

Welcome to the Spotlight on the Regional Growth Forecast!

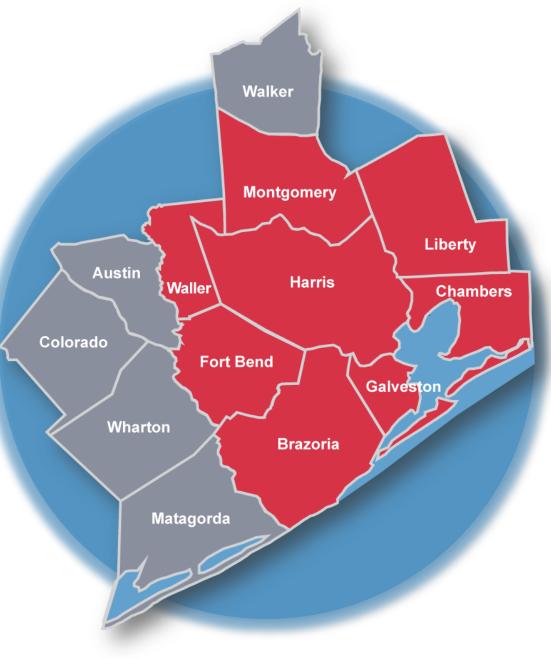
Friday, August 1, 2014 Houston-Galveston Area Council H-GAC serves:

13 counties

105 cities

MPO for 8-county metro area





Metropolitan Planning Organization (MPO) Responsibilities

- Develop Long Range Transportation Plan
- Support On-going Transportation Planning
- Approve short range state/federal project funding

Transportation Funding <u>to the</u> Region

- State/Federal
 - -decennial census population
 - system size and condition
 - -traffic volumes, transit ridership
 - air quality
 - Federal/State discretionary funds

Transportation Funding for Projects

- Goals in Regional Transportation Plan
- Evaluation measures
 - ⁻ Safety
 - Mobility
 - Asset condition and service level
 - ⁻ Economic impact

Role of Regional Economic and Demographic Forecast

- Understand Present and Future Travel
- Identify Impact/Benefits of Transportation Investments
- Informs Local Decisions
 - Transportation Priorities
 - Locally funded investments
 - Regional investments Transportation Policy
 Council

Role of Demographic/Economic Forecasting

NOT used to divide funding by political jurisdiction

- Is a transportation planning tool
 - Development "scenarios"
 - Target most robust transportation investment
 - Linked to other transportation models

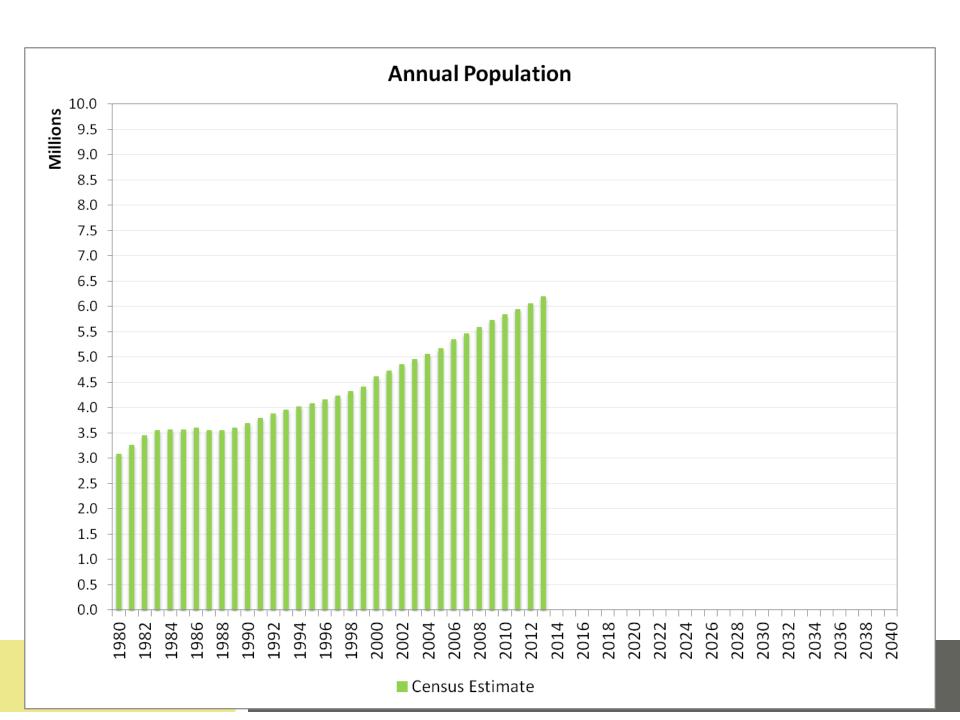


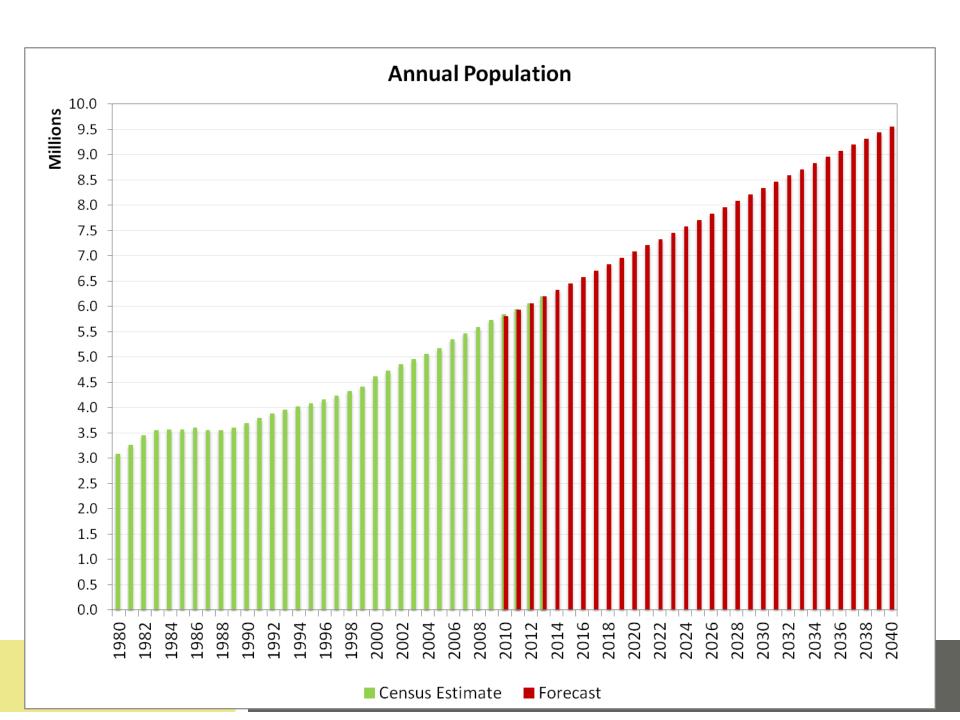
Friday, August 1, 2014 Houston-Galveston Area Council

Two Distinct Questions

- 1. How many people and jobs will be in our region 30 years from now?
 - Demographic and Employment Forecast
- 2. Where within the region will the people live and work?
 - Land Use Forecast

Part I: Demographic Forecast

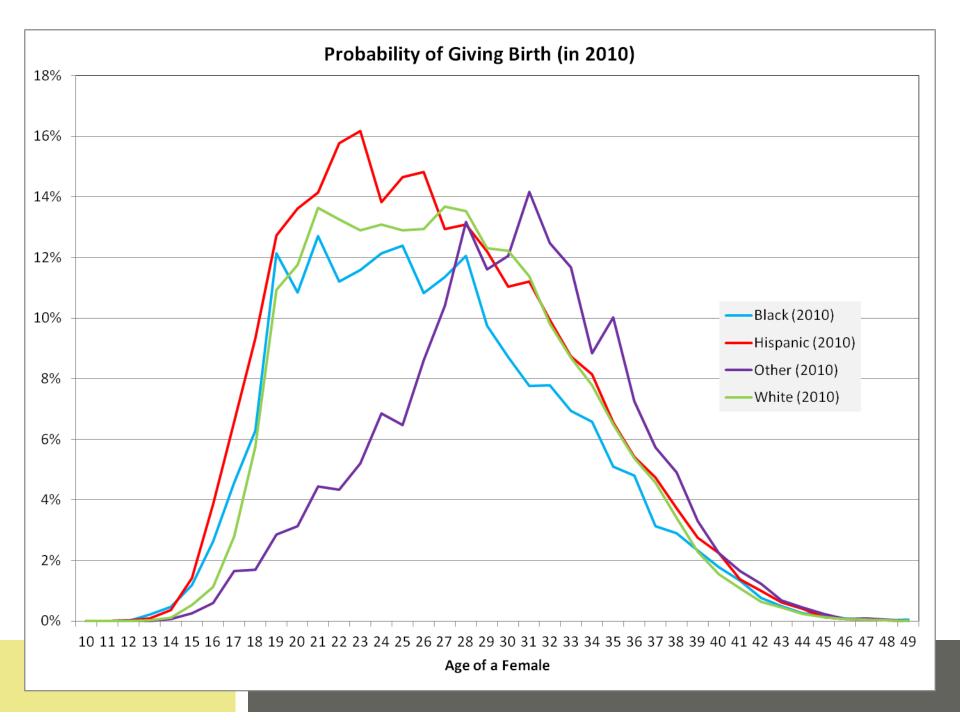


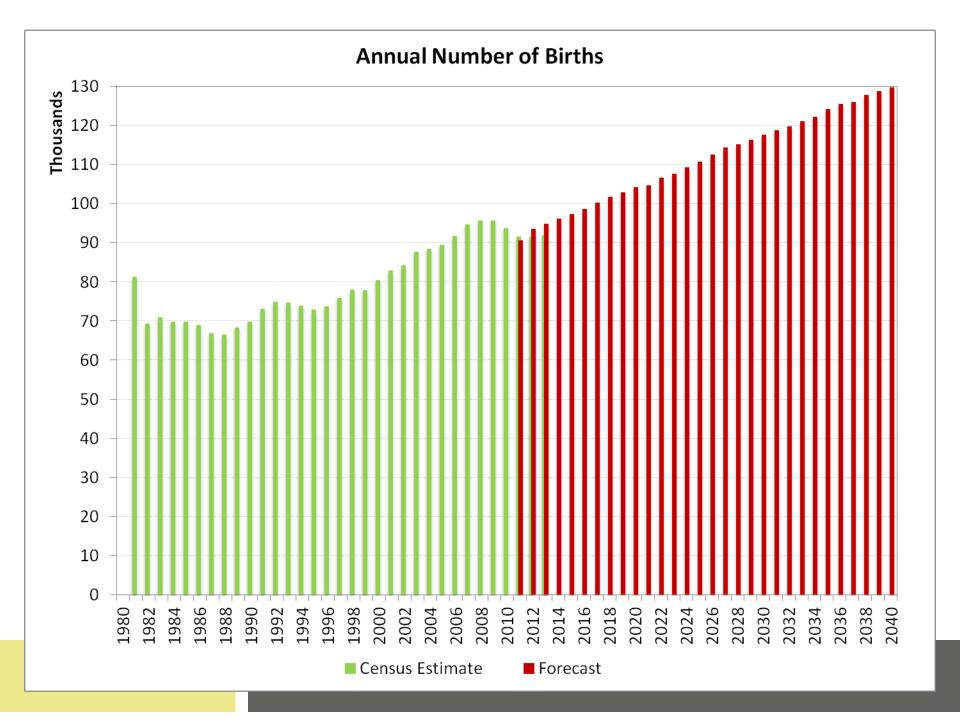


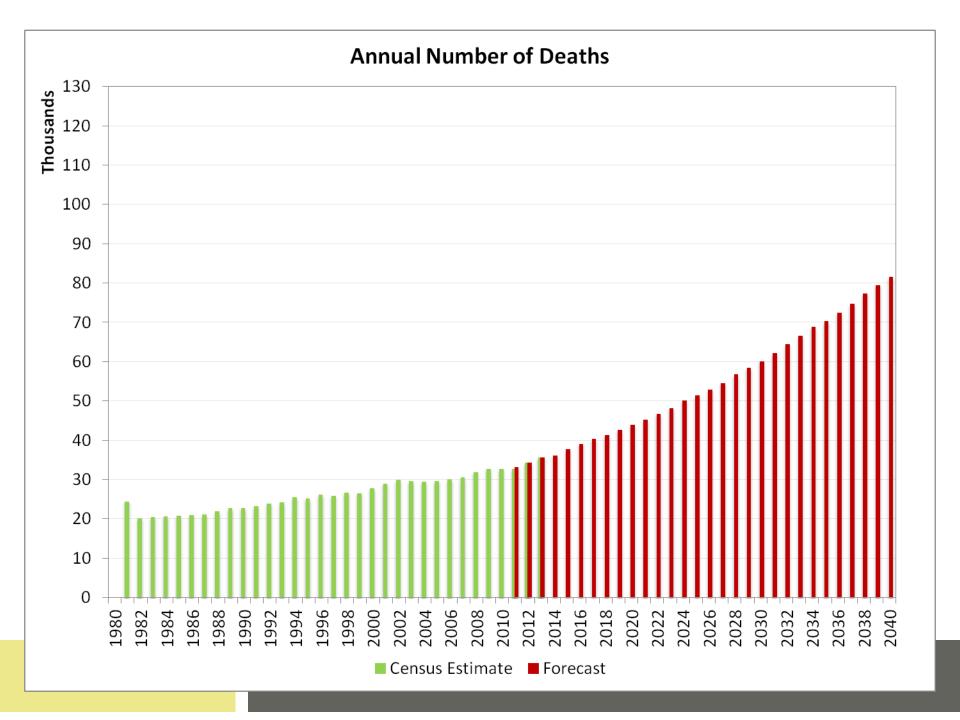
Sources of Population Change

GAIN	LOSS	
Births	Deaths	
In-Migration	Out-Migration	

- Stable trends in fertility and survival
- "Vital Statistics"

