



National Trust *for*  
Historic Preservation

# Building Reuse for More Sustainable and Resilient Communities

**Denver City Council BIZ Committee**

**APRIL 20, 2022**

Jim Lindberg, National Trust for Historic Preservation



## National Trust Research

How building conservation and reuse helps create sustainable and resilient communities

# Atlas of ReUrbanism



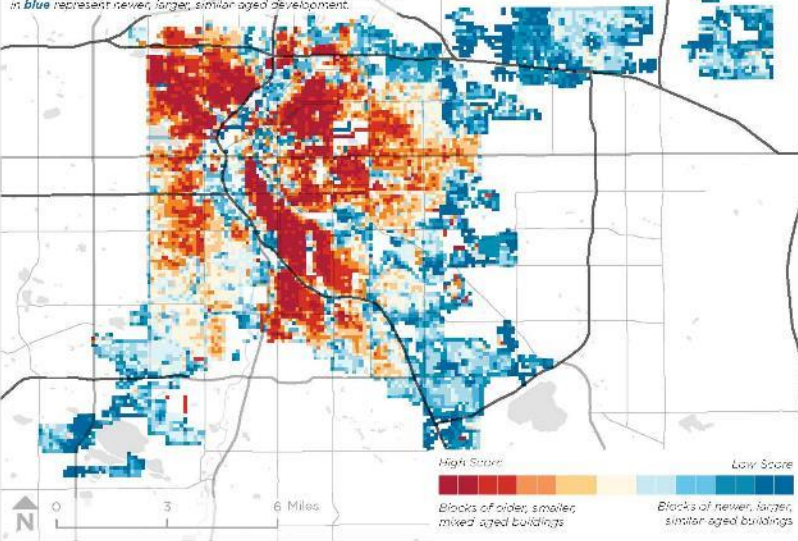
## 50 Cities

- Buildings & blocks
- Designations
- Economics
- Demographics
- Performance

# Built Character in Denver

153.0 mi<sup>2</sup> | Pop: 682,545 | 19<sup>th</sup> Most Populous U.S. City | Est. 1861

The Atlas of ReUrbanism uses the Character Score to classify building stock by age and size. Higher scoring areas in red represent blocks of older, smaller, mixed aged buildings. Lower scoring areas in blue represent newer, larger, similar aged development.



## High v. Low Character Score

Use the table below to compare high- and low-character score areas in terms of their density and diversity, inclusiveness, and economic vitality.



### Density & Diversity

	High Character Score Areas	Low Character Score Areas
Avg. Population/Grid Square*	67.4	42.3
Median Age (Years)*	36.2	38.2
Avg. Between Age 18-34*	28.7%	25.4%
Avg. Foreign Born**	13.6%	16.6%
Avg. New to County**	10.3%	11.0%
Avg. People of Color*	43.0%	45.8%
Avg. Housing Units/Grid Square*	32.5	19.9
Avg. Vacant Homes†	7.0%	6.2%
Avg. Owned Homes†	61.2%	64.8%

### Inclusiveness

	High Character Score Areas	Low Character Score Areas
Total Women and Minority-Owned Businesses***	2,675	1,573
Avg. Affordable Rental Housing Units*	86.9%	91.4%

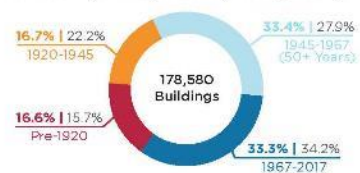
### Economic Vitality

	High Character Score Areas	Low Character Score Areas
Total Jobs in Small Businesses****	33,250	26,896
Total Jobs in New Businesses****	7,036	5,392
Total Jobs in Creative Industries****	30,835	34,902

## Building and Preservation Facts

Parcels/Buildings	Denver	50-City Average
Total	178,580	204,036
Per Square Mile	1,165	1,436
Median Year Built	1954	1952
On Nat'l Register of Historic Places	4.2%	8.8%
Locally Designated	5.4%	4.3%
Historic Tax Credit Projects	28	275

