

**STRIDE**

Southeastern Transportation Research,  
Innovation, Development and Education Center

**T + H**

Transportation + Health

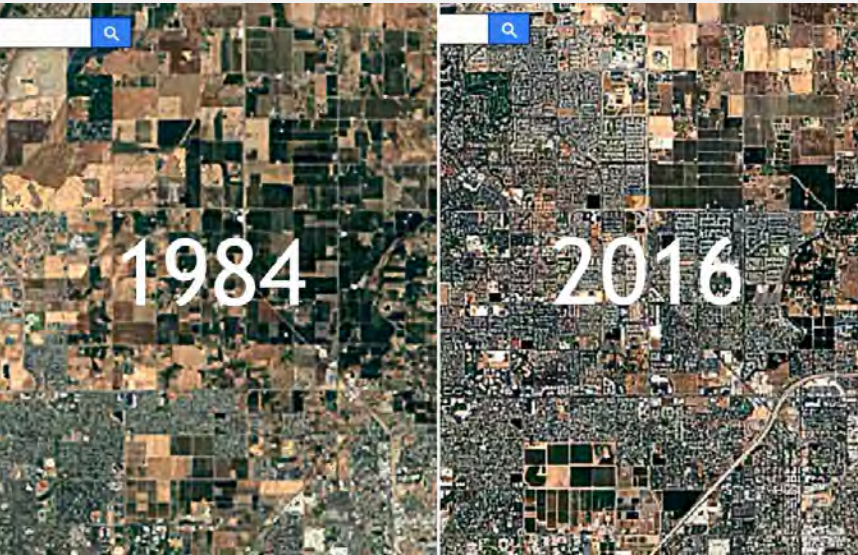
# Transportation, Land Use Patterns, Urban Sprawl, & Zoning

**THE  
CITADEL**



*CIVL 642 Public Health, Physical Activity, and Design of the Built Environment*

# Transportation + Land Use



- 1. Land Use Planning, Zoning, Annexation & Urban Sprawl**
  - Urban sprawl is pattern of low-density, separated land uses, which are automobile dependent that has been a common form of growth of US cities since WWII.
- 2. Evolution of new development concepts**
  - Neo Traditional & Traditional Neighborhood Design
  - Sustainable Development & Urbanism
  - Urban Growth Boundaries
- 3. Retrofitting suburbia**
  - Form based codes
- 4. Environmental Justice**
  - Environmental justice is a community planning issue



# Land-Use Planning, Zoning & Transportation

## Land Use Planning (Urban Planning)

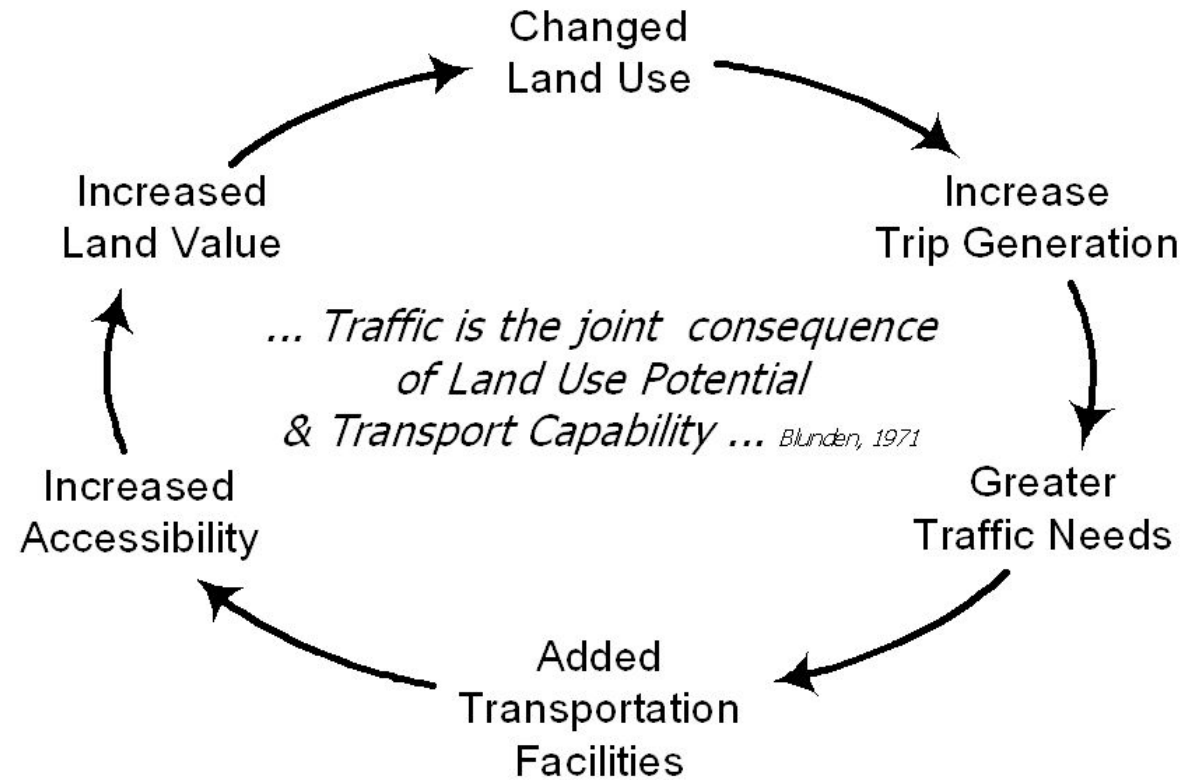
Planning for the long-term growth of an area

