenario and Fort Bragg Regional Growth Model as a tool to revise local land use plans, utility plans and zoning; review development proposals and identify priority conservation areas. It should be updated with new data every two-years or as development patterns change. In addition, planners should proactively meet with local economic developers and utility service providers to jointly plan for economic development and housing growth in areas not in conflict with mission training, priority habitats and prime agriculture lands.

RECOMMENDATION MO2

Support the findings of the Fort Bragg Region Joint Land Use Study Update (2008).

STRATEGY MO2.1

Require real estate disclosure statements for all property within one-mile of military installations. Disclosure statements should include warnings about potential noise and startle affects from low flying aircraft, blast noise from artillery/small arms fire, and intensive smoke resulting from controlled burns of managed pine forest areas.

In the absence of state legislation requiring real estate disclosure statements, local organizations can work together to inform and educate potential buyers on whether or not a property is located within a noise zone or accident potential zone (APZ). Real estate associations should educate their membership on the location and

potential nuisance issues of purchasing property within a high-noise zone, smoke awareness area or APZ. The base and local jurisdictions should work together to produce a JLUS Planning Map that provides critical information on compatible development, noise metrics and real estate disclosures similar to the example cited in the following case study.

STRATEGY MO2.2

Replicate Cumberland County's Lease of Development Rights program in other counties.

STRATEGY MO2.3

Update local zoning ordinances to include "Military Impact Zone" overlay districts to incompatible development patterns.

Many communities adjacent to military operations have adopted local zoning districts to assure land use compatible with high noise or accident potential generated by military operations. For example, Harnett County and Hoke County both address compatibility issues in their development ordinance. In addition, Maricopa County developed a military compatibility permit program to assure development compatible with military operations, including high noise and accident potential zones.



REGIONAL VISION, LOCAL IMPLEMENTATION

Each jurisdiction within the region is unique. Every municipality and county has their own set of policies, to guide growth and development.

Local leaders should identify and prioritize key recommendations that have the potential to have the highest impact on their community and focus implementation efforts on those initiatives.

REGIONAL GROWTH MODEL

A Multi Use Tool

SMART MONEY

What is the fiscal impact of local land use decisions in Moore County?

LOCAL PLANNING

What does growth look like in Lee County?

SCHOOL GROWTH

How many children are expected to attend Harnett County schools? Where will these families live?

GROWTH PRESSURE

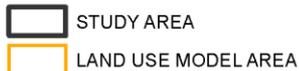
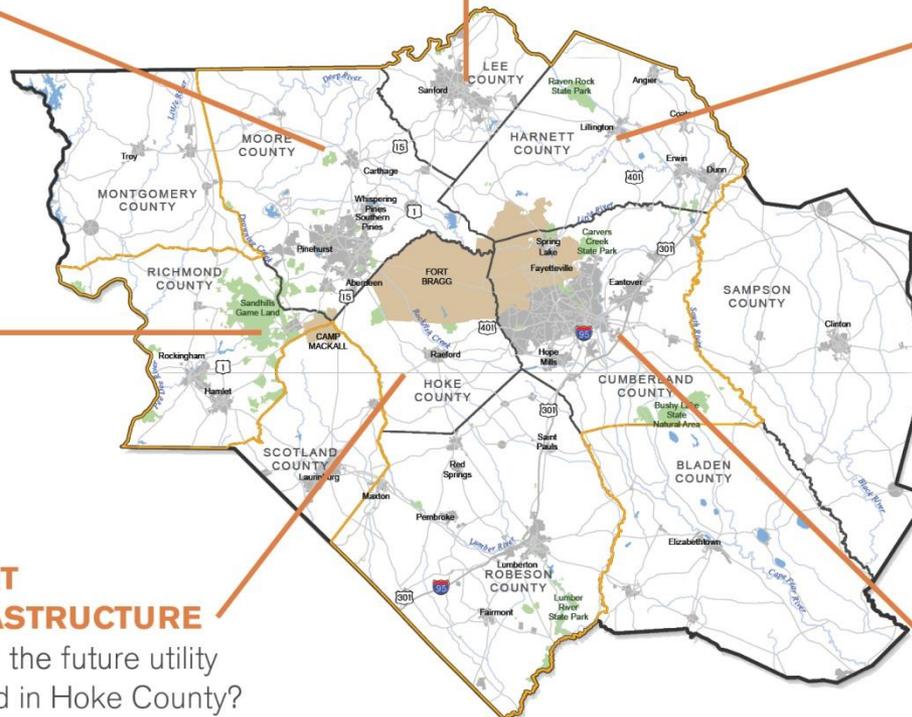
What lands are most important to conserve in Richmond County?