## Year Built by Period, Denver | 50-City Average

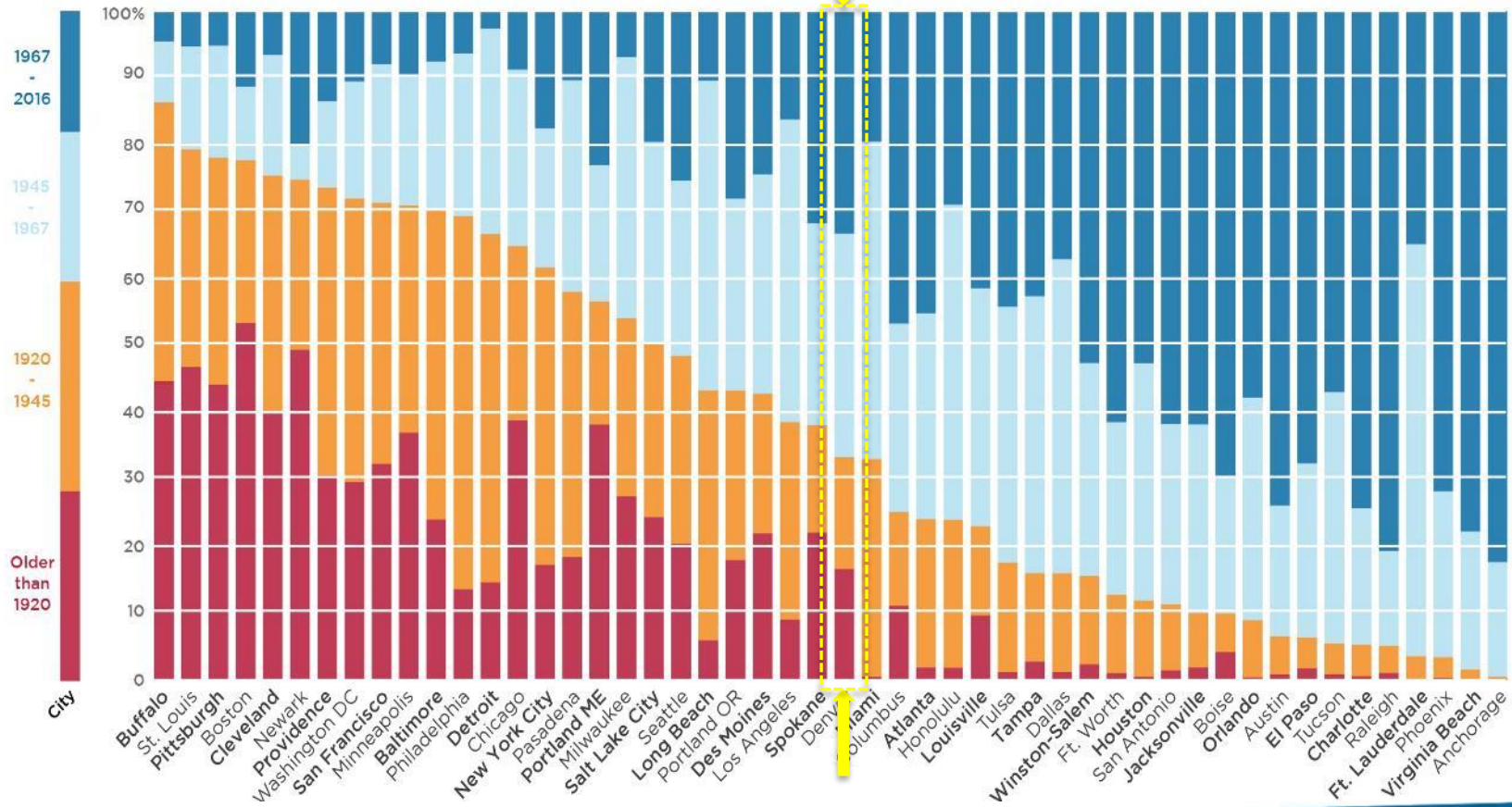


\*Data from the 2010 Census  
 \*\*Data from the 2010-2016 5-Year Estimates of the American Community Survey  
 †Data from HUD's Housing Vacancies Survey  
 ‡Data from HUD's LIHTC 2014

