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Research Informing Policies & Practices
for Healthy Youth

Examining Local Land Use Policies That May Affect Active Living Among School Students

Active Living Research Annual Conference

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Presentation Overview

- Background and purpose
- Study methods
- Describe active living-oriented provisions contained in local government zoning and land use policies
- Examine the socio-demographic characteristics associated with such provisions
- Conclusions and policy implications
- Resources/contacts



Background

- More than one-third of children ages 10-17 in the U.S. are overweight or obese.¹
- Rates of walking and bicycling to school have declined from 50% to 13% between 1969 and 2009 for children aged 5-14 years old.²
- According to the CDC 2010 State Indicator Report on Physical Activity only 65% of adults are physically active while only 17% of students in grades 9-12 are active.³
- The Task Force on Community Preventive Services recommends community and street-scale urban design and land use policies as a strategy to promote physical activity.⁴



Purpose

- Describe the prevalence of local government zoning and land use policies addressing:
 - Active/passive recreation
 - Walkability/Bikeability
 - Mixed Use
- Describe the sociodemographic characteristics associated with such policy provisions.



Source: www.pedbikeimages.org / Dan Burden

Study Methods

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Methods: Policy Collection and Coding

- Policies were collected in 2011 from 315 local governments surrounding 155* secondary schools nationwide (aka, “secondary school catchments”) via Internet research with telephone follow-up.

- Items collected included:

- Zoning Ordinances
- Subdivision Regulations
- General Ordinances

*The sample originally included 157 catchments but two were dropped from policy collection because they were located on tribal lands.

Policy Coding Instrument

- Policies were reviewed by researchers using a coding instrument to evaluate the extent to which they specifically promote walking/biking, recreation, and mixed use.

| | | | |
|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| BTG-COMP BUILT ENVIRONMENT LOCAL ZONING/ POLICY FORM--2011 | | Site ID <u>11</u> - _____ | Observation ID <u>01</u> - <u>11</u> - _____ - _____ |
| Date: _____/_____/201 <u> </u> | Coder: _____ | Coding Time (in hrs/mins): _____ Hrs _____ Mins | |
| Community Name: State: _____ State FIPS: _____ County FIPS 1: _____ County FIPS 2: _____ Place FIPS: _____ | Community Type: (Select all that apply) Region <input type="radio"/> 1 County <input type="radio"/> 2 Municipality <input type="radio"/> 3 Town/Township <input type="radio"/> 6 Other (specify) <input type="radio"/> 5 Specify: _____ | Policy Source(s) (Select all that apply) On-line publisher <input type="radio"/> 1 Other code publisher <input type="radio"/> 2 Community web site <input type="radio"/> 3 Planning/Zoning Office web site <input type="radio"/> 4 Community mail/email <input type="radio"/> 5 Other <input type="radio"/> 6 No policy (verified) <input type="radio"/> 7 General code or other but nothing relevant <input type="radio"/> 8 Missing some policies <input type="radio"/> 10 Missing all policies (non-responder) <input type="radio"/> 9 | |

| A. OVERALL CODE INFORMATION | | | | | | | | | | | |
|------------------------------------------------------------------------------------------|-----------------|-------------------------|-------------------------|----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| TYPES OF CODES/CHAPTERS | Source Document | FORMAT | | | | | | | | | |
| | | A1. Code Present | | A2. Sep. Code OR Chap/ Sec | | A3. Part of Zoning Code | | A4. Part of UDC | | A5. Part of Subd. Ord. | |
| | | Yes | No | Sep. | C/S | Yes | No | Yes | No | Yes | No |
| a. Zoning Code | | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 2 | <input type="radio"/> 1 | | | | | | |
| 1. Zoning code is a traditional, <i>Euclidian</i> zoning code focused on use and density | | <input type="radio"/> 1 | <input type="radio"/> 0 | | | | | | | | |
| c. Form-based code | | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| d. Open space district/zone | | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| e. Signage Chapter (see Section L) | | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| g. Subdivision ordinance/code | | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 | | |
| h. Unified development code (UDC) | | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 2 | <input type="radio"/> 1 | | | | | | |
| i. Overall/general code | | <input type="radio"/> 1 | <input type="radio"/> 0 | | | | | | | | |
| j. SmartCode | | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 2 | <input type="radio"/> 1 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 0 |
| k. Other type of code/policy, specify: | | <input type="radio"/> 1 | <input type="radio"/> 0 | | | | | | | | |

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Inter-rater agreement was high—ranging from 76% to 98% depending on the item.

Policy Coding Instrument

The policy instrument evaluated the presence of items related to:

- walkability (sidewalks, trails, bike lanes, bike parking, street/pedestrian connectivity, ect.)
- active/passive recreation (playgrounds, sports fields, parks, open space, etc.)

The instrument examines items across 20 different zones/districts and the strength and use type of those markers.

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| | |
|-----------------------------------------------------------|-----------|
| BTG-COMP BUILT ENVIRONMENT LOCAL ZONING/POLICY FORM--2011 | Community |
|-----------------------------------------------------------|-----------|

| F. MARKERS OF ACTIVE RECREATION | | | | | | | | | | | |
|-------------------------------------------------|-----------------------------|------------------------------------------------------------------------------|-----------------------|------------------------------------|-----------------------|-----------------------|--------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| DISTRICT/ZONE | District Present (X if Yes) | F1. Markers of active recreation (e.g., rec activity, exercise, playground)* | | F2. Strength of active rec marker* | | | F3. Types of use relative to active recreation marker* | | | | |
| | | y | n | Req | Enc | No | Perm | Cond | Acc | Prohib | No |
| Agricultural (y) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Commercial (a) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Downtown (b) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Forest/Open Space (z) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Highway (aa) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mixed Use (d) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| New Urbanist/Transect/ SmartCode/Form Code (ab) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ped Oriented Dev or Dist/Shopping (ac) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Planned Unit Dev (PUD) (j) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Public/Civic/Government (k) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Park/Recreation (ad) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Residential (m) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| School/Education (n) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tradl Neighborhood Dev (TND) (q) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Transit-Oriented Dev (TOD) (r) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Applies to all zones/districts (t) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Part of subdivision ord/code (v) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Part of unified dev. Code (w) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Part of overall/general code (ae) | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other policy, specify (af): | | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