### Purpose:

- Preserve public health, safety, and welfare
- Maintain compatible development within an area
- Provide adequate air, light, access, and open space
- Protect the natural environment and historic resources
- Minimize traffic congestion
- Enhance the streetscape and pedestrian environment

Regulated by municipalities  
(towns, cities, counties)

## Land Use - Transportation Cycle





# River District Sacramento, CA

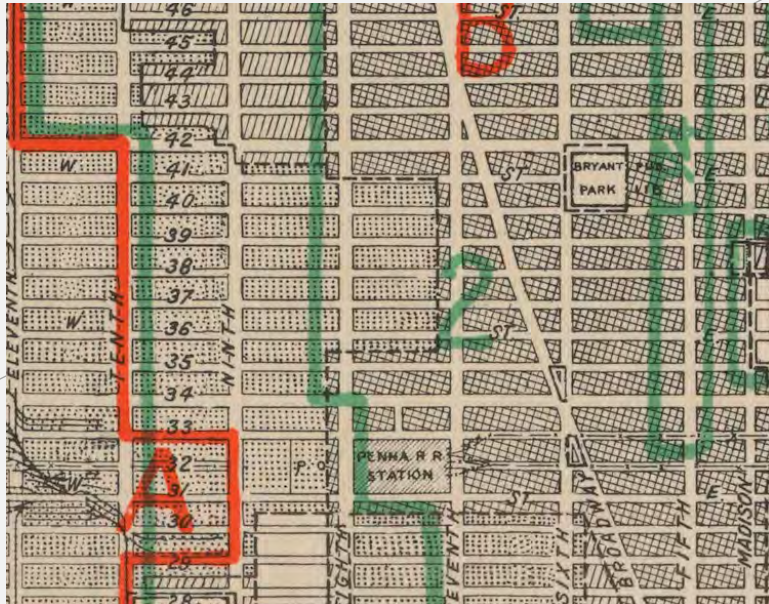
## Guiding Principles *(what are desirable elements ?)*

- Create a sense of place
- Stimulate economic growth
- Maximize connectivity
- Support all transportation modes
- Encourage mixed-use development
- Provide variety of urban living options
- Provide enhanced community facilities and amenities
- Engage the rivers and foster open space opportunities
- Encourage sustainable development