# Denver

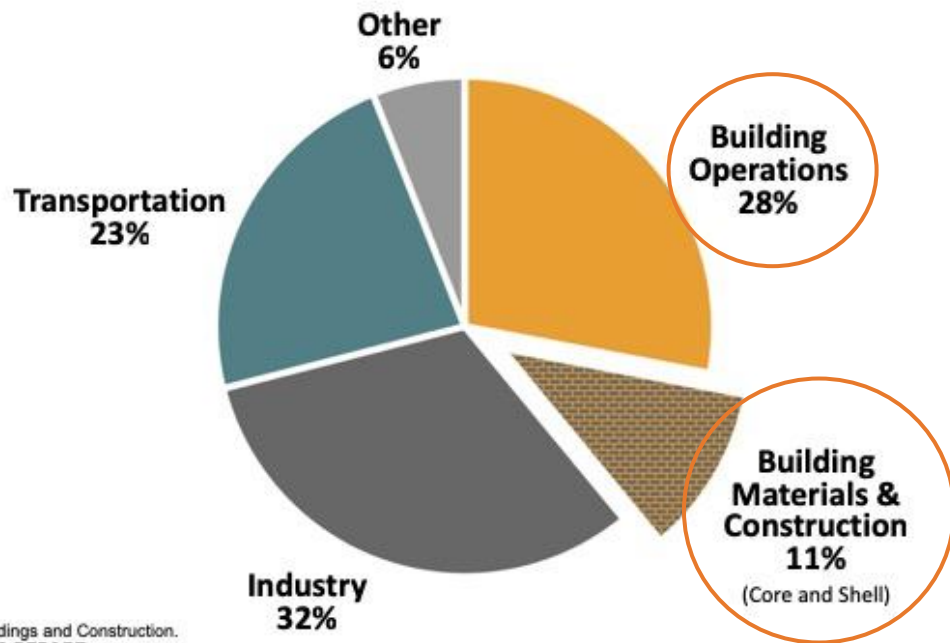
## Buildings by the Numbers

- 178,580 buildings
- 67% 50 years or older
- 33% built pre-1945
- 4.2% on National Register
- 5.4% locally designated



# Buildings and climate change

Global CO<sub>2</sub> Emissions by Sector



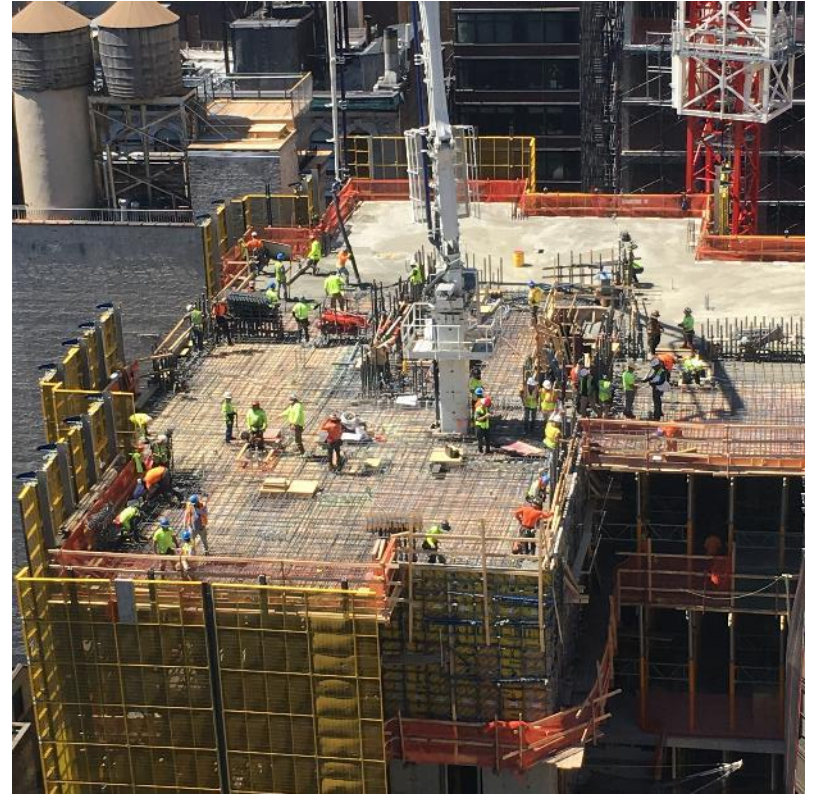
**39%**  
of all global CO<sub>2</sub>  
emissions are from  
buildings

Source:  
Global Alliance for Buildings and Construction.  
2018 GLOBAL STATUS REPORT.

