



Physical Activity Policies: Zoning, Land Use and Transportation-related Policies

Jamie F. Chriqui, PhD, MHS (Twitter: @jfchriqui)
Physical Activity and Public Health Research Course

University of South Carolina
September 20, 2022



Presentation Overview

1. Brief background on zoning, land use, and public health
2. Overview of the longitudinal nationwide zoning study
3. Snapshot of findings from the longitudinal nationwide zoning study
4. Historical work examining associations between zoning policies and PA
5. Next steps and opportunities



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Zoning, Land Use, and Public Health

Zoning and its relationship to public health

- Zoning, subdivision regulation, and building codes are **exercises of the states' police powers under the 10th Amendment**
 - States grant authority to county/municipal governments to promote the health, safety, morals, and general welfare of their citizenry
 - Zoning provides a regulatory framework to address public health problems arising from urbanization
- Zoning regulations are laws that divide city or county areas into districts, or zones, that specify allowable uses and, also, may specify requirements for structural improvements

Traditional zoning is based on use and density

Traditional, *Euclidean* zoning divides community into districts (or zones) based on use and density

- For example, commercial areas, residential areas, industrial areas, etc.

Zoning Code Reforms

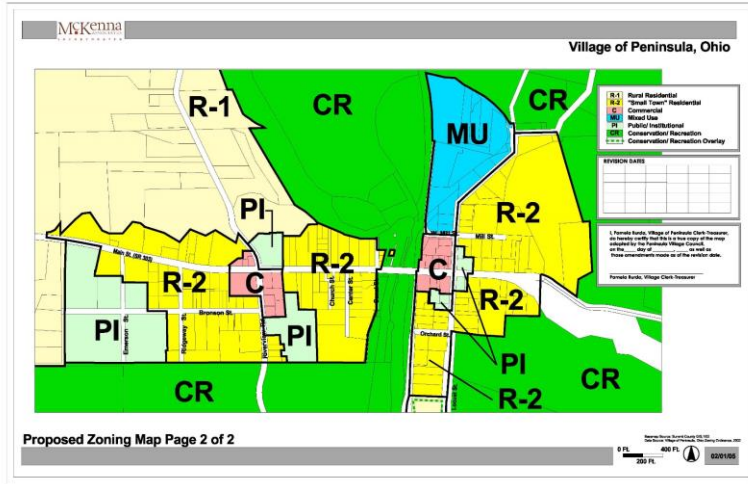
- Emerged in the U.S. as a potential policy strategy to **reduce sprawl and reliance on cars** and increase physical activity.¹⁻³
- The reforms seek to:
 - Create **compact development**
 - Create **pedestrian-friendly** or traditional neighborhoods
 - Increase **street connectivity**
 - Create **mixed use** and higher density neighborhoods
 - Increase **open space** and **alternative transportation**¹⁻³
- **Examples of code reform zoning**
 - Form-Based Code
 - Transect-Based Districts
 - SmartCode
 - New Urbanist Districts
 - Pedestrian-Oriented Districts or Developments (POD)
 - **Transit-Oriented Districts or Developments (TOD)**
 - Traditional Neighborhood Districts or Developments (TND)
 - Other (i.e. Smart Growth Districts)

(1) Schilling J, Linton LS. The public health roots of zoning: In search of active living's legal genealogy. *Am J Prev Med.* 2005;28:96-104.

(2) Schilling J, Mishkovsky N. *Creating a Regulatory Blueprint for Healthy Community Design: A Local Government Guide to Reforming Zoning and Land Development Codes.* E-43346. 2005. Washington, D.C., ICMA.

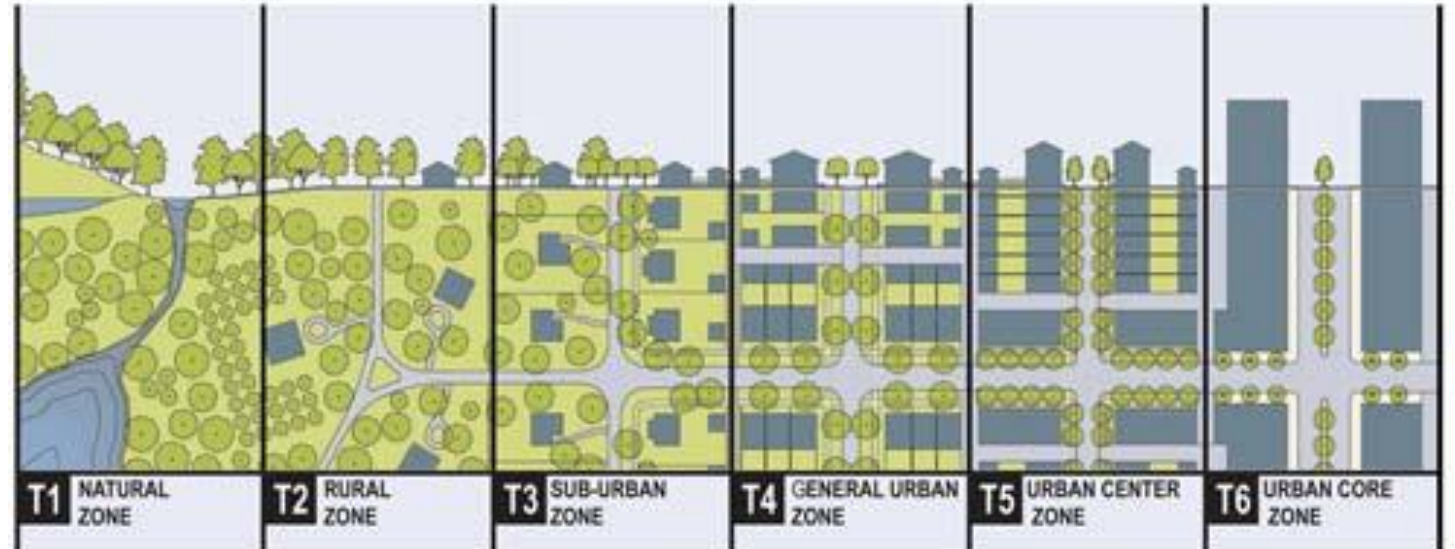
(3) American Planning Association. *Planning and Urban Design Standards.* 1st ed. Hoboken, NJ: John Wiley & Sons, Inc., 2006.

Traditional Zoning vs. Code Reform (Smart Code or Transect-based) Zoning



Traditional Zoning

Code Reform Zoning



Source: transect.org

Zoning (and code reform zoning) is a policy lever or strategy for codifying the Community Preventive Services Task Force (CPSTF) recommendations (May 2017)

- Recommends **built environment strategies combining** one or more intervention approaches to improve **pedestrian or bicycle transportation systems with** one or more **land use and environmental design interventions** based on sufficient evidence of effectiveness in increasing physical activity.

Pedestrian & Bicycle System Transportation Intervention Component

- Street pattern design and connectivity
- Pedestrian infrastructure
- Bicycle infrastructure
- Public transit infrastructure and access

Land Use & Environment Design Intervention Component

- Mixed land use
- Increasing residential density
- Proximity to neighborhood or community destinations
- Parks and recreational facility access



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Study Overview and Methods

Key Study Questions

PAPREN Applied Evaluation Project Study Questions

- 1. Has activity-supportive zoning increased nationwide over time (between 2010 and 2020)?**
2. Have changes in activity-supportive zoning been associated with concomitant:
 - Increases in recreational activity or decreases in sedentary behavior
 - Increases in active travel to work
 - Reductions in pedestrian fatalities

These questions will be examined over the next 2 years

Focus of Today's Presentation

1. Changes in Code Reform and Pedestrian-oriented zoning over time
2. Additional markers captured ONLY for 2020
 - PA-related markers
 - Inclusionary zoning/housing affordability markers

First of its kind longitudinal study of physical activity-supportive zoning (including code reform zoning)

	2010 Baseline Study (NCI R01)	2020 Follow-Up Study (PAPREN)
Sample Frame		
# Counties	496 most populous + 4 consolidated cities	200 most populous from 2010 sample
# Jurisdictions	3,921 municipalities + 483 unincorporated county areas (N=4404 jurisdictions)	2102 municipalities + 185 unincorporated county areas* (N=2287 coded to date)
# States Represented	49 states + DC	41 states + DC
% of US Population Covered	~75%	55.1%
Included Land Use Policies-Data Source(s)	Zoning codes, UDCs, form-based codes	Zoning codes, subdivision regulations, UDCs, form-based codes
Effective Date of Zoning Codes	January 2010	January 2020
Coding Process	Zoning code audit tool developed for the project. Master's+ trained urban planners/students coded all zoning codes using audit tool and detailed coding protocol. Regular coding meetings.	Same process using updated audit tool and protocols
Inter-coder Agreement	90% agreement amongst coders	>90%