# Measures of Urban Sprawl, Annexation & Zoning

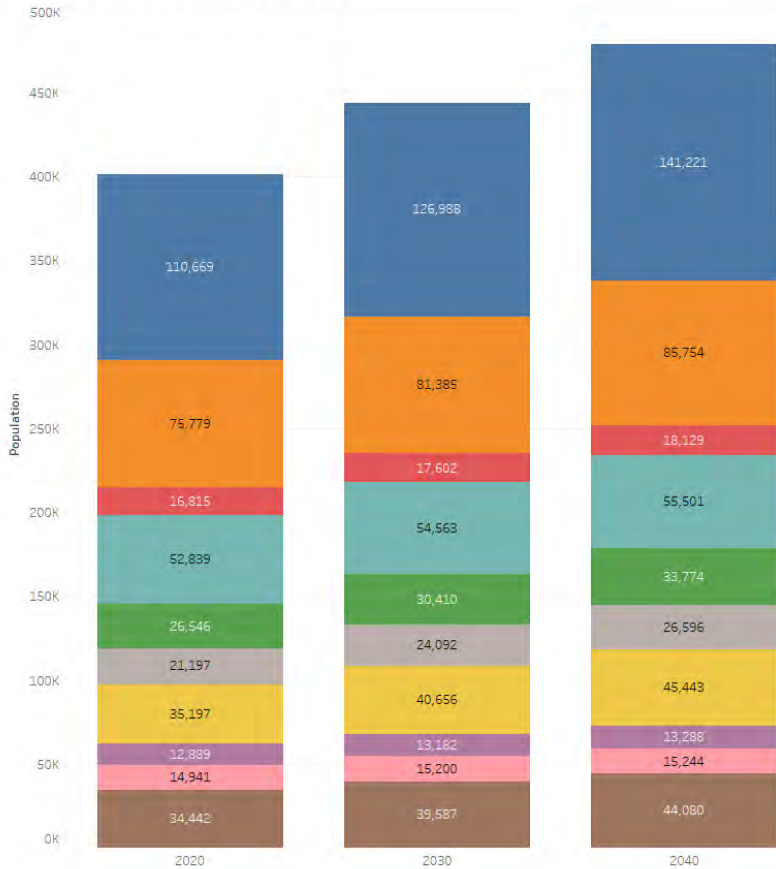


- 1. US City Sprawl, Smart Growth America, 2014**  
<https://www.smartgrowthamerica.org/app/legacy/documents/measuring-sprawl-2014.pdf>
- 2. Annexation Retrospective, Am. Planning Assoc., 1958**  
<https://www.planning.org/pas/reports/report114.htm>
- 3. \$ and Sense of Annexation, Strong Towns, 2018**  
<https://www.strongtowns.org/journal/2018/8/3/the-dollars-and-sense-of-annexation>
- 4. Types of Land Use Zoning, Jean-Paul Rodrigue, 2017**  
[https://transportgeography.org/?page\\_id=4956](https://transportgeography.org/?page_id=4956)