# The Importance of Embodied Carbon

Embodied carbon will be responsible for **74%** of total new construction emissions in the next ten years.

-Architecture 2030



Midtown Manhattan, New York City (photo: NTHP)



The Greenest Building:  
Quantifying the Environmental  
Value of Building Reuse

A REPORT BY:

**Preservation  
Green Lab**  
NATIONAL TRUST FOR  
HISTORIC PRESERVATION

WITH SUPPORT FROM:



IN PARTNERSHIP WITH:



# The Greenest Building

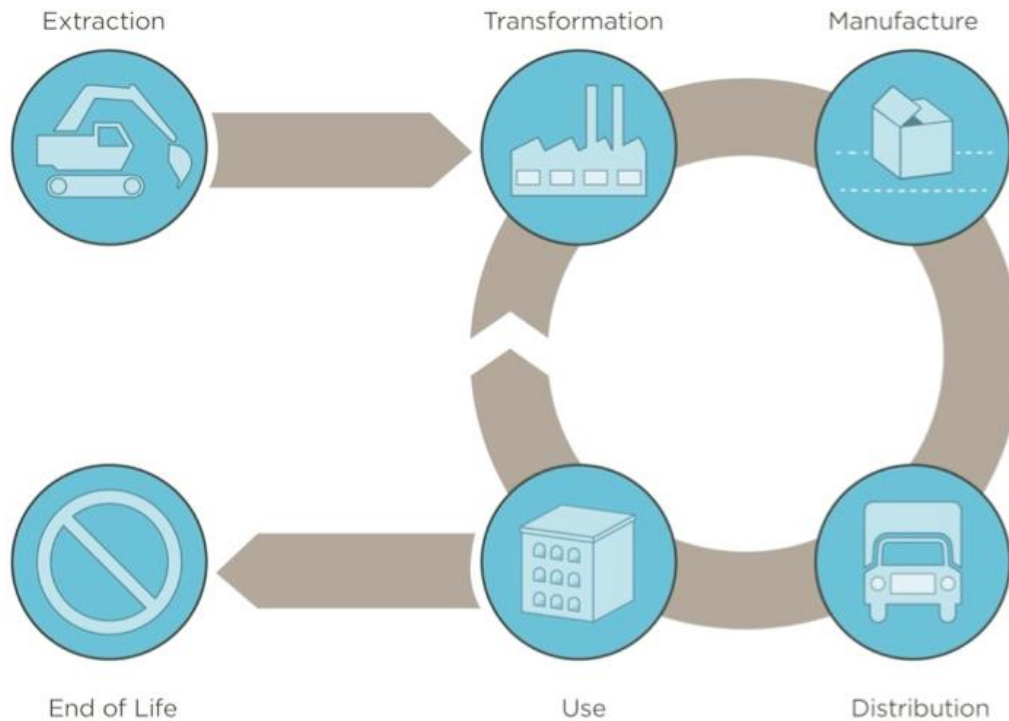
## National Trust Study

Compared two scenarios:

- 1. Rehabilitation** and retrofitting an existing building
- 2. Demolition and replacement** with efficient new construction



# Life Cycle Stages



# Case Study Buildings

Single-family residential



Multifamily residential



Commercial Office



Urban village mixed-use



Elementary schools



# Climate Regions





Denver, CO

It takes **10** to **80** years  
to overcome the climate  
change impacts of demolition and  
new construction




The Bloc, Los Angeles. Image Credit: Ratkovich Companies

**Reusing existing buildings is green**


# Older, Smaller, Better Research & Policy Lab Study

First empirical test of Jane Jacobs' theories about the importance of retaining a fine-grained mix of old and new buildings for healthy, livable urban neighborhoods.