Methods: Aggregating Policies to Catchment Level

- For each local jurisdiction, two sets of dichotomous (yes/no) variables were created for each category of markers (e.g., street connectivity, pedestrian connectivity, mixed use, etc.) :
 1. Presence of any policy
 2. Required/allowed use policy
- For each marker, a weighted, jurisdiction-level marker was created to reflect the proportion of the catchment youth population exposed to the marker (based on the proportion of the catchment represented by the local jurisdiction).
- The jurisdiction-level, youth population-weighted markers were summed to create weighted, catchment-level markers

Methods: Analytic Methods

- Descriptive statistics were computed, clustered to account for the sample design, and weighted for the school catchment probability of selection.
- All analyses conducted with SAS v. 9.4
- Catchment demographic/SES estimates were compiled using the American Community Survey and data from the National Center for Education Statistics
- Policy data were missing for one catchment, resulting in an analytic sample of 154 catchments.

Results

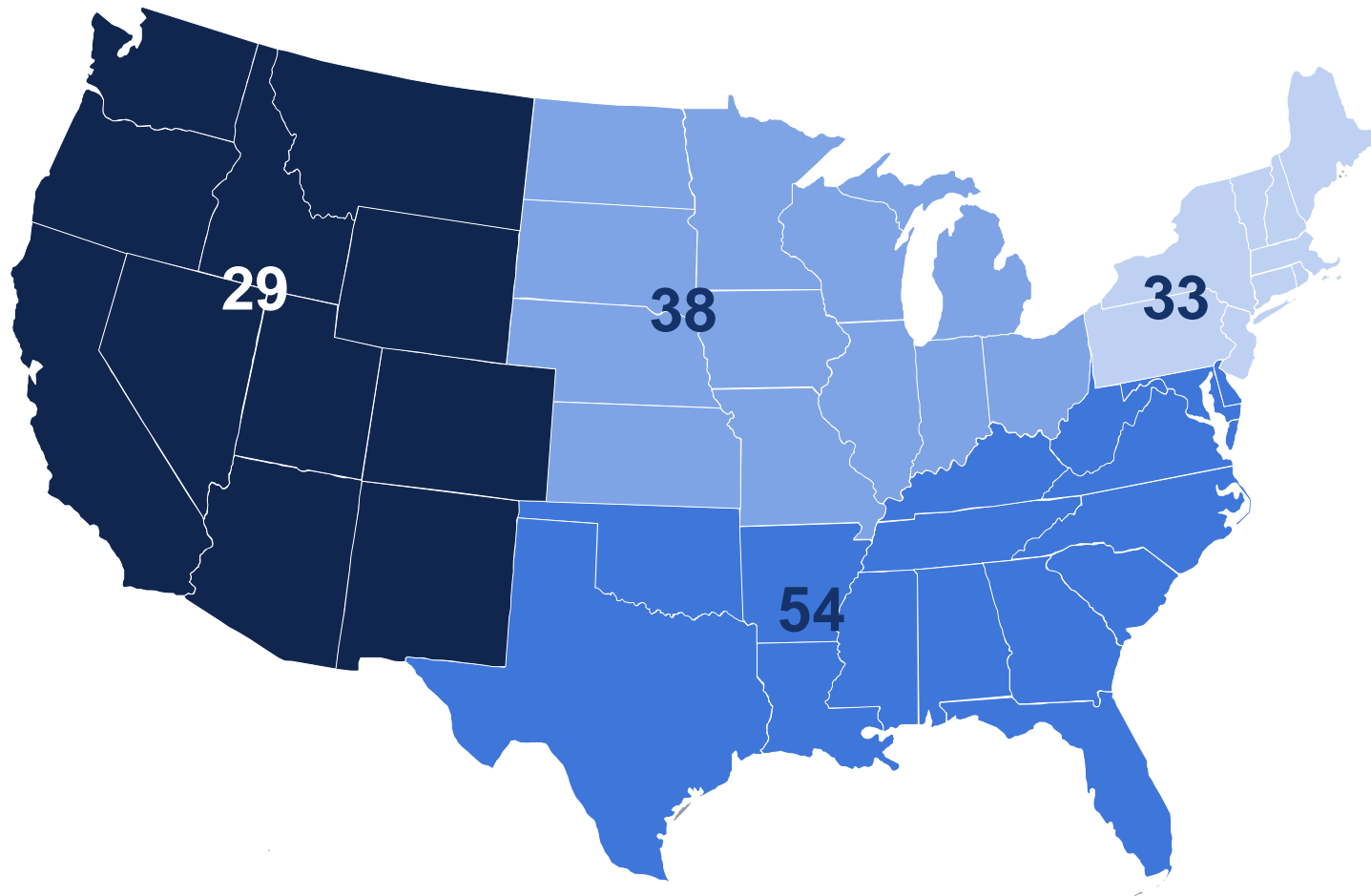
Characteristics of the 2011 Sites (n=154 catchments)

| Variable | Categories | | | |
|-----------------------------------|-----------------------------|-------------------------|-----------|-------|
| Census Region | Northeast | South | Midwest | West |
| | 21.4% | 35.1% | 24.7% | 18.8% |
| Racial/Ethnic Composition | Predominantly White (>=66%) | Not Predominantly White | | |
| | 69.5% | 30.5% | | |
| Urbanization* | Urban | Suburban | Rural | |
| | 16.9% | 45.5% | 37.7% | |
| Variable | Mean (SD) | Minimum | Maximum | |
| Median Household Income | \$56,562 (\$22,122) | \$28,384 | \$135,778 | |
| Population density (per sq. mile) | 2065.0 (3278.7) | 1.7 | 20296.8 | |

*%s may not sum to 100 due to rounding.