# Charlottesville, VA

Area population growth projections

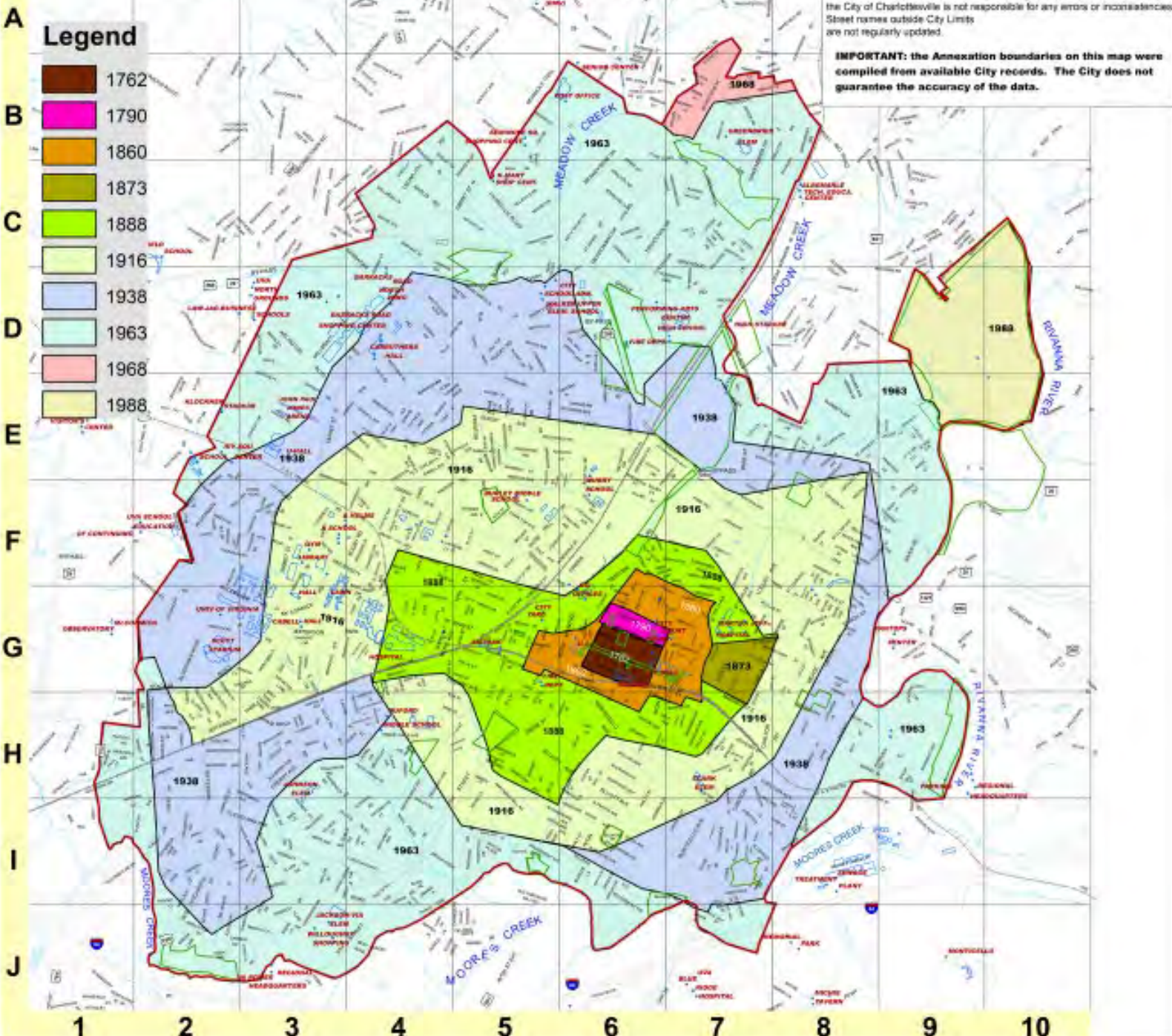


Locality

Albemarle County	Buckingham County	Fluvanna County	Louisiana County	Nelson County
Augusta County	Charlottesville city	Greene County	Madison County	Orange County

SOURCE: Demographics Research Group of the Weldon Cooper Center for Public Service

THE DAILY PROGRESS





THE ROLE OF

# Communities

IN PROMOTING PHYSICAL ACTIVITY

## WALKABLE COMMUNITIES

People who live in walkable neighborhoods are

**2 times**

as likely to get enough physical activity as those who don't.

## JOINT USE

The number of children who are physically active outside is

**84%**

higher when schoolyards are kept open for public play.

## TRAILS

People who live near trails are

**50%**

more likely to meet physical activity guidelines.

## RECREATIONAL FACILITIES

Teens who live in poor or mostly minority neighborhoods are

**50%**

less likely to have a recreational facility near home.

Active Living Research

[www.activelivingresearch.org](http://www.activelivingresearch.org)



Neo-traditional is favored term; however, Transit Oriented Design (TOD), New Urbanism, Walkable Communities, Smart Growth and Sustainable Communities identify subcomponents of this form of urban growth.

## Elements of Neo Traditional Neighborhood Design

1. enhanced walkability
2. mixed land uses
3. ease of access to public transit
4. sustainability
5. high density residential
6. defined town/commerce center
7. mixture of housing types
8. grid street patterns
9. connectivity to adjacent neighborhoods
10. mixed, non-residential land uses
11. alley access/rear loaded house





# Planning & Design: New Terminology, Methods & Objectives

## Physical Activity & Public Health

Mixed Land Use  
Built Environment  
Direct Observation  
Health Impact Assessment  
MVPA (moderate-vigorous PA)

## Transportation & Design

Road Diets  
Complete Streets  
Open Street Initiative  
Active Living by Design  
Context Sensitive Design  
Multimodal Level of Service

## Land Planning & Development

Eco Districts  
Smart Growth  
New Urbanism  
Tactical Urbanism  
Neo-traditional Design  
Walkable Communities  
Transit Oriented Design  
Livable Centers Initiative  
Sustainable Communities  
Health Impact Assessment  
Traditional Neighborhood Design  
Smart Growth Score Cards and Audits  
Crime Prevention through Environmental Design