**Older, Smaller, Better**  
Measuring how the character of buildings and blocks influences urban vitality

MAY 2014

 National Trust for Historic Preservation  
**Preservation Green Lab**

[www.preservationnation.org/greenlab](http://www.preservationnation.org/greenlab)

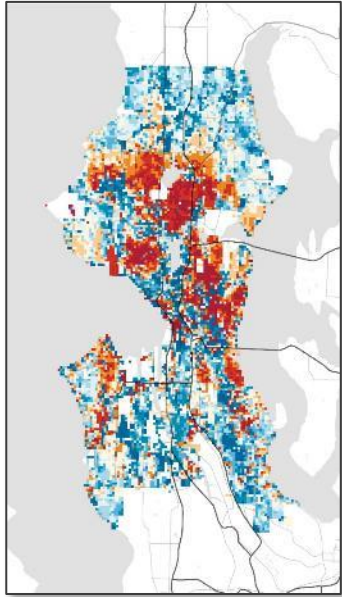
 THE SUMMIT FOUNDATION

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THE KRESGE FOUNDATION

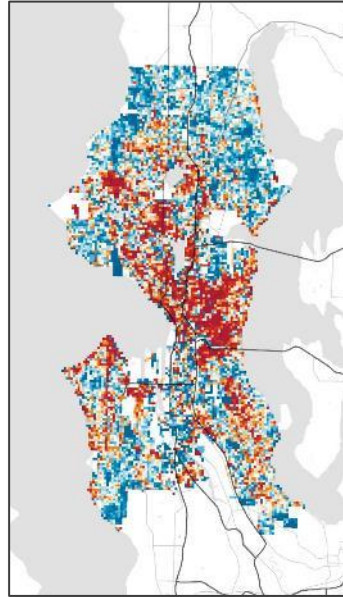
# Measuring urban buildings and blocks

Seattle, WA



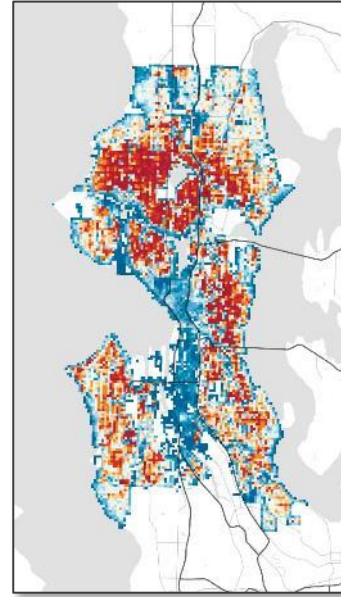
**Building Age**

+



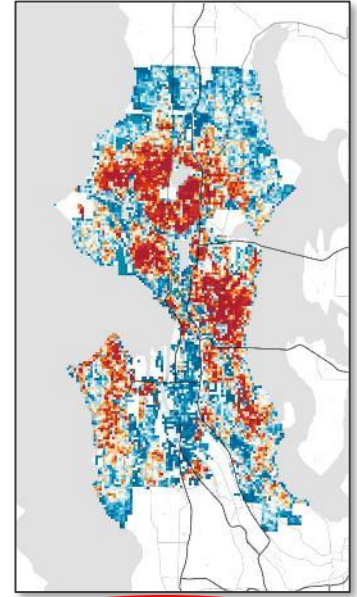
**Age Diversity**

+



**Granularity**

=

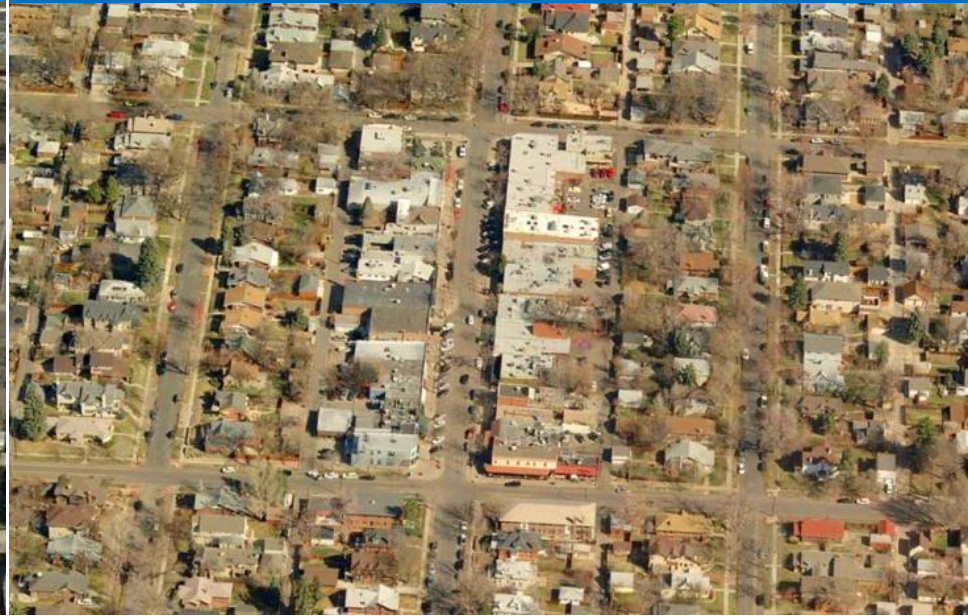