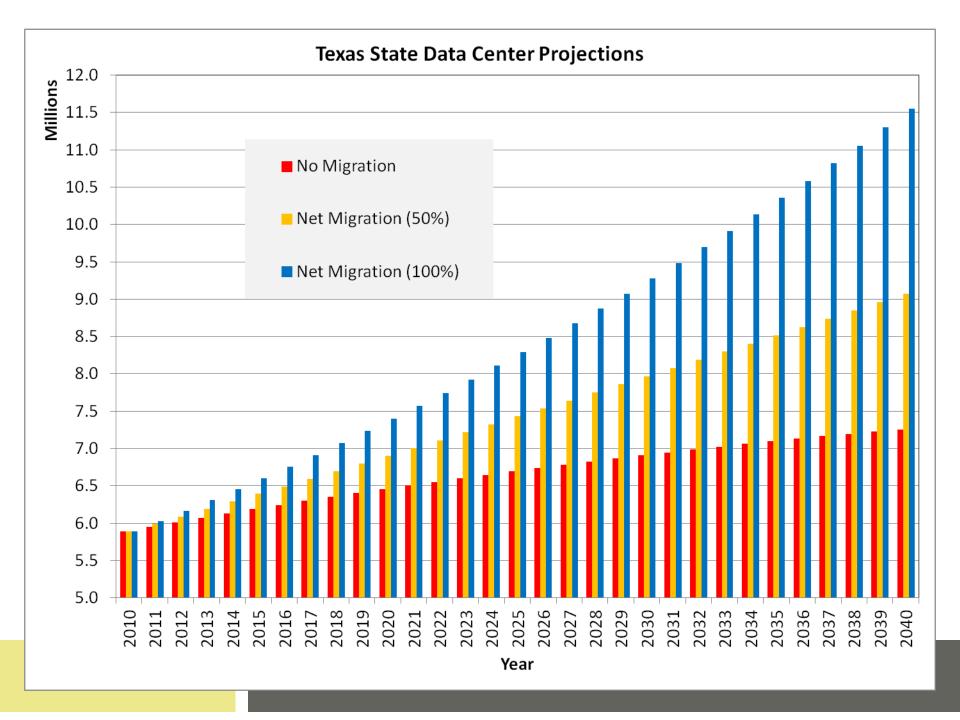






Migration

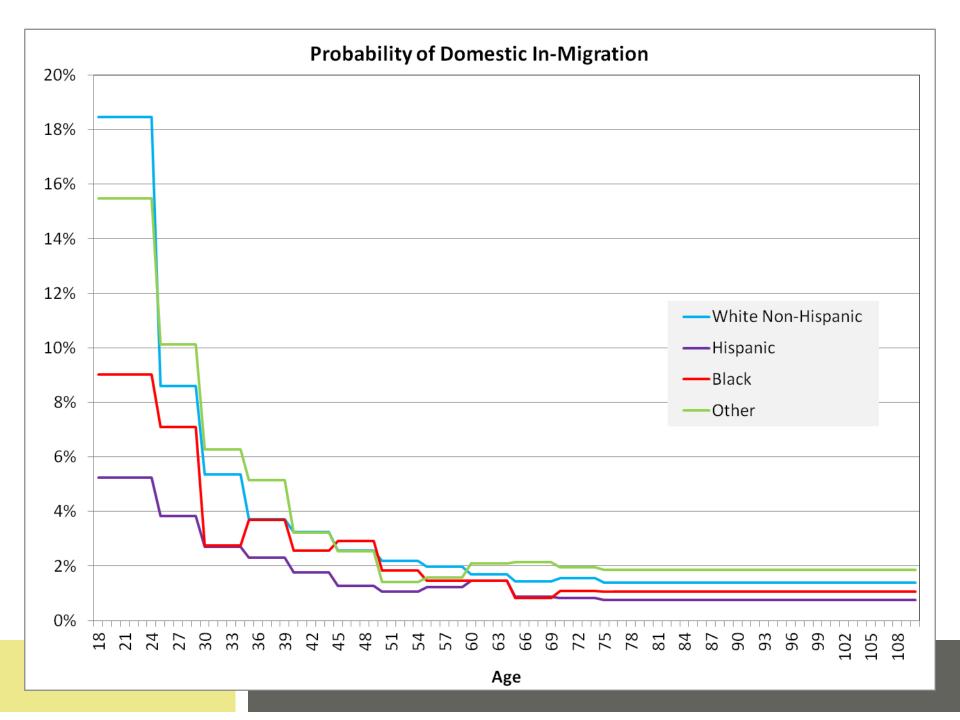
- More complicated:
 - cumulative
 - entirely social (no biological component)
 - can fluctuate
 - family/household is the fundamental unit
- Migration flows:
 - in-migration (+)
 - out-migration (-)
- Net migration: balance

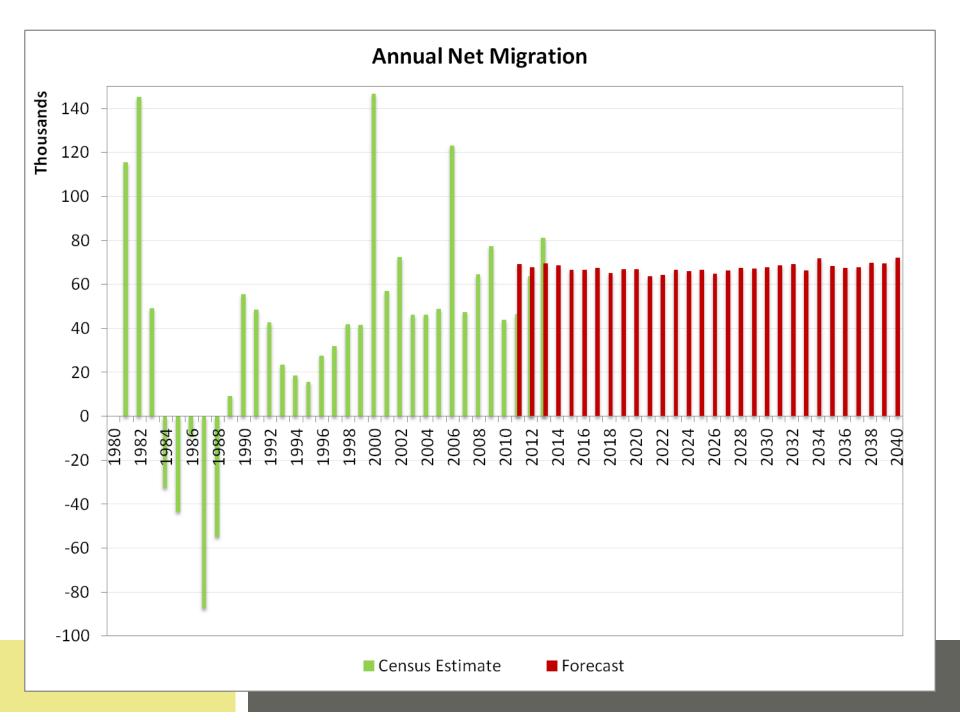


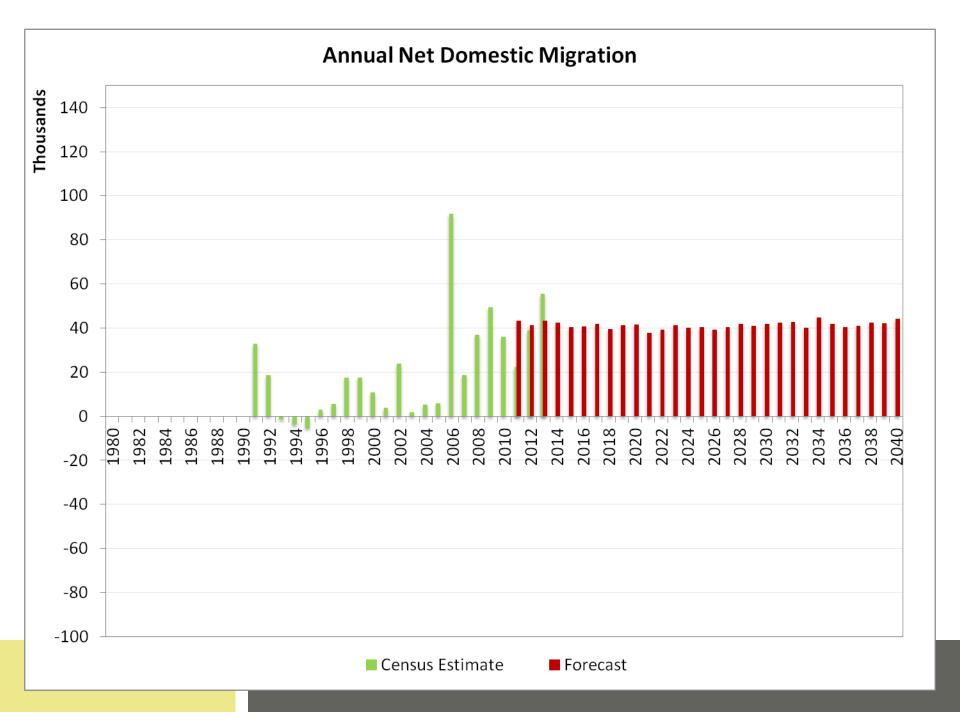
Annual Migration Flows for the H-GAC Region (in thousands)

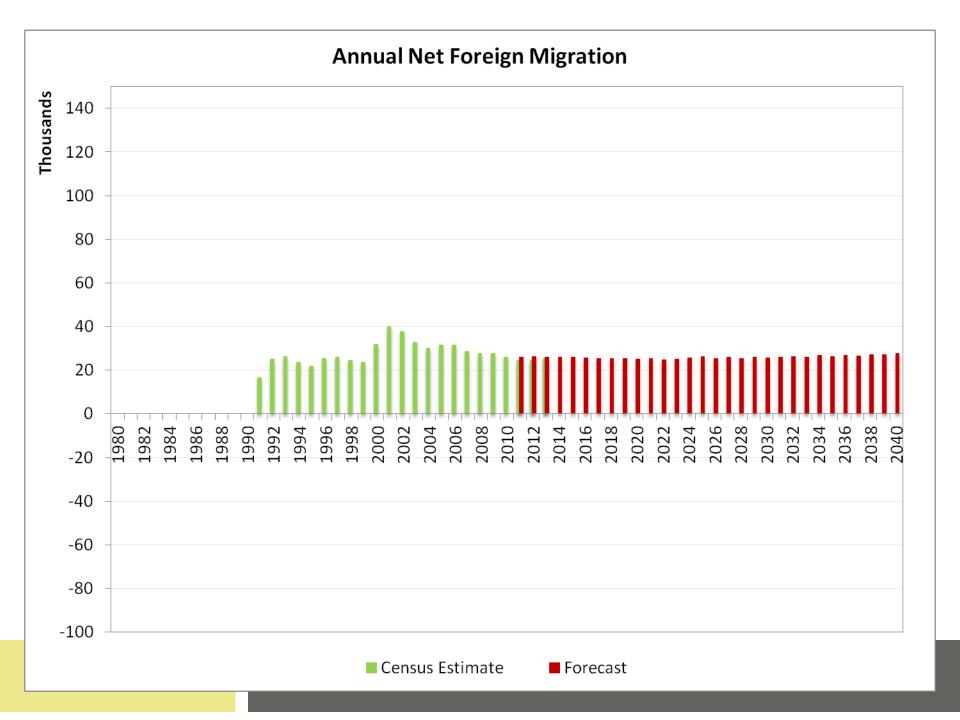
Origin/Destination	IN- Migration	OUT- Migration	Net
Domestic	185	-170	15
Texas (non-H-GAC)	74	-88	-14
US	111	-82	29
International	49	n/a	49
All	234	-170	64