*there are a few jurisdictions awaiting final coding

Zoning Code Audit Tool – 2020 Ver

PAPREN Zoning Policy Coding Instrument (Short Fo

A. Community Identification Information

FIPS15: _____

Summary Level Code: ____

Place Name: _____

County Name: _____

State Name: _____

Keep Level: _____

B. Coder and Zoning Code Information

Coder ID Number: 1 0 ____

Coding Date: ____ / ____ / 2 0 ____

Zoning Code Status	
Zoning code exists	1
No zoning code (verified)	0
Missing zoning code (non-responder)	9

If "Zoning code exists" is selected, continue to next column

COMPLETE STREETS POLICY	Y/N
Complete Streets Policy Exists?	o

Complete Streets Policy Jurisdiction	Citation	Adoption Date
County	1	
Place	2	
Place and County	3	

DEFINITIONS

Allow (Allowed)= permitted, conditional, or accessory use
In lieu fees: Allows developer to pay a fee in lieu of providing AHUs
None= use not specified
Prohib (Prohibited)= prohibited use

B. Coder and Zoning Code Information (Cont.)

Policies Coded	
County	1
Place	2
Place and County	3

Zoning Code Adoption Date: ____ / ____ / ____

Zoning Code Most Recent Amendment Date: ____ / ____ / ____

Zoning Code Source(s)	Y	N
Online code publisher	1	0
Other code publisher	1	0
Community website	1	0
Planning/Zoning Office website	1	0
Community mail/email	1	0
Other (specify):	1	0

Zoning Code Type(s)	Y	N
Traditional/Euclidean	1	0
Code Reform	1	0
Unified Development Code	1	0

Code Reform Most Recent Amendment Date: ____ / ____ / ____

If "Code Reform" is selected, continue to next column

C. Code Reform District(s)/Regulations

SmartCode*

Full Form-Based Code (non-SmartCode)

Code Reform District(s)/Regulations

Code Reform District(s)/Regulations

Form-Based District(s)/Regulations

Transact-Based Zone(s)/District(s)/Regulations

New Urbanist District(s)/Regulations

Pedestrian-Oriented Development (POD)

Traditional Neighborhood Development (TND)

Other Code Reform District(s)/Regulations

ZONING DISTRICT CATEGORIES

1. CODE REFORM (CR) CATEGOR
2. TOD CATEGORY
3. COMMERCIAL DISTRICTS CA
4. MIXED USE DISTRICTS CATE
5. PARKS, REC, OPEN SPACE DI
6. PLANNED UNIT DEVELOPME
7. RESIDENTIAL MULTI-FAMILY
8. RESIDENTIAL SINGLE-FAMIL
9. SUBDIVISION REGULATIONS
10. GENERAL ZONING PROVISI

10a. If General Zoning Provisions is selected, housing provisions being coded under the

Code Reform (CR): Form-Based, Transit Oriented Development (TOD) specific language in the district purpose public transportation station or corridor
 Commercial: Commercial, Downtown
 Mixed Use (MU): Mixed use districts mixed which is coded under PUD
 Parks, Rec, Open Space: Parks, recreation
 Planned Unit Development (PUD): all Residential Multi-Family: Residential Residential Single-Family: Residential less than four units. Relevant mobile Subdivision Regulations: Regulations subdivisions.
 General Zoning Provisions: Overall zoning affordable housing or inclusionary ho

PAPREN Zoning Policy Coding Instrument (Short Form)

Marker	Code Reform (Except TOD)	TOD	Commercial	Mixed Use	Park/Rec/Open Space	PUD	Residential: Multi-Family	Residential: Single-Family
	A. Sidewalks (if yes, pop up: Req/encouraged or addressed)	o	o	o	o	o	o	o
B. Crosswalks	o	o	o	o	o	o	o	o
C. Bike-Pedestrian Connectivity	o	o	o	o	o	o	o	o
D. Street Connectivity	o	o	o	o	o	o	o	o
E. Bike Lanes	o	o	o	o	o	o	o	o
F. Bike Parking (if yes, pop up: Req, encouraged, permitted, addressed)	o	o	o	o	o	o	o	o
G. Bike-Pedestrian Trails-Paths	o	o	o	o	o	o	o	o
H. Other Walkability	o	o	o	o	o	o	o	o
I. Mixed Use	o	o	o	o	o	o	o	o
J. Active Recreation	o	o	o	o	o	o	o	o
K. Passive Recreation	o	o	o	o	o	o	o	o
L. Pedestrian Plazas	o	o	o	o	o	o	o	o
M. Code Reform (Mark if the TOD is a subdistrict form-based code/SmartCode district OR if it explicitly mentions that it is form-based; only relevant to TOD district)	NA	o	NA	NA	NA	NA	NA	NA
N. Access to Public Transportation	o	o	o	o	o	o	o	o
O. Accessory Dwelling Units (ADUs) (if yes, pop up: allowed/permitted, conditional approval, prohibited)	o	o	o	o	NA	o	o	o
P. Mobile Homes (aka Manufactured homes; factory built homes, etc.) (if yes, show two pop up questions: (1) allowed/permitted, conditional approval, prohibited; (2) segregated into own district. (Y/N))	NA	NA	NA	NA	NA	NA	NA	o
Q. Exclusionary Zoning								
1. Multifamily dwellings: allowed, conditionally allowed, prohibited, not addressed (This variable only appears under single-family residential category if there are no multifamily residential districts)	o	o	NA	o	NA	o	NA	o
2. Minimum lot size requirements	o	o	NA	o	NA	o	o	o
3. Minimum building square footage requirements	o	o	NA	o	NA	o	o	o
R. Inclusionary Zoning/Inclusionary Housing/Affordable Housing (if yes popup below)	o	o	NA	o	NA	o	o	o
S. Incentives								
1. Multi-Unit Family/Multi-Family Housing Unit Tax Exemption	o	o	NA	o	NA	o	o	o
3. Density Bonuses (if yes, pop up list below a-e)	o	o	o	o	NA	o	o	o
a. Open/Green Space	o	o	o	o	NA	o	o	o
b. Affordable Housing (not covered by Topic R)	o	o	o	o	NA	o	o	o
c. Pedestrian amenities	o	o	o	o	NA	o	o	o
d. Bike amenities	o	o	o	o	NA	o	o	o
e. Streetscape improvements/street furniture/public art	o	o	o	o	NA	o	o	o
4. Other (specify)	o	o	o	o	NA	o	o	o
T. Reduced/Eliminated Parking Requirements (includes incentives or general reductions/eliminations)	o	o	o	o	NA	o	o	o
AFFORDABLE HOUSING PROVISIONS (Pop up if R above=yes for specific district/zones)								
Who Units are For								
City workers (pop up if yes: Preferential consideration given to city workers?)	o	o	NA	o	NA	o	o	o
Tied to Area Median Income (AMI) OR set-aside for below certain income threshold/low wage workers	o	o	NA	o	NA	o	o	o
Seniors/Elderly (>age 65)	o	o	NA	o	NA	o	o	o
Other (specify)	o	o	NA	o	NA	o	o	o
Strength								
Required ONLY	o	o	NA	o	NA	o	o	o
Encouraged ONLY	o	o	NA	o	NA	o	o	o
Required AND Encouraged (varies by units or area within jurisdiction)	o	o	NA	o	NA	o	o	o
Not specified	o	o	NA	o	NA	o	o	o
Other Affordable Housing Markers								
In-lieu fees (if addressed, pop up with Allowed/None)	o	o	NA	o	NA	o	o	o
Density Bonuses (if addressed, pop up with Allowed/None)	o	o	NA	o	NA	o	o	o
Off-site units (if addressed, pop up with Allowed/None)	o	o	NA	o	NA	o	o	o
Set-aside amount (if addressed, specify amount: _____)	o	o	NA	o	NA	o	o	o
Duration of Affordability (if addressed, specify: _____)	o	o	NA	o	NA	o	o	o