**“Character Score”**

Newer, larger, similar-age



Older, smaller, mixed-age

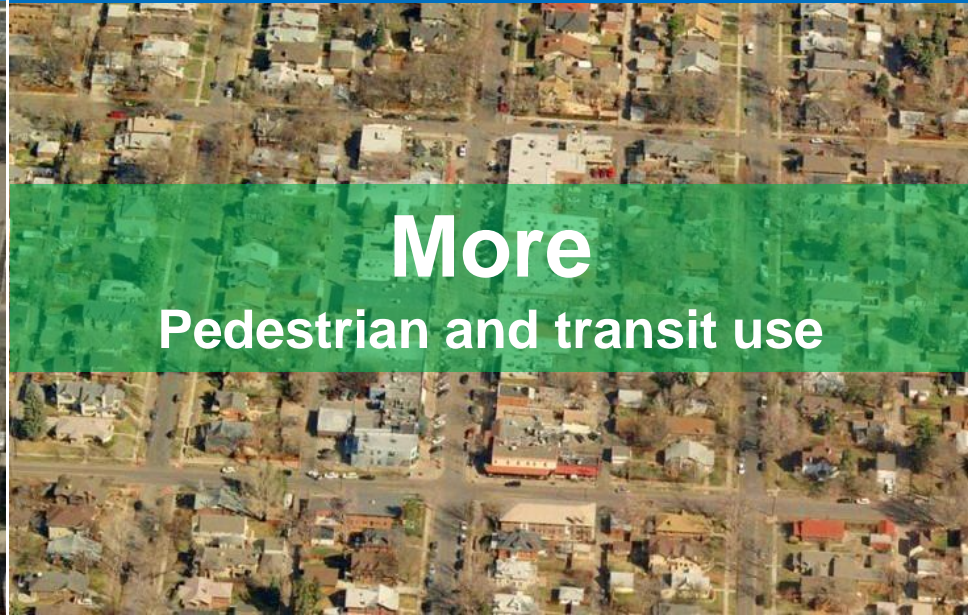


**Does built character matter?**

Newer, larger, similar-age



Older, smaller, mixed-age



**More**  
Pedestrian and transit use

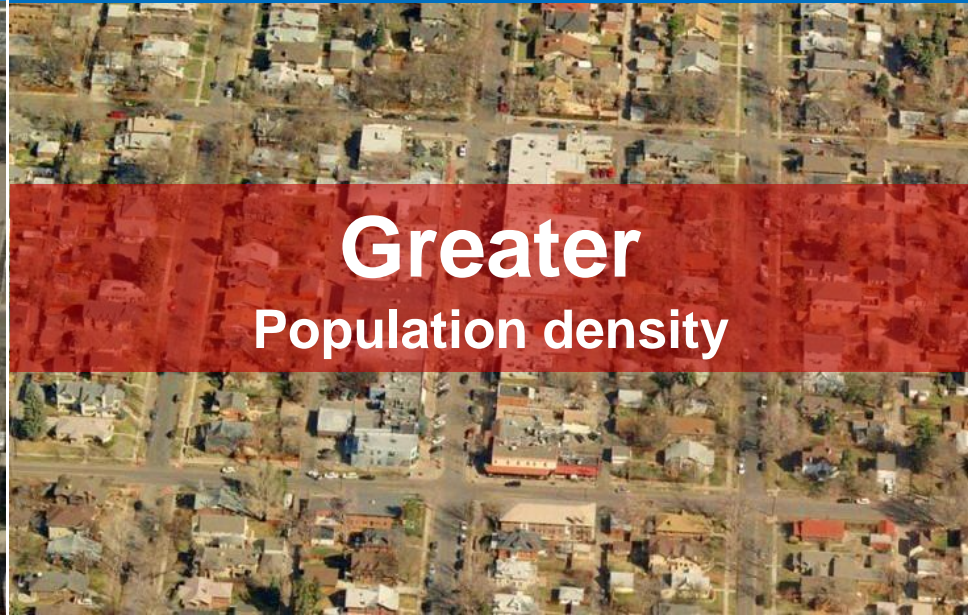
**Healthy and active**



Newer, larger, similar-age



Older, smaller, mixed-age



**Greater  
Population density**

**Land efficient**

Newer, larger, similar-age



Older, smaller, mixed-age



**More  
Housing units**

**Density at human scale**

Newer, larger, similar-age



Older, smaller, mixed-age



**More**  
Affordable housing units

**Naturally occurring affordable housing**

Newer, larger, similar-age