Source: ACS County to County Migration, 2007-2011



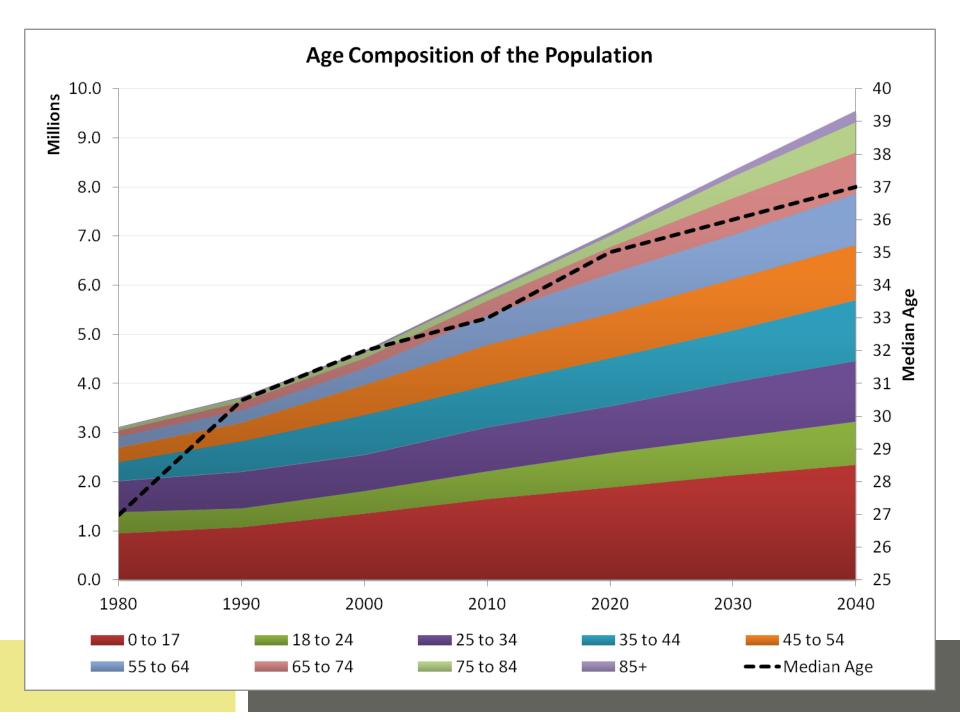


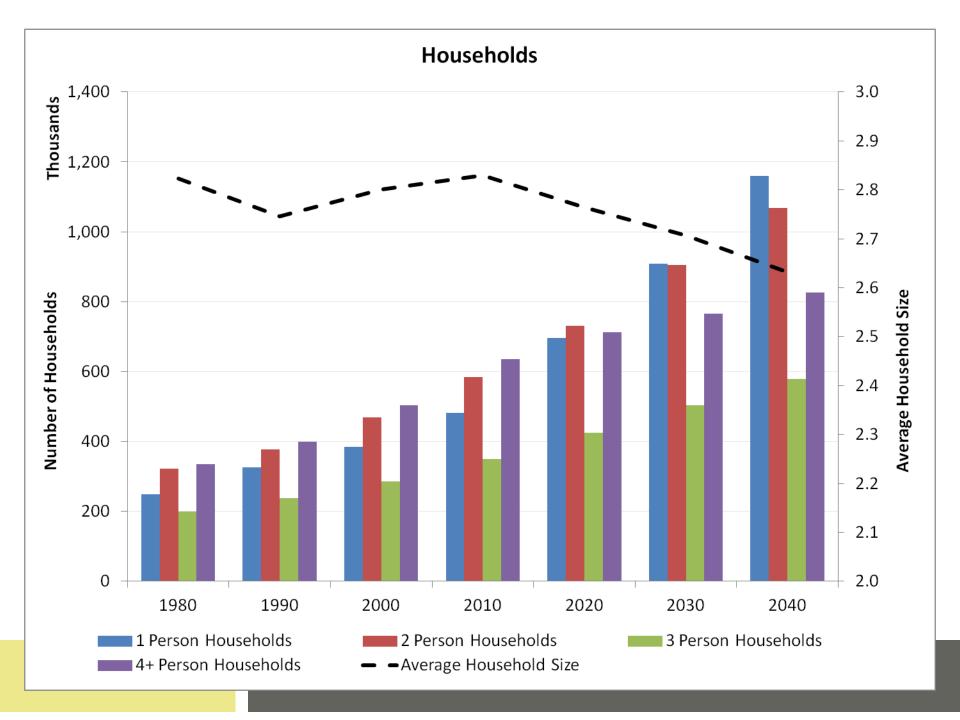




Demographic Micro Simulation

- Beyond Cohort-Component
- Computer micro simulation:
 - Biological events: aging, births, deaths
 - Migration events: moving in, moving out
 - Family events: marriage, divorce, child moving out of parents house
- Advantages
 - Household composition
 - Link to housing

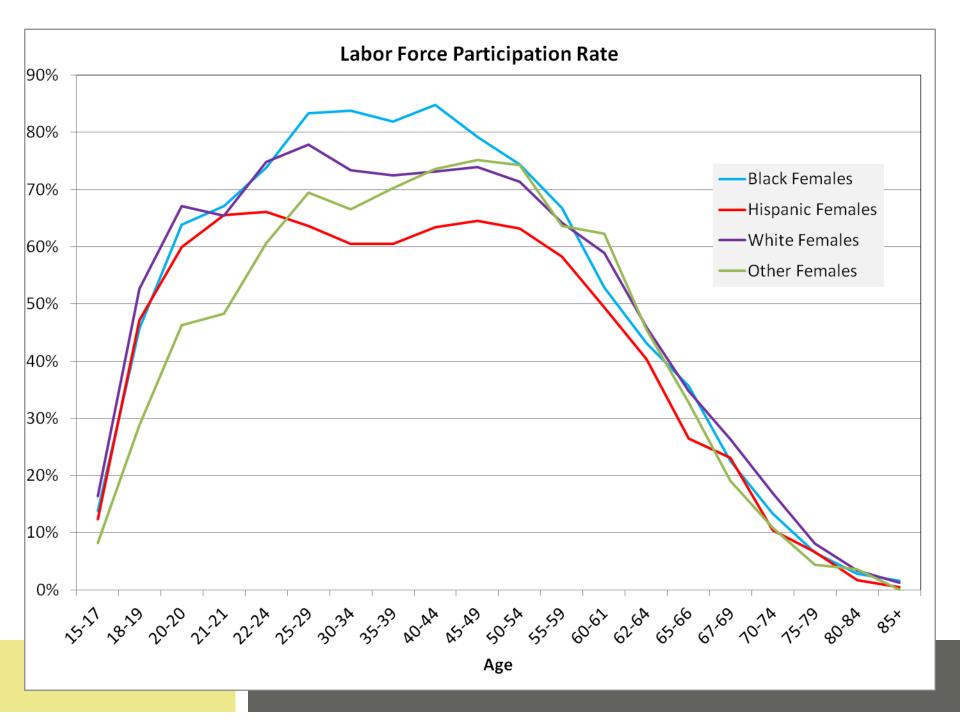


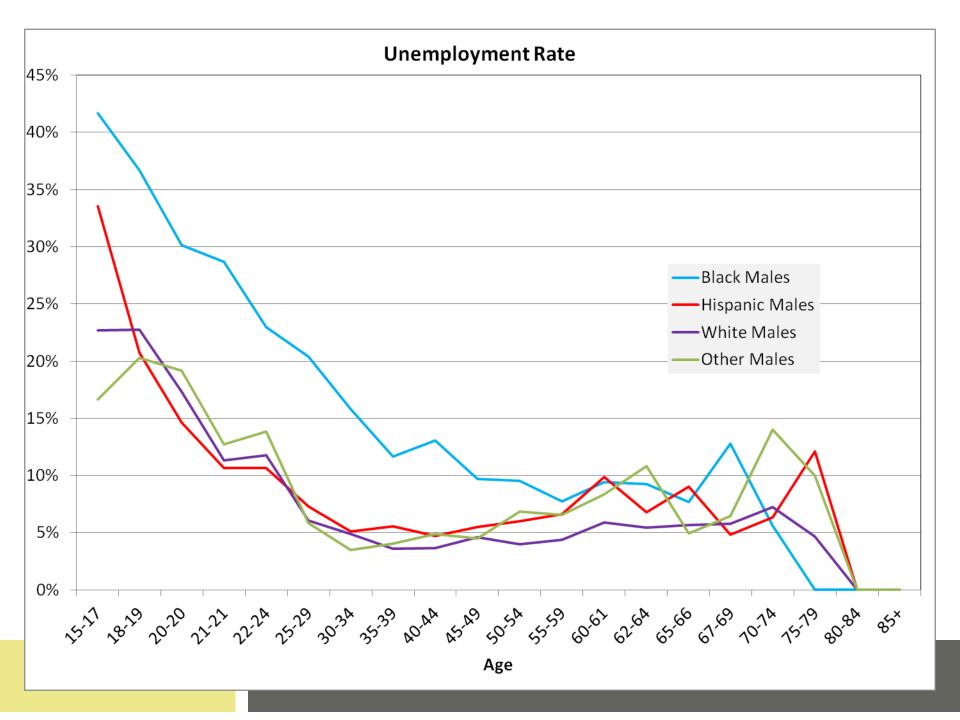


Population and Employment

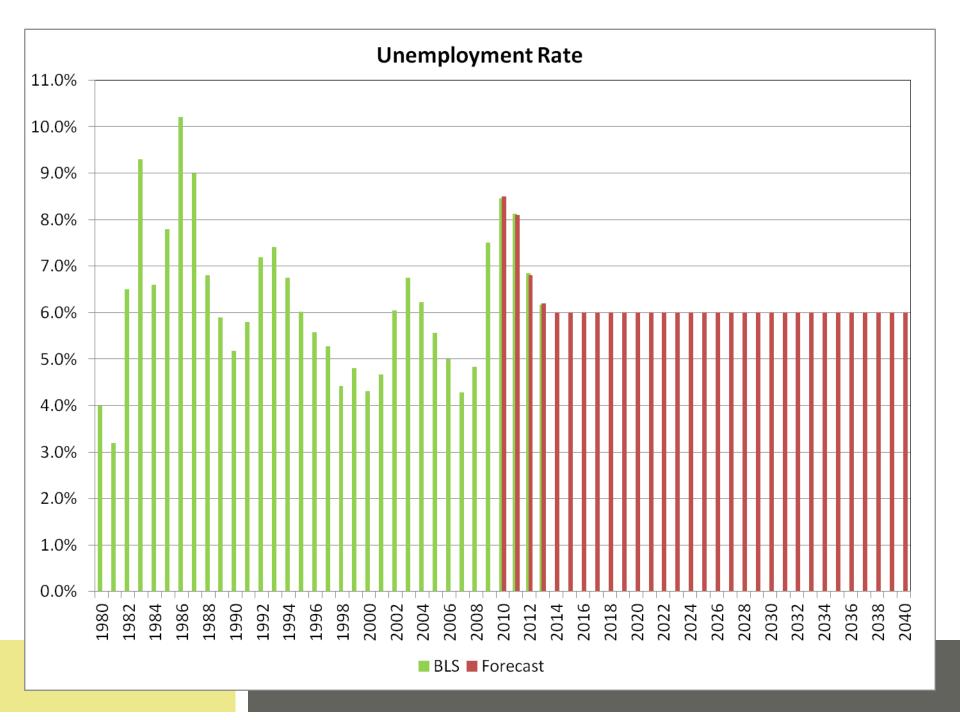
- Population

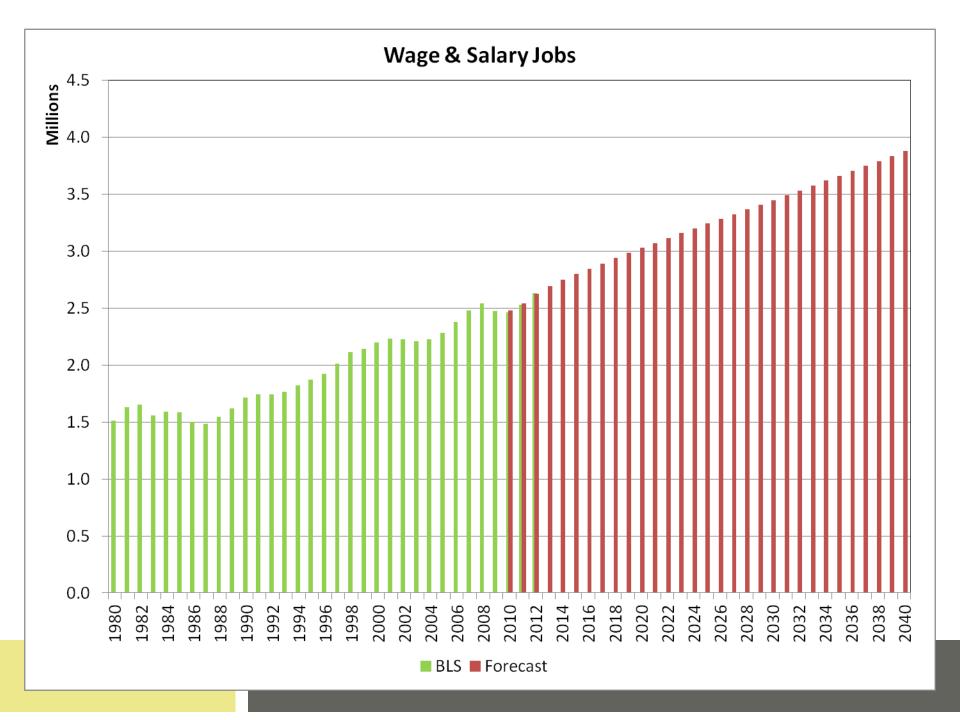
 Labor Force
 Labor Force = Employed + Unemployed
- Labor Force Participation Rates
- Unemployment Rate
 - system-wide
 - demographically-specific