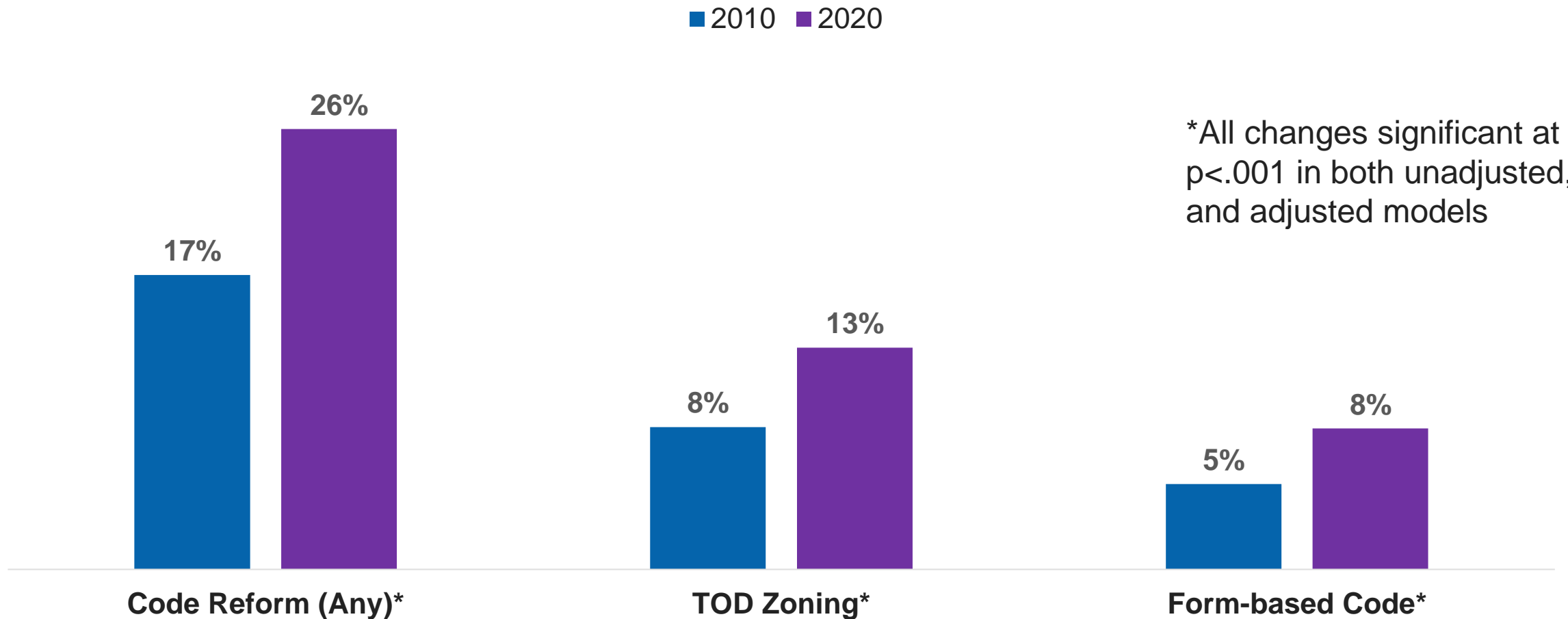
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Changes in Code Reform and Pedestrian-Oriented Zoning Over Time



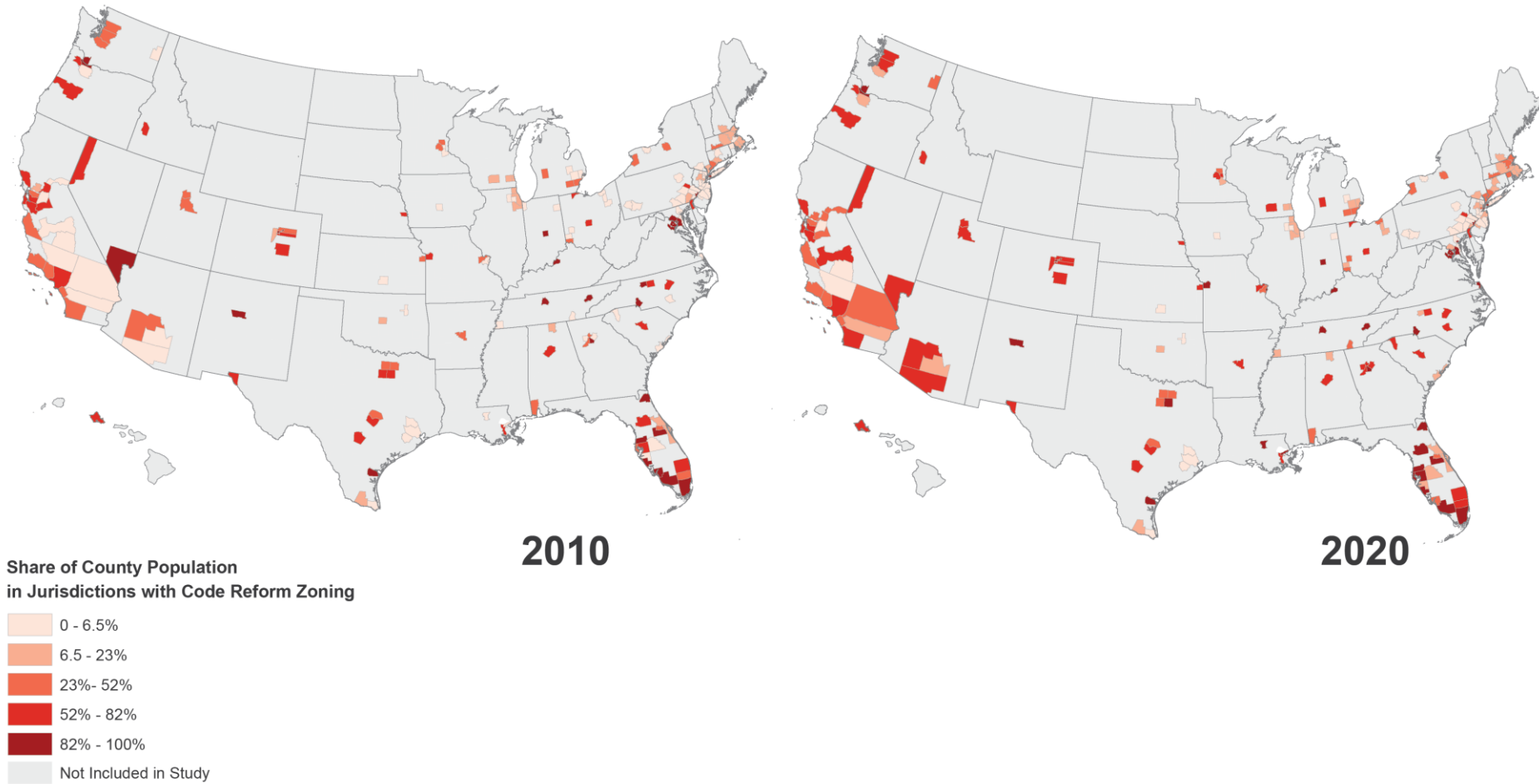
Code reform zoning has significantly* increased over time

(Longitudinal Panel; 2287 jurisdictions in 200 counties and 41 states + DC)



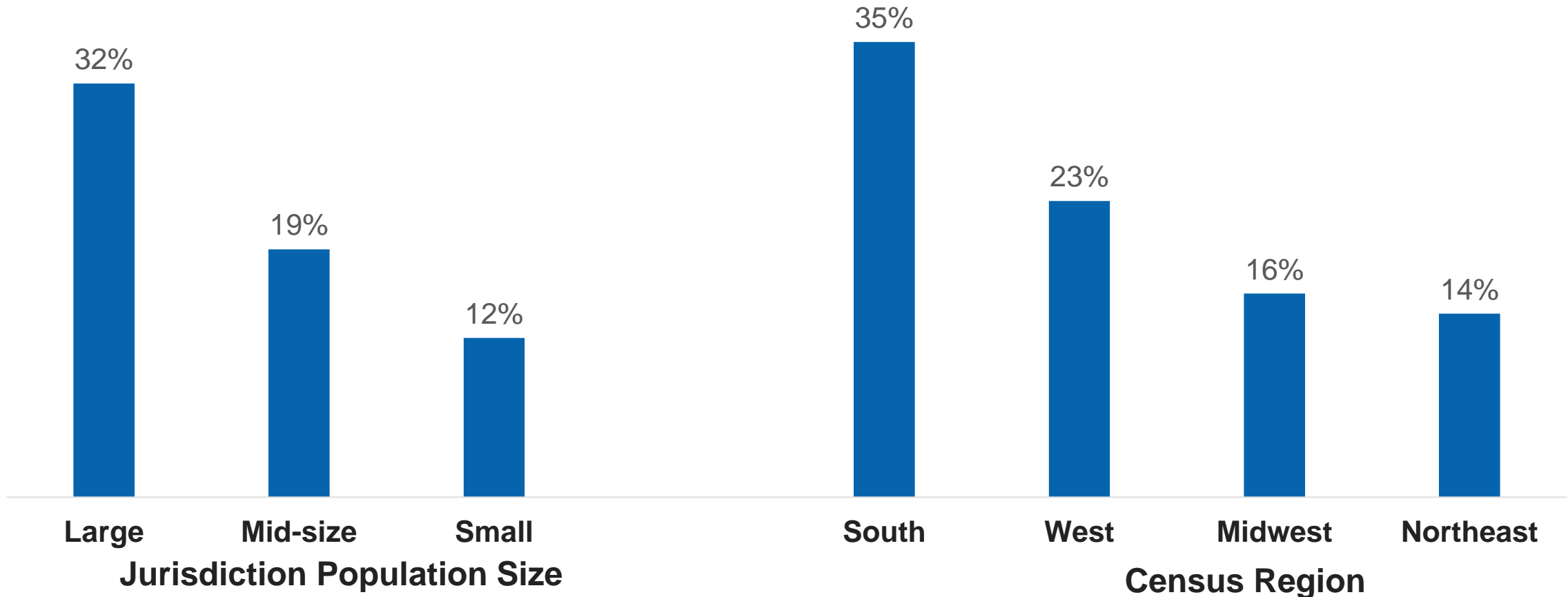
Code reform zoning is concentrated in certain areas of the country