Older, smaller, mixed-age



**More  
Small businesses**

**Economically diverse**

Newer, larger, similar-age



Older, smaller, mixed-age



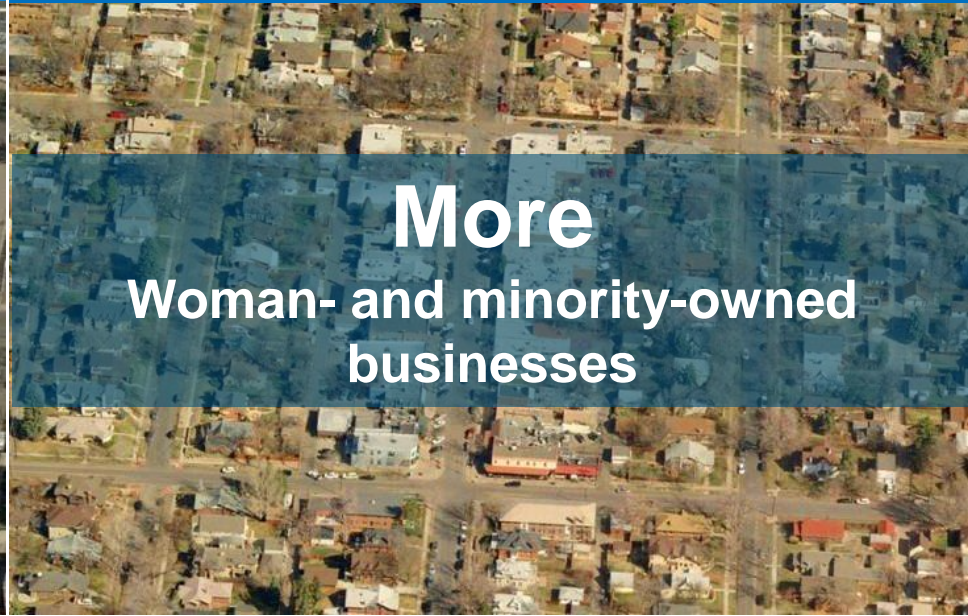
**More  
Local businesses**

**Economically resilient**

Newer, larger, similar-age



Older, smaller, mixed-age



**More  
Woman- and minority-owned  
businesses**

**Economically inclusive**

Newer, larger, similar-age



Older, smaller, mixed-age



**More jobs  
per square foot**

**Economically vibrant**

Newer, larger, similar-age



Older, smaller, mixed-age



Less energy use  
per square foot

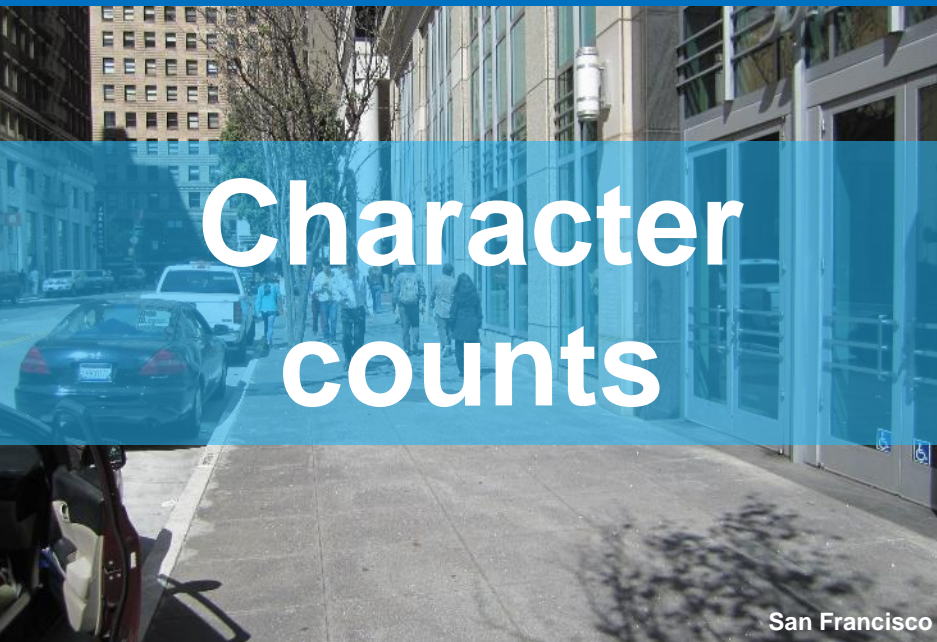
**Energy efficient**



Newer, larger, similar age