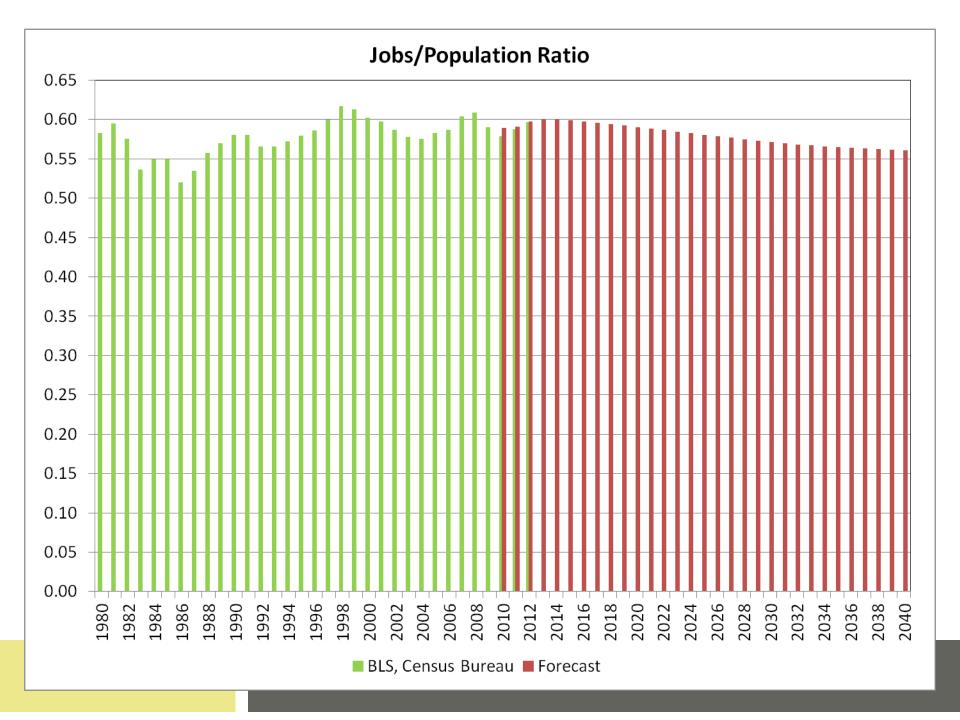


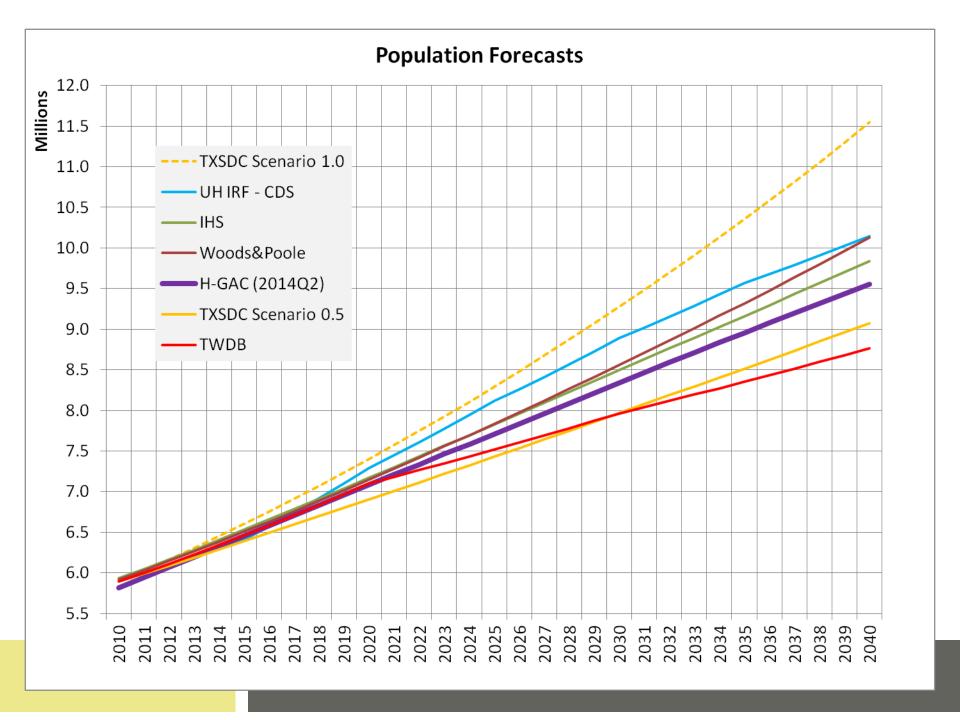


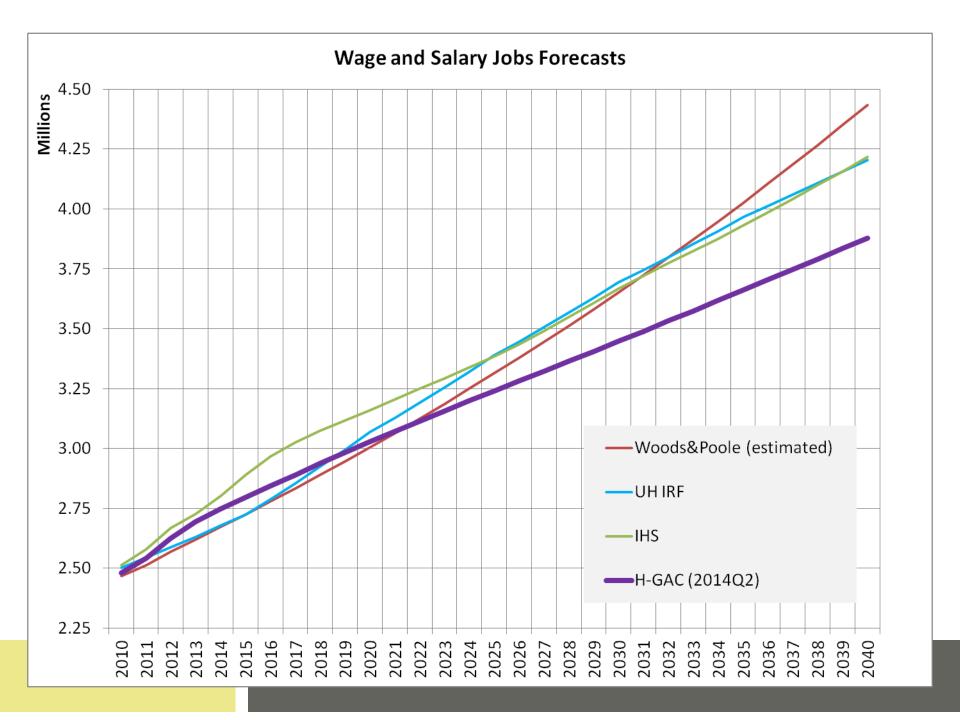


Assumptions and Scenarios









Summary

	Million People	Million Jobs (Wage & Salary)
2010	5.8 (+1.2)	2.5 (+0.3)
2020	7.1 (+1.3)	3.0 (+0.5)
2030	8.3 (+1.2)	3.5 (+0.5)
2040	9.6 (+1.3)	3.9 (+0.4)

Population and Employment Forecast

- Demographic dynamics
- Frequent updates (ACS, BLS, BEA, TWC)
- Population / Workforce balance
- Demand proxies for
 - Housing
 - Non-residential space

