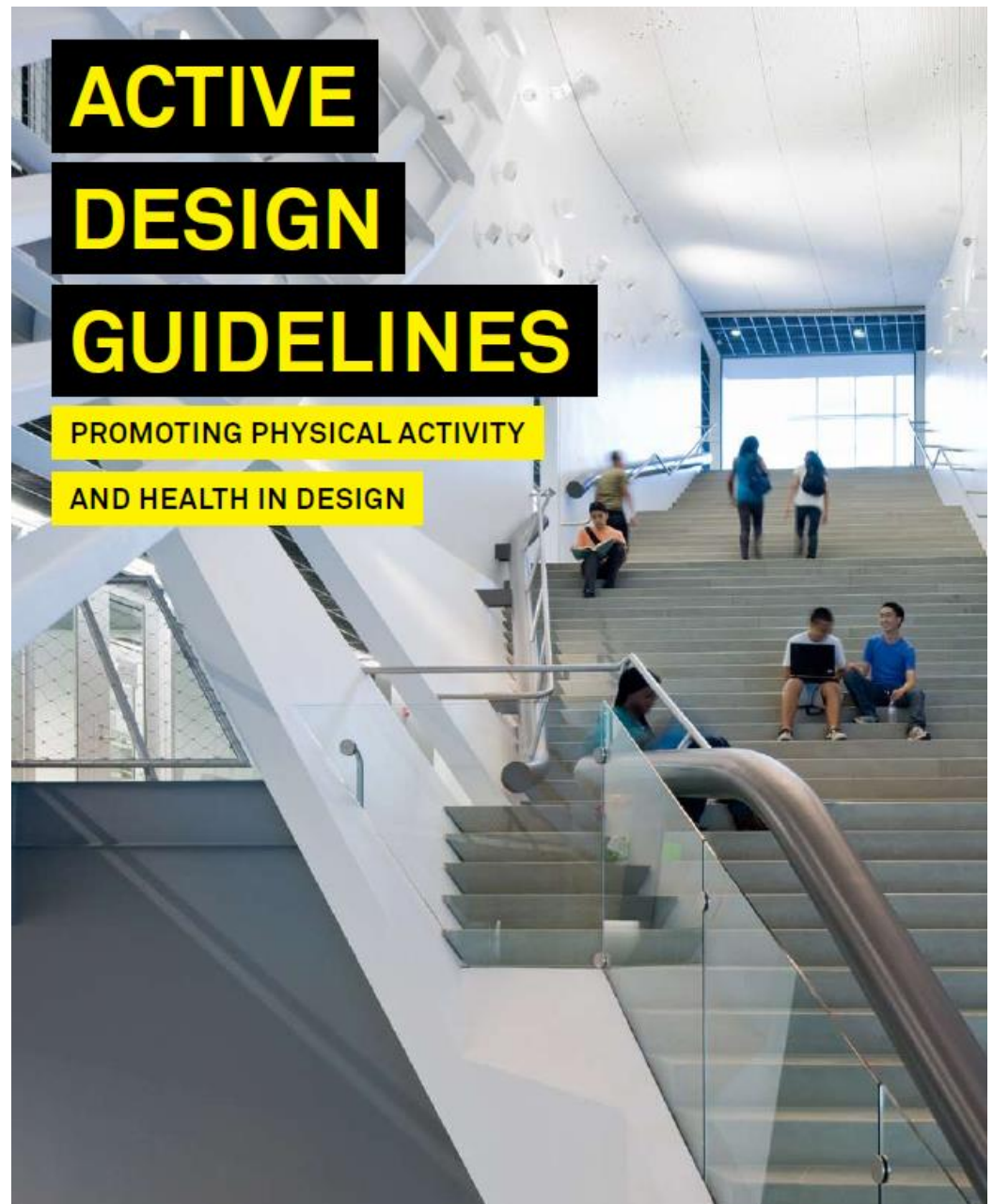


Integrating Health, Active Transportation and Land Use Planning:

The Key Roles of Transportation, Land Use and the Built Environment in Health

Karen K. Lee, MD, MHSc



THE 19th CENTURY:

Infectious Diseases

19th Century codes, planning and infrastructure as weapons in the battle against contagious disease

These strategies were built into the city fabric, and they were effective

THE 21st CENTURY:

Chronic Diseases, many of which are “Diseases of Energy”

The emerging design solutions for health parallel sustainable design solutions

Effective designs will have to be an invisible, pervasive, and inevitable part of life

100+ years ago, environmental conditions were a breeding ground for infectious disease epidemics



A TYPICAL TENEMENT
[Reproduced from a Photograph by Anthony.]

Over-crowding in Lower Manhattan

1910 density:
114,000 people/ sq. mi.

2011 density:
67,000 people/ sq. mi.



**Inadequate systems
for garbage, water, and
sewer, leading to
pervasive filth and
polluted water supplies**

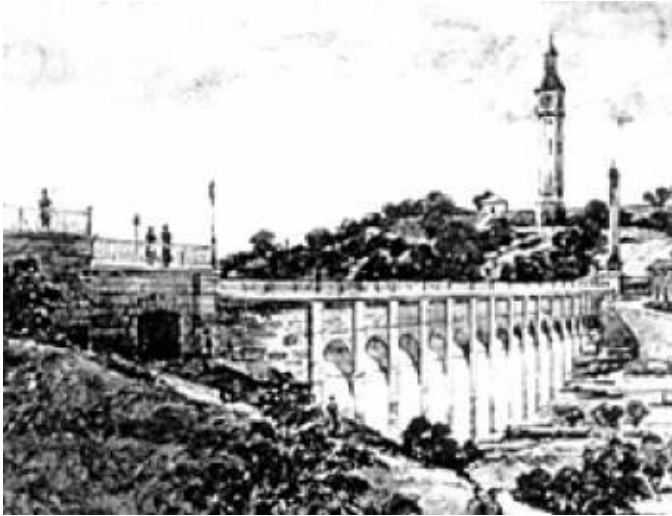
Major epidemics:

Air/droplet-borne diseases:
TB

Water-borne diseases:
Cholera

Vector-borne diseases:
Yellow-fever

The response was through infrastructure interventions



1842

New York's water system established – an aqueduct brings fresh water from Westchester.

1857

NYC creates Central Park, hailed as “ventilation for the working man’s lungs”, continuing construction through the height of the Civil War

1881

Dept. of Street-sweeping created, which eventually becomes the Department of Sanitation

1901

New York State Tenement House Act banned the construction of dark, airless tenement buildings

1904

First section of Subway opens, allowing population to expand into Northern Manhattan and the Bronx

1916

Zoning Ordinance requires stepped building setbacks to allow light and air into the streets



Results: Drops in Infectious Disease Deaths

57.1%

1880

BEFORE the wide use of
antibiotics!

45.8%

11.3%

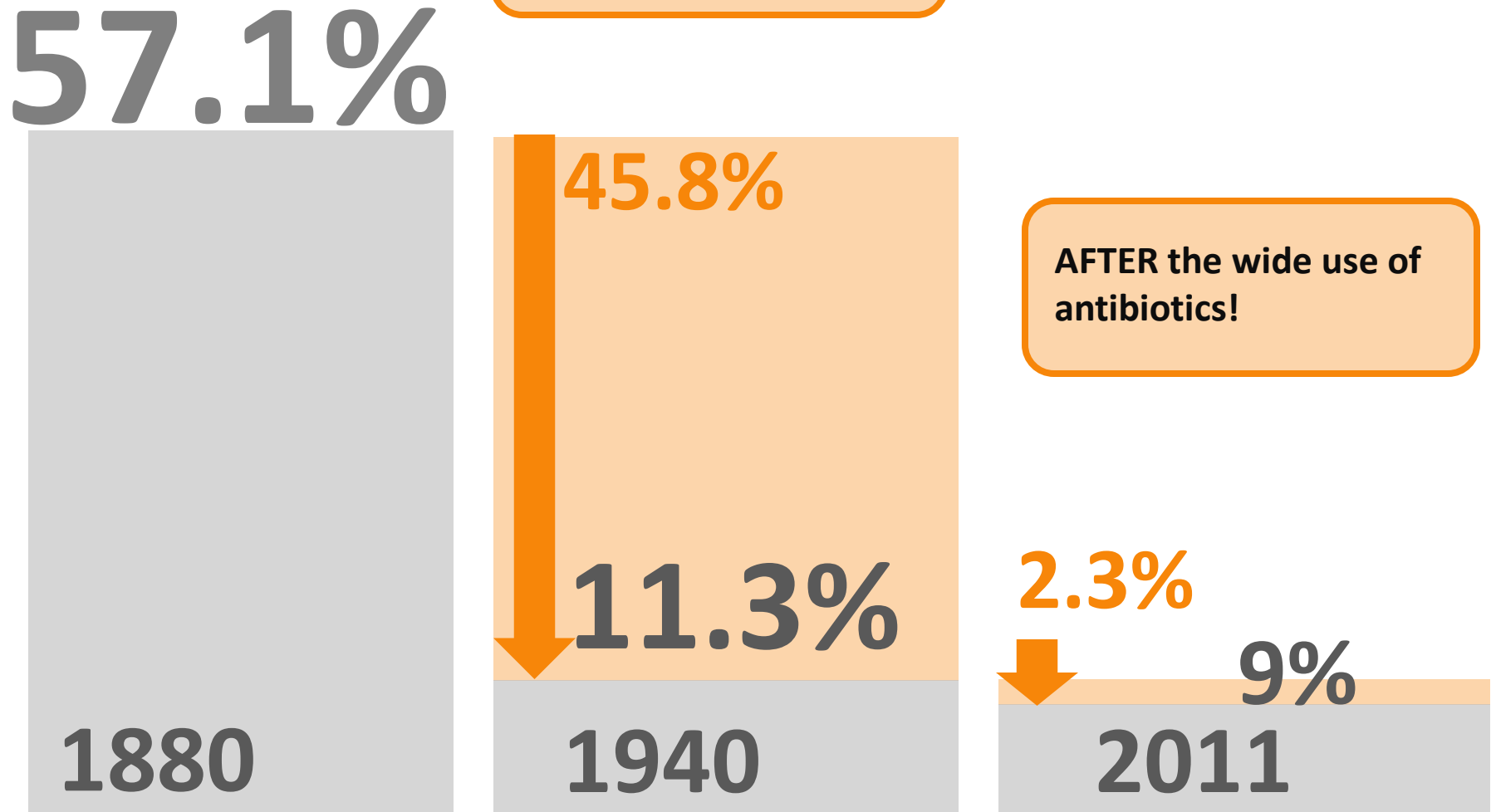
1940

AFTER the wide use of
antibiotics!

2.3%

9%

2011



The epidemics of today are:

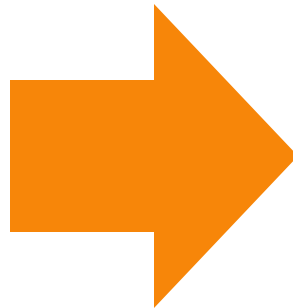
CHRONIC DISEASES
**(obesity, diabetes, heart disease
& strokes, cancers)**

Chronic Diseases - #1 cause of death globally (36 million deaths/y).

Leading Risk Factors accounting for 80% of deaths_ (WHO 2011):

- Tobacco
- **Physical Inactivity**
- **Unhealthy Diets**
- Harmful Use of Alcohol

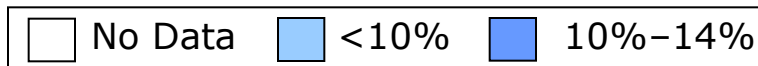
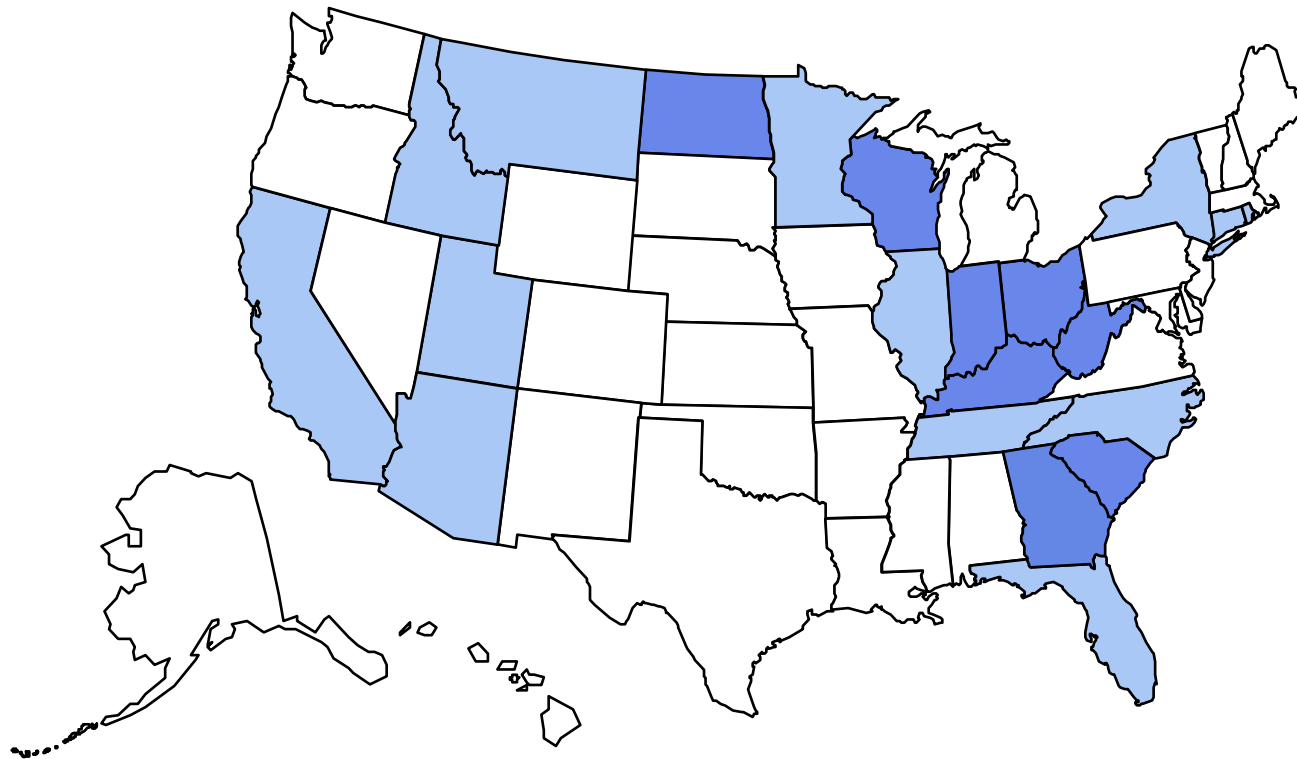
Energy in:
Food