SMART INFRASTRUCTURE

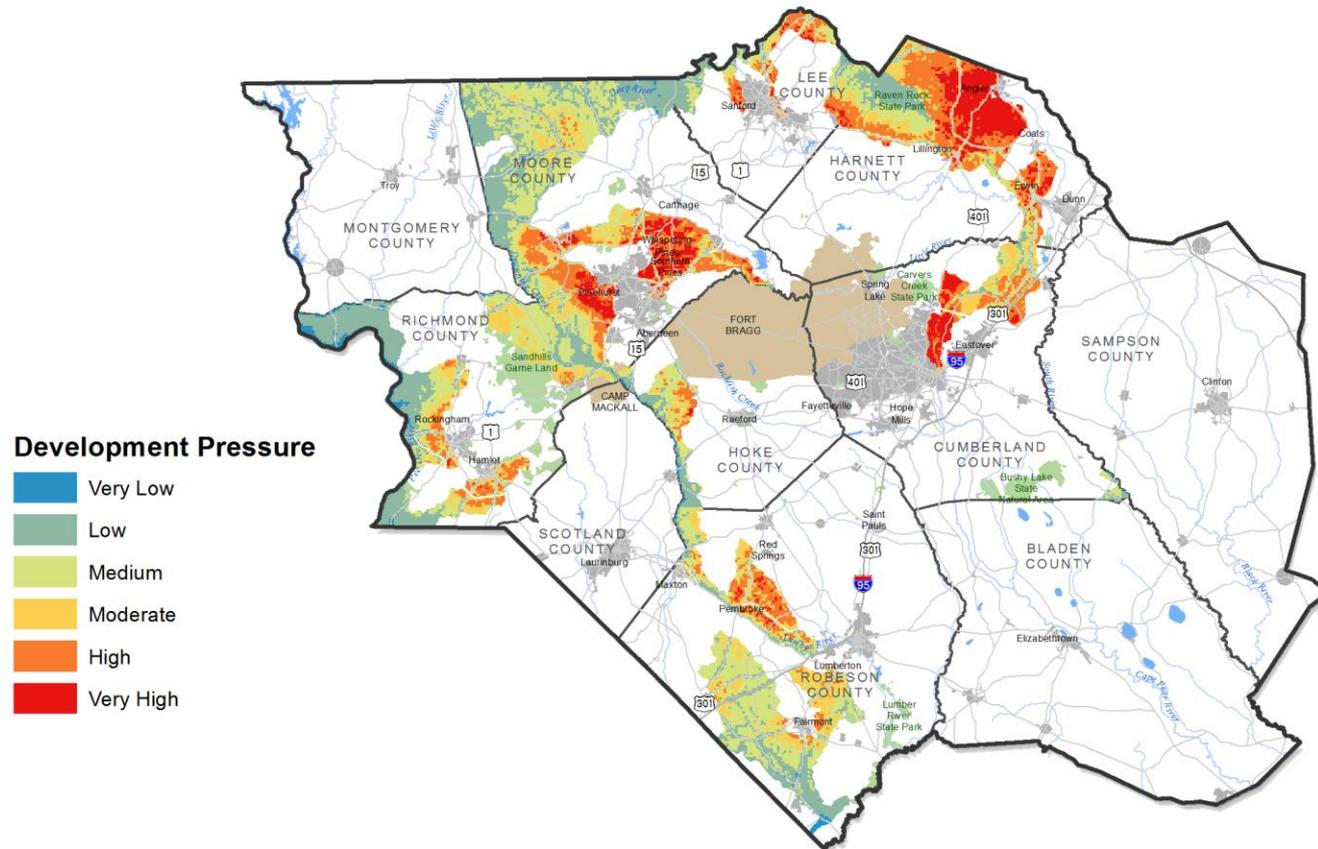
What is the future utility demand in Hoke County?