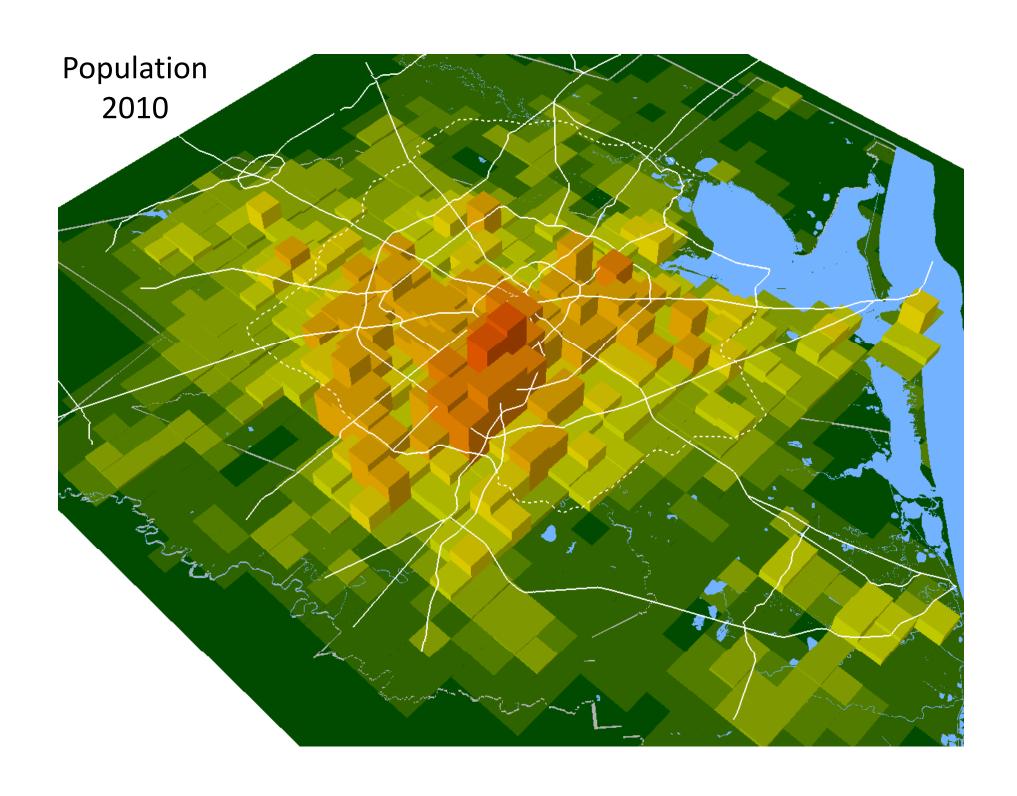


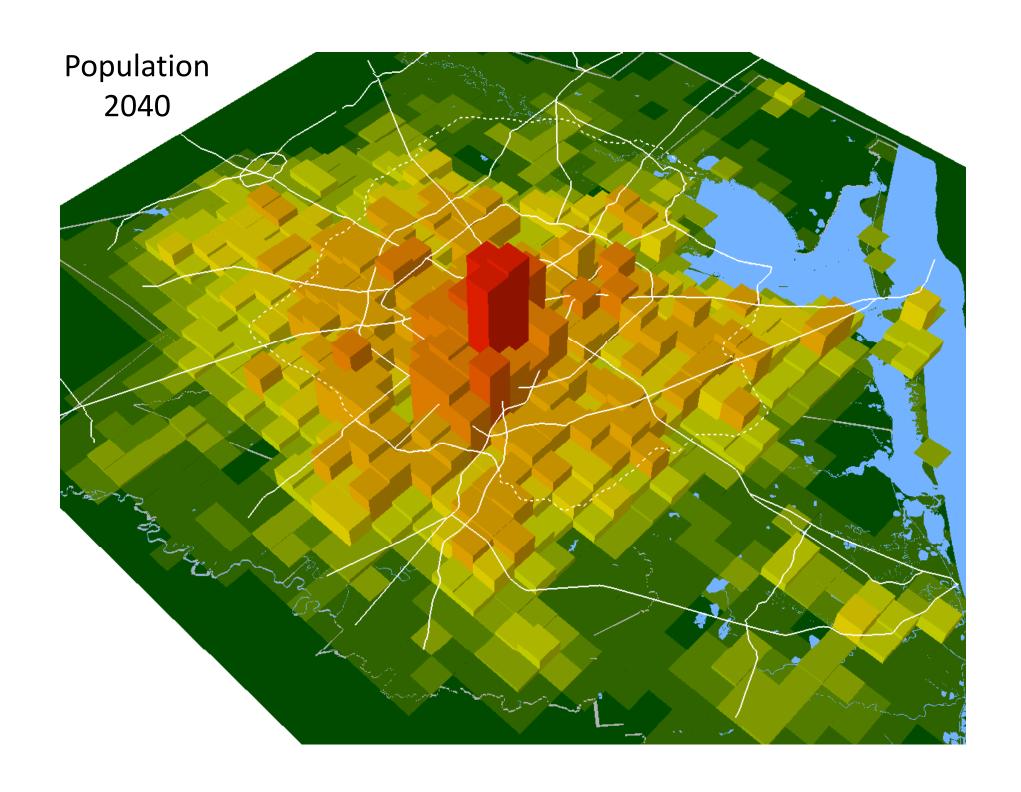


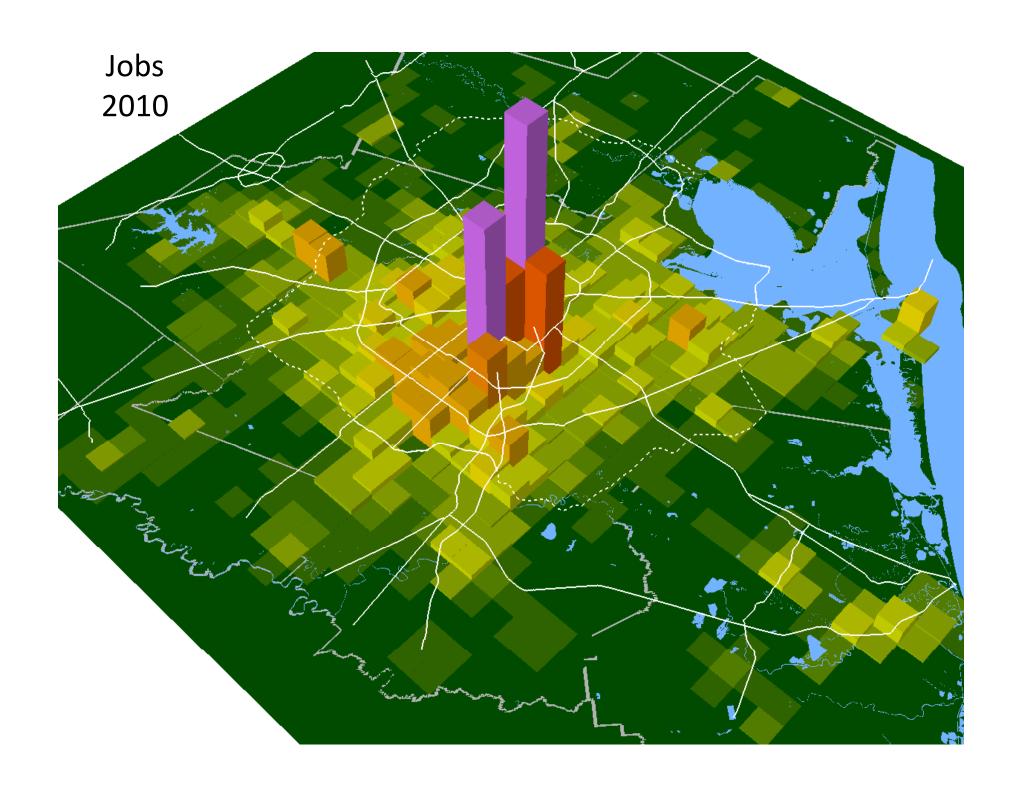
www.h-gac.com/forecast
forecast@h-gac.com

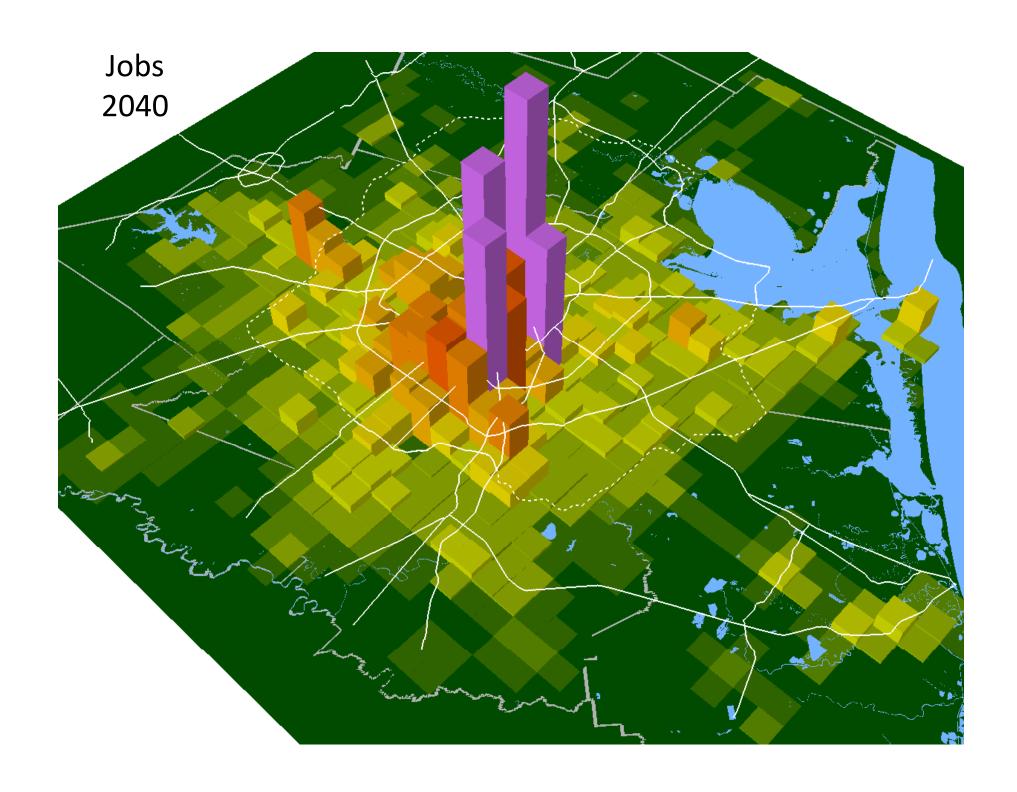


Friday, August 1, 2014 Houston-Galveston Area Council









Part II: Land Use Forecast

What is "Regional Growth"?

- More people, more jobs
- More buildings
- Geography of population and employment
 - = Geography of buildings
- "Land Use" (small area)
 - Structure: Buildings and Parcels
 - Activity: People and Jobs

New Approaches in Land Use Forecasting

- Real Estate Development
- Computer Simulation
- Disaggregate analysis
 - individual parcels
- "Virtual Experiment"
 - setting initial conditions
 - defining rules
 - observing the outcomes

Components

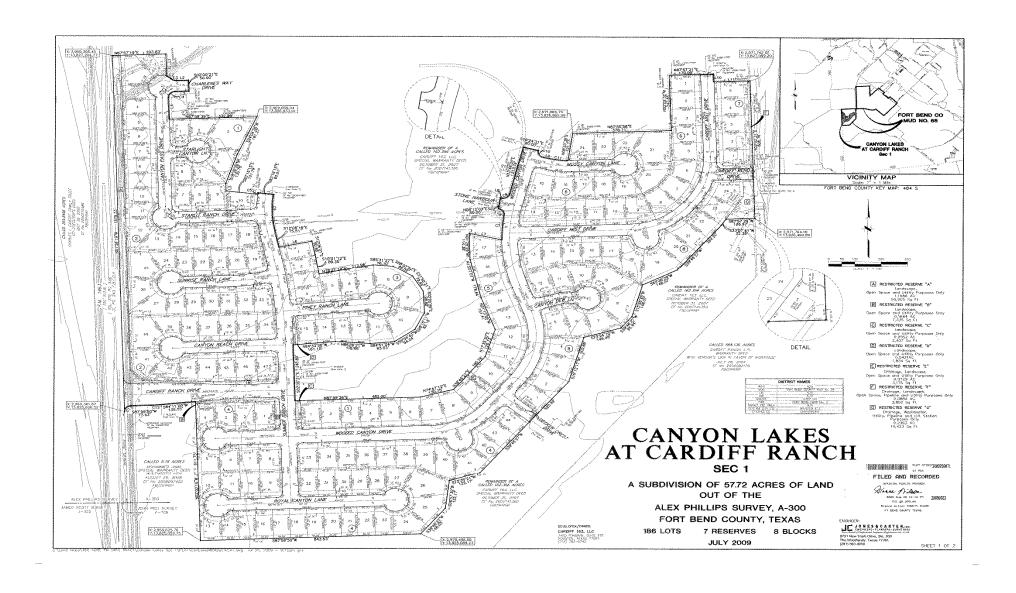
- Information on land and structures
 - Location, type, valuations (rents), age
- Demand measures
 - What and how much to build?
- Site selection and evaluation
 - Pricing mechanism
 - How profitable a project is going to be?

Future Land Use

- Continuity and change
- Path dependence
- Future Land Use
 - Existing Land Use
 - Planned and Announced Development
 - Model Predictions

Planned and Announced Development

What do we know?





Media Sources

- Houston Chronicle
- Houston Business Journal
- Community Impact Newspaper
- Texas A&M Real estate News
- Real Estate Bisnow
- Bay Area Houston Economic Partnership
- Swamplot
- GlobeSt.com
- City-Data.com
- Local Newspapers

Houston Chronicle

HOUSTONACHRONICLE

REAL ESTATE

D	SPORTS	Б В	BUSINESS	OPINION	ARTS & ENTERTAI	NMENT	LIFESTYLE
k	Medical	Retail	Technology	Personal Finance	Chronicle 100	Markets	Bloomberg

Record size residential project set to rise downtown

40-story high-rise to be the giant of rental property near Market Square

By Nancy Sarnoff

July 14, 2014 | Updated: July 15, 2014 9:31am

A developer plans to break ground next month on what will be downtown's tallest residential tower, a project symbolic of this city's healthy economy and downtown's growing emergence as a place to call home.

The Texas-sized tower is set to rise 40 stories and house 463 apartments built to almost-condominium standards, the developers said Monday.

"It's big," said Jack Lee, president of Oakmont Group, the project manager. "It's bigger than any other downtown Houston high-rise rental property we know of."



Market Square Tower

Units: 463

Floors: 40

Avg. Unit size: 1,275

Avg. Rent: \$3,500

Year: 2017

Houston Business Journal

May 2, 2014, 4:18pm CDT UPDATED: May 5, 2014, 10:47am CDT

FMC Technologies breaks ground on campus to consolidate local operations



Olivia Pulsinelli Web producer-Houston Business Journal Email | Twitter | Google+

FMC Technologies Inc. (NYSE: FTI) broke ground on its new campus at Generation Park on May 2.

The Houston-based of and gas equipment company bought 173 acres at the business park, off the northeast corner of Beltway 8, in late 2012. When it bought the land, the company said it would provide "flexibility and options as it assesses its future needs in the Houston area."



Courtesy Gensler

FMC Technologies Inc. (NYSE: FTI) broke ground on its new campus at Generation Park on May 2.