Energy out:
Exercise

BRFSS, 1985

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

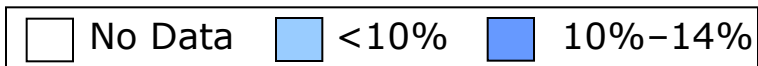
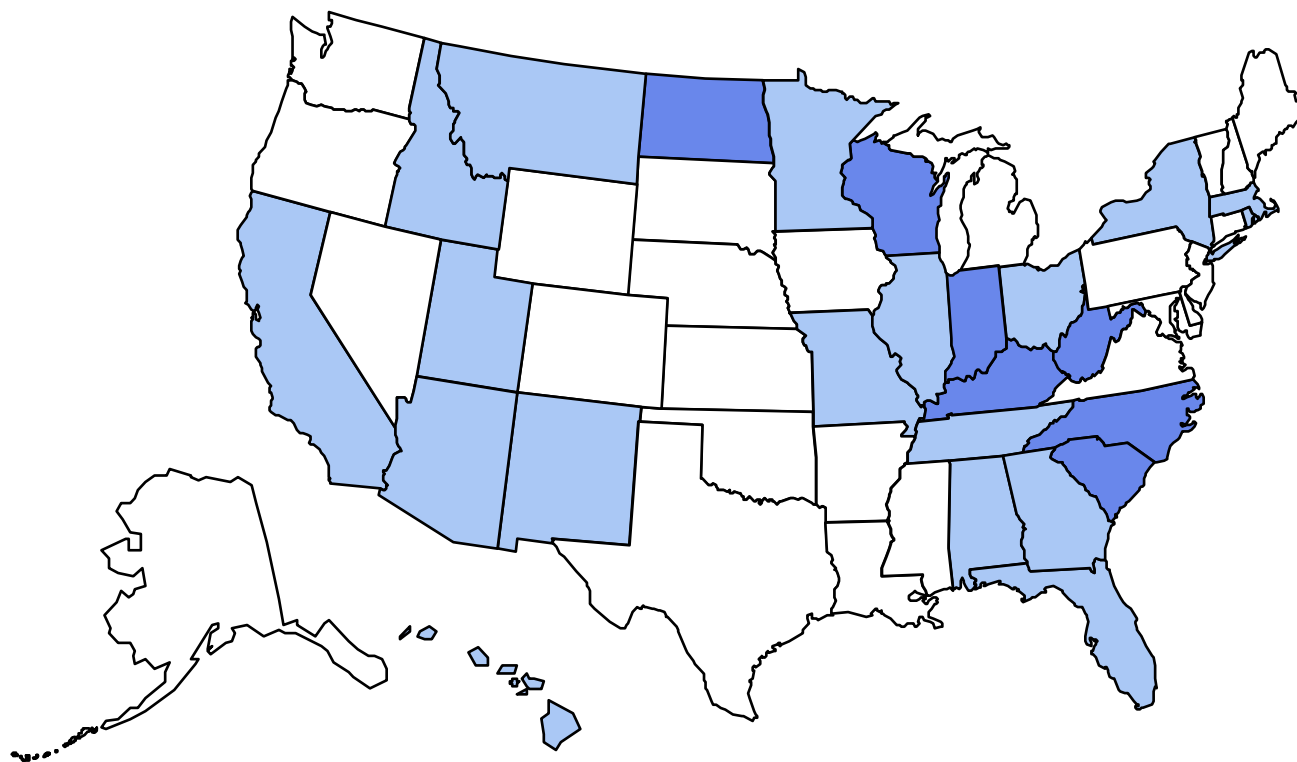


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1986

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

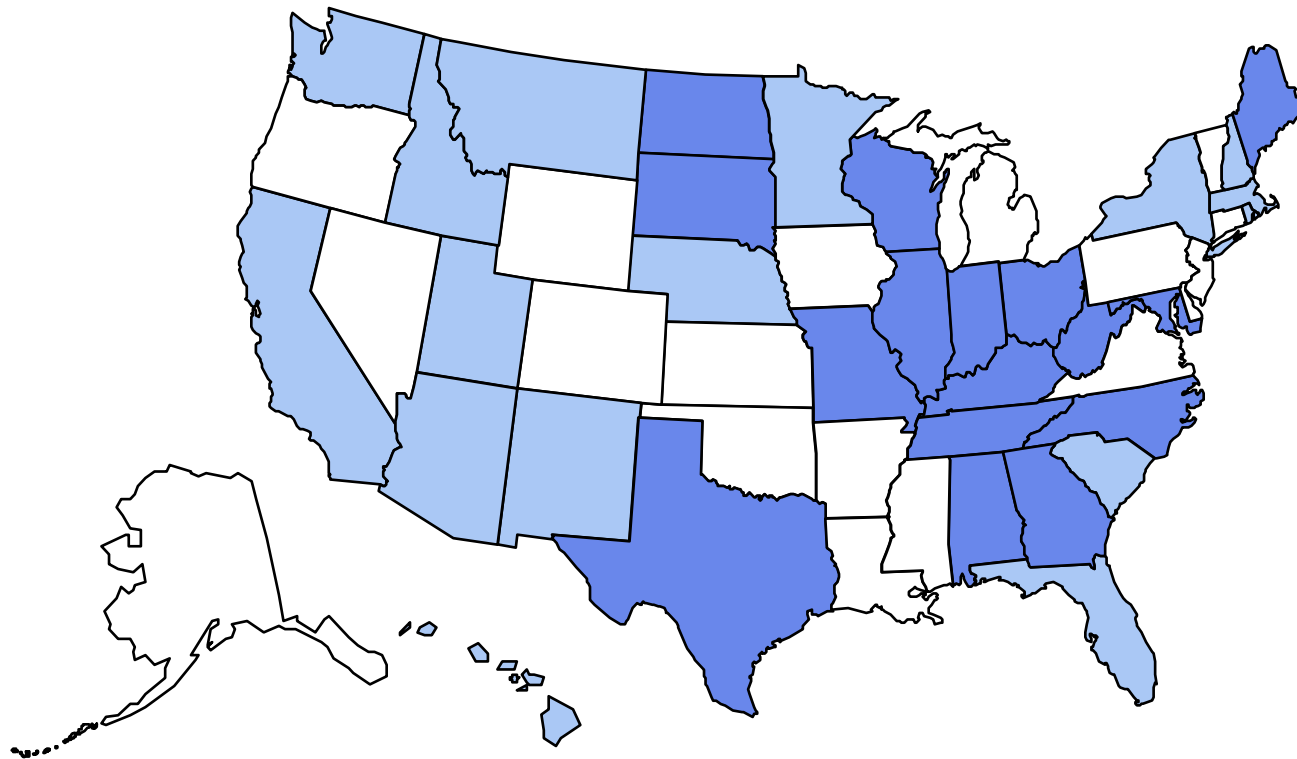


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1987

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



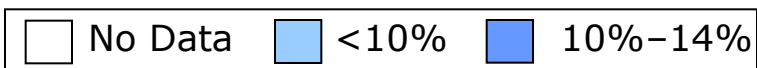
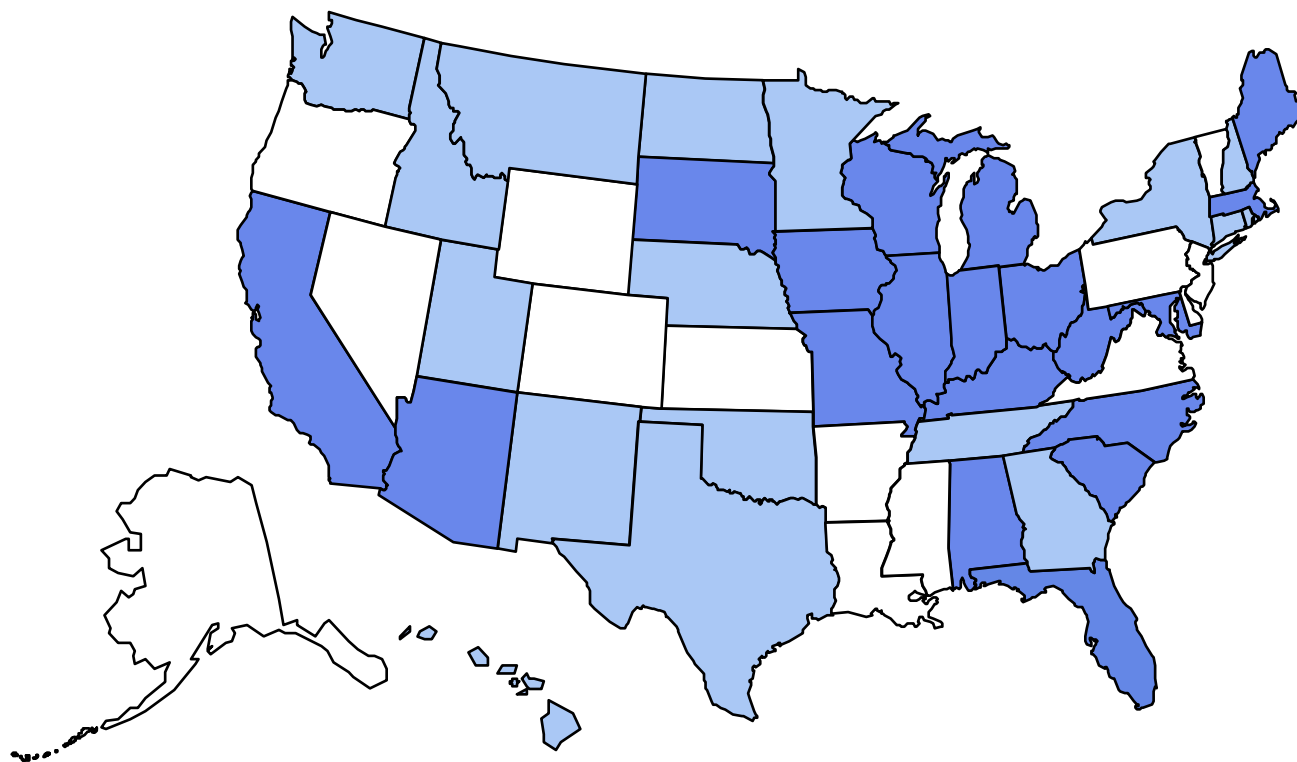
No Data
 <10%
 10%–14%

Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1988

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

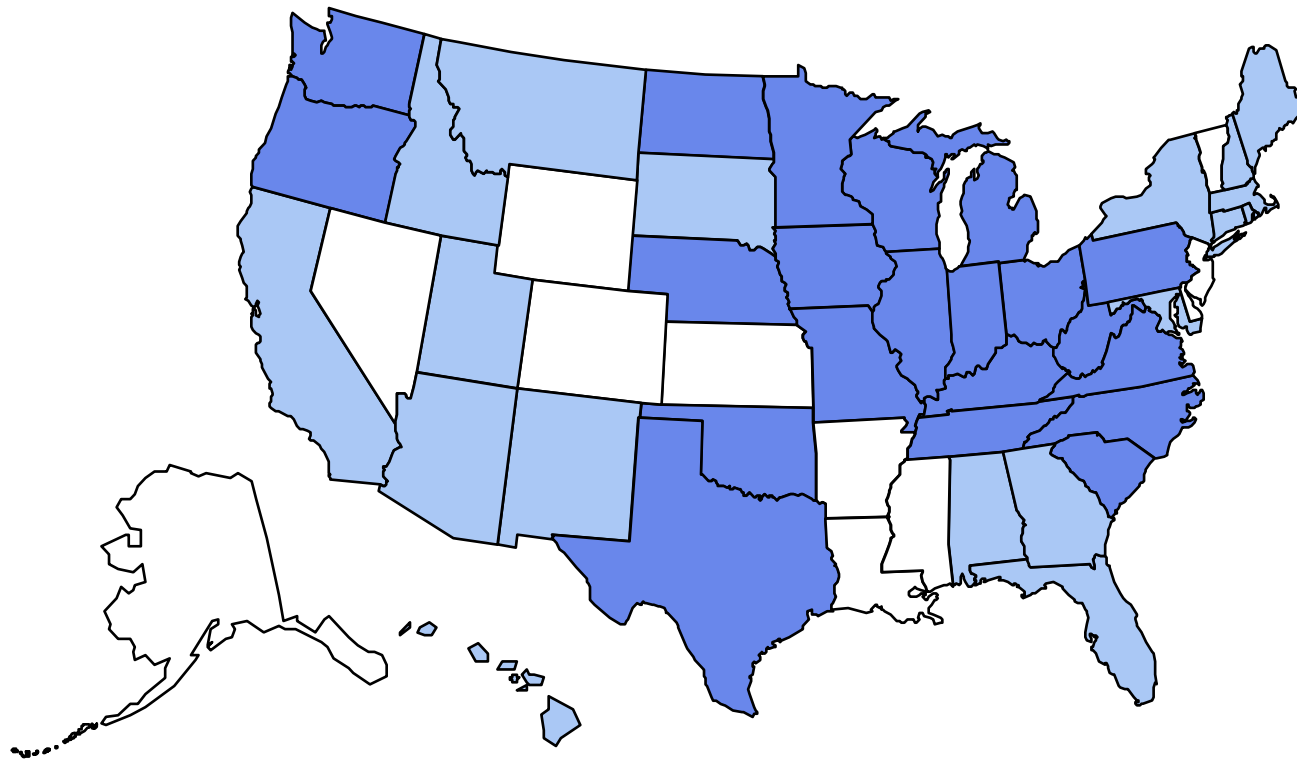


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1989

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



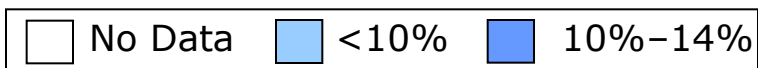
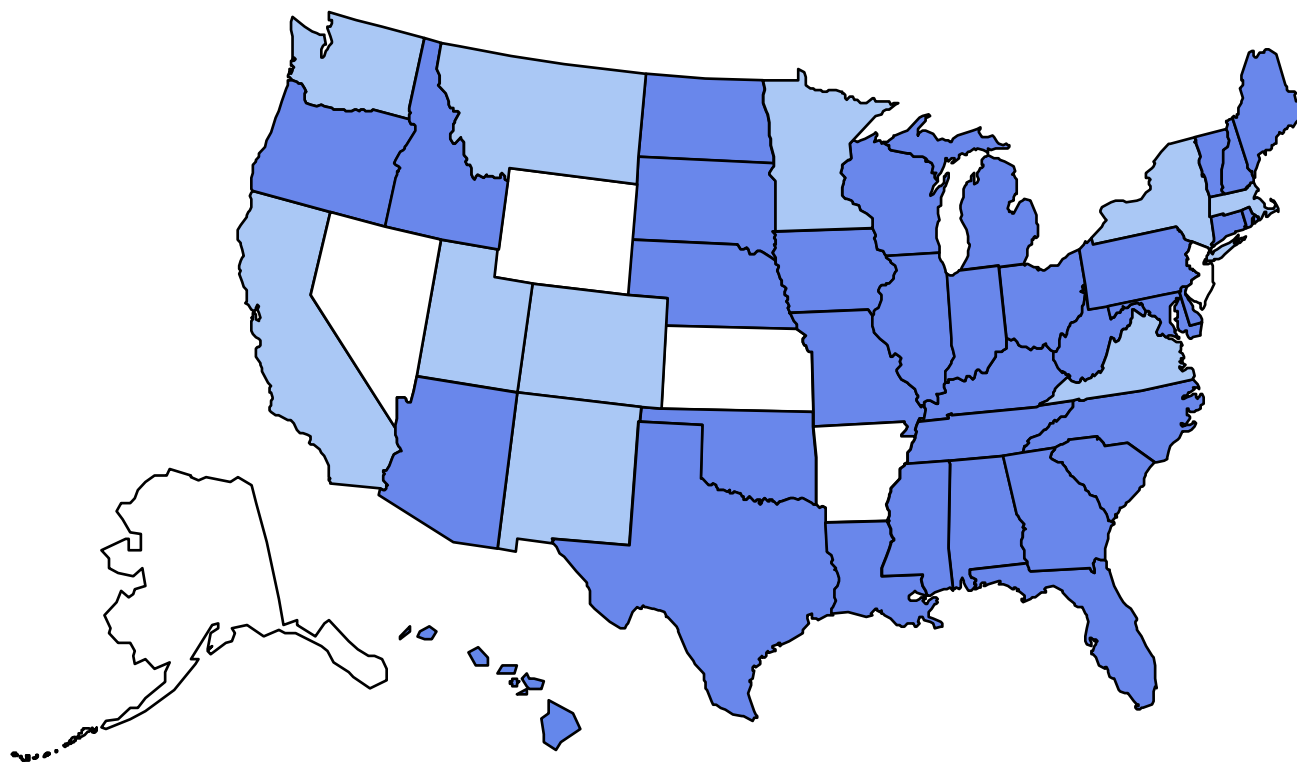
No Data
 <10%
 10%–14%

Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1990

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

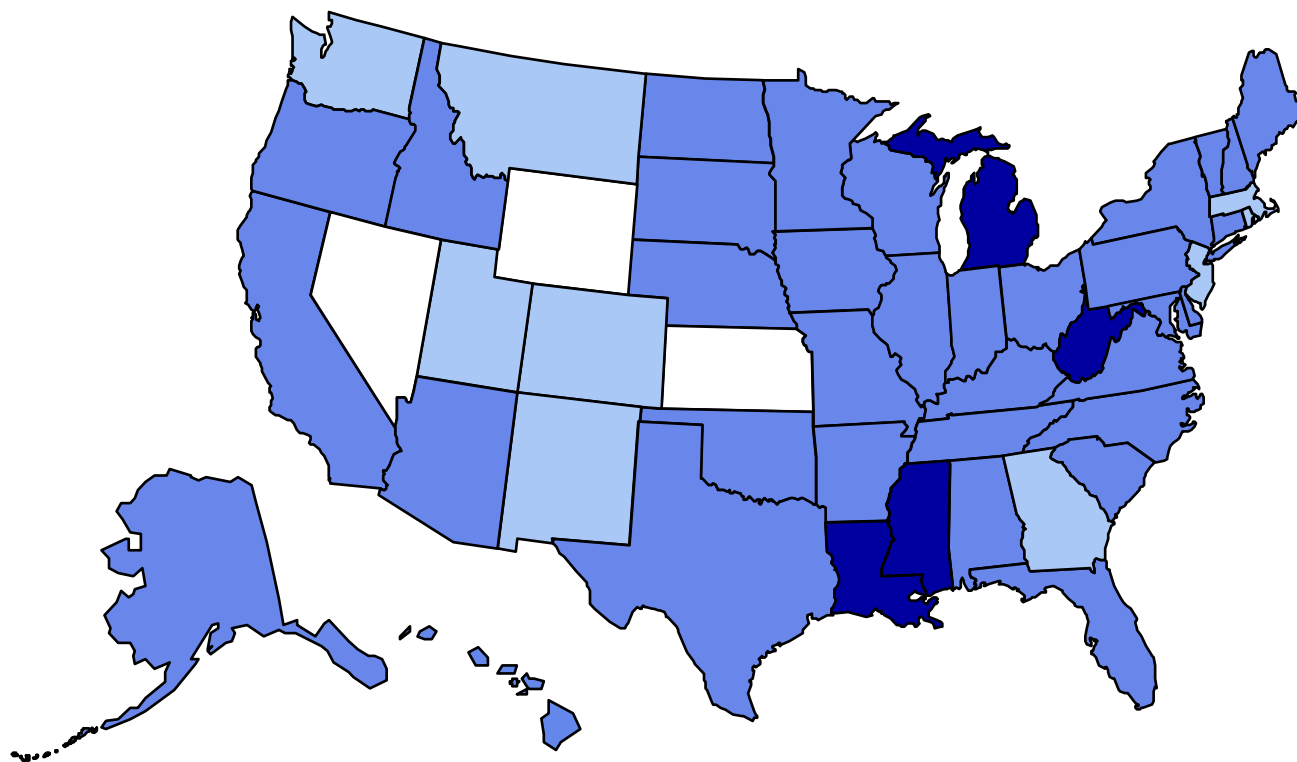


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1991

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



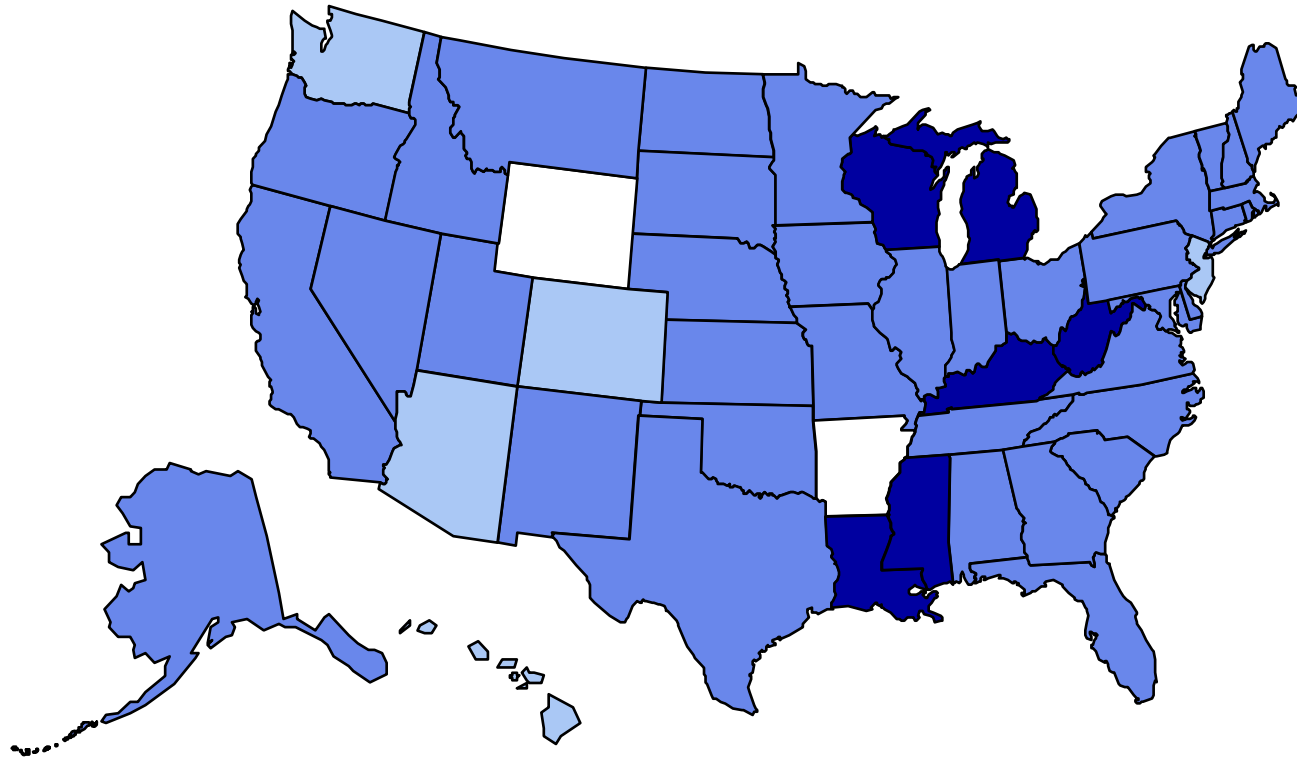
□ No Data ■ <10% ■ 10%-14% ■ 15%-19%

Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1992

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



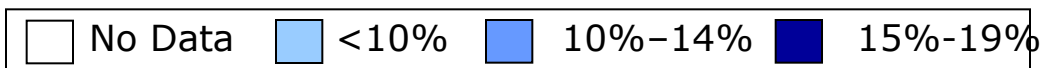
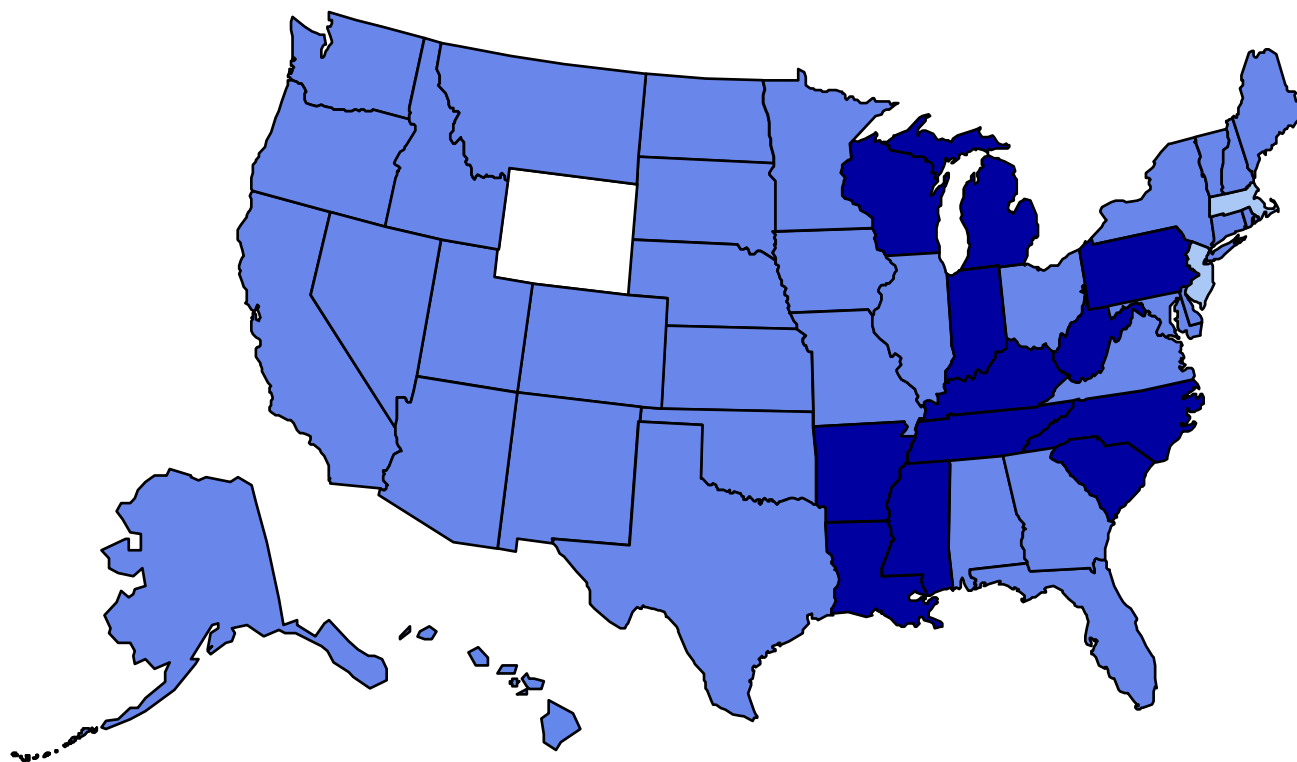
Legend:
 No Data
 <10%
 10%-14%
 15%-19%

Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1993

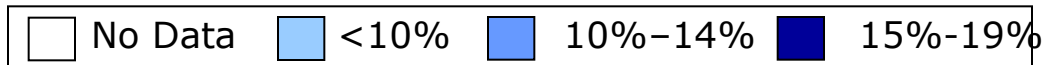
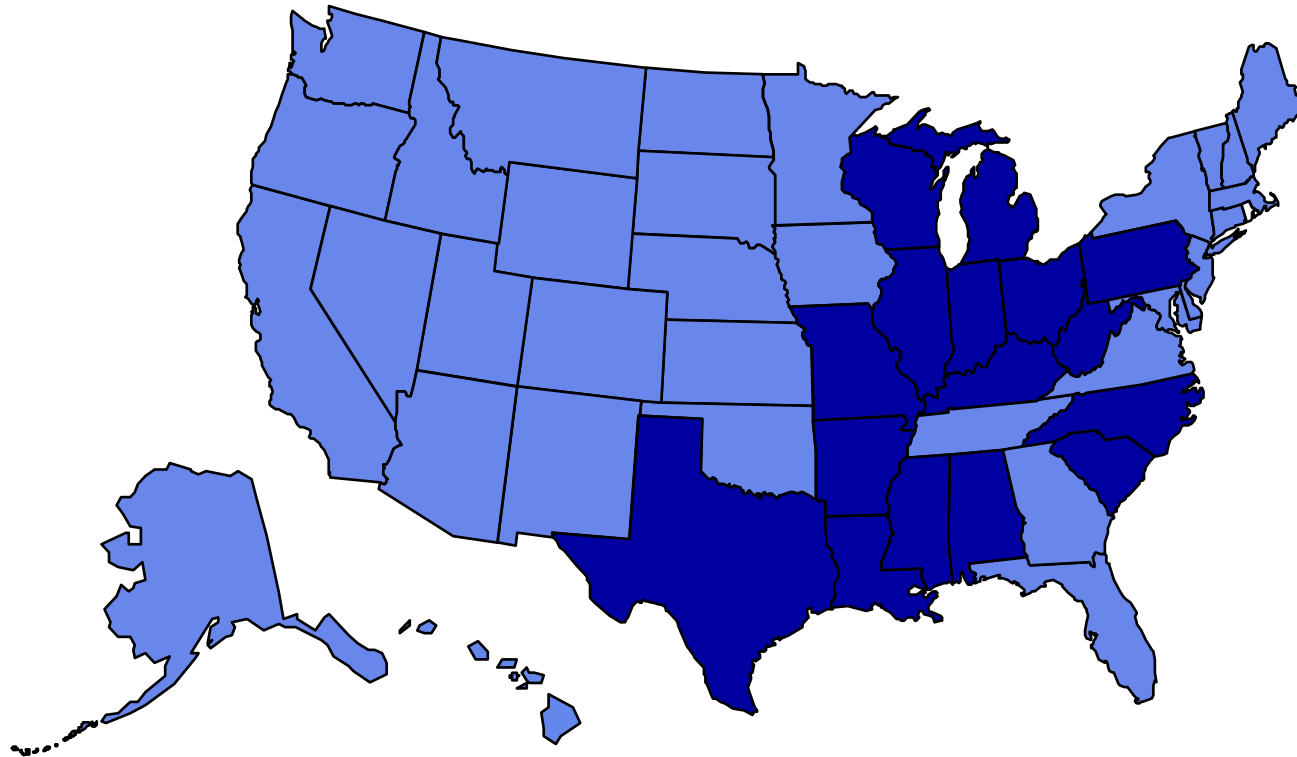
(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