And has become more concentrated over the past decade



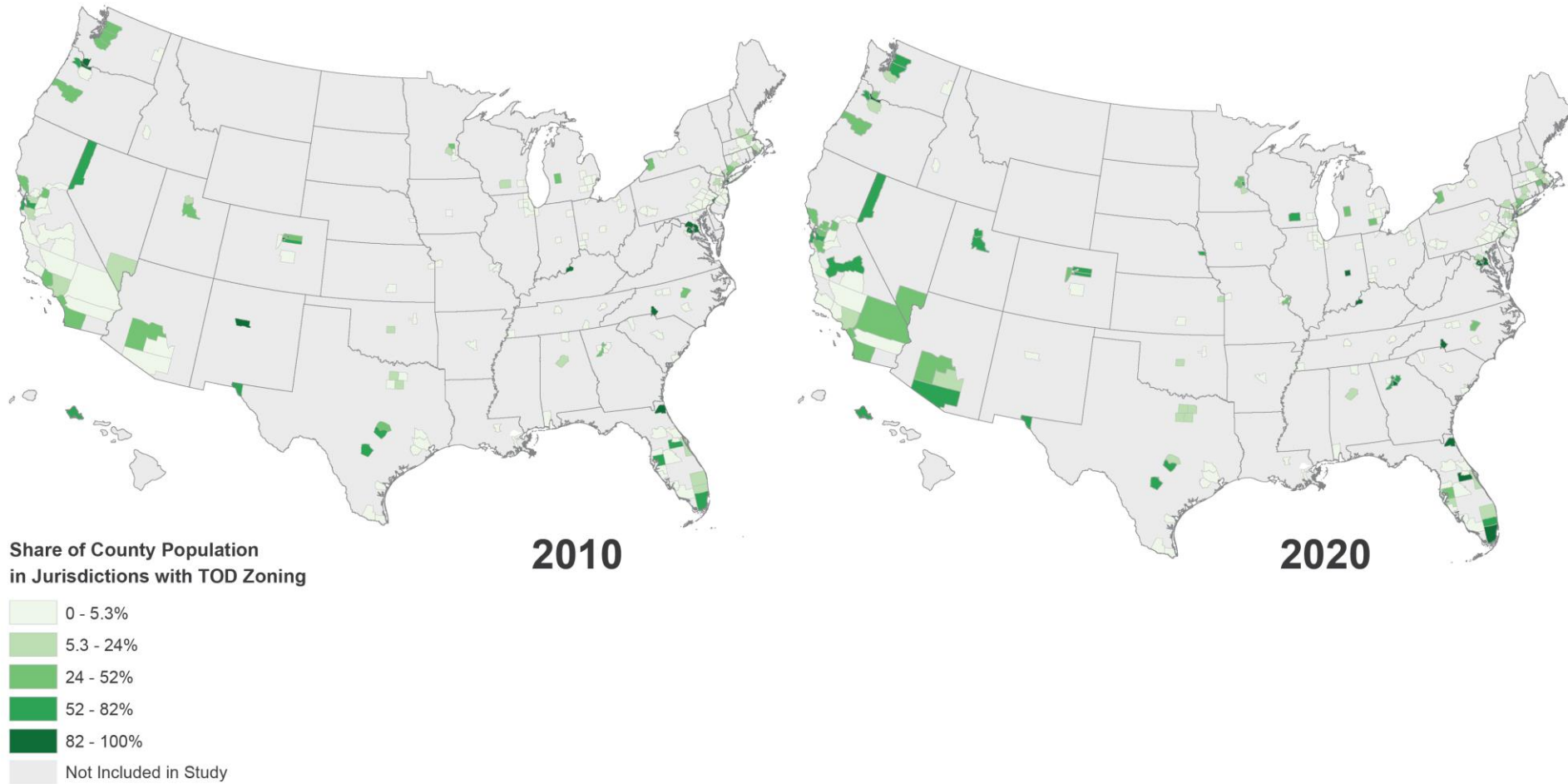
Population size and region drive code reform zoning

(Longitudinal Panel; 2285 jurisdictions in 200 counties and 41 states + DC)



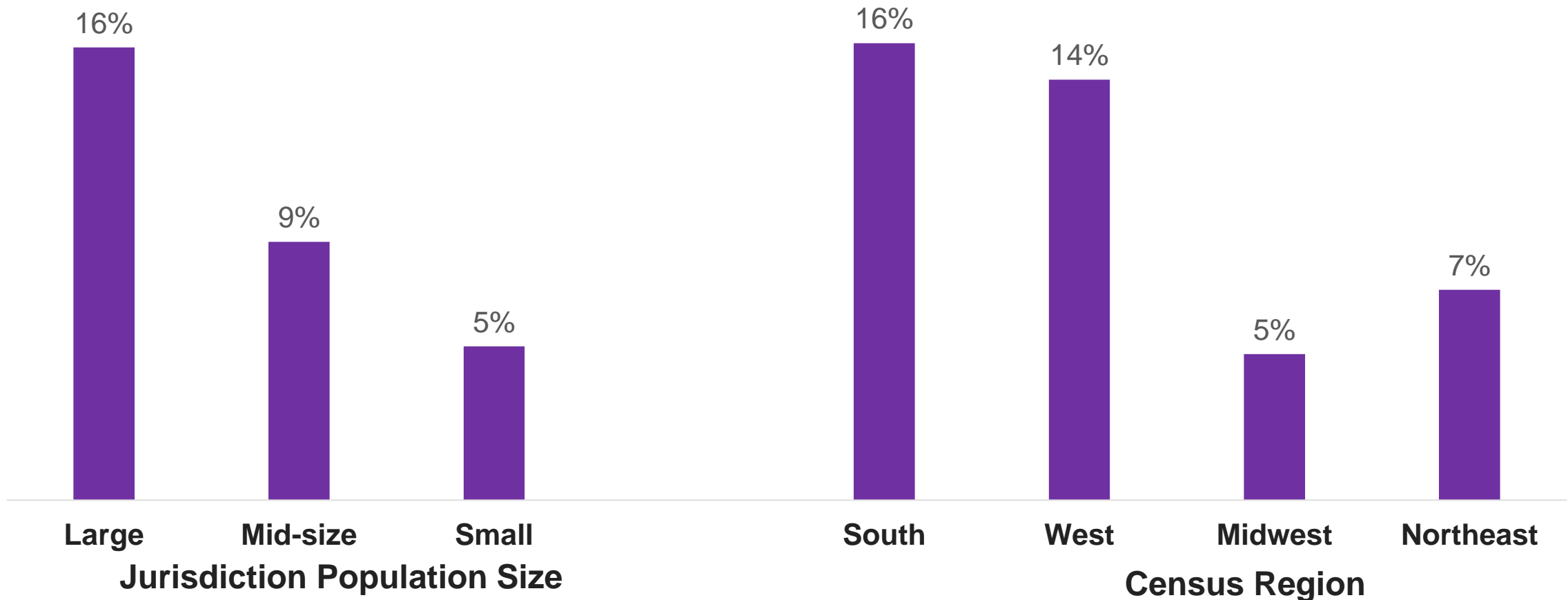
*In multivariable regression models adjusted for time trends, median age (older-less likely to have CR); % household no vehicle (higher %, more likely to have CR); majority race (majority Hispanic <likely to have CR (than majority white); % urban (higher % more likely to have CR); household poverty levels (not sig), and median household income (not sig).