## Daniel Island, SC

Total Acres: 4,000

Open Space: 400 acres of parks, trails, green sp

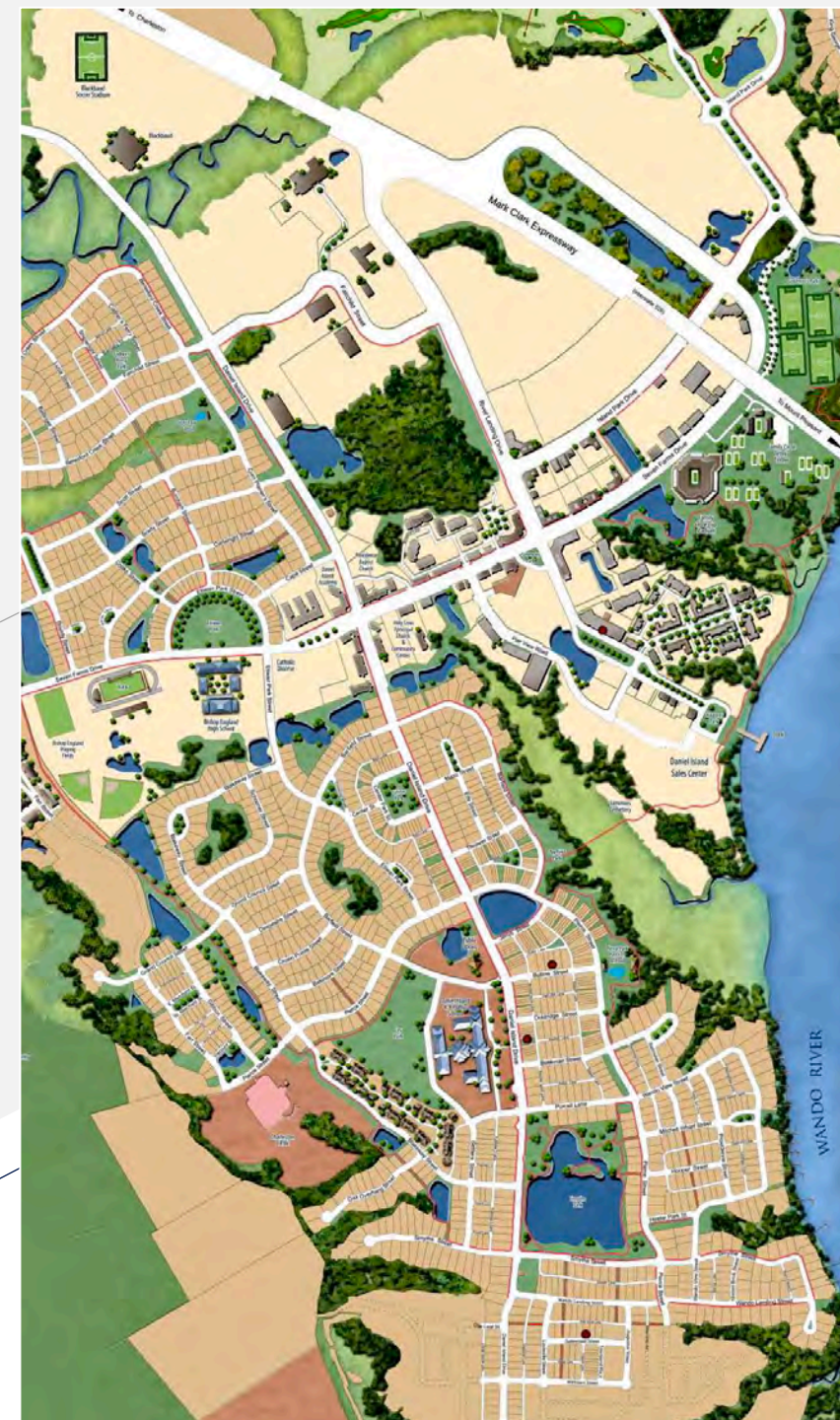
Single Family Homes: 1,800

Apts, Condos, Townhouses: 1,700

Residents: 10,000

Employment: 11,000

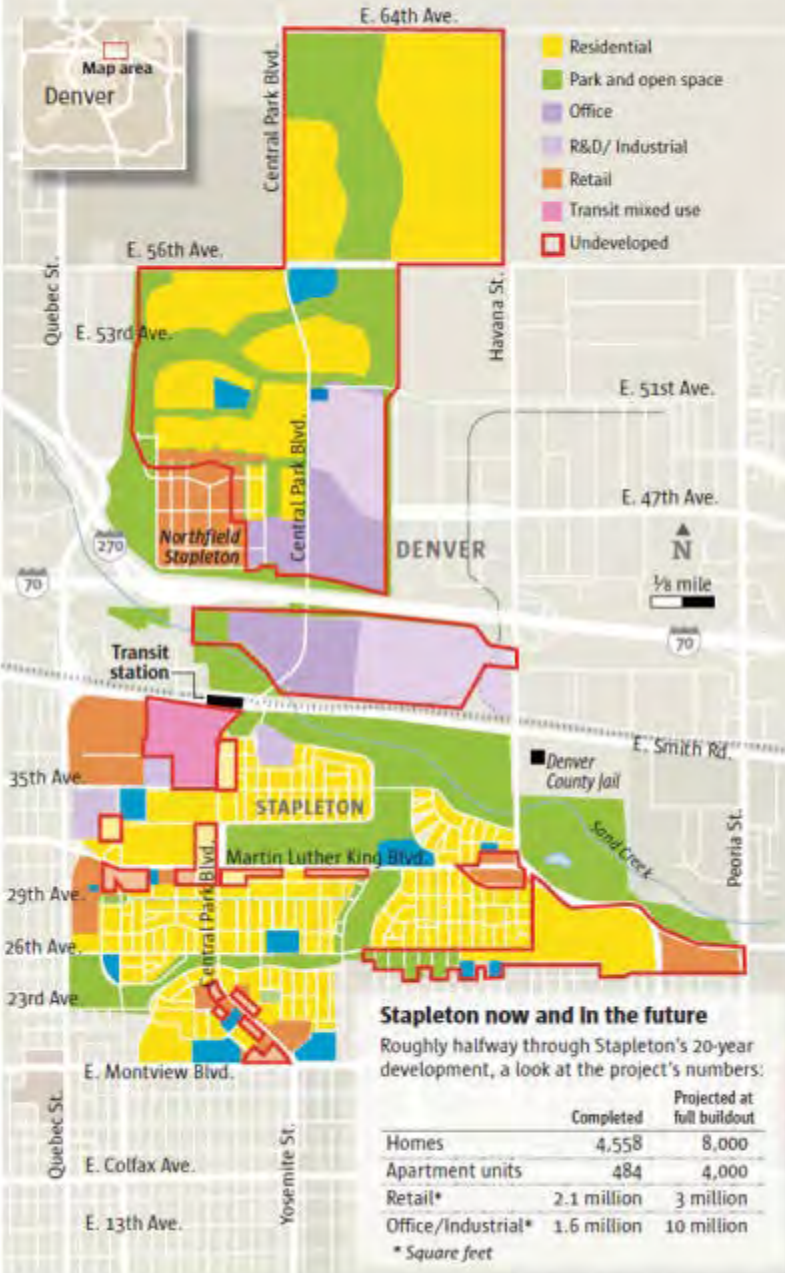
Key Elements: Mixed Use, Walkable, Open Space, Blended Housing Options, Multiuse Path System, sport venues, neighborhood K-8 school