Source: U.S. Centers for Disease Control and Prevention (CDC)

BRFSS, 1994

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

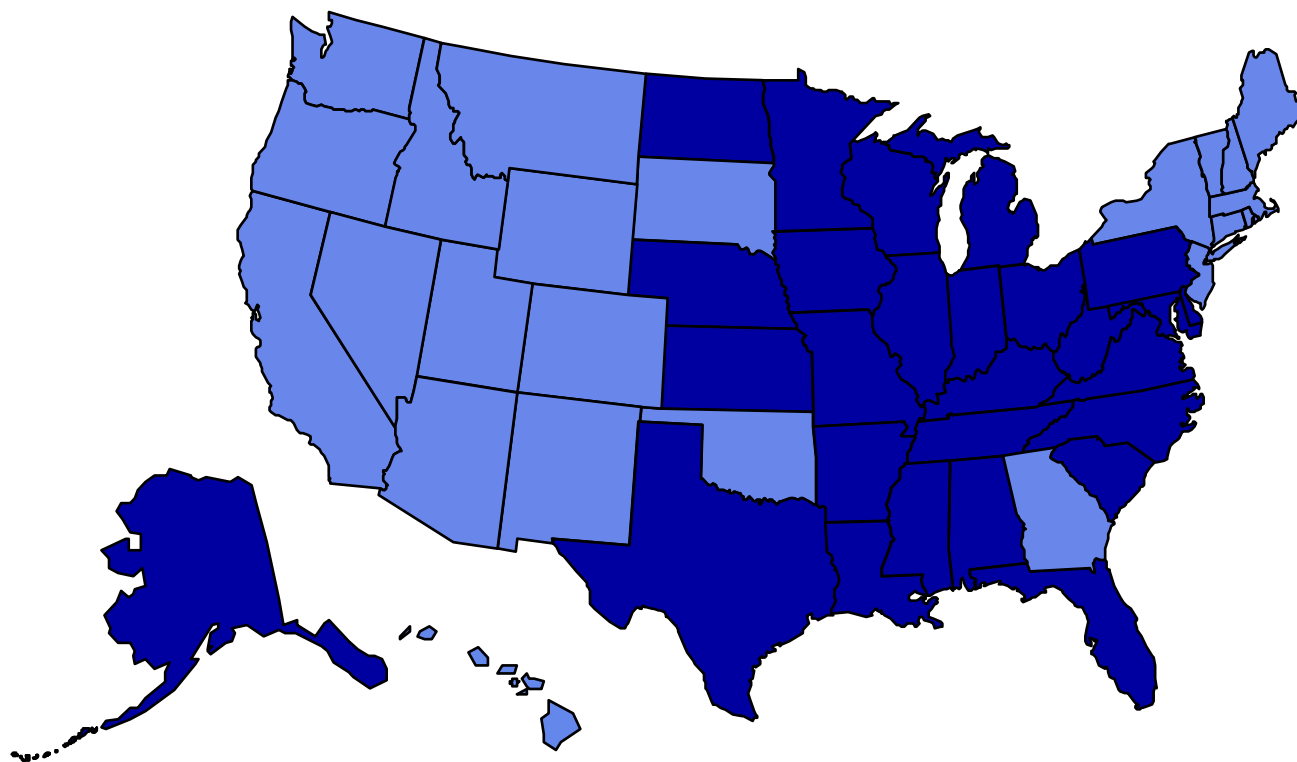


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1995

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



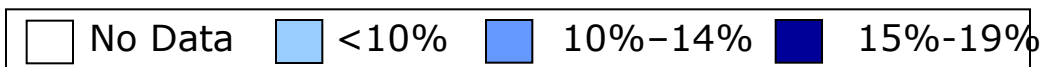
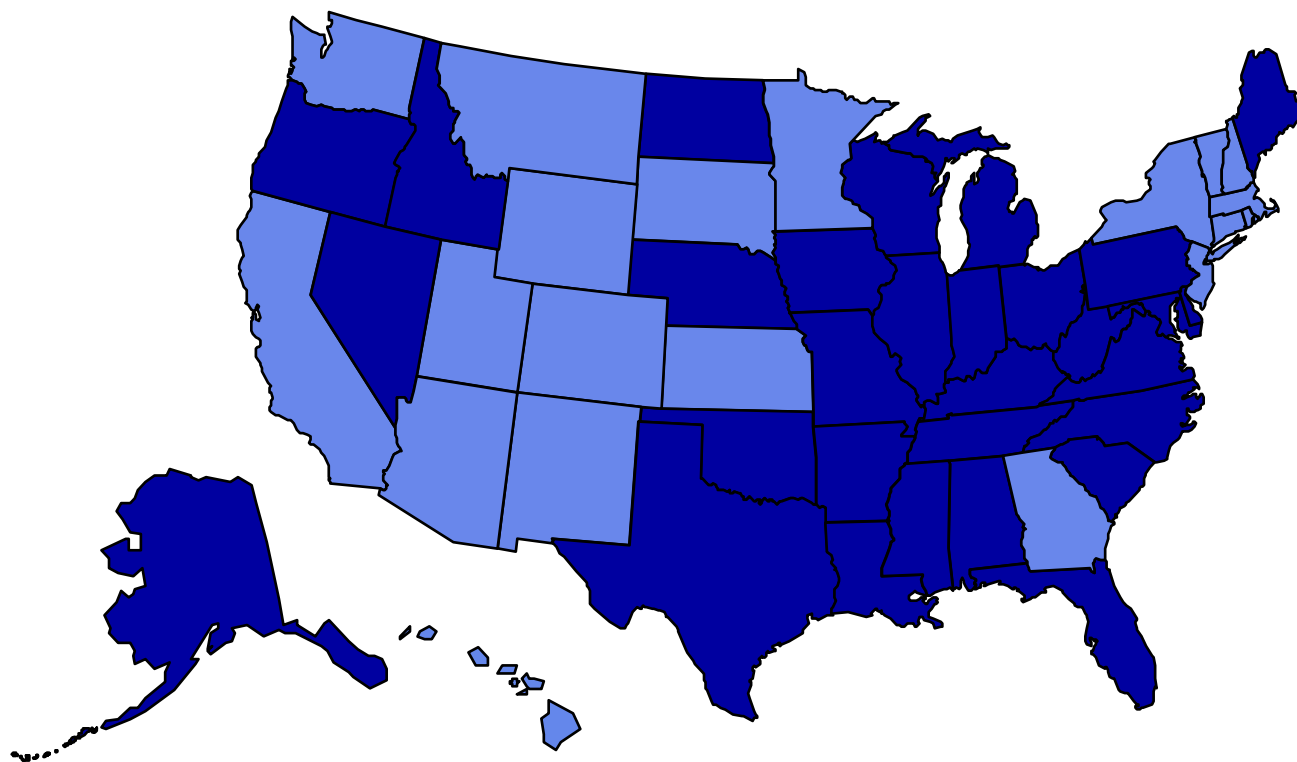
Legend: No Data, <10%, 10%-14%, 15%-19%

Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1996

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

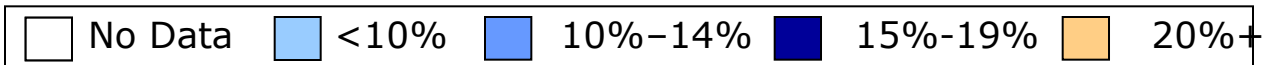
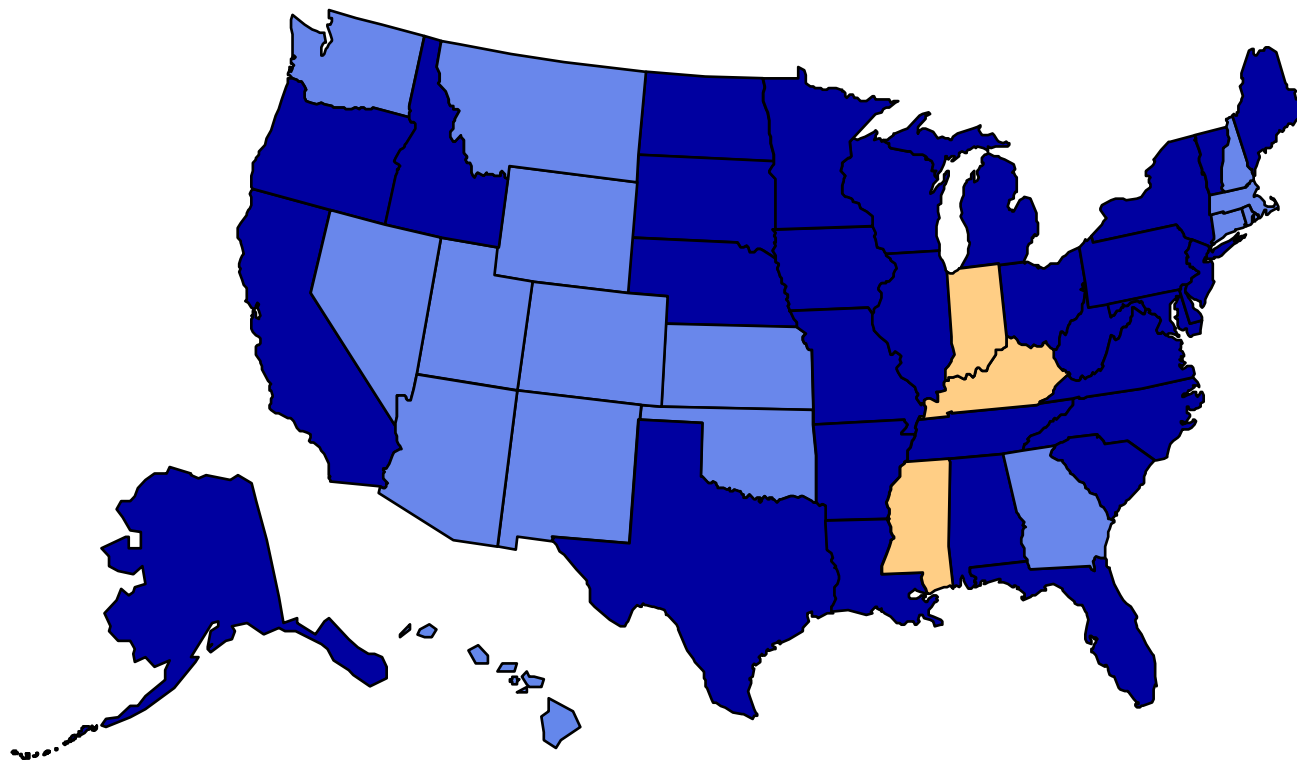


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1997

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

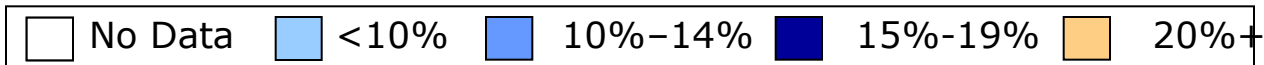
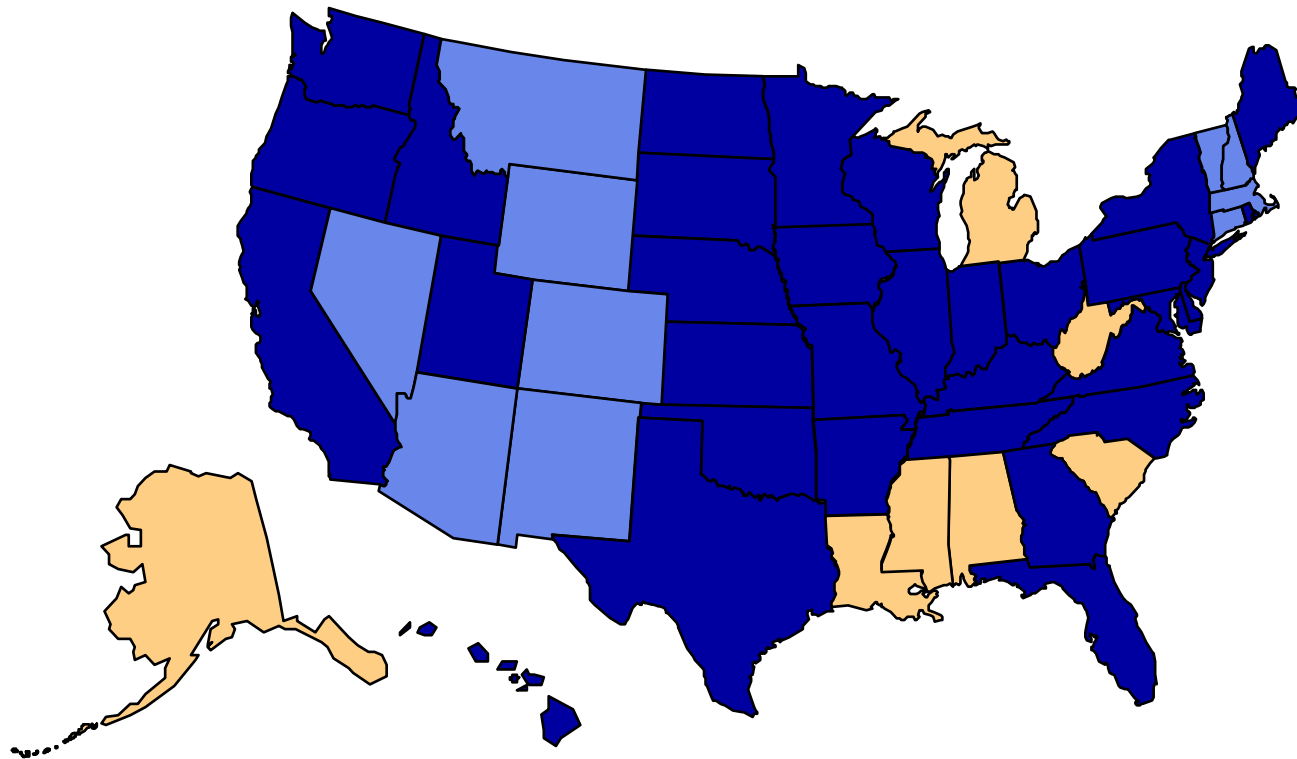