WA

The webeite you are attempting to vieit may vi

FMC Technologies

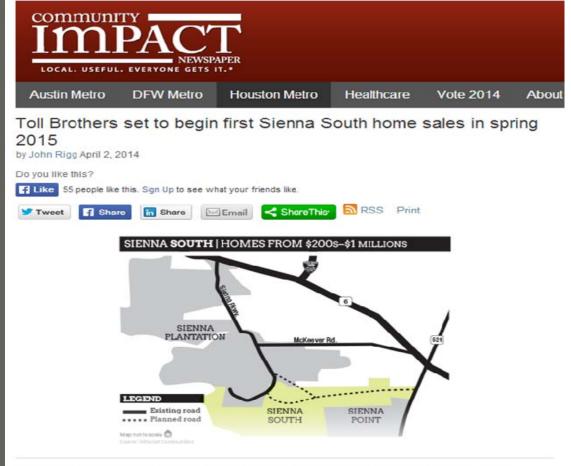
Area: 70 acres

SQFT: 1 million

Jobs: 1,800

Year: 2016

Community Impact Newspaper



Sienna South

Area: 3,700 acres

Homes: 6,500

Aggregate Home

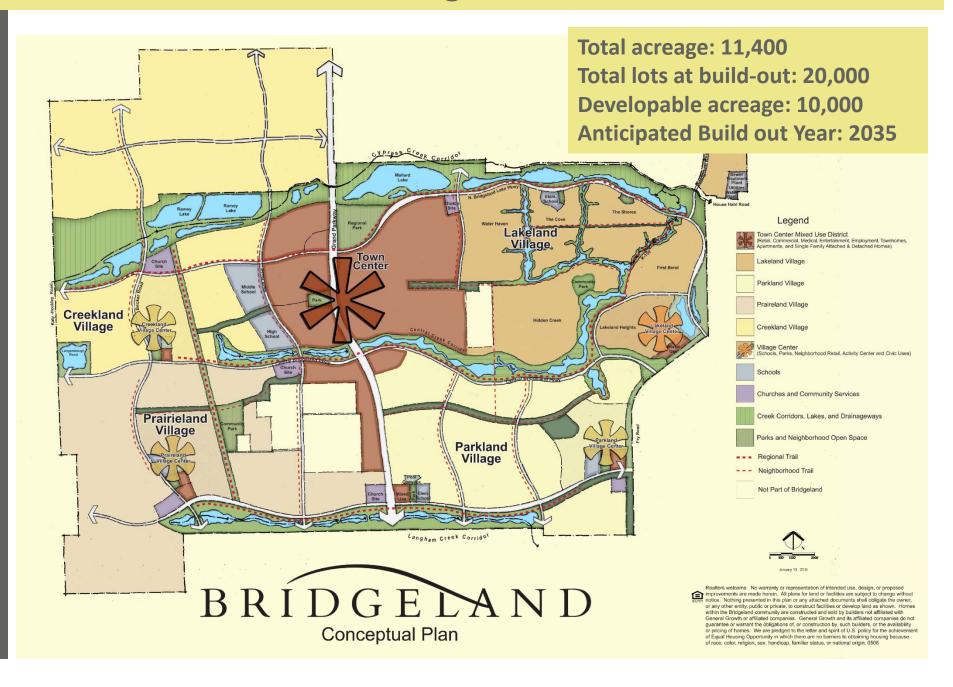
Sales: \$2.1 billion

Const. Span: 15 Years

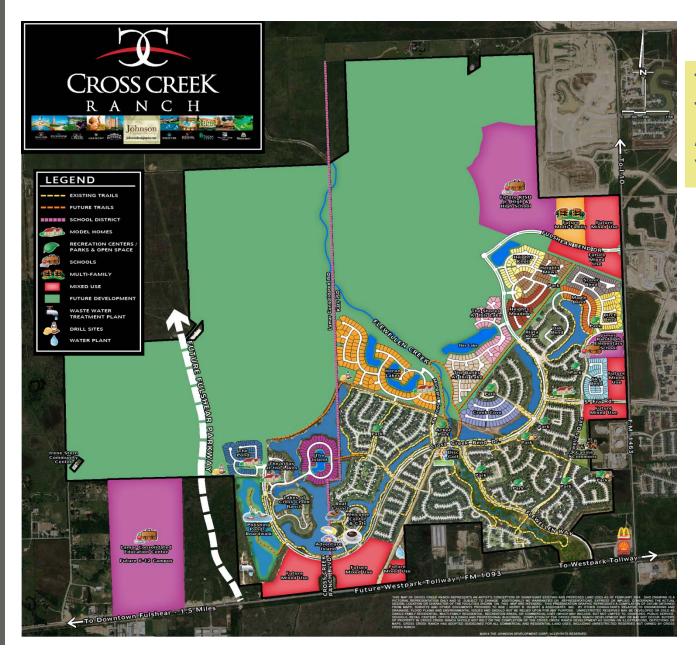
In 2013, the final pieces of Sienna Plantation began to fall into place with the opening of its newest communities off Sienna Ranch Road featuring 16 model homes. As the master-planned community nears build-out, Hillwood Communities sold 3,700 acres of a new section—Sienna South—to national luxury home builder Toll Brothers for residential development.

"With Houston's well-publicized shortage of available home sites in premier master-planned communities, we believe the project's timing, Sienna Plantation's stellar reputation, our experienced management team, excellent location, amenities, and highly rated schools will attract home builders and homebuyers across the price-point spectrum," said Karl Mistry, Houston Division president with Toll Brothers.