## The Stapleton plan

Development at Stapleton south of I-70 is nearing completion, with some gaps still in retail and open space. Housing development north of I-70 is expected to begin this year.



Source: Forest City Stapleton

Severiano Galván, The Denver Post

## Stapleton Redevelopment, CO

Total Acres: 4,700

Open Space: 1,700 acres for parks, trails, rec

Total Leasable Commercial sq. ft.: 13 million

Total Single Family Homes: 8,000

Total Rental Homes: 4,000

Residents: 30,000      Employment: 35,000

Key Elements: Mixed Use, Walkable, Open Space, Blended Housing Options, avg. 12 residential units per acre, Multi-use Path System







# Meadowmont Village, NC

Total Acres: 435

Open Space: 70 acres of parks, trails, green sp

Business: 33 stores, UNC School of Bus. office

Single Family Homes: 700

Apts, Condos, Townhouses: 700

Residents: 1,800

Key Elements: Mixed Use, Walkable, Open Space, Blended Housing Options





	STAPELTON	DANIEL ISLAND	MEADMOUNT
Location	Denver, CO	Charleston, SC	Chapel Hill, NC
Total area (acres)	4,700	4,000	435
Open space (acres)	1,700	400	70
SF	13,000,000	250,000	200,000
Single family homes	8,000	1,800	700
Rental homes	4,000	1,700	700
Resident population	30,000	10,000	1,800
Employment	35,000	11,000	1,200
Institutional elements	Multiple K-12 schools	K-8 neighborhood school	UNC satellite campus
Other key elements	Avg. of 12 residential units per acre	Two major sports venues	UNC Wellness Center



# Other SE Region Active/Walkable Developments

Beltline

Birkdale Village

Celebration

Habersham

Hampstead

Ladysmith Village

Lost Rabbit

Mayfaire

Mt. Laurel

Norton Commons

Riverwalk

Terrabella

Westhaven

Nexton

Atlanta, GA

Huntersville, NC

Orlando, FL

Beaufort, SC

Montgomery, AL

Richmond, VA

Jackson, MS

Wilmington, NC

Birmingham, AL

Louisville, KY

Rock Hill, SC

Covington, LA

Franklin, TN

Summerville, SC





# Urban Growth Boundaries
























- Oregon, Washington & Tennessee require cities to establish urban growth boundaries
- Notable U.S. cities which have adopted UGBs include Portland, OR; Boulder, CO Honolulu, HI; Virginia Beach, VA; Lexington, KY; Seattle, WA; and San Jose, CA.
- Texas uses delineation of Extra Territorial Jurisdictional boundaries to map out future city growth with the idea of minimizing competitive annexations rather than controlling growth
- History of urban development in SF Bay area: <https://www.greenbelt.org/urban-growth-boundaries/>