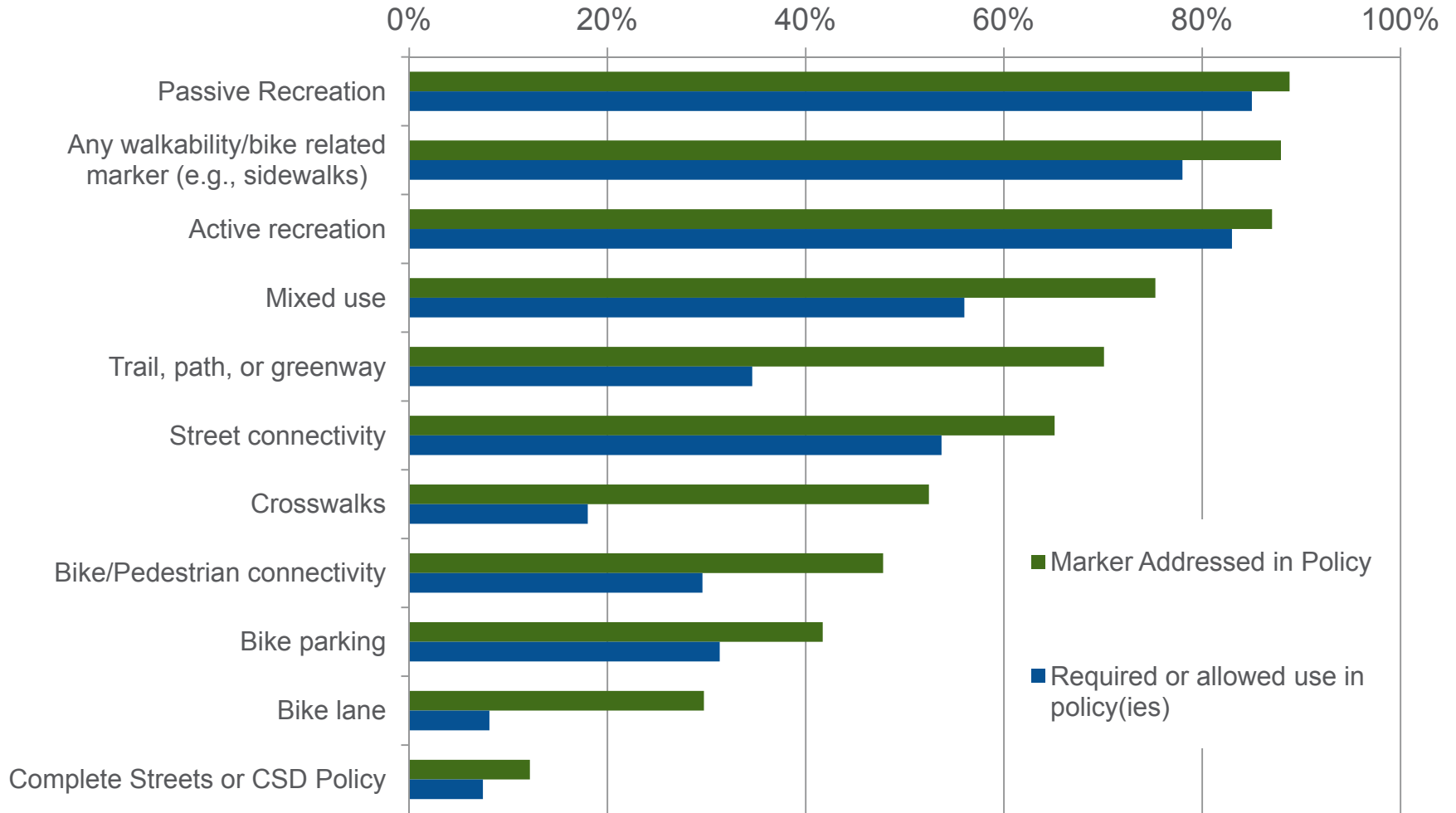
Number of catchments by region (N=154)