Older, smaller, mixed-age

# Character counts



## Communities need old buildings

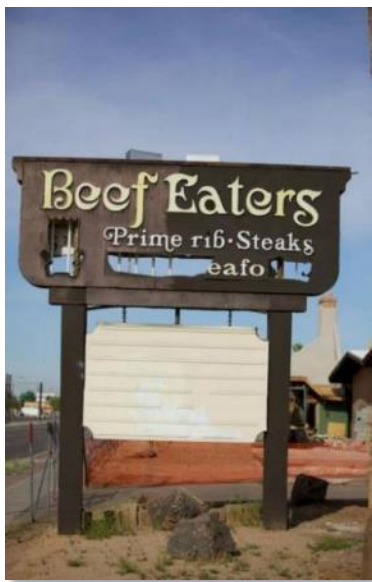


<http://i.imgur.com/n8dAVYS.jpg> | photo | Pinterest

# 5 Ways To Add Density Without Demolition



# “Adaptive Reuse” Creative infill

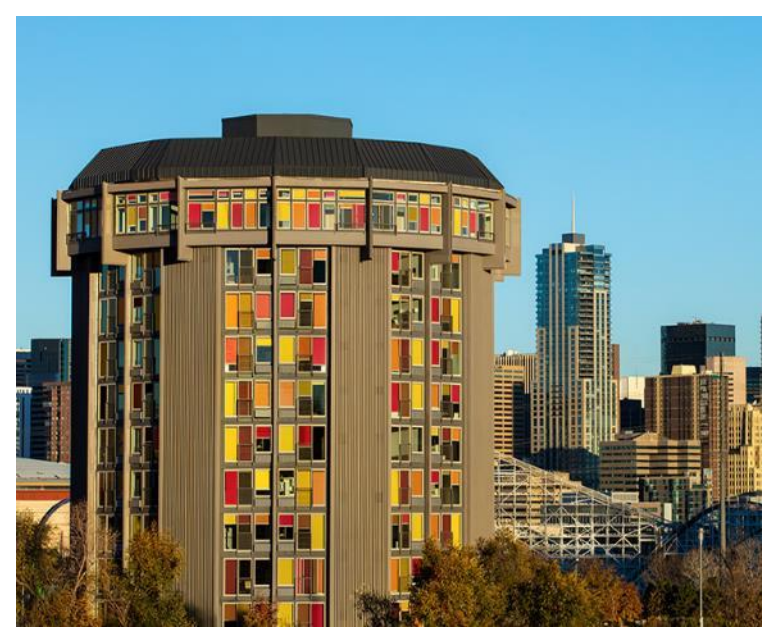


Phoenix, AZ

Los Angeles, CA

## Adaptive Reuse Ordinances

Regulatory relief, technical guidance, financial assistance



# “Small is Beautiful” Micro-development



# “Plus one” incremental additions



## “Yes-In-My-Back-Yard” ADU infill



**“Higher and Better Use!”**  
**For parking lots and vacant lots**



**Thank you.**

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