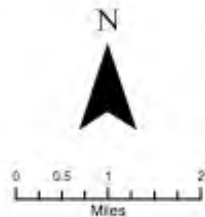
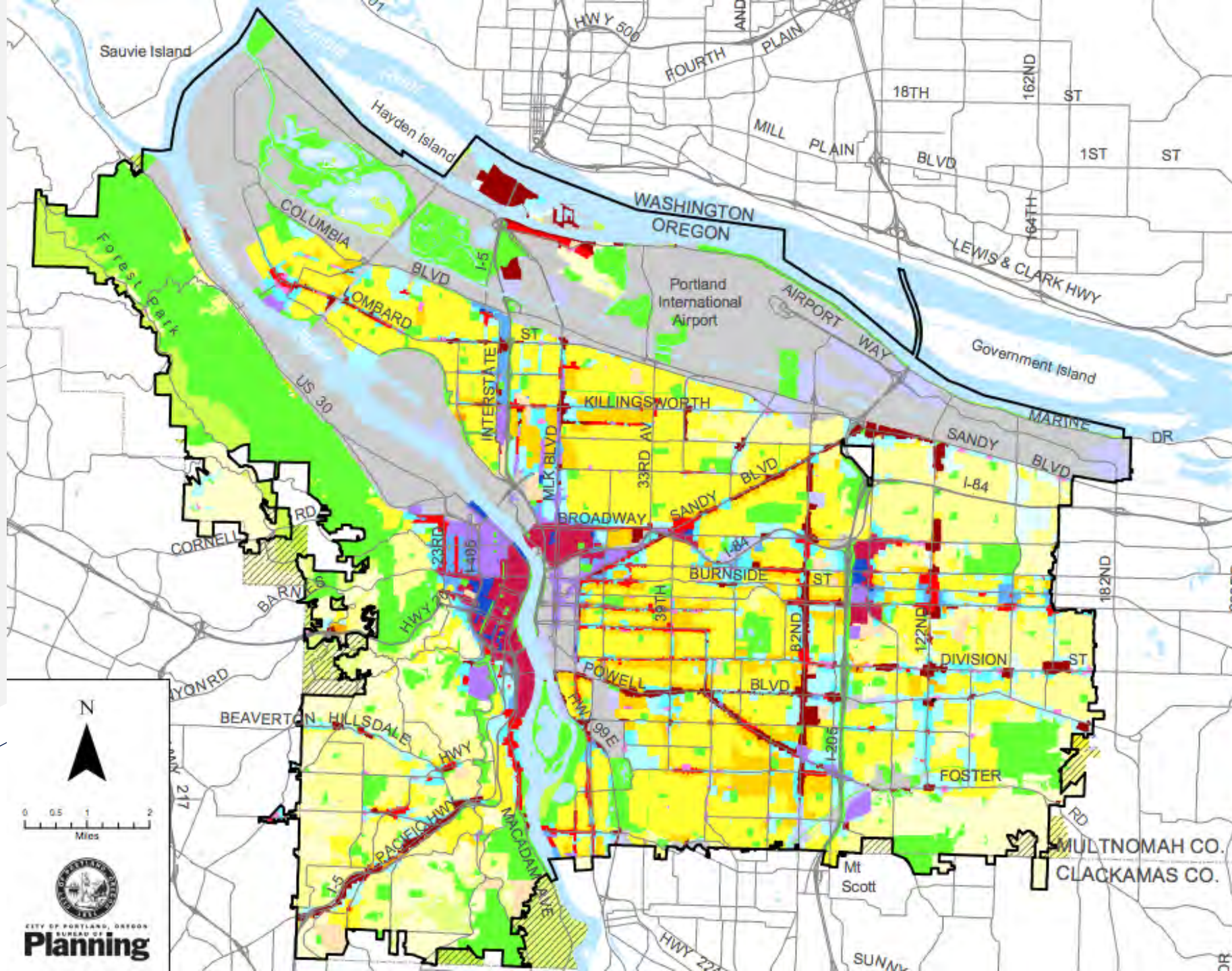




# City of Portland Current Comprehensive Plan

Sources: City of Portland Bureau of Planning

-  City Boundary
-  Open Space
-  Residential Farming
-  Residential 20,000
-  Residential 10,000
-  Residential 7,000
-  Residential 5,000
-  Residential 2,500
-  Residential MD 3,000
-  Low Density MD 2,000
-  Medium Density MD 1,000
-  High Density Residential
-  Central Residential
-  Institutional Residential
-  Neighborhood Commercial
-  Office Commercial
-  Urban Commercial
-  General Commercial
-  Central Commercial
-  Mixed Employment
-  Central Employment
-  Industrial Sanctuary
-  Multnomah County Unincorporated Pocket