Bridgeland



Cross Creek Ranch



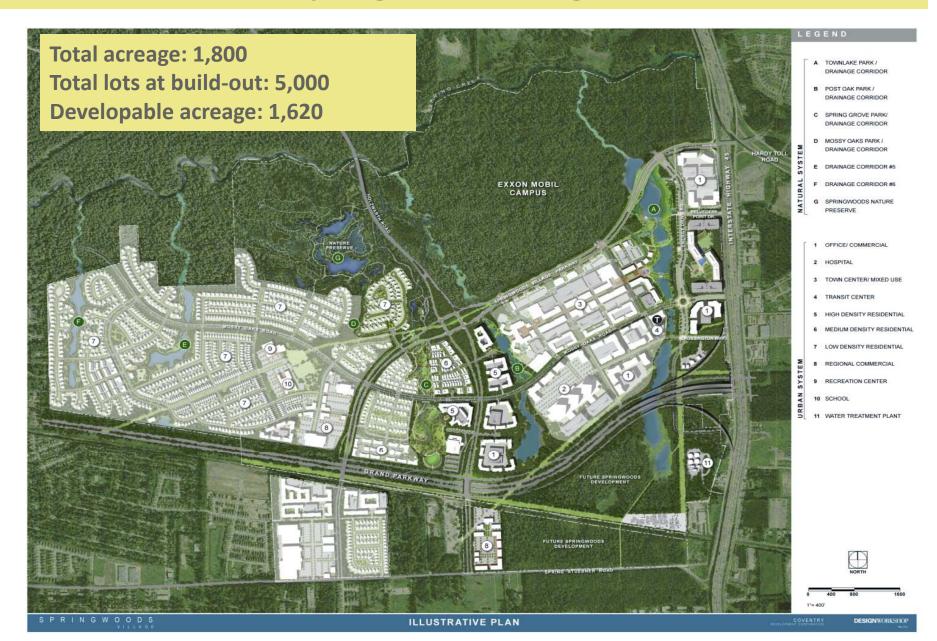
Total acreage: 3,200

Total Units: 7,200

Anticipated Build out

Year: 2025

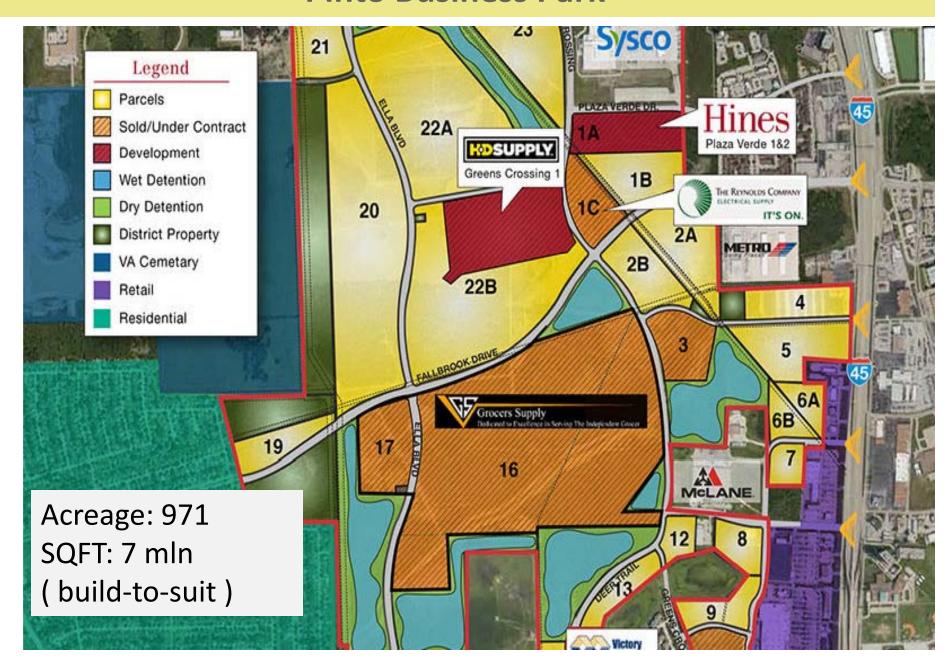
Springwoods Village



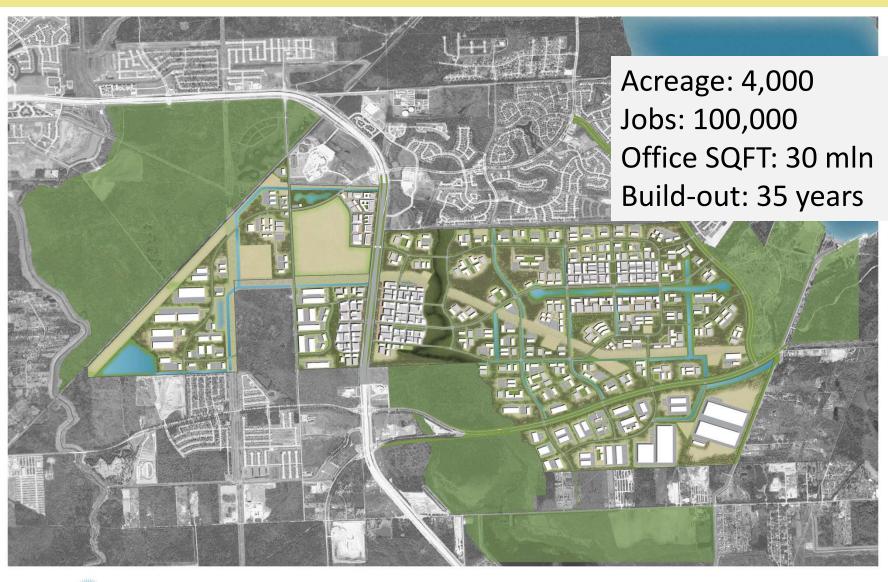
Exxon Campus



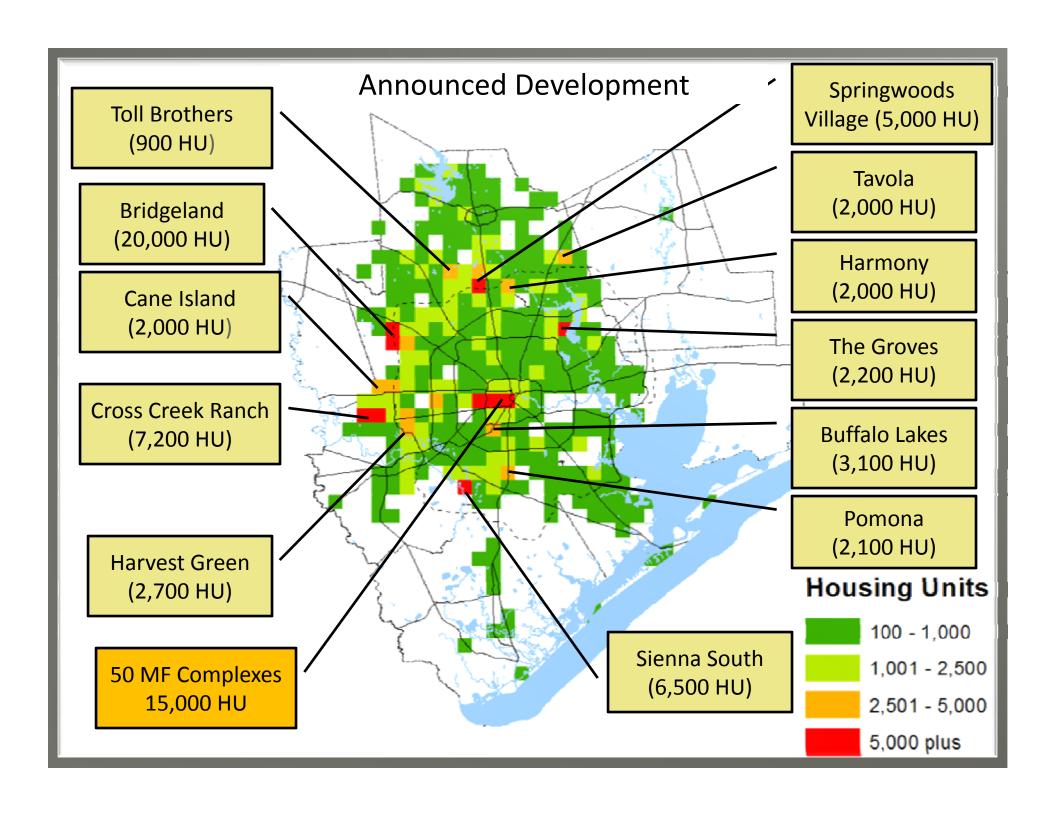
Pinto Business Park

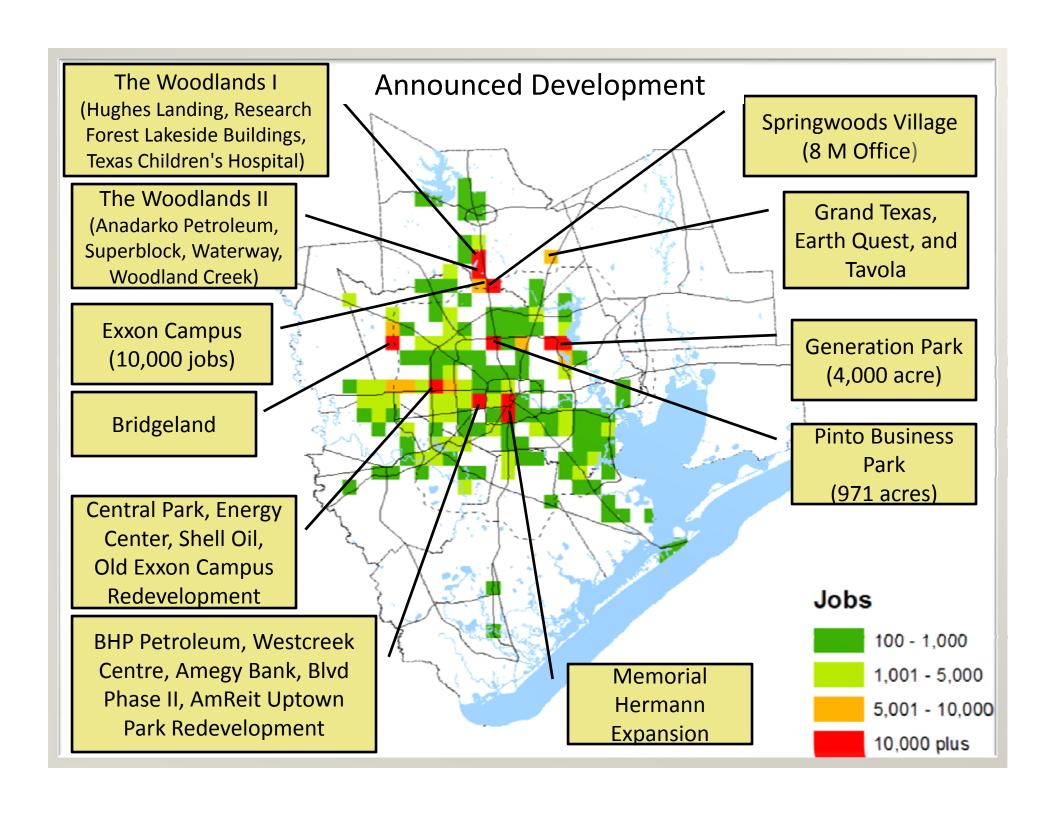


Generation Park









Development in Downtown: Office

Capitol Tower

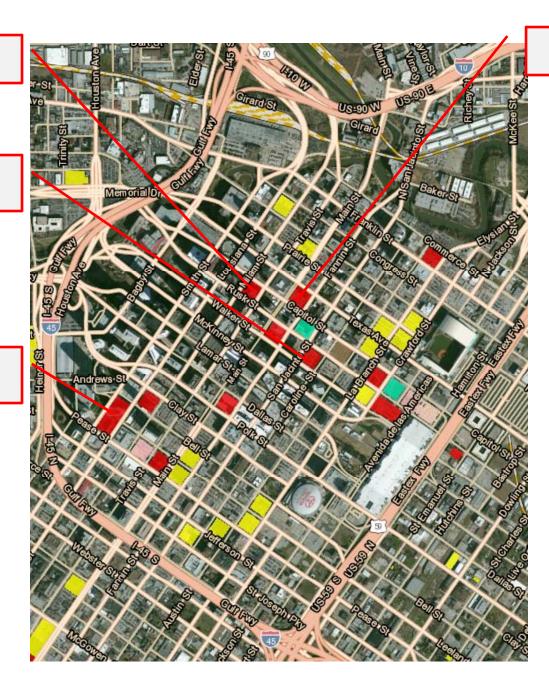
(34 story, 0.7M, 2017)

6 Houston Center

(30 story, 0.6M, 2016)

Chevron

(50 story, 1.7M, 2016)



Hines Tower

(47 Story, 1M, 2017)

Development in Downtown: Residential

Market Square Tower (40 story, 463 units, 2017)

Market Square Apt

(33 Story, 289 units, 2016)

Apartments

(29 Story, 309 units, 2015)

Marquette Land Invest. (28 Story, 380units, 2015)

500 Crawford

(7 Story, 397 units, 2015)

Planned Res.

(6 Story, 267 units, 2017)

Alliance Apt.

(4 story, 207 units, 2015)

Skyhouse Apt.

(24 story, 336 units, 2014)

Allied Orion Apt.

(10 story, 302 units, 2016)

Planned Res.

(38Story, 300 units, 2018)

Block 98 Res.

(39Story, 314 units, 2017)

Camden Apt.

(12 story, 259 units, 2018)

Camden Apt.

(12 story, 259 units, 2016)

Leon Capital Apt.

(220units, 2016)

Development in Downtown: Hotels

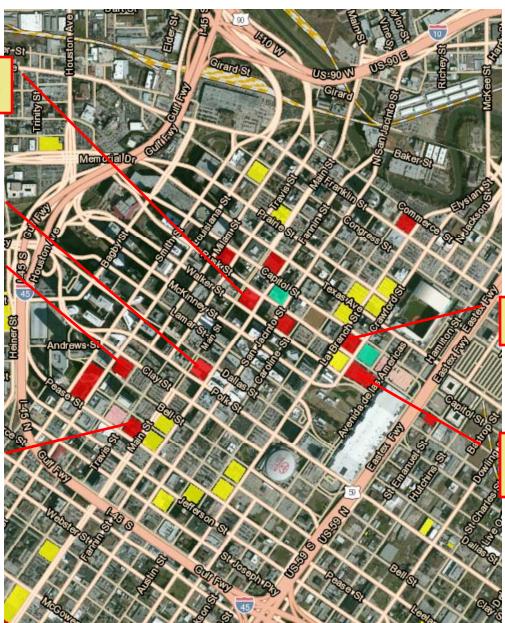
Aloft Houston Downtown

Hotel Alessandra

Hilton Garden Inn

(12 story, 230rooms, 2016)

Holiday Inn



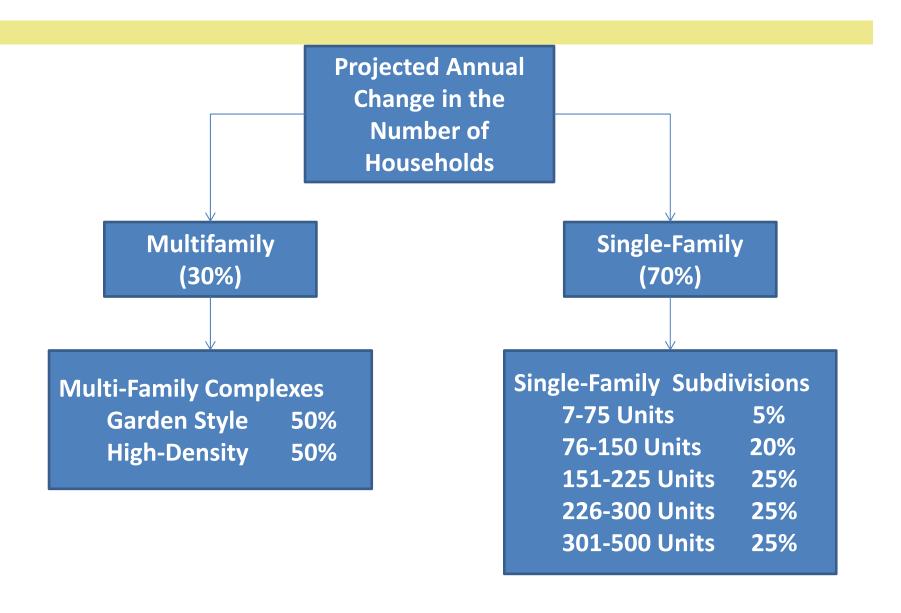
Hyatt Place and Hampton Inn

Marriott Marquis (29 story, 1000 rooms, 2016)

Summary of Planned Projects

	Housing Units	SQFT
Building Type	(thousands)	(millions)
Apartments	75	
Condo Residential	3	
Educational		8
Hospital		7
Hotel		11
Industrial		19
Office		71
Restaurants		2
Retail		54
Senior-Living		1
Single-Family	164	
Warehouse		35

Residential Demand



Non-Residential Demand

Projected Annual Change in Jobs by Sector (NAICS-2)

Convert Sectors to Building Types

Apply SQFT per Job by Building Type

Annual Demand for New SQFT by Building Type

Projects by Type and Size

Office

Low-Rise 50%

Mid-Rise 50%

Retail

Small 50%

Large 50%

Restaurant

Dine-In 50%

Fast Food 50%

Hotel

Low-Rise 80%

High-Rise 20%

Model Predictions

Where to build?

Generating Development Proposals

Pick a parcel (if (re)development allowed)

Determine what can be developed on it (all possible options)

Estimate Total Cost (Land + Construction)

Estimate Expected Sale Price and ROI

Continue until no parcels left

Proposal Selection

Select a proposal (based on ROI)

"Build" a project

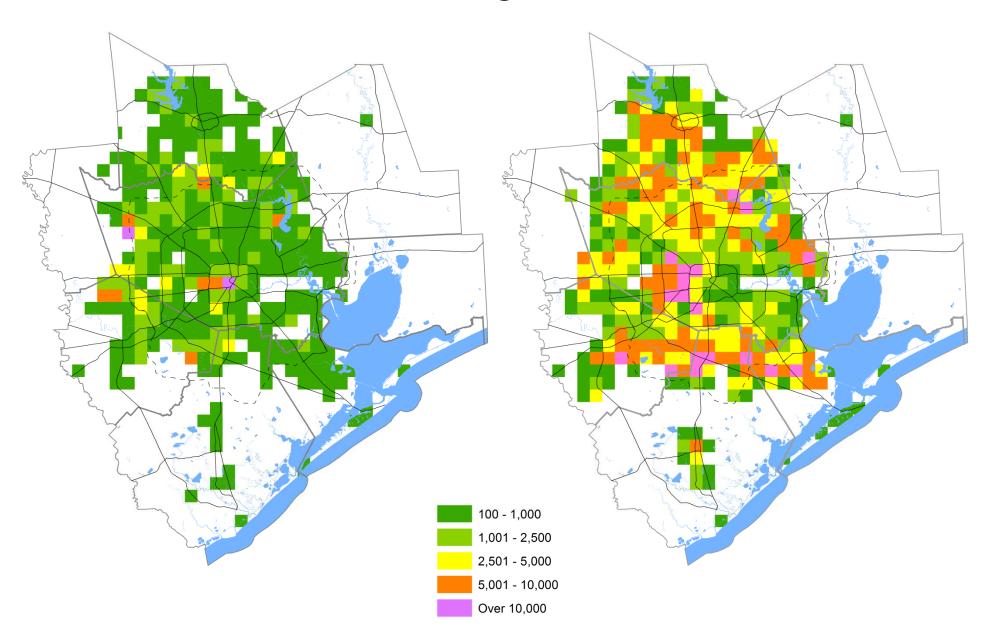
Reduce demand targets

Continue until demand is met

Expected Sale Price

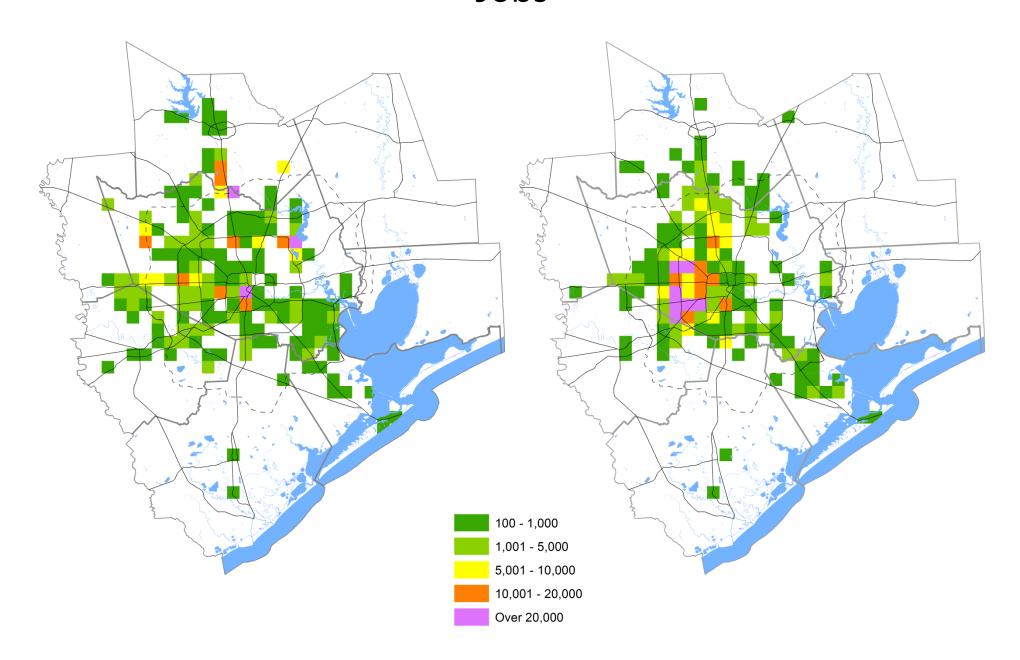
- What is the market value of a specific project in a specific place?
- Use existing data to test how different factors affect valuations
- Factors
 - Accessibility to jobs and housing
 - Proximity to arterials and highways
 - Recent development activity
 - Building characteristics