JOB GROWTH

Where are the prime industrial sites in Cumberland County?



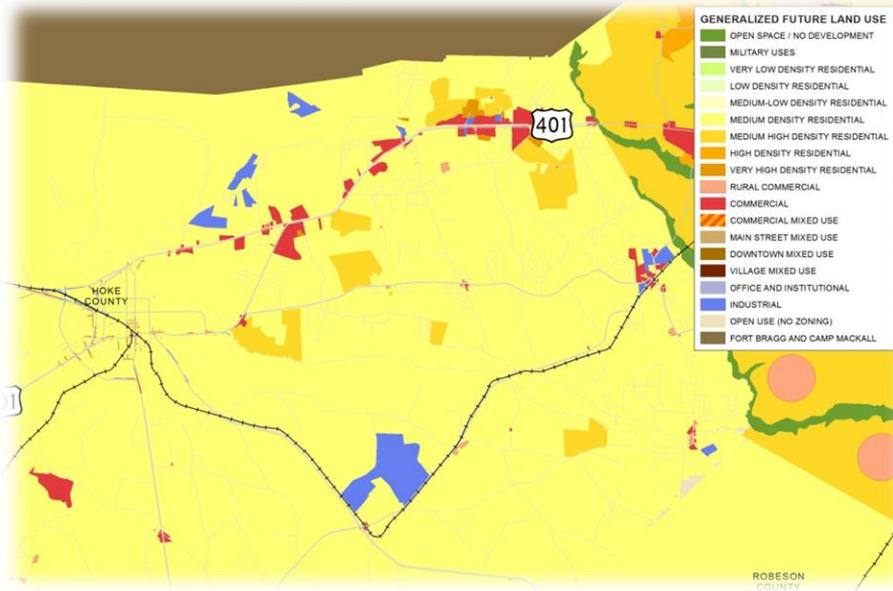
Determine growth pressures on agricultural lands, ecological corridors or in watersheds



Can be used as a factor in funding decisions to ensure efficient use of limited resources

Evaluation of Land Use Alternatives

Business As Usual (zoning)