July, 2006







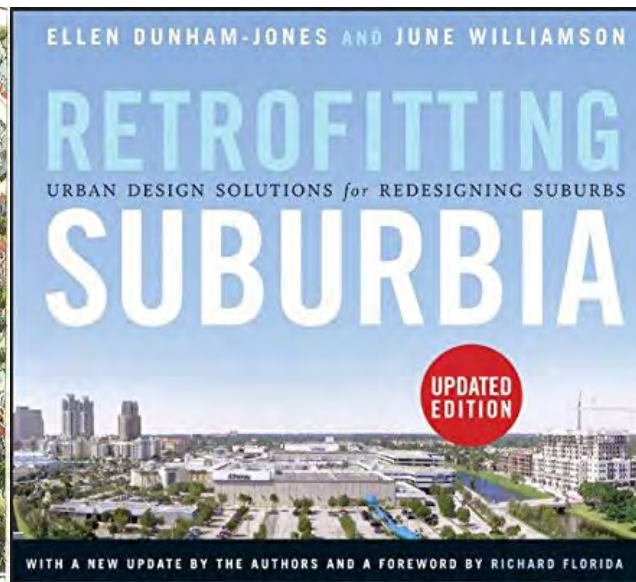
# Retrofitting Suburbia

## 1. Formed based codes: Form-Based Codes Institute

[https://formbasedcodes.org/resources/?wpv\\_column\\_sort\\_id=post\\_title&wpv\\_column\\_sort\\_dir=asc&wpv\\_post\\_id=73&wpv\\_view\\_count=1933-CPID73&wpv\\_paged=1](https://formbasedcodes.org/resources/?wpv_column_sort_id=post_title&wpv_column_sort_dir=asc&wpv_post_id=73&wpv_view_count=1933-CPID73&wpv_paged=1)

## 2. Retrofitting Suburbia: Ellen Dunham-Jones, June Williamson (11 Tactics)

<http://buildabetterburb.org/11-urban-design-tactics-for-suburban-retrofitting/>





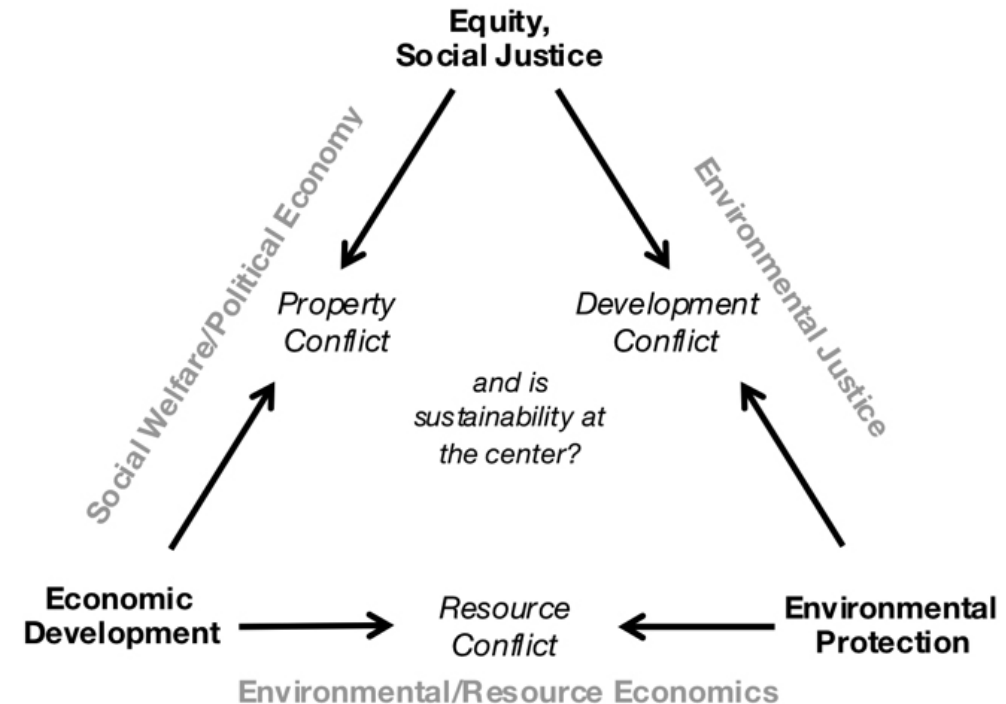
# Environmental justice is a community planning issue

1. How Planning and Zoning Contribute to Inequitable Development, Neighborhood Health, and Environmental Injustice, Univ. of California

[http://www.ced.berkeley.edu/downloads/pubs/faculty/hutson\\_2008\\_environ-health.pdf](http://www.ced.berkeley.edu/downloads/pubs/faculty/hutson_2008_environ-health.pdf)

2. Center for Sustainable Systems, Univ. of Michigan

<http://css.umich.edu/factsheets/environmental-justice-factsheet>





# Transportation, Land Use Patterns, Urban Sprawl, & Zoning



T+H

Transportation + Health

## Thank You.

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