TOD zoning also is concentrated in certain areas of the country



Population size and region also drive TOD zoning

(Longitudinal Panel; 2285 jurisdictions in 200 counties and 41 states + DC)

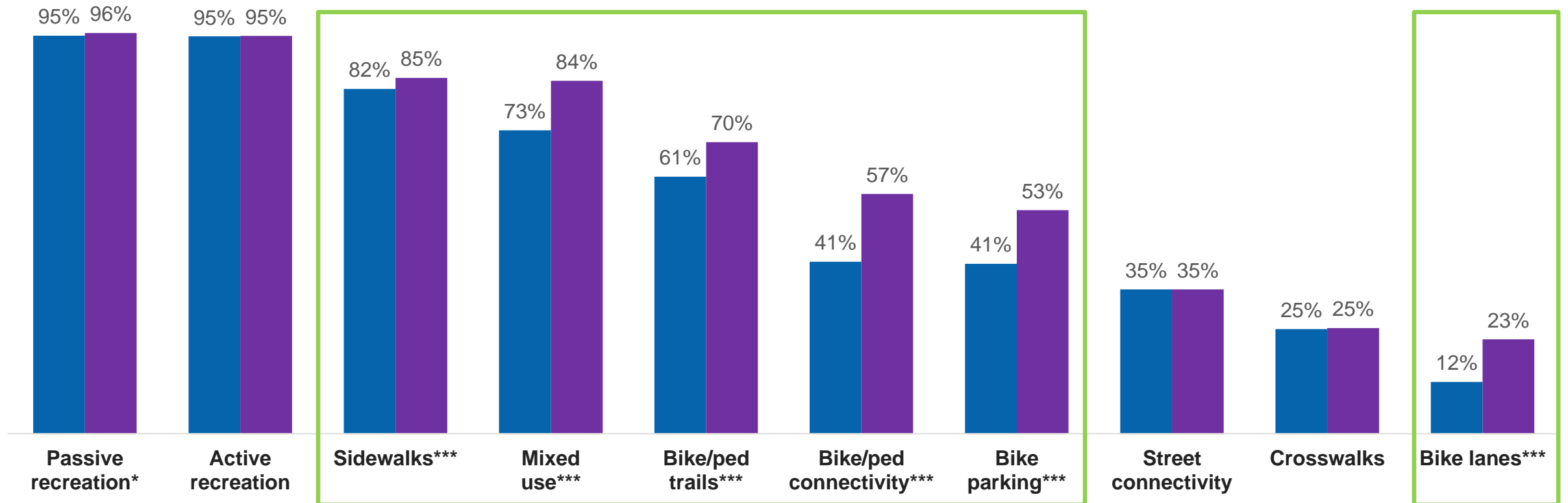


*In multivariable regression models adjusted for time trends, median age (older-less likely to have TOD); % household no vehicle (higher %, more likely to have TOD); majority race (majority Hispanic <likely and majority Black more likely to have TOD (than majority white); % urban (higher % more likely to have TOD); household poverty levels (not sig), and median household income (not sig).

Activity-supporting built environment features addressed in zoning codes have increased* over time

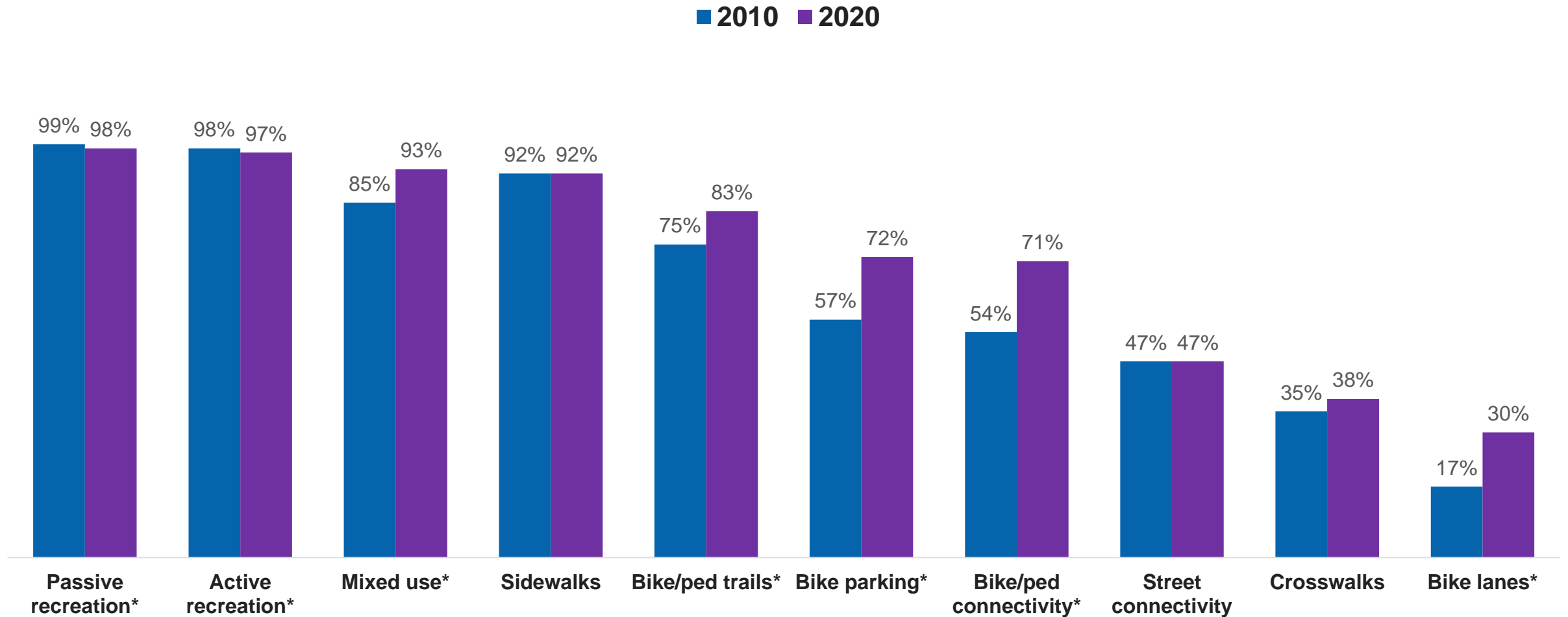
(Longitudinal Panel; 2287 jurisdictions in 200 counties and 41 states + DC)

■ 2010 ■ 2020



Code reform zoning is heavily focused on activity-supportive built environment features and such features have increased over time

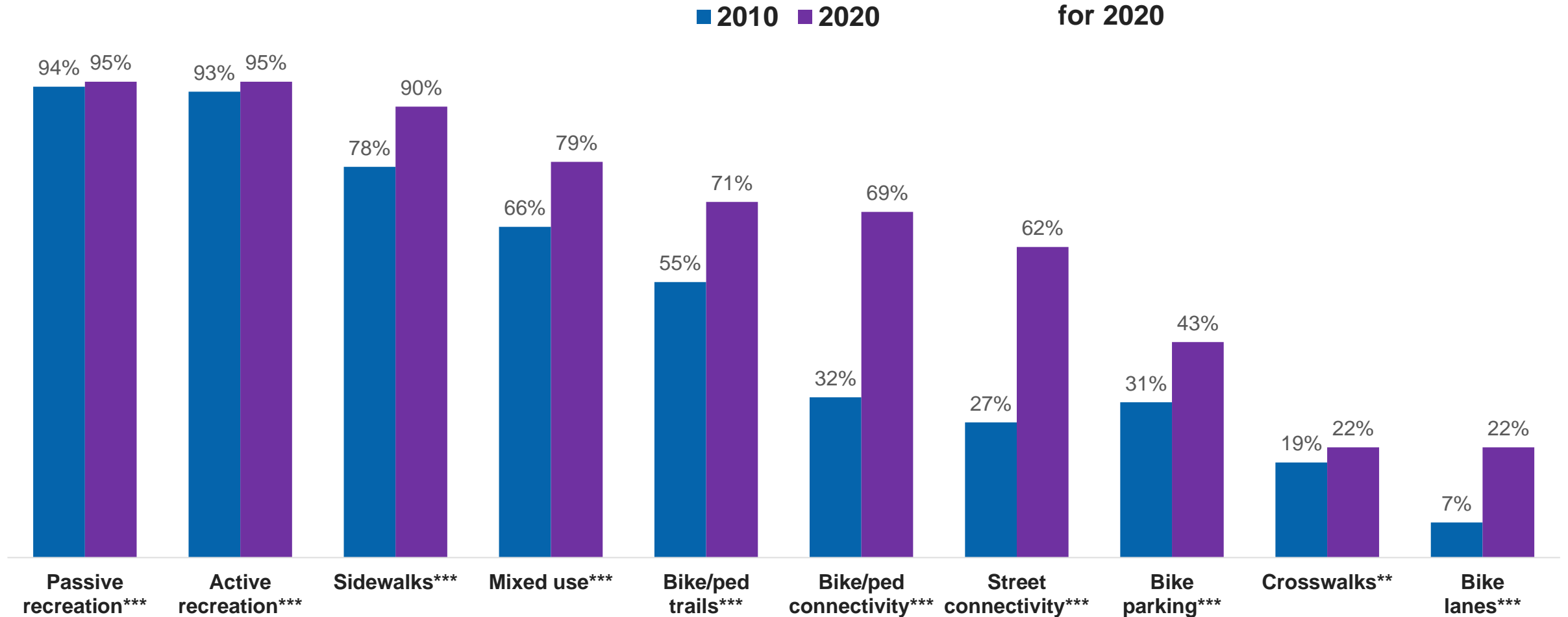
(Longitudinal Panel; 594 jurisdictions with code reform zoning in 182 counties and 40 states + DC)