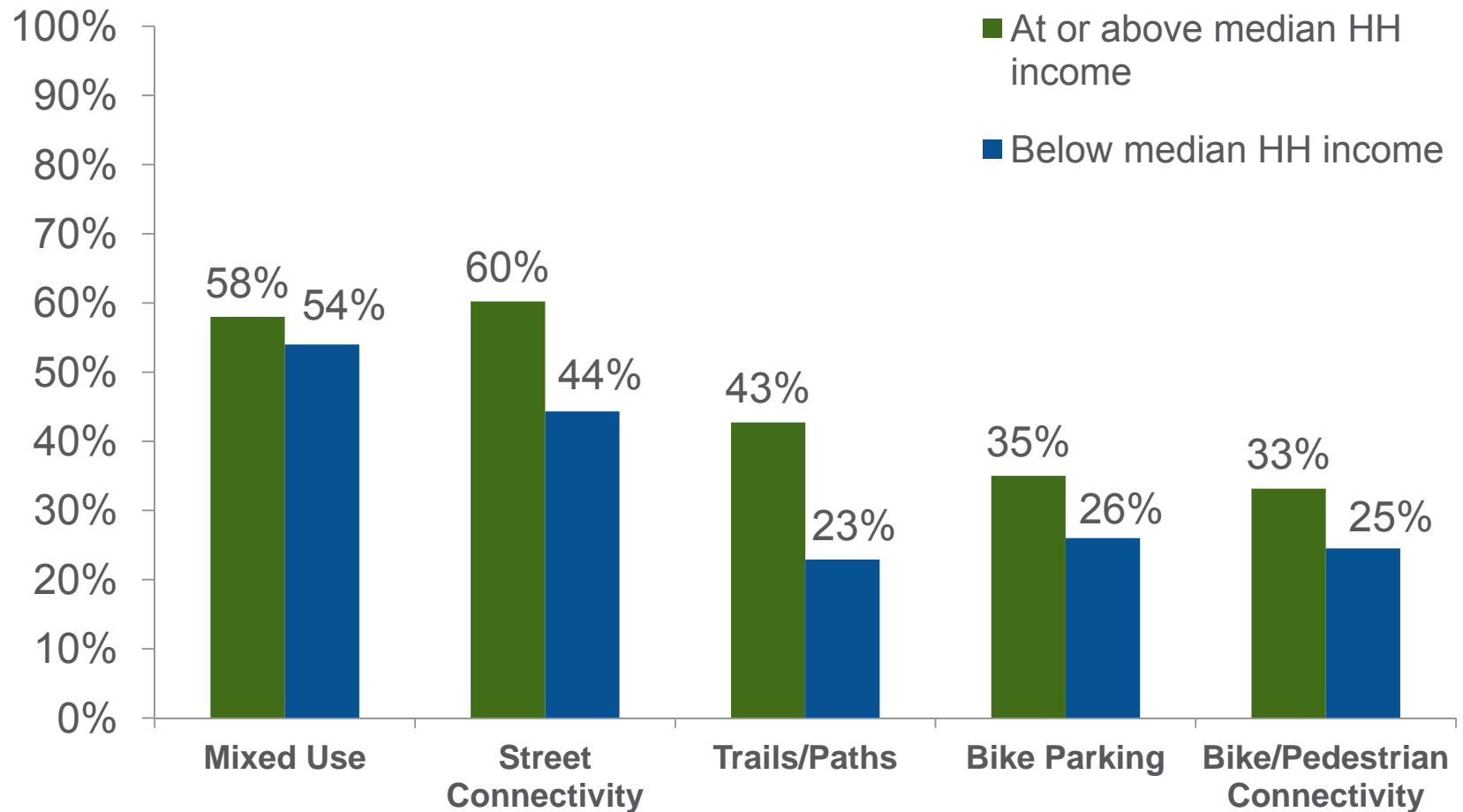


Prevalence of Policies that Promote Active Living

% of Youth Residing in Catchment* with Policy Provision

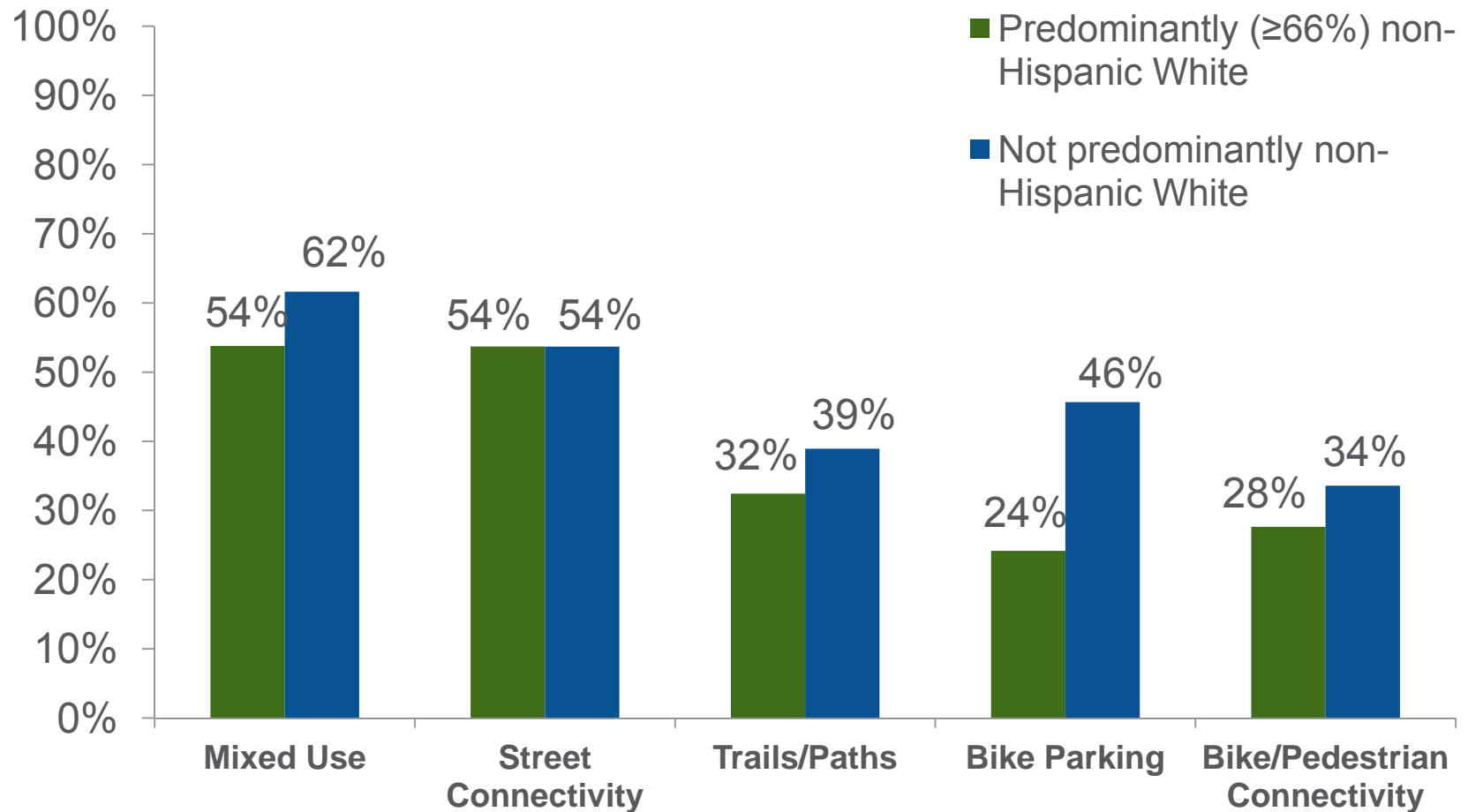


Mean Percent of Youth Exposed to Required or Allowed Use Active Living Policies by Income