Planned Development Model Predictions Housing Units

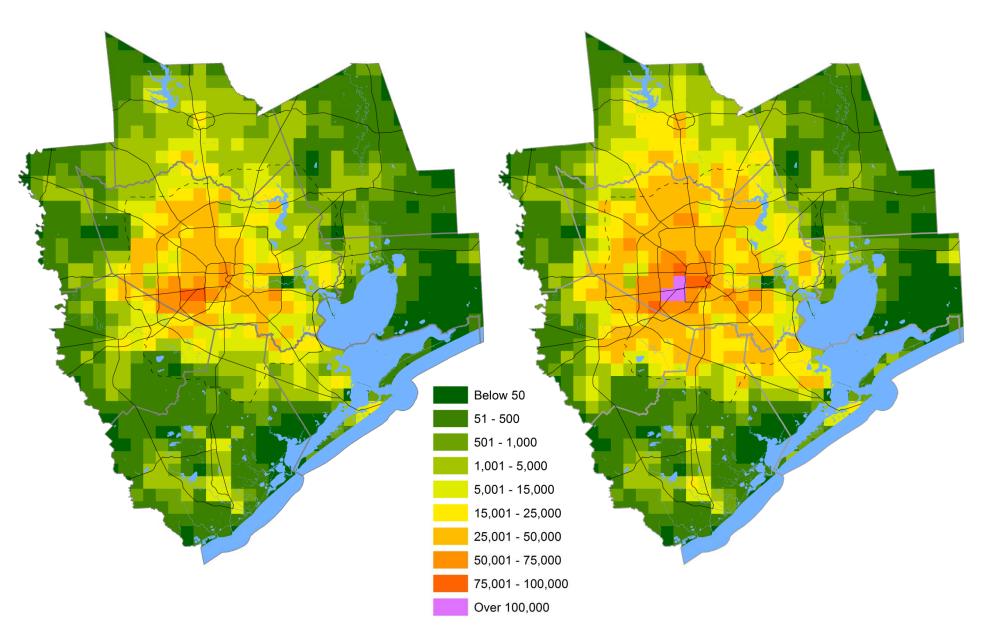


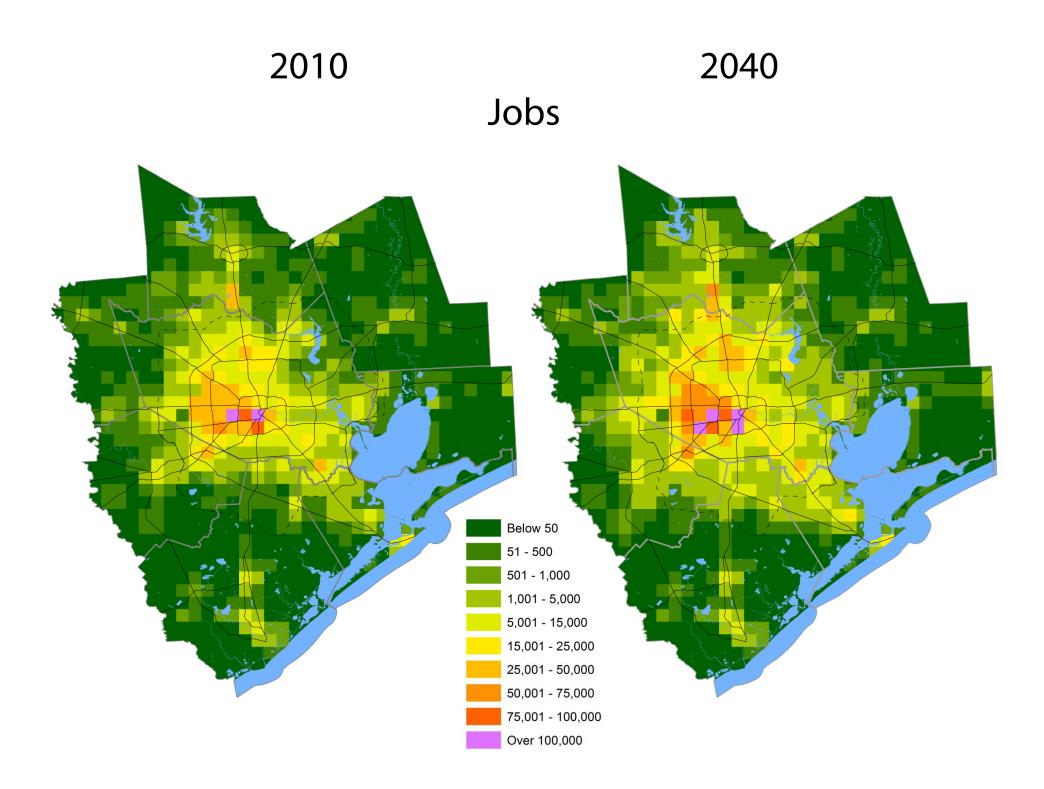
Planned Development Jobs

Model Predictions









Future Directions

- Household Housing Choices
- "Pro forma"
- 3D visualization

Development Options

Option 1. Multi-Family Apartment



Option 2. Office Complex



Option 3. Mixed-Use Development





Option 1. Multi-Family Apartment



Pro Forma

Land Area (SF) 462,000 SF (10 Acre)
Units/Building Gross SF 590 units/708,000 SF
Annual Gross Potential Income (\$) 12 Million
Operating Income (\$) 4 Million
Total Building Hard Costs (\$) 31 Million
Total Development Budget (\$) 57 Million
Project Return on Cost (ROC) 7.12 %



Option 2. Office Complex



Pro Forma	
Land Area (SF)	462,000 SF (10 Acre)
Units/Building Gross SF	100,000 SF
Annual Gross Potential Income (\$)	27 Million
Operating Income (\$)	19 Million
Total Building Hard Costs (\$)	105 Million
Total Development Budget (\$)	187 Million
Project Return on Cost (ROC)	10.41 %



Option 3. Mixed-Use Development



Pro Forma

Land Area (SF) 390,000 SF (9 Acre)

MF: 463 units/558,000 SF

Units/Building Gross SF Retail: 124,000 SF

Annual Gross Potential Income (\$) 14 Million

Operating Income (\$) 7 Million

Total Building Hard Costs (\$) 42 Million

Total Development Budget (\$) 84 Million

Project Return on Cost (ROC) 8.36 %



Forecast as a Continuous Process

- Quarterly Releases
 - January, April, July, October
 - October 15, 2014: 2014Q3
- Each release includes
 - New information
 - Corrections based on review
 - Model improvements

Land Use – Population Link

- Population and employment are tied to land use (parcels and buildings)
- Population and/or employment forecasts cannot be changed without changing the underlying land use

Review

- Your feedback is extremely valuable
- Factual mistakes (data errors) will be corrected as a matter of course
- Other comments will be thoroughly reviewed and addressed properly
- RLUIS
 - Regional Land Use Information System





www.h-gac.com/forecast
forecast@h-gac.com



Friday, August 1, 2014 Houston-Galveston Area Council

Part III: Accessing Data and Providing Feedback

www.h-gac.com/forecast

2040 Regional Growth Forecast

Contact Us

forecast@h-gac.com

Links

View Summary Charts

View Summary Maps

View Interactive Maps

Query Data Tables

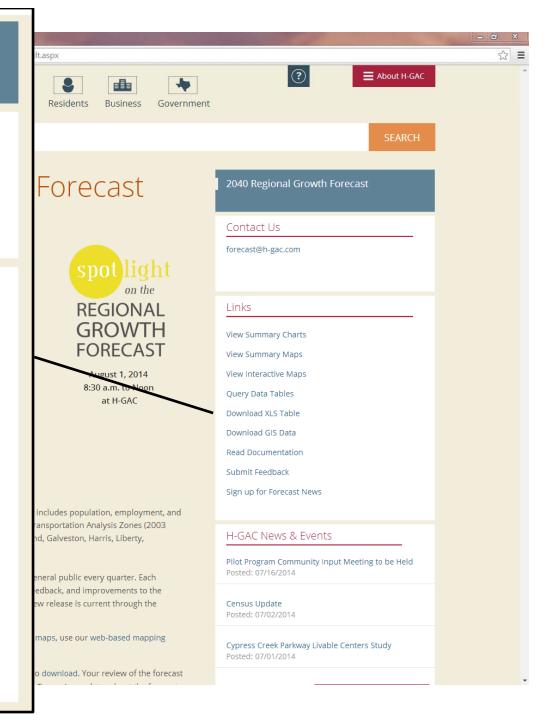
Download XLS Table

Download GIS Data

Read Documentation

Submit Feedback

Sign up for Forecast News



2040 Regional Growth Forecast

Contact Us

forecast@h-gac.com

Links

View Summary Charts

View Summary Maps

View Interactive Maps

Query Data Tables

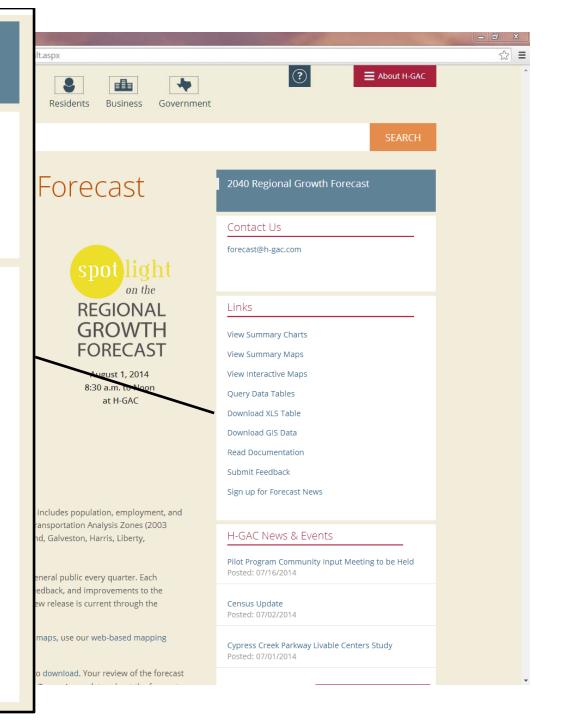
Download XLS Table

Download GIS Data

Read Documentation

Submit Feedback

Sign up for Forecast News



2040 Regional Growth Forecast

Contact Us

forecast@h-gac.com

Links

View Summary Charts

View Summary Maps

View Interactive Maps

Query Data Tables

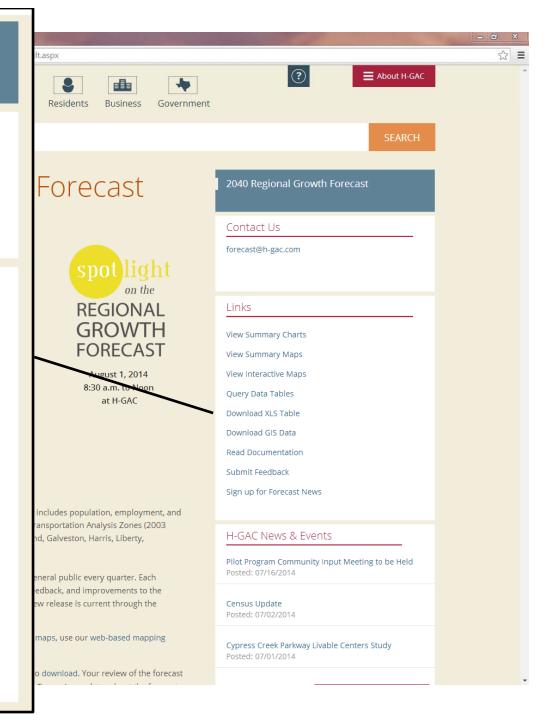
Download XLS Table

Download GIS Data

Read Documentation

Submit Feedback

Sign up for Forecast News







Questions?

www.h-gac.com/forecast