Jurisdictions without code reform zoning also have seen increases in activity-supportive built environment features

(Longitudinal Panel; 1693 jurisdictions without code reform zoning in 184 counties and 41 states)

Note: Includes subdivision regulations for 2020



Additional PA-Markers Captured in 2020 Zoning Codes only

Marker	Any	Prevalence of Markers in Given District/Zone						
		TOD	Code Reform	Mixed Use	PUD	Commercial	Residential Multi-Family	Residential Single Family
N of Jurisdictions with District/Zone	2287	299	405	1016	1665	2155	1963	2190
Access to public transportation	48%	95%	64%	35%	17%	15%	10%	4%
Reduced/Eliminated Parking Requirements	42%	47%	40%	22%	4%	13%	4%	2%
Pedestrian Plazas	51%	57%	72%	44%	19%	21%	8%	4%
Density Bonuses for...								
Open/Greenspace	16%	18%	7%	10%	8%	3%	4%	3%
Pedestrian Amenities	10%	11%	4%	8%	4%	2%	3%	1%
Bike amenities	5%	3%	3%	3%	2%	1%	1%	1%
Streetscape improvements	6%	10%	2%	6%	2%	2%	1%	<1%

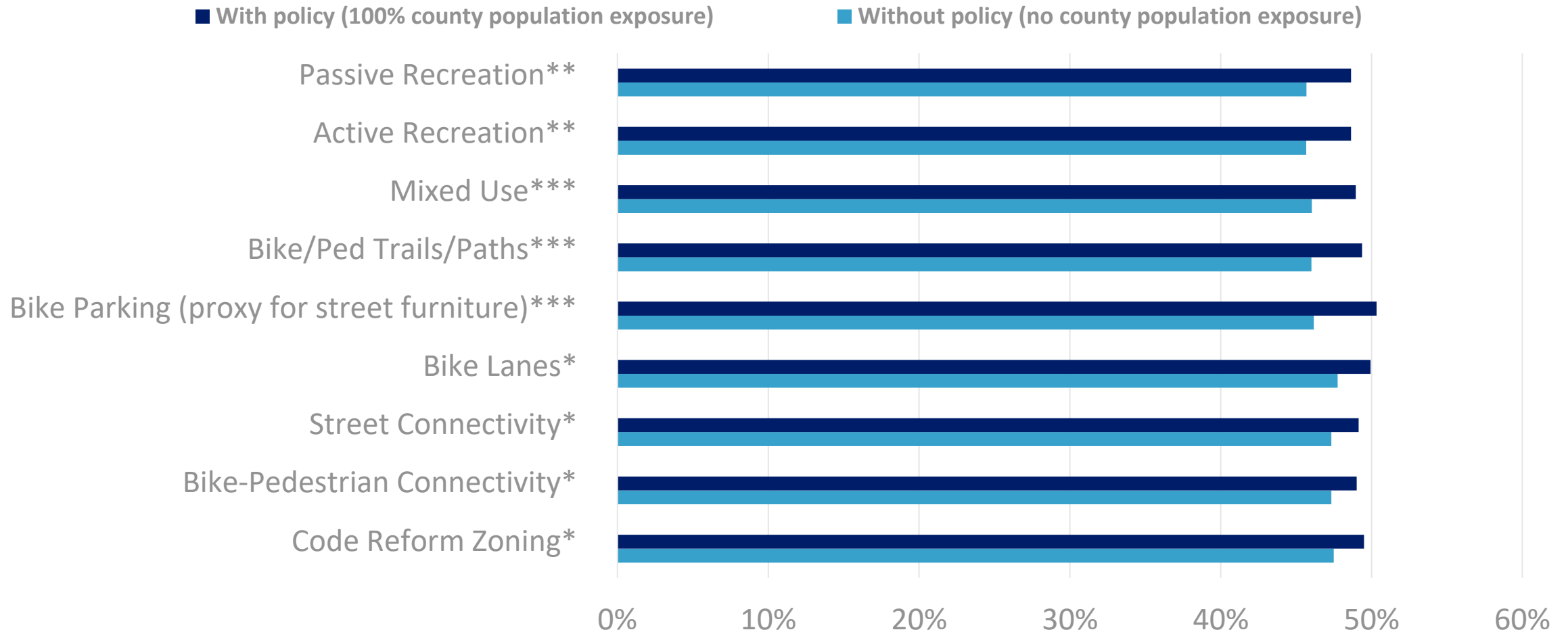


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Examining the relationship between zoning and adult walking and inactivity



Zoning is associated with adult walking (Adjusted prevalence using BRFSS 2011 data)

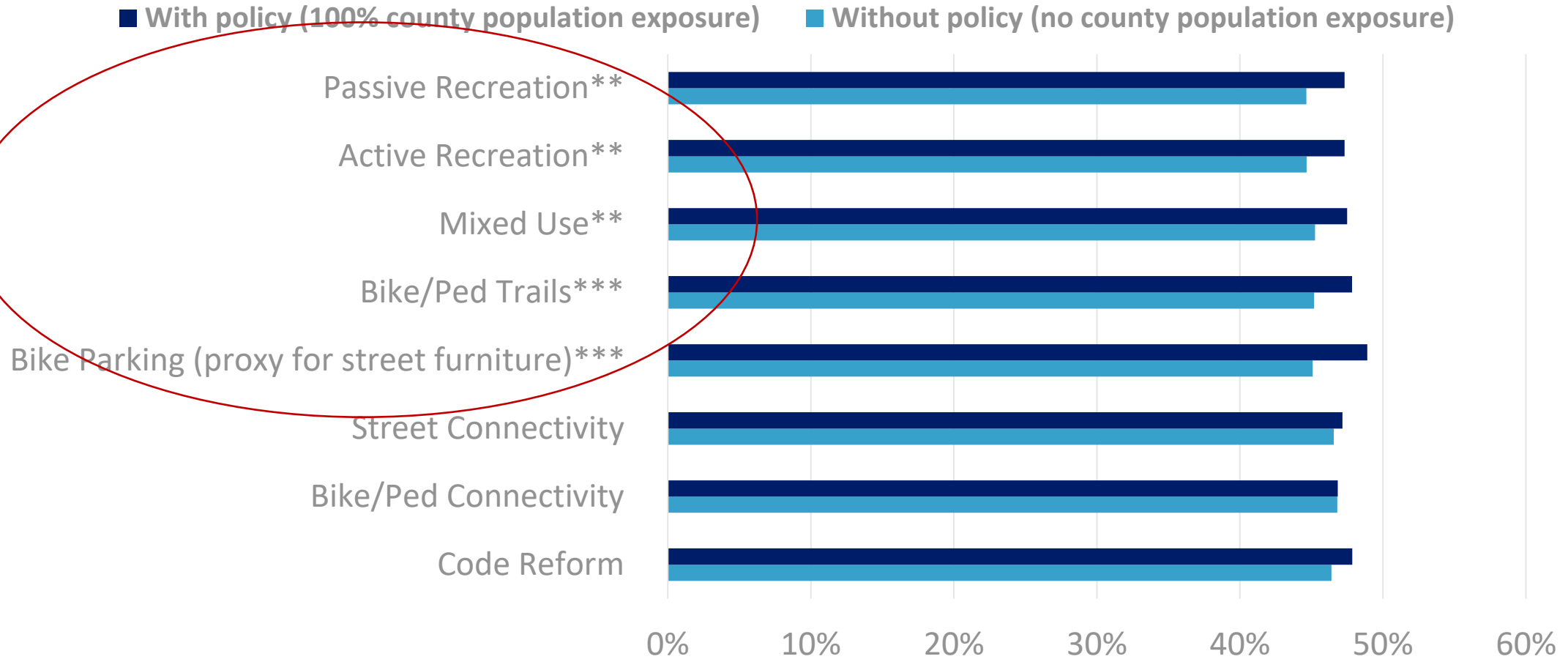


N=153,065 adults age 18-64
* p<.05 **p<.01 ***p<.001.