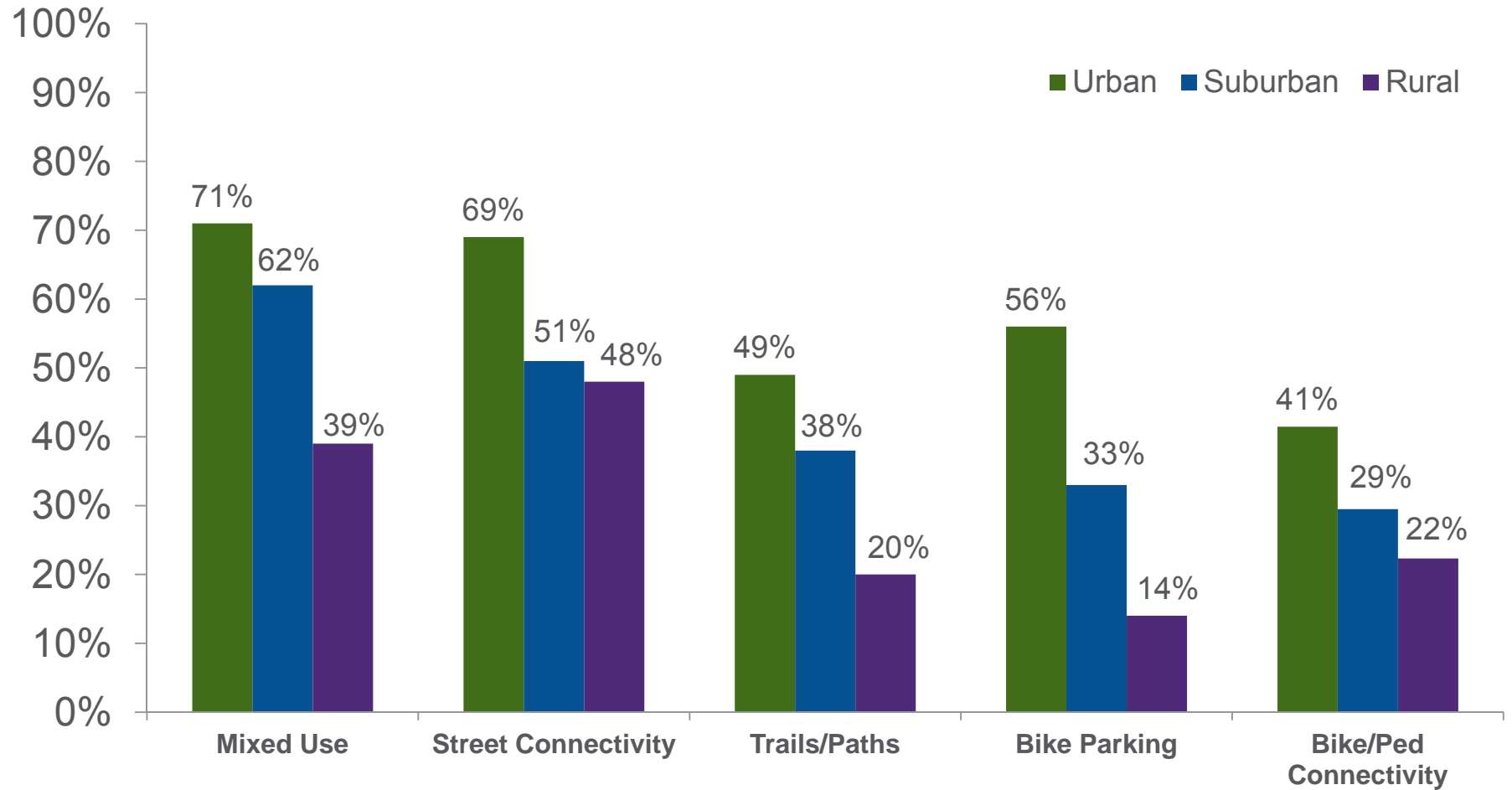


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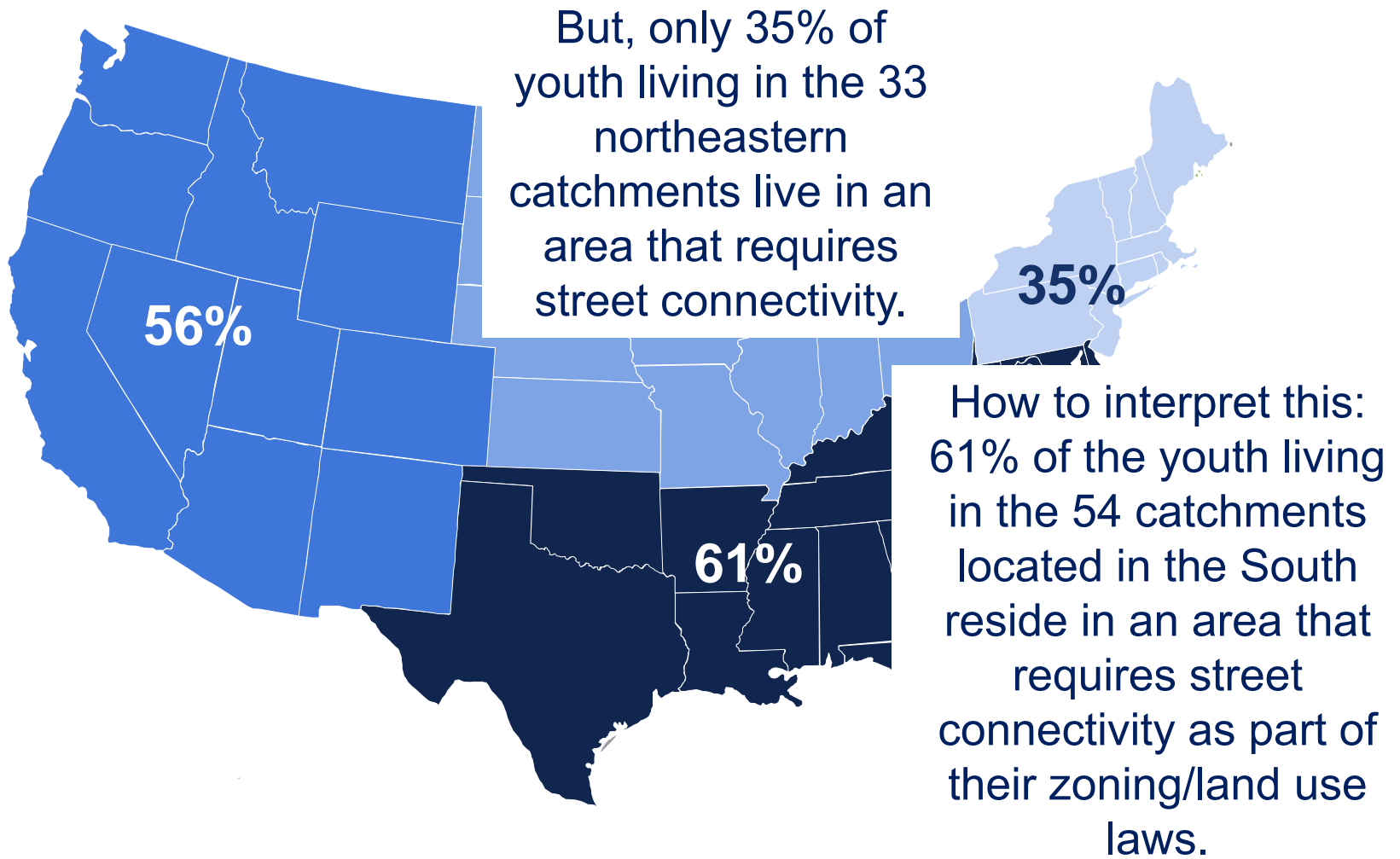
Mean Percent of Youth Exposed to Required or Allowed Use Active Living Policies by Race/Ethnicity