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 1998

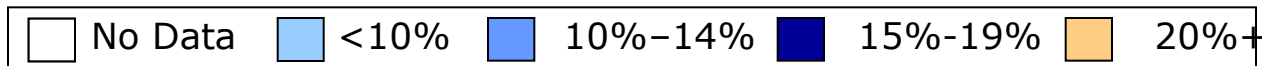
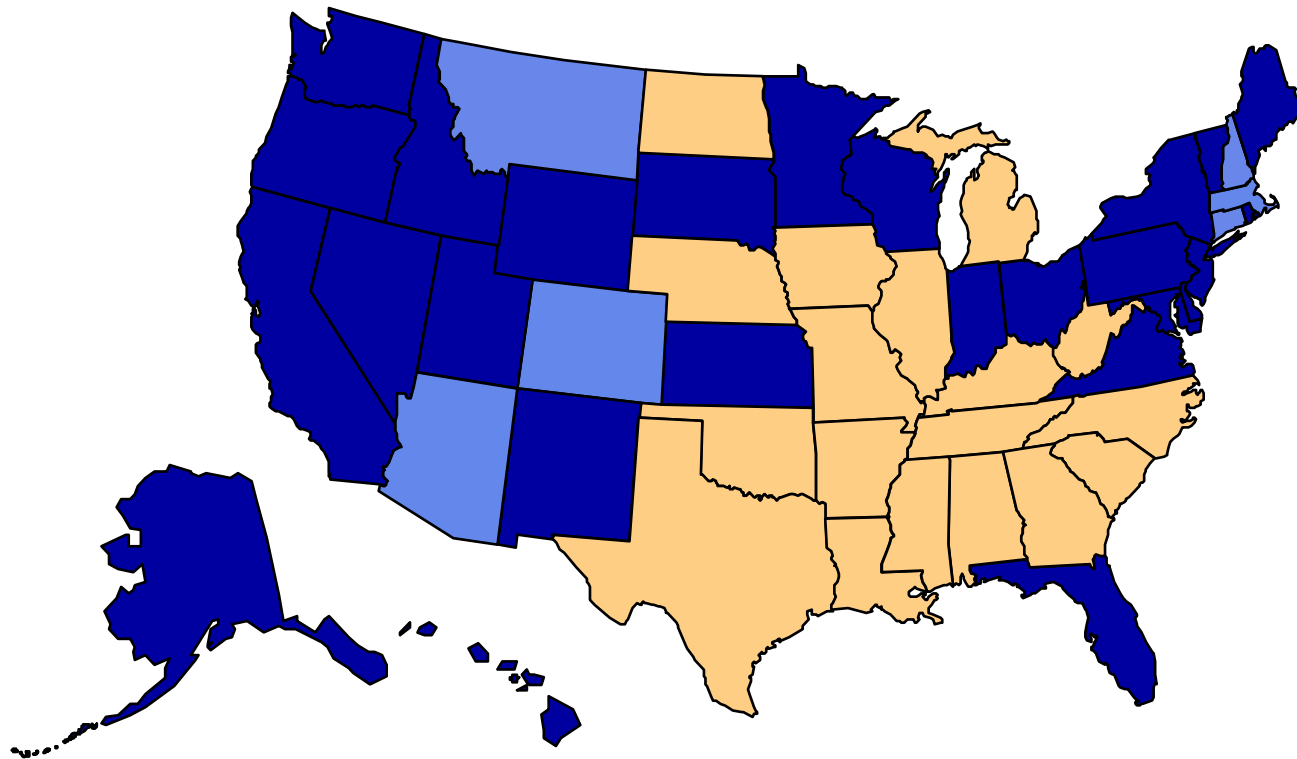
(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



Source: U.S. Centers for Disease Control and Prevention (CDC)

BRFSS, 1999

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

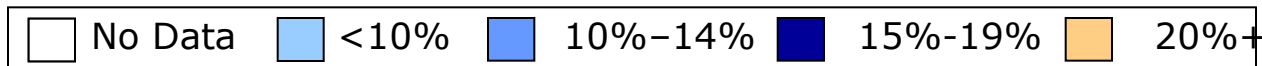
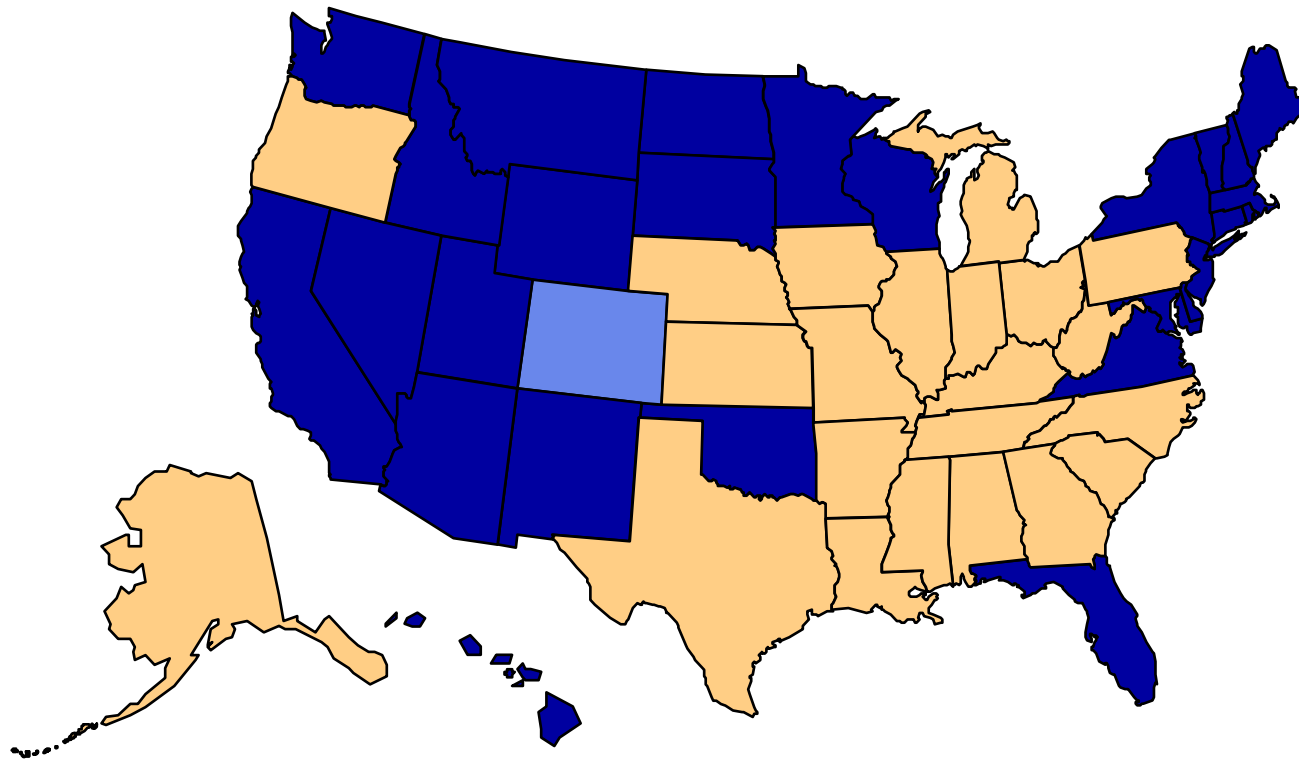


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2000

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

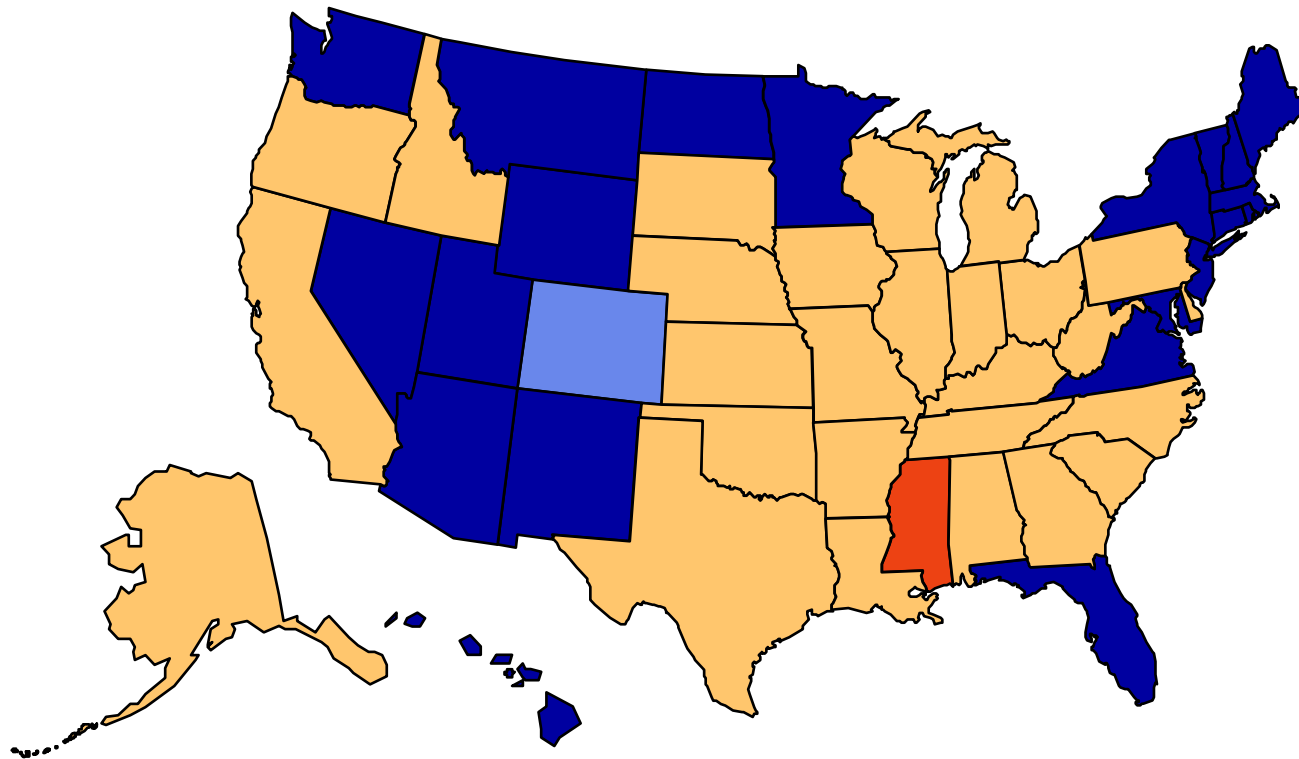


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2001

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



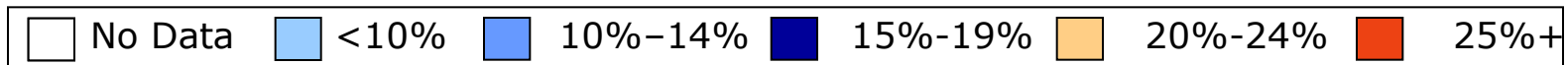
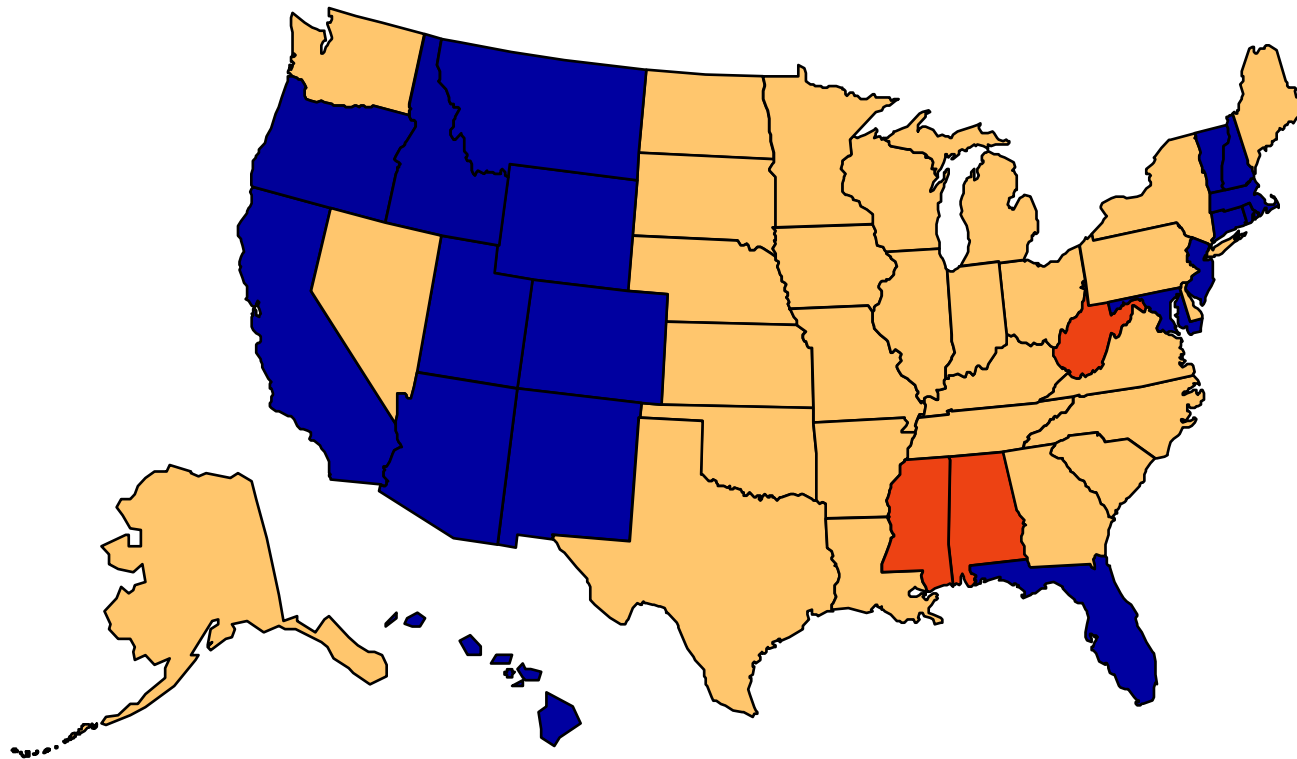
| | | | | | |
|---------|------|---------|---------|---------|------|
| No Data | <10% | 10%-14% | 15%-19% | 20%-24% | 25%+ |
|---------|------|---------|---------|---------|------|

Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2002

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

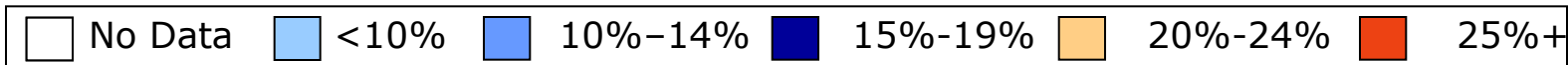
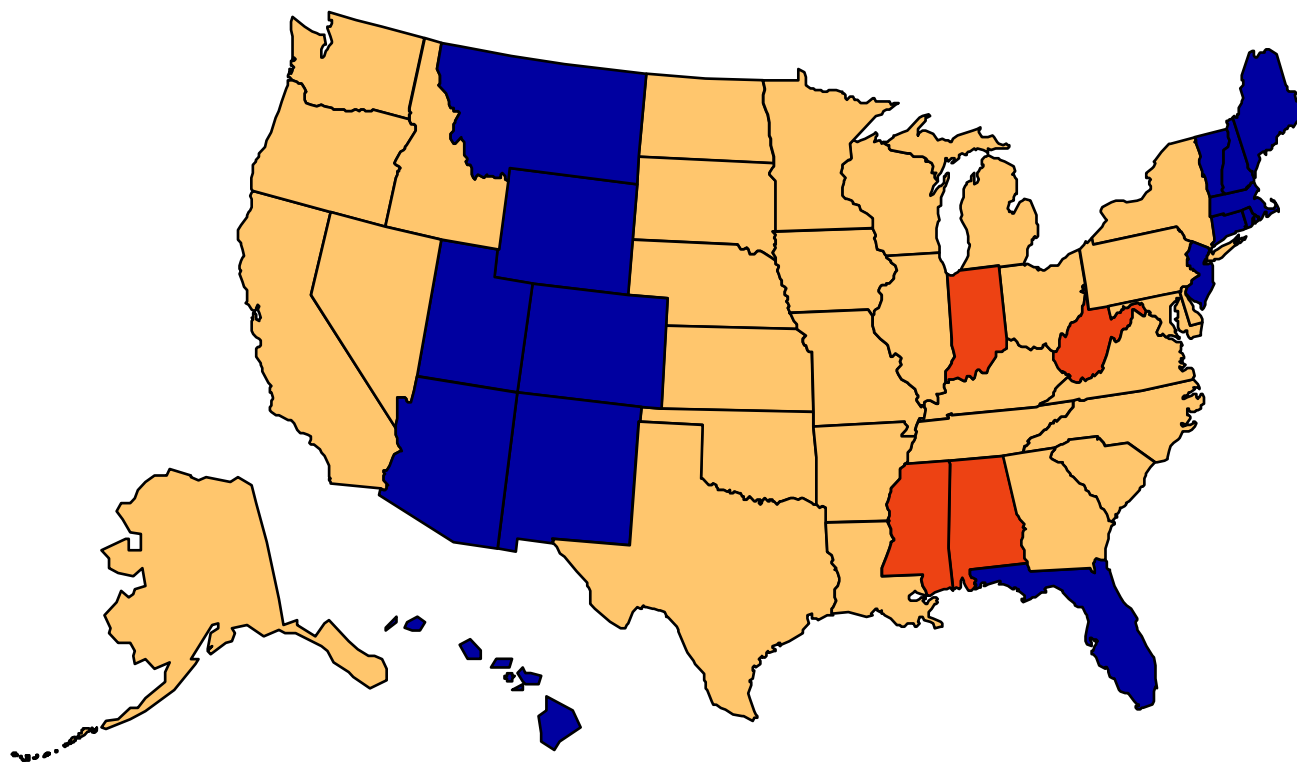


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2003

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

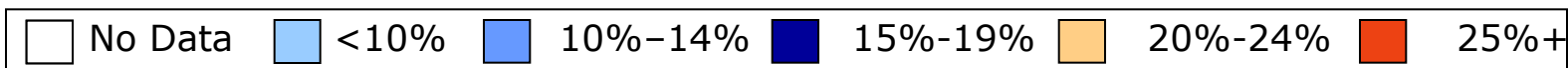
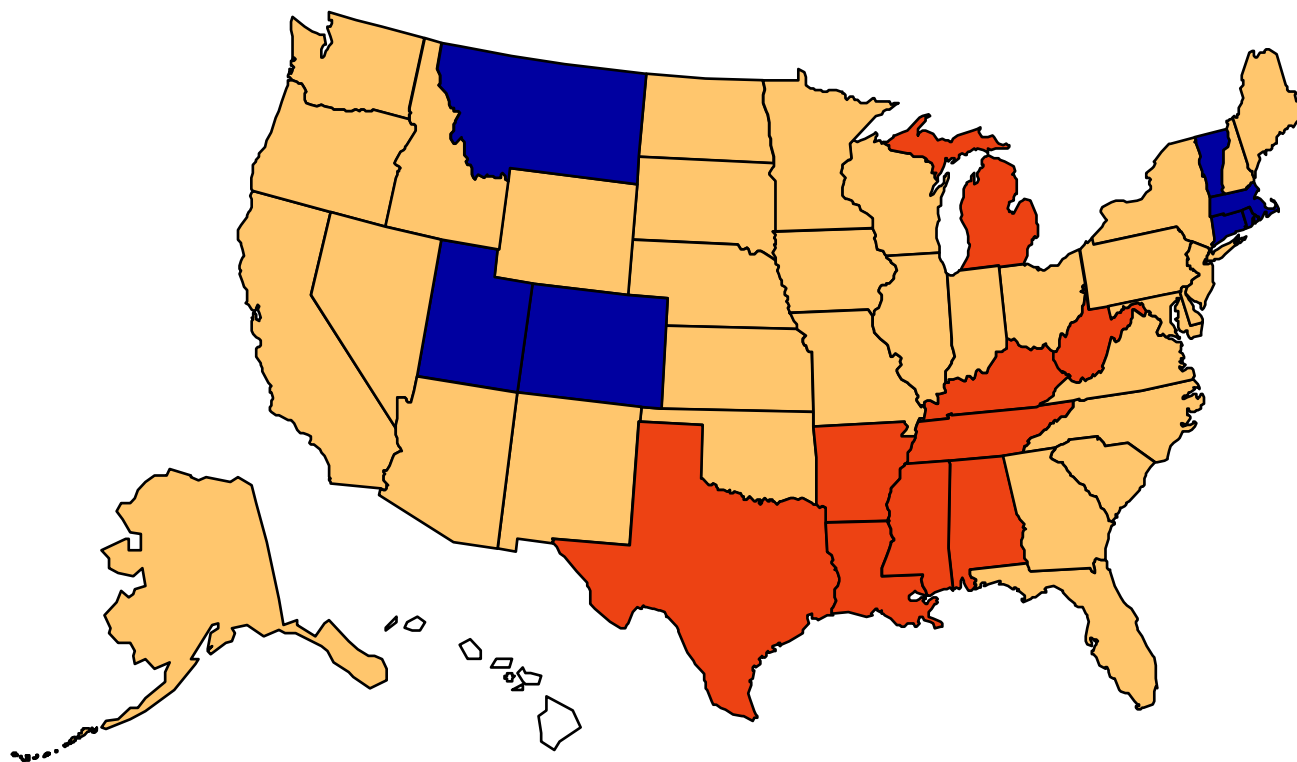


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2004

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

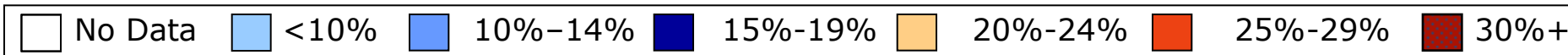
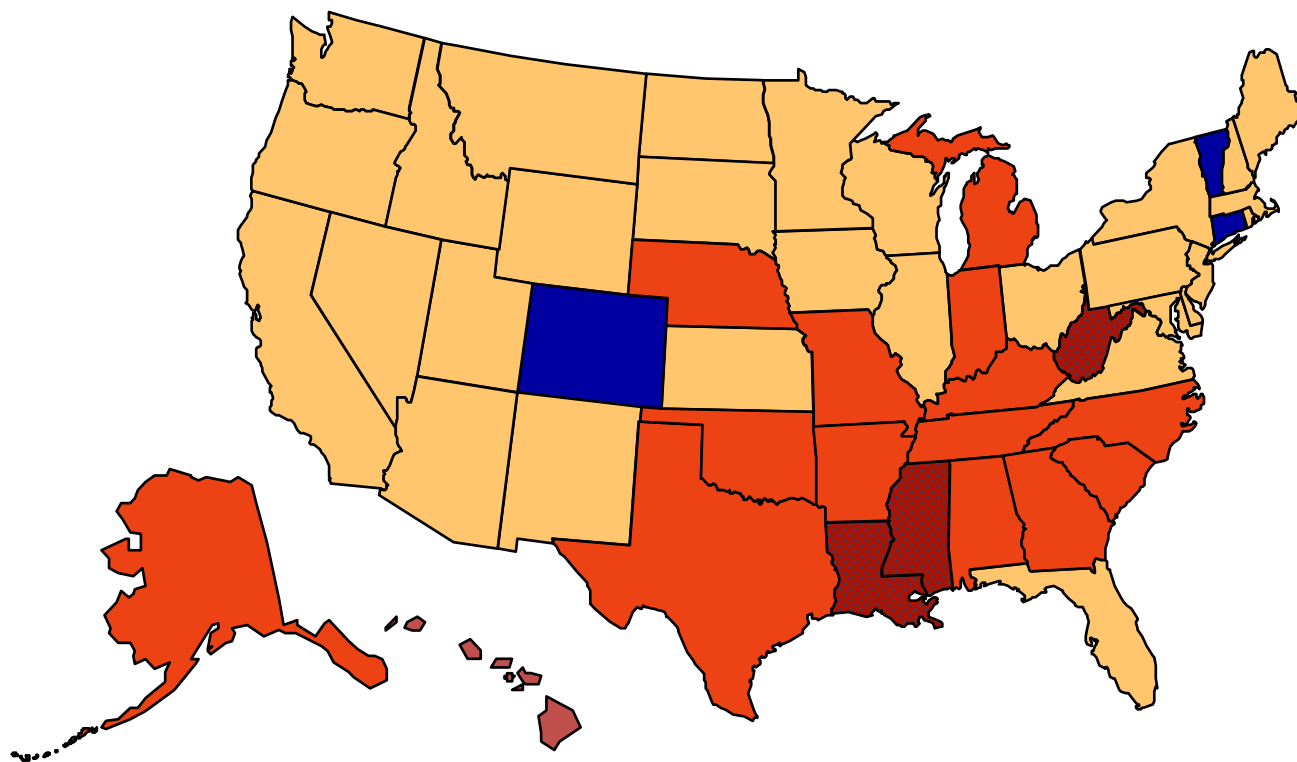


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2005

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

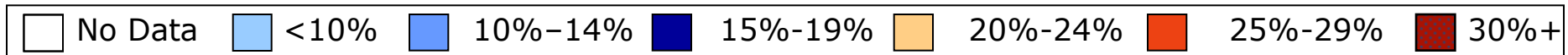
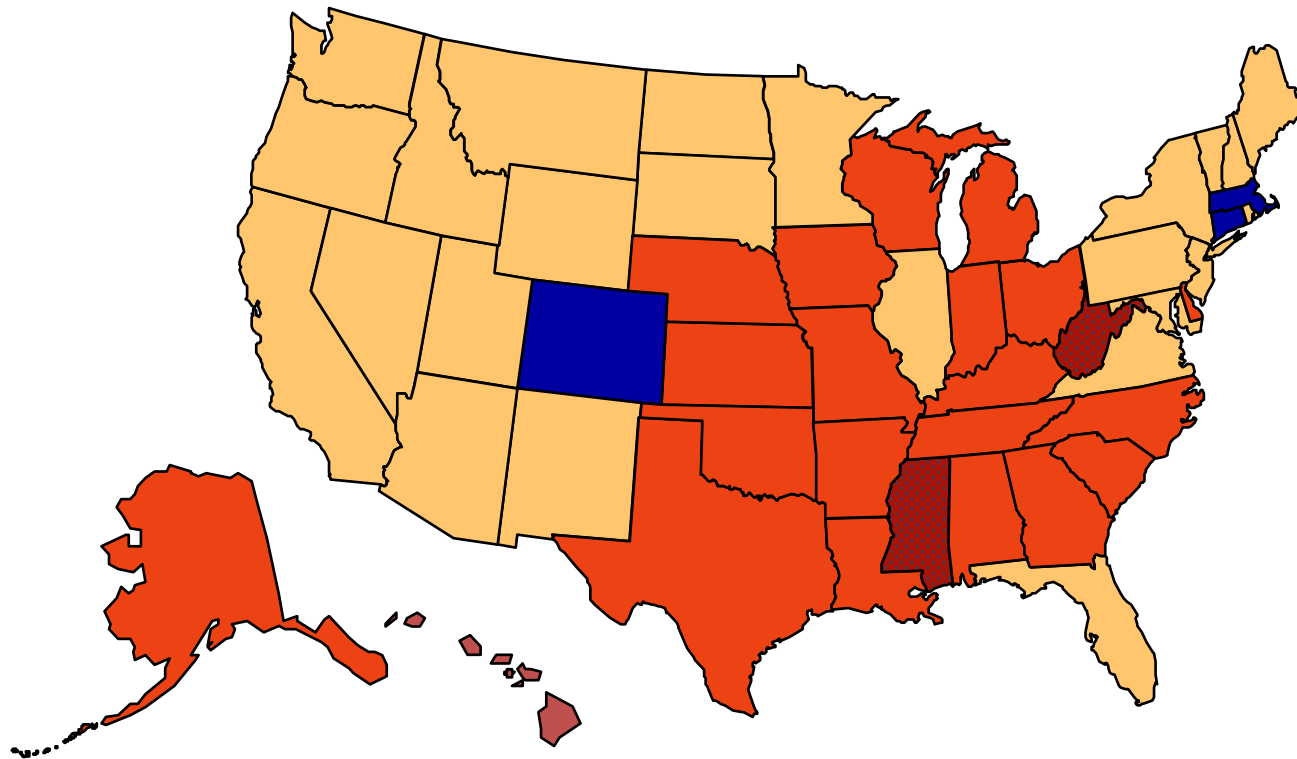