Source: Chiqui et al., *Env & Beh.* 2016; Chiqui et al, *Prev Med* 2017



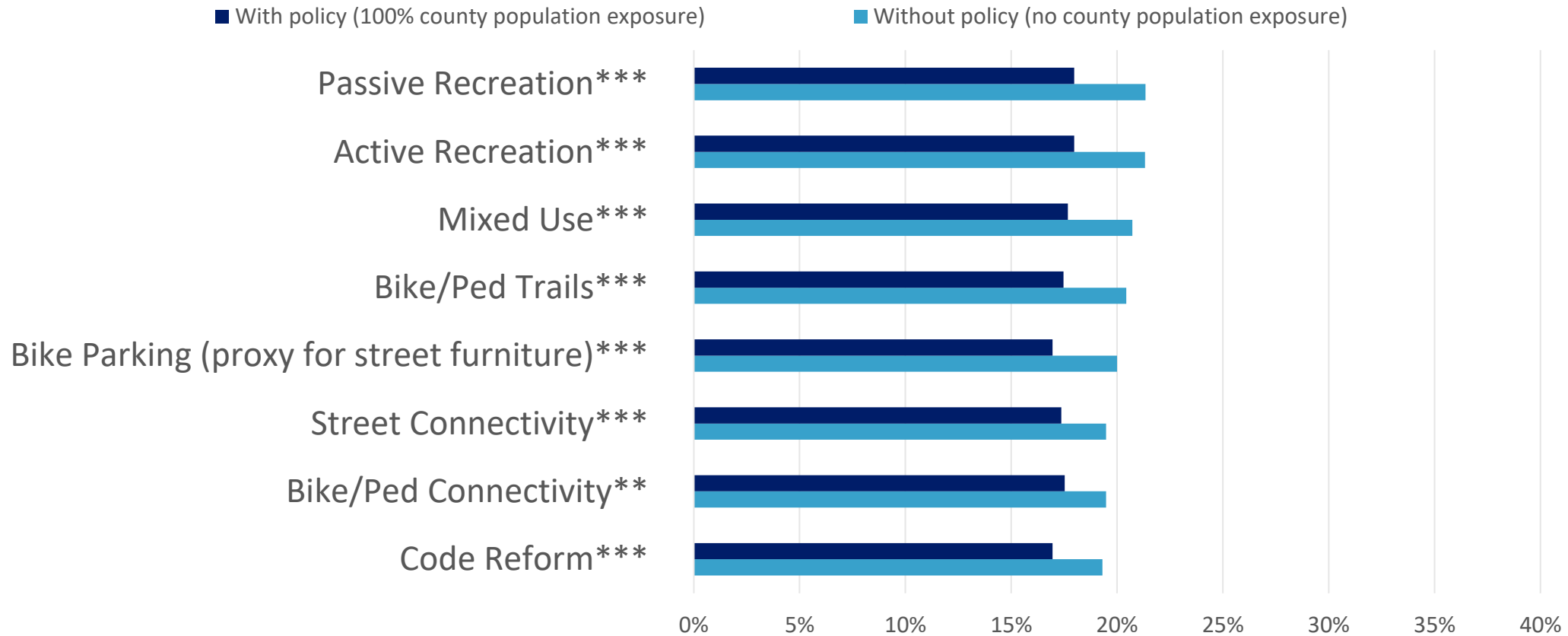
Zoning is associated with older adult (≥ 65) walking (Adjusted prevalence using BRFSS 2011 data)



N=60,397 adults age 65+
*p<.05 **p<.01 ***p<.001.

Source: Chiqui et al in development

Adjusted Prevalence of Adult Inactivity is Lower in Jurisdictions with More Activity-Friendly Zoning Provisions (BRFSS 2012 data)



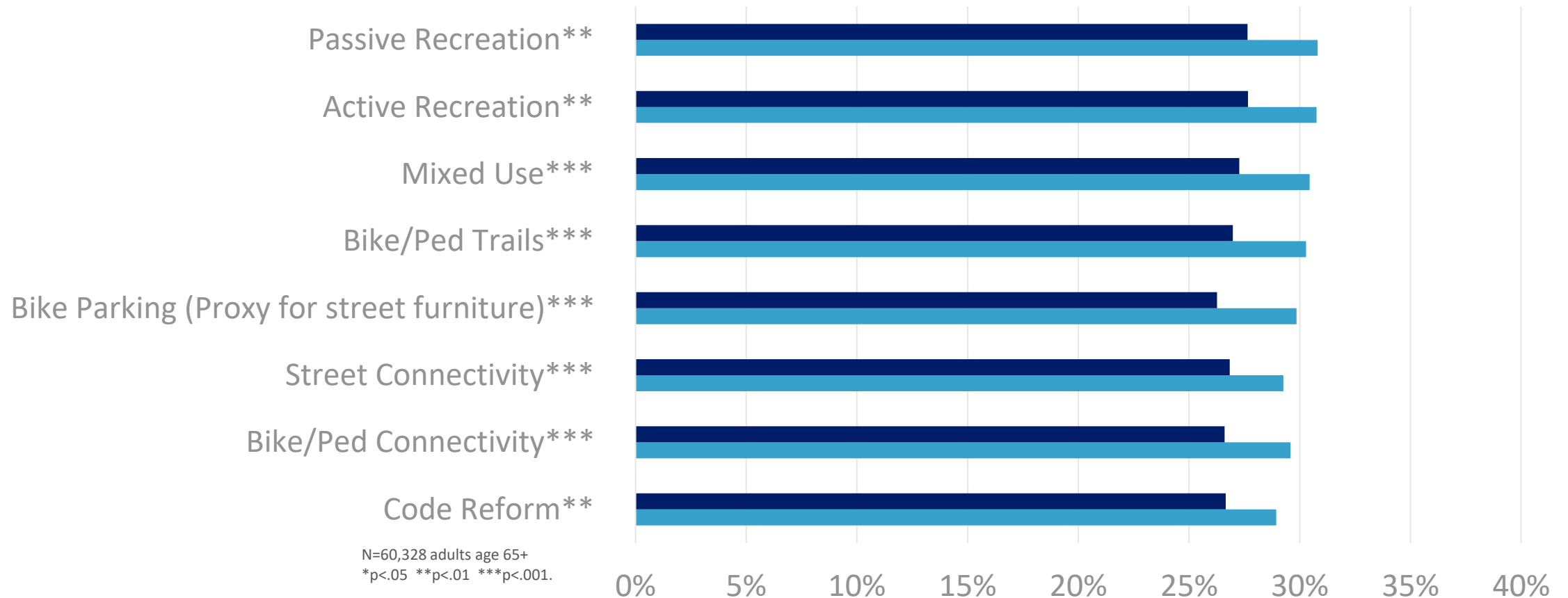
N=147,517 adults age 18-64
 p<.01 *p<.001.

Source: Leider et al., *Prev Med*, 2017

Adjusted Prevalence of Older Adult (≥ 65) Inactivity is Lower in Jurisdictions with More Activity-Friendly Zoning Provisions (BRFSS 2012 data)

■ With policy (100% county population exposure)

■ Without policy (no county population exposure)



Source: Chriqui et al in development



Relationship between zoning and adult active travel to work

Association between Zoning and Adult Walking to Work

Zoning Predictor	Municipal-level ONLY		Municipal & Unincorporated Areas	
	Coef.	95% CI	Coef.	95% CI
Code Reform Zoning	0.24	-0.00,0.48	0.26*	0.04,0.48
Sidewalks	0.17	-0.07,0.40	0.15	-0.05,0.35
Crosswalks	0.12	-0.10,0.35	0.11	-0.10,0.32
Bike-Ped Connectivity	0.12	-0.08,0.33	0.13	-0.06,0.31
Street Connectivity	0.10	-0.08,0.29	0.10	-0.07,0.27
Bike Lanes	0.25	-0.04,0.53	0.23	-0.03,0.49
Bike Parking (street furniture)	0.38**	0.14,0.62	0.37***	0.15,0.58
Trails	0.26*	0.05,0.47	0.24**	0.06,0.43
Pedestrian Plazas	0.25*	0.02,0.47	0.23*	0.05,0.42
Mixed Use	0.30**	0.10,0.50	0.27**	0.10,0.45

Muni models=3,914 jurisdictions covering 45% US population; Muni+Uninc models=4,393 muni+county areas covering 72% of US pop. All *p<.05 **p<.01 ***p<.001. Source: Chiqui et al., Front Public Health, 2016.

Association between Zoning and Adult Walking OR Biking to Work

Zoning Predictor	Municipal-level ONLY		Municipal & Unincorporated Areas	
	Coef.	95% CI	Coef.	95% CI
Code Reform Zoning	0.36*	0.07,0.66	0.40**	0.12,0.67
Sidewalks	0.25	-0.01,0.51	0.24*	0.02,0.46
Crosswalks	0.19	-0.09,0.47	0.18	-0.08,0.44
Bike-Ped Connectivity	0.15	-0.10,0.40	0.16	-0.07,0.39
Street Connectivity	0.18	-0.04,0.41	0.19	-0.02,0.39
Bike Lanes	0.40*	0.05,0.75	0.37*	0.05,0.70
Bike Parking (street furniture)	0.68***	0.39,0.97	0.65***	0.39,0.91
Trails	0.32**	0.09,0.56	0.33**	0.12,0.53
Pedestrian Plazas	0.34**	0.09,0.59	0.34**	0.13,0.55
Mixed Use	0.42***	0.19,0.64	0.39***	0.19,0.59

Muni models=3,914 jurisdictions covering 45% US population; Muni+Uninc models=4,393 muni+county areas covering 72% of US pop. All *p<.05 **p<.01 ***p<.001. Source: Chiqui et al., Front Public Health, 2016.