Business As Usual Zoning

- Single use
- Low density residential @ 2 DU/Acre

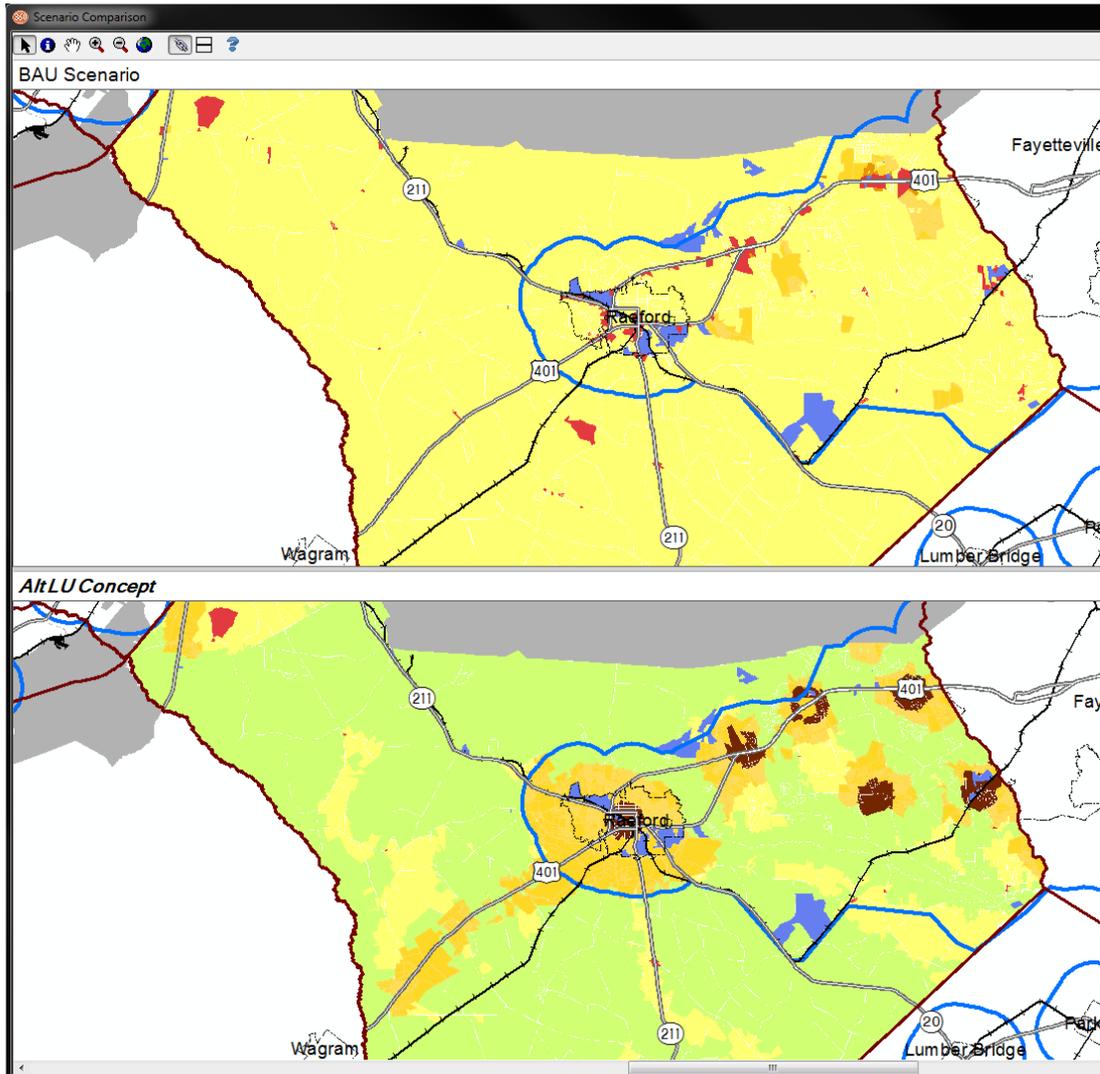
Alternative Plan



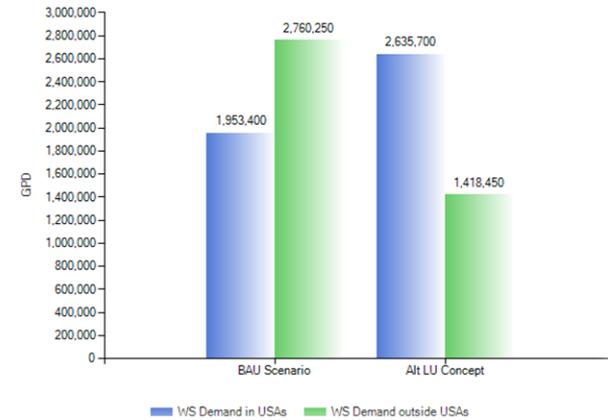
Alternative Land Use Concept:

- More closely follows FLU plan and themes of FB SGMS
- Multiple nodes with a mix of uses
- Medium density near nodes and in utility service area
- Low density encouraged in Critical and Important to Conserve Lands and floodplains

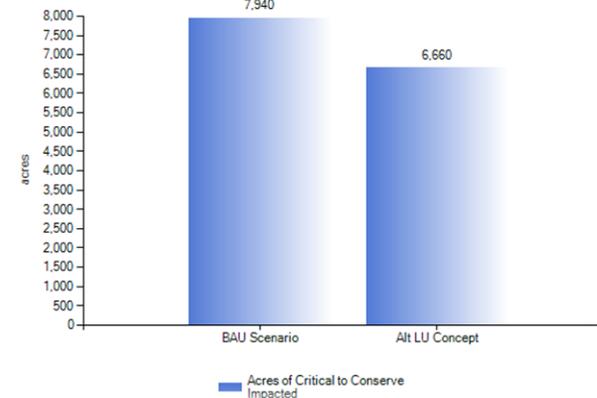
Land Use Alternatives



WS Demand



Acres of Critical to Conserve Impacted



Keys to Implementation

- Continue the **conversation**
- Continue **coordination** (SCP is a leader)
- **Support** for SGMS implementation steps from local government, non-profit, and regional partners
- Growth Model as Spatial Decision Support System
- Refinement of tools/data available for County and City use
 - i.e. high resolution conservation data can be directly used as input to growth model and inform local planning efforts (i.e. identify priority areas for conservation subdivision ordinances)

THANK YOU

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