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2006

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

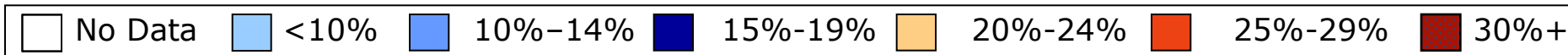
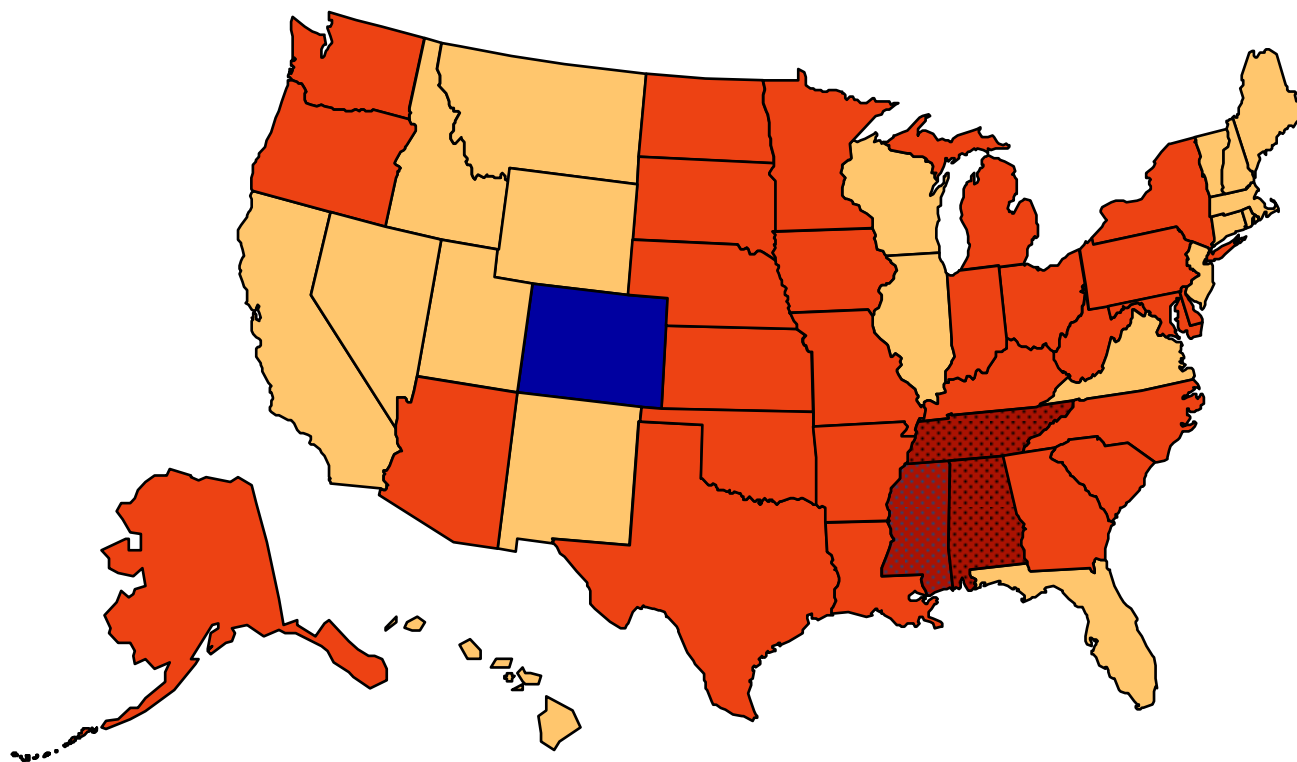


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2007

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

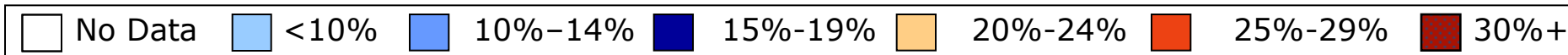
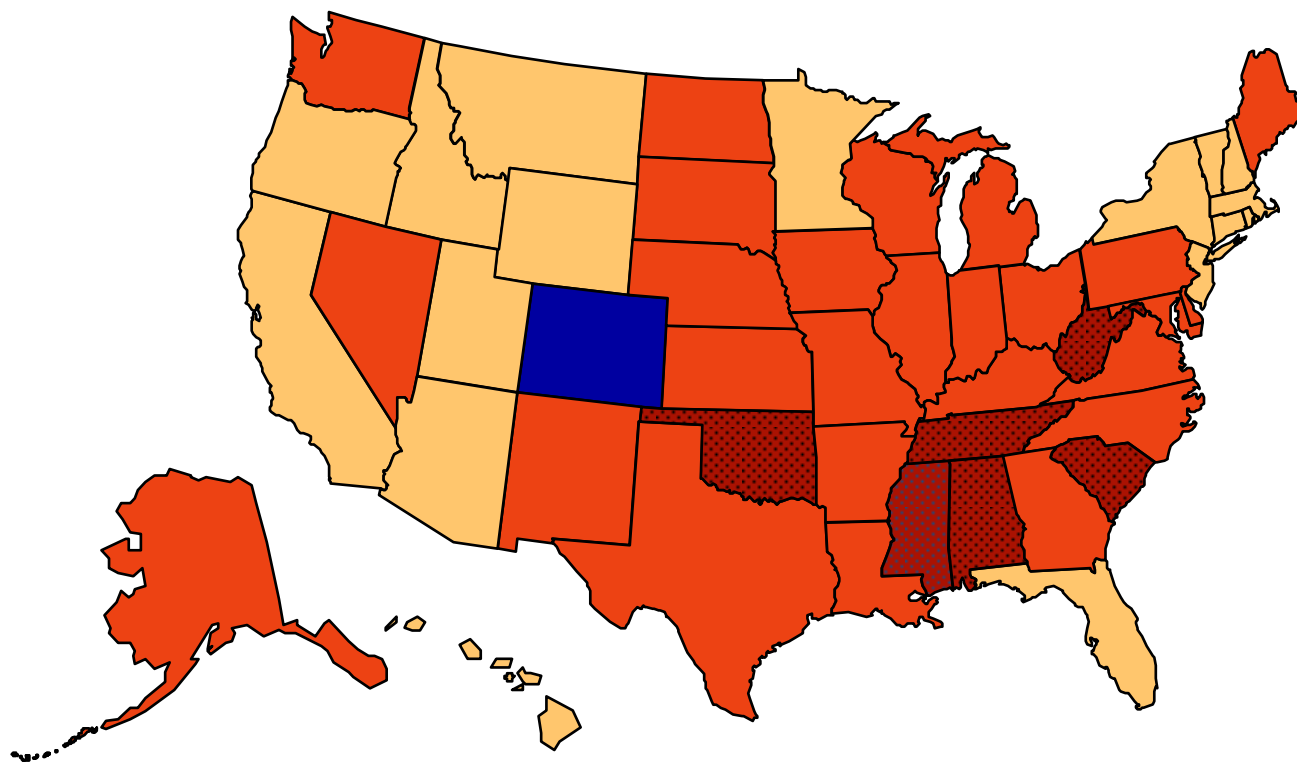


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2008

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

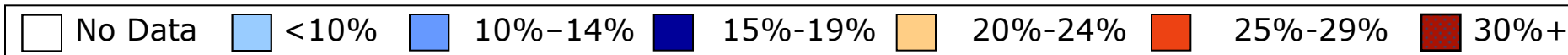
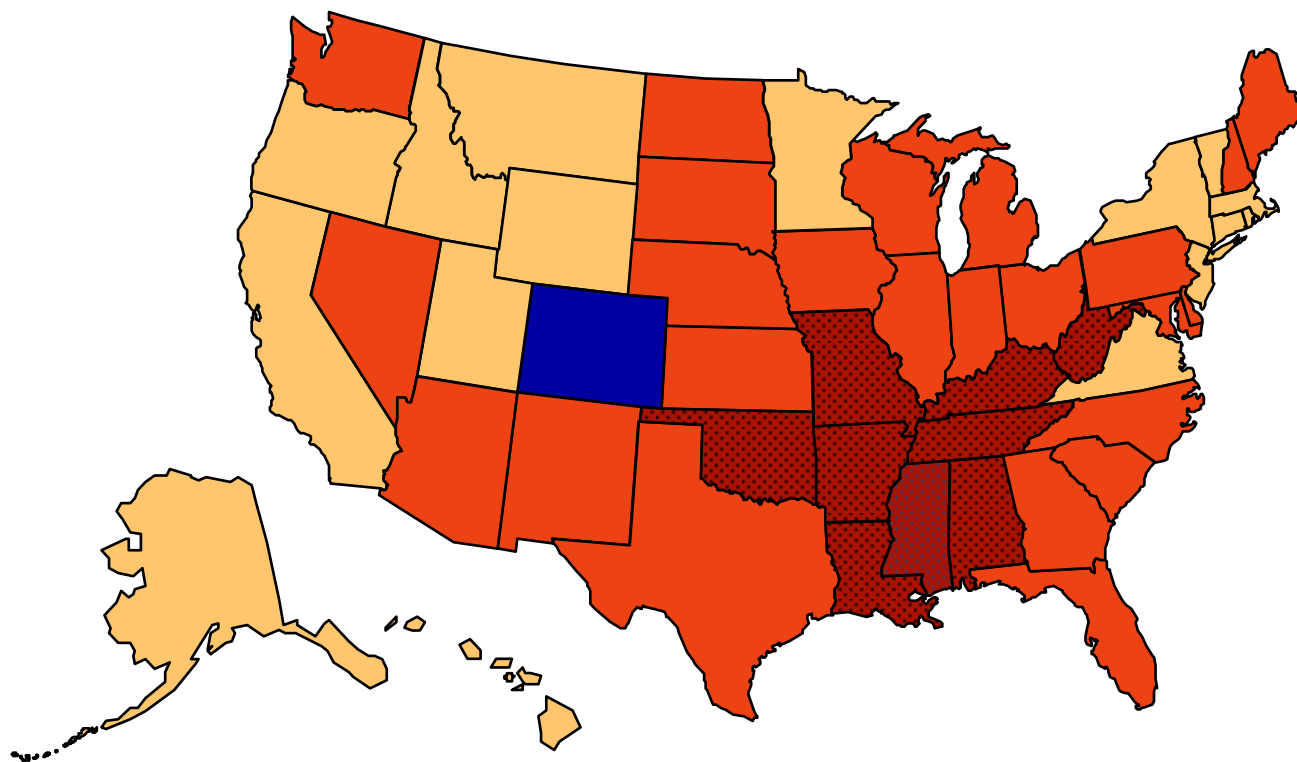


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

BRFSS, 2009

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)

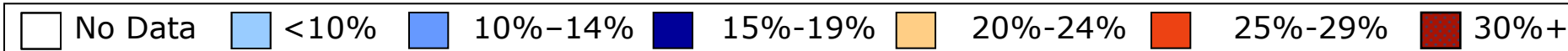
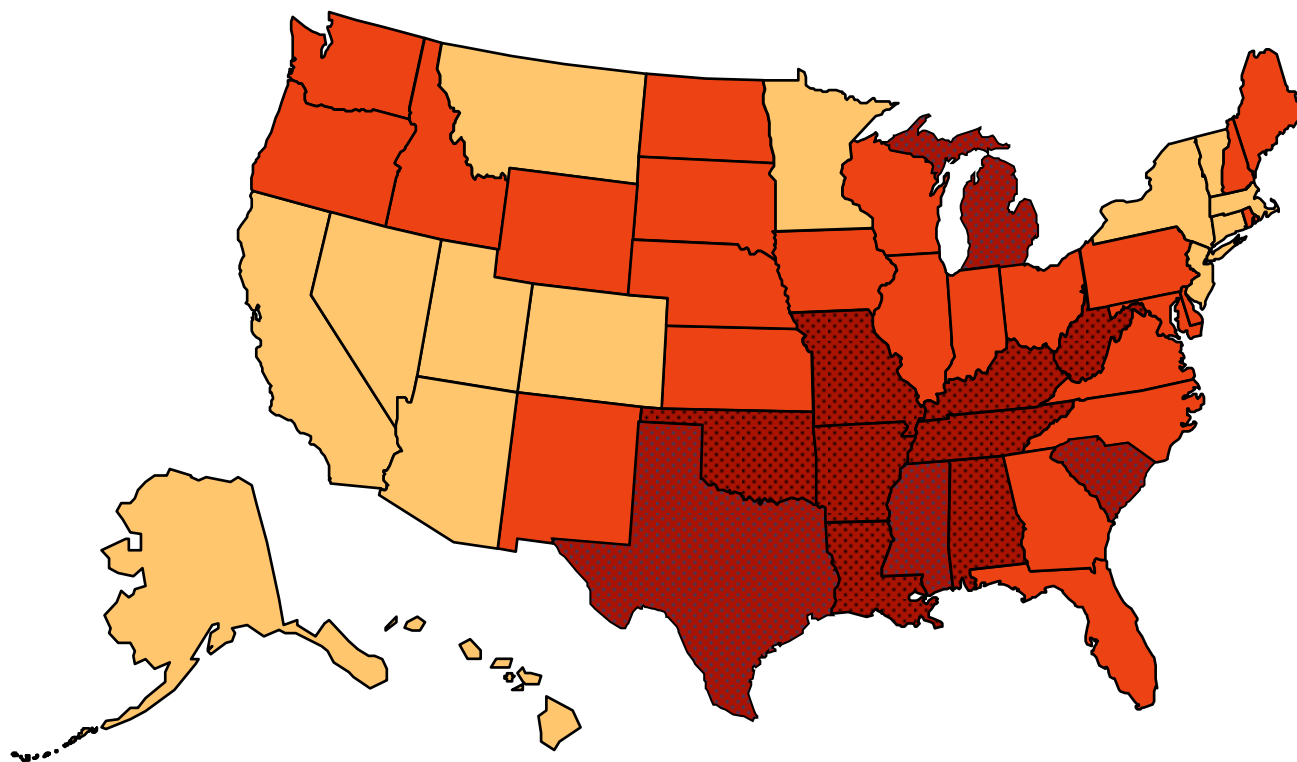


Source: U.S. Centers for Disease Control and Prevention (CDC)

Obesity Trends* Among U.S. Adults

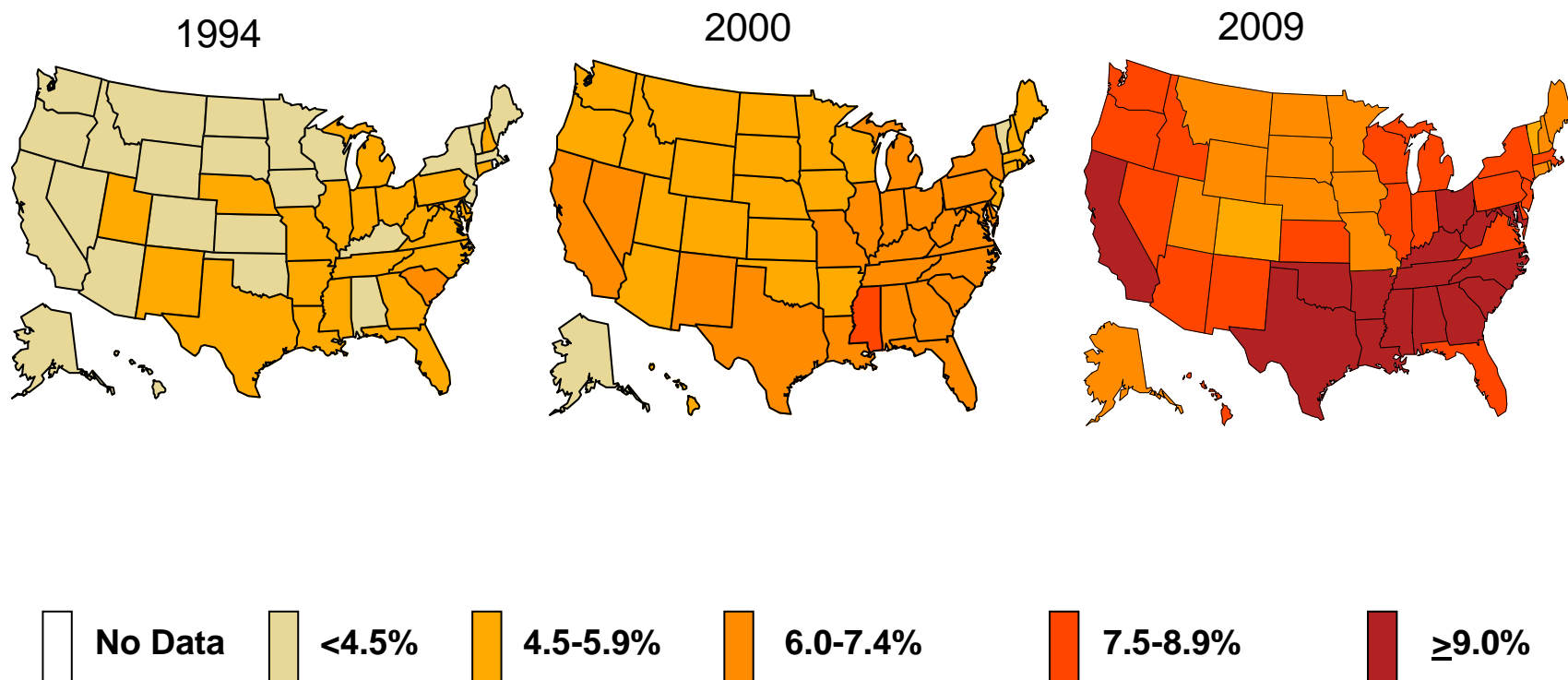
BRFSS, 2010

(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



Source: U.S. Centers for Disease Control and Prevention (CDC)