Mean Percent of Youth Exposed to Required or Allowed Use Active Living Policies Compared by Locale

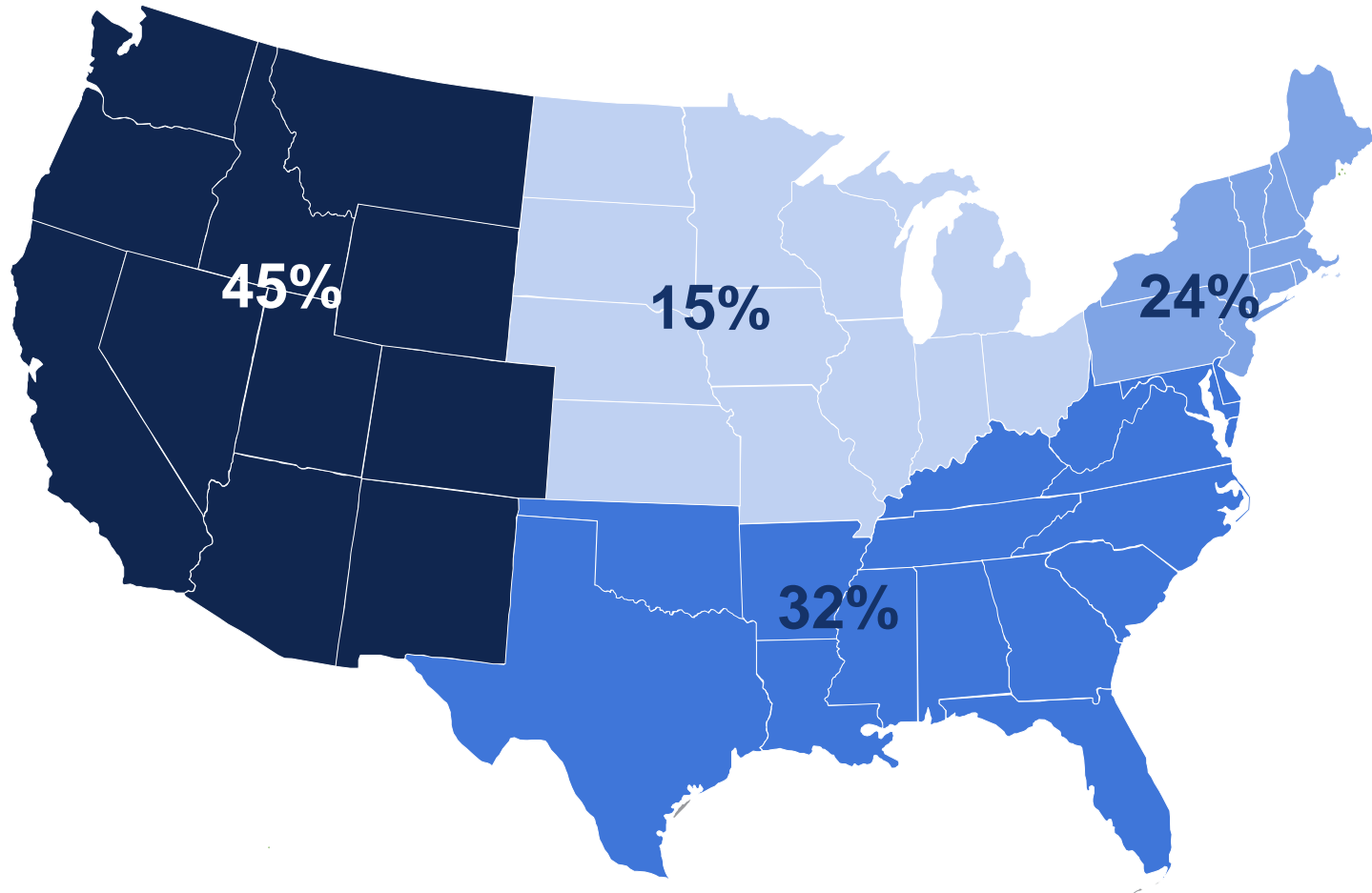


Mean % of Catchment Youth Exposed to Required Street Connectivity Policies by Region