Association between Zoning and Adult Any Active Travel to Work

Zoning Predictor	Municipal-level ONLY		Municipal & Unincorporated Areas	
	Coef.	95% CI	Coef.	95% CI
Code Reform Zoning	0.93**	0.24,1.62	1.02**	0.38,1.65
Sidewalks	0.29	-0.19,0.77	0.38	-0.07,0.82
Crosswalks	0.23	-0.21,0.66	0.25	-0.16,0.65
Bike Lanes	1.05*	0.14,1.96	1.00*	0.16,1.83
Bike Parking (Street furniture)	1.02***	0.49,1.55	1.03***	0.57,1.50
Trails	0.16	-0.29,0.61	0.25	-0.13,0.63
Pedestrian Plazas	0.61*	0.12,1.09	0.65**	0.19,1.10
Mixed Use	0.29	-0.08,0.66	0.32	-0.01,0.66

Having code reform zoning is associated with approximately 1% more people engaging in any active travel to work (via walking, biking, or taking public transit).

Muni models=3,914 jurisdictions covering 45% US population; Muni+Uninc models=4,393 muni+county areas covering 72% of US pop. All *p<.05 **p<.01 ***p<.001. Source: Chiqui et al., Front Public Health, 2016.

Summary of Findings

Active living-oriented zoning is associated with increased prevalence of walking and biking and decreased prevalence of inactivity among both adults age 18-64 and older adults age 65+.

Active living-oriented zoning measures (and TODs) are significantly associated with increased walking, walking/biking, and/or taking any active transportation (walking, biking, or public transportation) to work.


- Results are generally similar with unincorporated areas.

Note: just associations NOT causation – longitudinal analysis underway through PAPREN

Zoning and Public Health Tools

Components of Local Land Development and Related Zoning Policies Associated with Increased Walking

A PRIMER FOR PUBLIC HEALTH PRACTITIONERS
December 2017



INSTITUTE FOR HEALTH RESEARCH AND POLICY
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FACTSHEET: Zoning Code Reforms are Associated with Walking Behaviors in a Nationwide Evaluation

This factsheet serves as a companion document to the product *Local Land Development and Related Policy Strategies for Supporting Walkable Communities: A Primer for Public Health Practitioners*. This factsheet summarizes key findings from a recently completed nationwide evaluation of the relationship between zoning code reforms and both leisure time and active travel-related walking and activity and supports recent recommendations from the Community Preventive Services Task Force entitled, *Physical Activity: Built Environment Approaches Combining Transportation System Interventions with Land Use and Environmental Design*.¹

Zoning code reforms support the development of infrastructure that is supportive of walking and a mix of land uses that are associated with walking, biking, and public transit.^{2,3} Specific types of zoning code reforms are described in detail in the *Primer* and include form-based codes, new urbanist districts or zones, pedestrian-oriented districts or development (POD), transit-oriented districts or development (TOD), and traditional neighborhood development or districts (TND).

This nationwide evaluation found that although zoning code reforms are not very prevalent nationwide, they support physical activity. Areas with zoning code reforms are likely to have higher rates of leisure-time walking and active travel to work. These areas are also less likely to have leisure-time physical inactivity.


What Types of Communities Have Adopted Zoning Code Reforms?

- ▶ Zoning code reforms are not highly prevalent in the U.S.; only 18.4% of the counties with zoning authority and only 14.5% of the municipalities in the study sample had adopted zoning code reforms (in whole, in part, or as an overlay) as of 2010.
- ▶ Zoning code reforms have predominantly occurred in the Southern region of the country; 70.8% of the sampled counties and 44.0% of municipalities with zoning code reforms were located in the South. Zoning code reforms are least prevalent in the Northeast and Midwest regions of the country.
- ▶ At the county level, zoning code reforms are more common in counties with a larger population size and with a higher percentage of workers taking public transit to work. At the municipal level, zoning code reforms are more common in communities with a larger population size, with higher median home values, with a higher percentage of workers taking public transit to work, and with a younger median age of the population.

What is the Relationship between Zoning Code Reforms and Leisure-time Walking?

- ▶ Zoning code reforms are associated with:
 - ▶ 4% greater probability of adults aged 18-64 engaging in leisure-time walking
 - ▶ 4% greater probability of older adults age 65+ walking for leisure

There are a number of strategies that can help support walkable communities through community design and zoning policies. See the companion document, *Local Land Development and Related Policy Strategies for Supporting Walkable Communities: A Primer for Public Health Practitioners*, for actions that different sectors can take to implement the strategies to create walkable communities.



FACTSHEET: ZONING CODE REFORMS

FACTSHEET: Zoning Elements are Associated with Walking Behaviors in a Nationwide Evaluation

This factsheet serves as a companion document to the product *Local Land Development and Related Policy Strategies for Supporting Walkable Communities: A Primer for Public Health Practitioners*. This factsheet summarizes key findings from a recently completed nationwide evaluation of the relationship between zoning elements supportive of walking and both leisure time and active travel-related walking.

Communities seeking to make their land development policies and plans more supportive of walking may consider ensuring that specific elements are included in their zoning codes. Such elements or structural provisions include, but are not limited to: mixed use development; sidewalks; crosswalks; bike or pedestrian trails or paths; bike, pedestrian, and street network connectivity; parks and open space; and other types of pedestrian infrastructure such as street furniture and traffic calming measures.¹⁻⁴

Specific Zoning Elements are Associated with Walking and Additional Benefits

This nationwide evaluation of zoning codes found that places with zoning elements were more likely to have low physical inactivity among adults aged 65 and older. All zoning elements, with the exception of crosswalks, were associated with lower rates of physical inactivity among adults aged 18-64. All zoning elements except crosswalks were also associated with higher rates of recreational walking among adults aged 18-64.

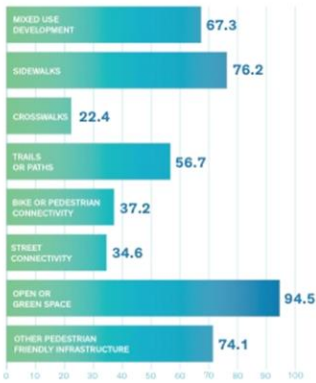
ZONING FOR MIXED USE DEVELOPMENT IS ASSOCIATED WITH:

- ▶ 3.1% lower rates of physical inactivity among adults aged 18-64¹⁰
- ▶ 4.1% lower rates of physical inactivity among older adults aged 65 and above
- ▶ 3% higher rates of recreational walking among adults (including both adults aged 18-64 and older adults aged 65 and above)

ZONING FOR SIDEWALKS IS ASSOCIATED WITH:

- ▶ 3.4% lower rates of physical inactivity among adults aged 18-64¹⁰
- ▶ 4.1% lower rates of physical inactivity among older adults aged 65 and above
- ▶ 2.9% higher rates of recreational walking among adults (including both adults aged 18-64 and older adults aged 65 and above)
- ▶ Reduced income-based disparities in rates of active travel (walking, biking, or public transit) to work¹

Prevalence of Elements in Zoning Codes that Promote Walking



Element	Prevalence (%)
Mixed Use Development	67.3
Sidewalks	76.2
Crosswalks	22.4
Trails or Paths	56.7
Bike or Pedestrian Connectivity	37.2
Street Connectivity	34.6
Open or Green Space	94.5
Other Pedestrian-Friendly Infrastructure	74.1

FACTSHEET: ZONING ELEMENTS

<https://ihrp.uic.edu/using-zoning-regulations-to-foster-walkable-communities-best-practices/>



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Questions

Contact Information

Jamie F. Chriqui, PhD. MHS

Sr. Associate Dean and Professor, Health Policy and Administration

Co- PI, CDC Physical Activity Policy Research and Evaluation Network

School of Public Health

University of Illinois at Chicago

jchriqui@uic.edu

Twitter: @jfchriqui

<https://papren.org>

Acknowledgements

Coding/Analysis Team and Co-Authors

- Lindsey Realmuto, MPH, PhD cand.
- Meg Fredericks, MUPP
- Henry Siegel, MPH/MUPP cand.
- Julien Leider, MA

Funding Acknowledgements

- **National Cancer Institute**, National Institutes of Health (grant number R01CA158035, PI Chriqui) – baseline data
- **Centers for Disease Control and Prevention**, Physical Activity Policy Research and Evaluation Network (PAPREN) applied research project (Cooperative Agreement Number U48DP006381, Drs. Stephenie Lemon and Jamie Chriqui, co-PIs) – updated data
- The UIC Center for Clinical and Translational Science located within the Institute for Health Research and Policy at UIC (grant number UL1TR002003) provided the REDCap system which was used for policy collection and coding.

The findings and conclusions in this presentation are those of the author(s) and do not necessarily represent the official position of the NCI, the CDC, or UIC.