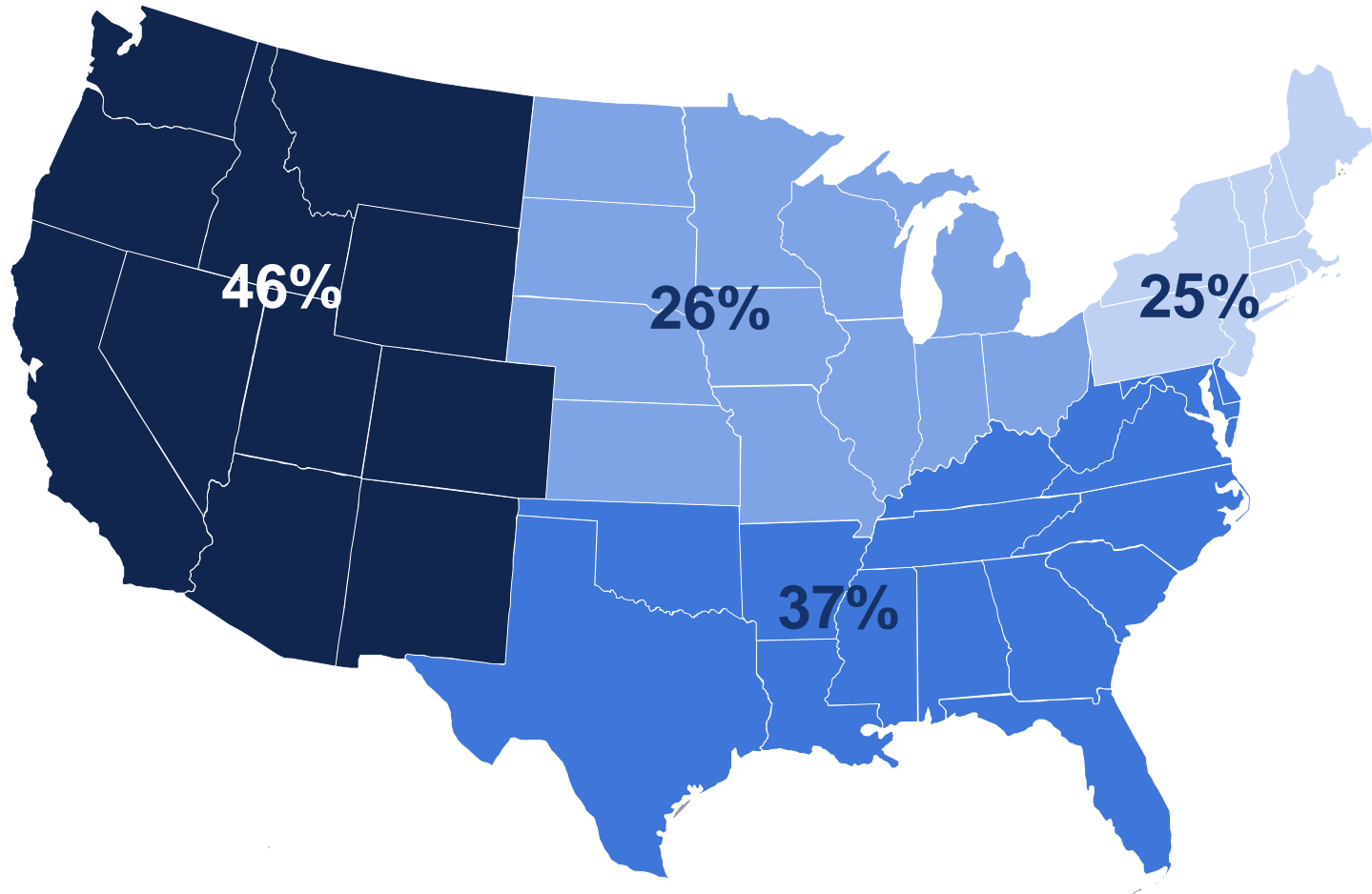


Mean % of Catchment Youth Exposed to Required Bike/Pedestrian Connectivity Policies by Region

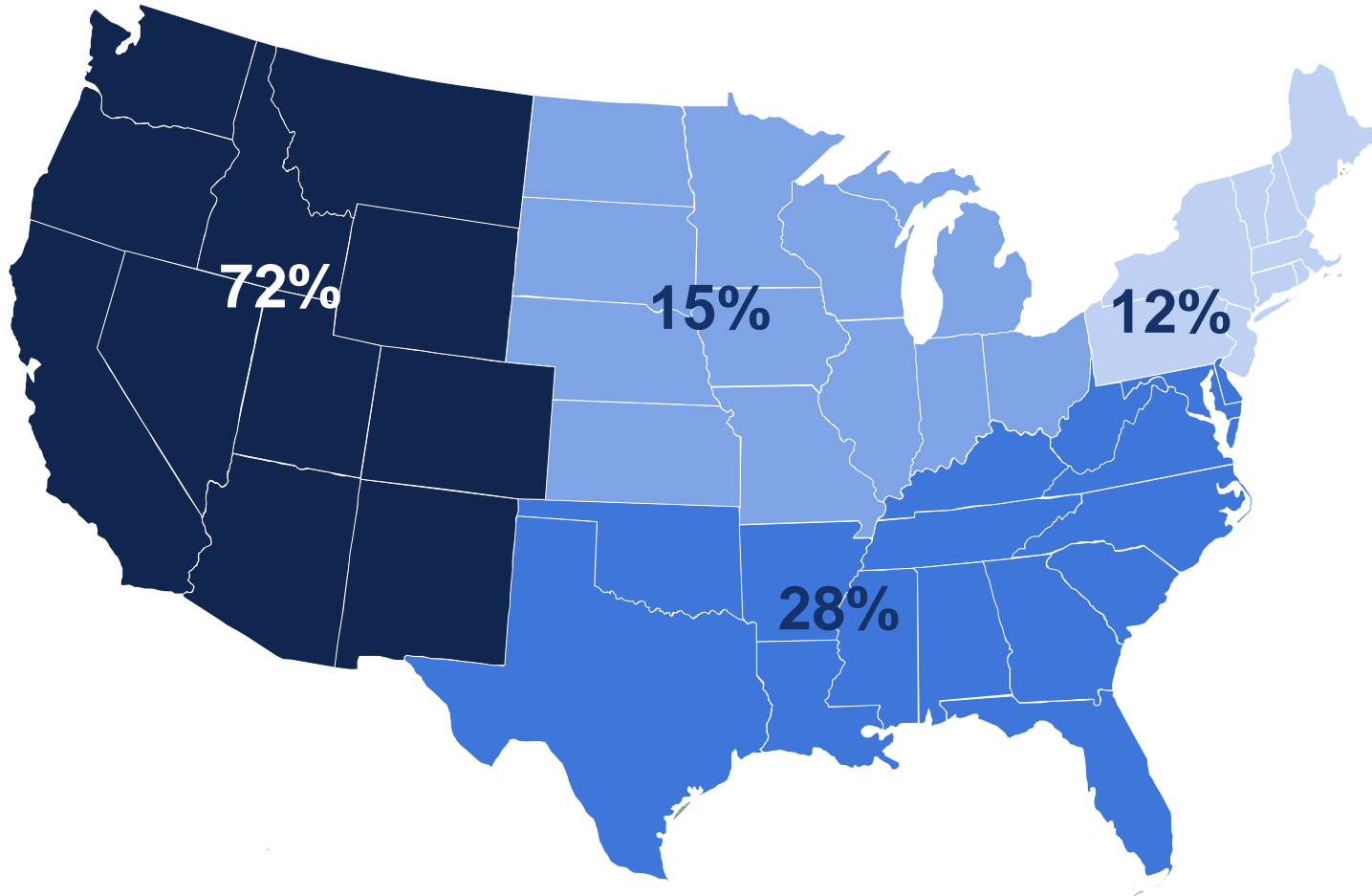




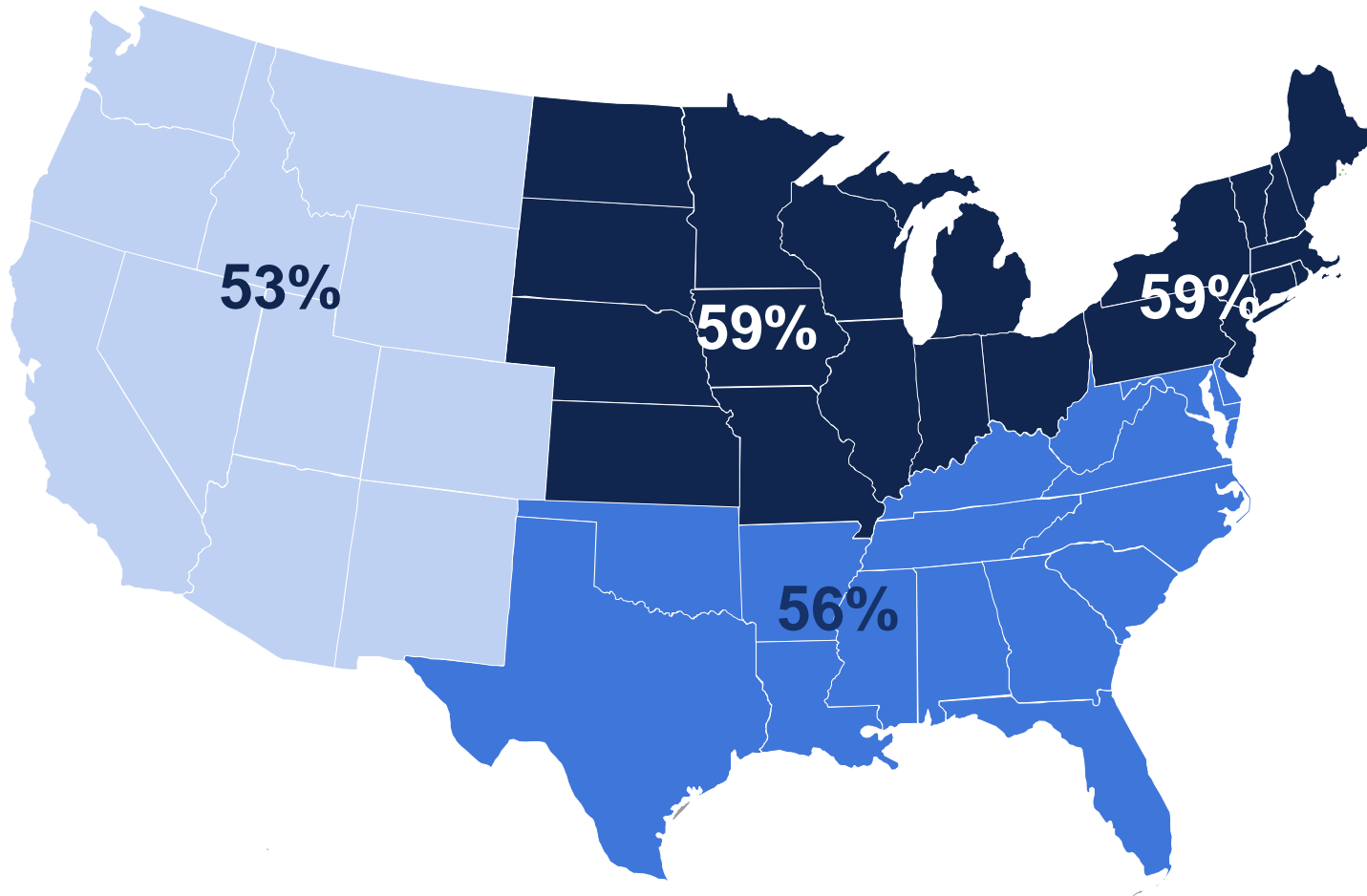
Mean % of Catchment Youth Exposed to Required Trail-related Policies by Region



Mean % of Catchment Youth Exposed to Required Bike Parking Policies by Region



Mean % of Catchment Youth Exposed to Required Mixed Use Policies by Region



Conclusion and Policy Implications

Conclusion

- Passive/active recreation policies are more prevalent than specific walking and biking related policies in local land use laws.
- Communities are more likely to simply address provisions in their local land use laws than requiring them.
- Youth living in higher income communities are more likely than youth living in lower income communities to be exposed to local land use policies that require or allow street connectivity (60% vs. 44%) and trails/paths (43% vs. 23%).
- Youth living in urban communities are more likely than youth living in suburban or rural communities to be exposed to local land use policies that require or allow street connectivity, bike/pedestrian connectivity, trails/paths, and bike parking.
- Youth living in communities in the western region are more likely to be exposed to local land use policies that require bike parking and bike/pedestrian connectivity policies than youth in communities in the midwest, southern, and northeastern region.

Policy Opportunities

- Opportunities exist for local governments to modify their zoning/land use laws to include requirements for structural improvements to increase opportunities for physical activity.
- Zoning/land use policies that specifically address bike parking and bike lanes is an area where improvement is needed.



Source: <http://icsw.nhtsa.gov/nhtsa/ImageLibrary/display.cfm>

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Assessing local policies and environments

Bridging the Gap
Bridging the Gap is a nationally recognized research program. Our goal is to improve the understanding of how policies and environmental factors affect diet, physical activity and obesity among youth, as well as youth tobacco use.

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- Identify the policy and environmental factors that have the greatest impact on diet, physical activity, obesity and tobacco use among youth.
- Track trends and changes in these factors over time at the state, community and school levels.
- Disseminate findings to help advance solutions for reversing the childhood obesity epidemic and preventing young people from smoking.

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Thanks!
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- (2) Safe Routes to School National Partnership. What is Safe Routes to School? Background and Statistics. Available from: <http://www.saferoutespartnership.org/sites/default/files/pdf/What-is-SRST-factsheet-REVISED-06-14-11-w-footnotes.pdf> (accessed: 02/18/13).
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