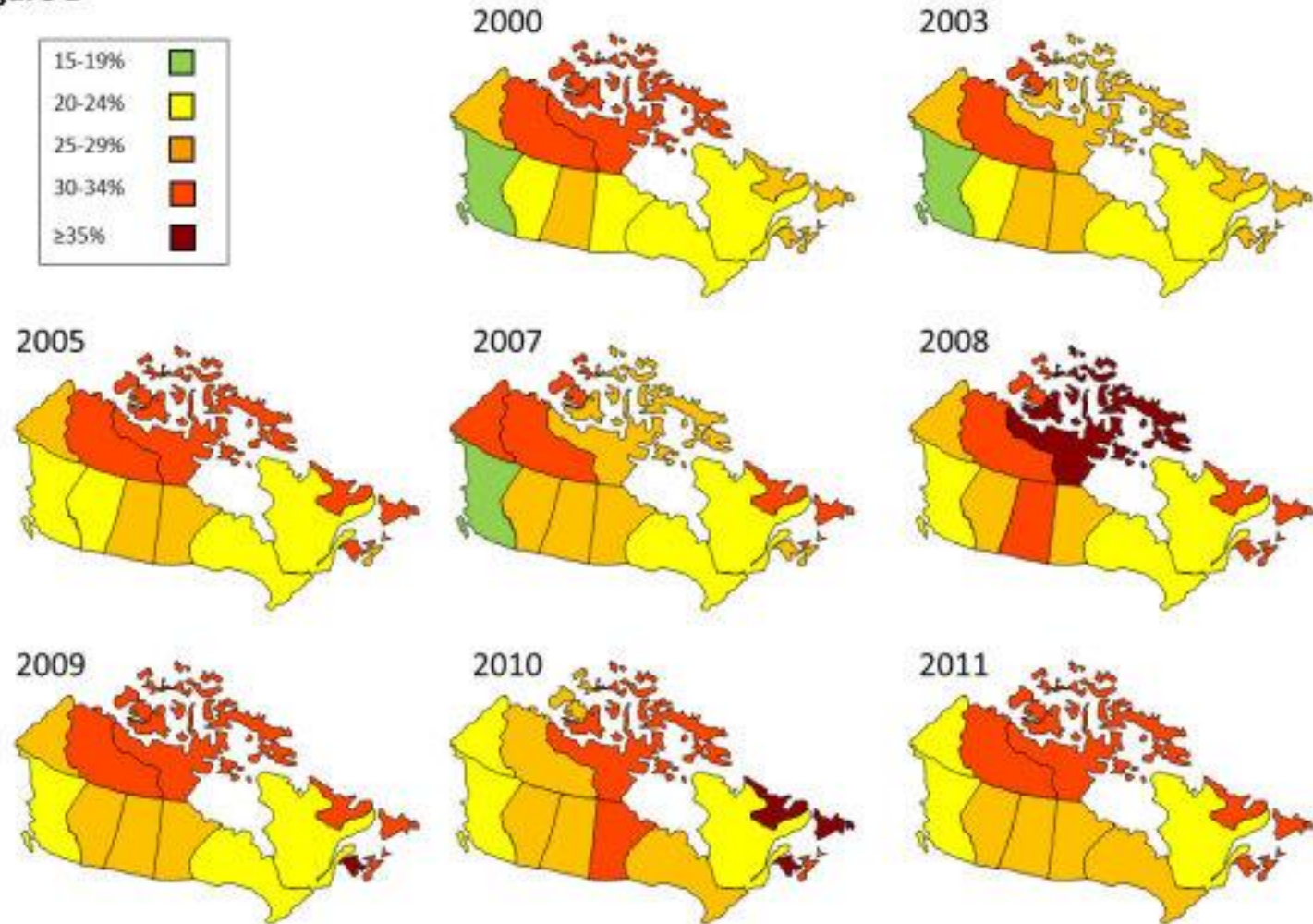
Diabetes trends among U.S. adults



Source: CDC's Division of Diabetes Translation. National Diabetes Surveillance System
available at <http://www.cdc.gov/diabetes/statistics>

Obesity Trends Among Canadians Adults

Figure 1



Source: Gotay C., Katzmarzyk P., Janssen I., Dawson M., Aminoltejari, K., Bartley N. (2013). Updating Canada's obesity maps: An epidemic in progress. *Canadian Journal of Public Health*, 104(1).

According to the CDC.....

the medical costs
attributable to obesity
today in the U.S. are
estimated to be

\$147
billion
per year.

By 2030,

if obesity trends continue as shown,
the total attributable health-
care costs will be

\$860-
\$956
billion
per year.

**Obesity and Diabetes have increased rapidly.
Our genetics have not changed in one generation, but
our built environment has!**



Evidence Base for Improving Health through Building, Street and Neighborhood Design

www.thecommunityguide.org/pa

Designing to increase active transportation

Walking, Bicycling and Transit-oriented development

Designs to improve street safety and aesthetics (less crime and traffic / more greening), having sidewalks and bike paths connected to destinations, mixed land use, high population density

Median **increase in physical activity 35% to 161%**

Designing to increase active recreation

Enhancing access to places for physical activity, such as creating walking trails or having onsite or nearby parks, playgrounds and exercise facilities (homes & worksites)

increases leisure-time activity and weight loss

Designing to increase stair use

Point-of-Decision stair prompts

Signs placed at elevators & escalators encouraging stair use, w/ info on benefits of stair use

Median **50% increase** in stair use

Design and aesthetic interventions

Music & art in stairwells

Design stairs to be more convenient and visible

Skip-stop elevators

3300% increase in stair use

Addressing Healthy vs Unhealthy Food and Beverage Access

Food Retail – Supermarkets vs Fast Food

- Supermarket availability is associated with lower rates of neighborhood obesity.
- High density of fast food restaurants is associated with increased weight and obesity in area residents.

Community Gardens

- People with a household member who participated in a community garden ate more fruits and vegetables per day.
- Garden-based nutrition education improved adolescent fruit and vegetable intake.

Access to Tap Water vs Caloric Beverages

- Big source of calories in the US diet (9% of calories) are from carbonated and non-carbonated soft drinks; Children & Adolescents are getting 10-15% of total calories from sugar-sweetened beverages and 100% fruit juice.
- Water fountain installation + education in elementary schools in deprived neighborhoods reduced risk of overweight in children.

Sources: Moreland K et al., Supermarkets, other food stores, and obesity. *AJPM* 2006; 30(4): pp. 333-339.

Mehta NK, Chang VW. Weight status and restaurant availability: a multi-level analysis. *AJPM* 2008; 34(2): pp. 127-133.

Alaimo K, Packnett E, Miles RA, Kruger DJ. Fruit and vegetable intake among urban community gardeners. *J Nutr Educ Behav.* 2008; 40(2): pp. 94-101. McAleese JD, Rankin

LL. Garden-based nutrition education affects fruit and vegetable consumption in sixth-grade adolescents. *J Am Diet Assoc.* 2007 Apr; 107(4):662-5.

Block G. Foods contributing to energy intake in the US: data from NHANES III and NHANES 1999–2000. *J Food Comp Anal.* 2004; 17: pp. 439–47.

Wang Y, Bleich S, Gortmaker S. Increasing caloric consumption from sugar-sweetened beverages and 100% fruit juices among US children and adolescents, 1988-2004. *Pediatrics* 2008; 121(6): pp. 1604-1614.

Muckelbauer R et al. Promotion and provision of drinking water in schools for overweight prevention: randomized, controlled cluster trial. *Pediatrics* 2009; 123(4): pp. e661-7.

Co-benefits of Active Design: Improve the Environment

| | Fuel / Electricity Use | Air Quality | Obesity/Diabetes/ Heart Disease |
|---|------------------------|-------------|------------------------------------|
| Biking or walking rather than automotive transport | √ | √ | √ |
| Stairs rather than elevators and escalators | √ | √ | √ |
| Active recreation rather than television | √ | √ | √ |
| Safe tap water rather than bottled and canned beverages | √ | √ | √ |
| Fresh produce rather than unhealthy processed foods | √ | √ | √ |

Co-benefits: Create more accessible places for all

- Creating safer places to walk, take transit, & for wheelchair travel
- Making elevators more available for those who need them



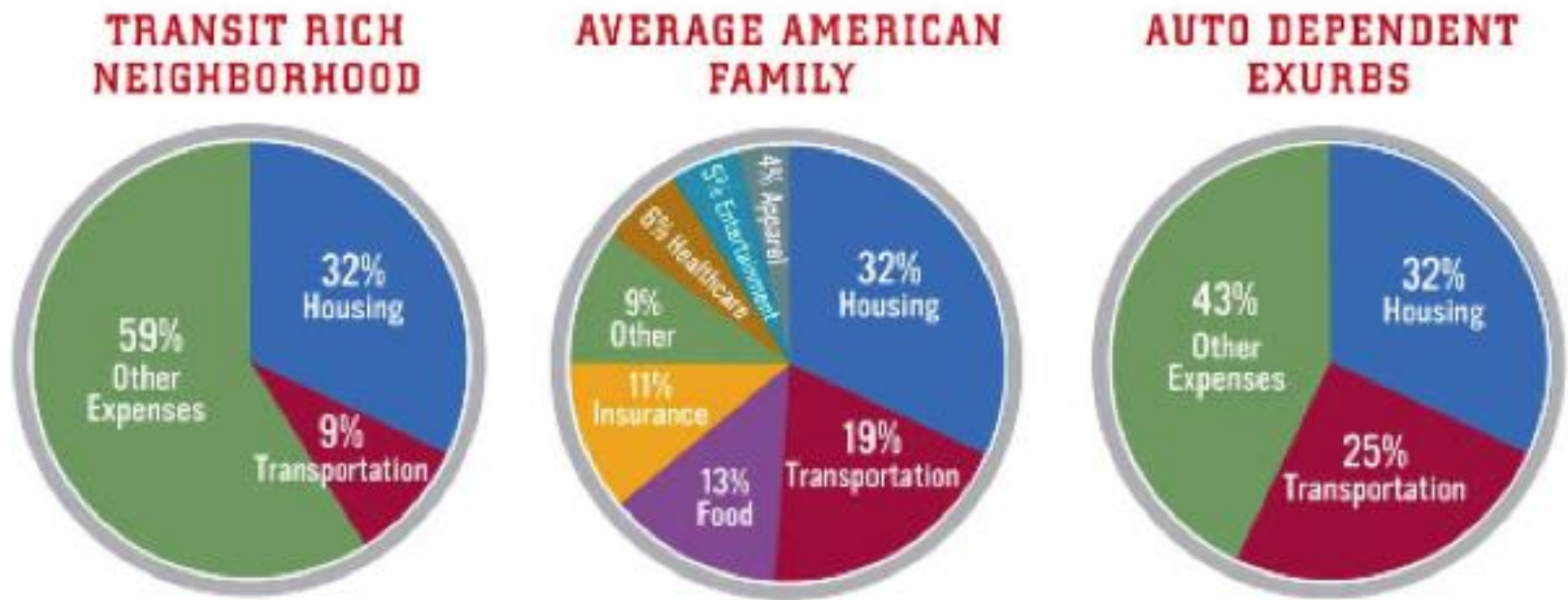
Co-benefits: Reduce infrastructure costs

More compact, walkable development patterns save money on avoided infrastructure costs

| | Water & Sewer Laterals Required | Water & Sewer Costs (billions) | Road Lane Miles Required | Road Land Miles Costs (billions) |
|----------------------------|------------------------------------|-----------------------------------|-----------------------------|-------------------------------------|
| Sprawl Growth Scenario | 45,866,594 | \$189.8 | 2,044,179 | \$927.0 |
| Compact Growth Scenario | 41,245,294 | \$177.2 | 1,855,874 | \$817.3 |
| Savings | 4,621,303 | \$12.6 (10.1%) | 188,305 | \$109.7 (6.6%) |

Sprawl Costs: Economic Impacts of Unchecked Development, Robert W. Burchell, Anthony Downs, Barbara McCann and Sahan Mukherji, Island Press, 2005

Co-benefits: Save people money



People in walkable, transit-rich neighborhoods spend only 9 percent of their monthly income on transportation costs; those in auto-dependent neighborhoods spend 25 percent.

Co-benefits: Create jobs

| Project type | Road | Bicycle | Pedestrian | Off-street trail | Number of projects | Direct jobs per \$1 million | Indirect jobs per \$1 million | Induced jobs per \$1 million | Total jobs per \$1 million |
|---|------|---------|------------|------------------|--------------------|-----------------------------|-------------------------------|------------------------------|----------------------------|
| Total, all projects | | | | | 58 | 4.69 | 2.12 | 2.15 | 8.96 |
| Bicycle infrastructure only | | • | | | 4 | 6.00 | 2.40 | 3.01 | 11.41 |
| Off-street multi-use trails | | | | • | 9 | 5.09 | 2.21 | 2.27 | 9.57 |
| On-street bicycle and pedestrian facilities (without road construction) | | • | • | | 2 | 4.20 | 2.20 | 2.02 | 8.42 |
| Pedestrian infrastructure only | | | • | | 10 | 5.18 | 2.33 | 2.40 | 9.91 |
| Road infrastructure with bicycle and pedestrian facilities | • | • | • | | 13 | 4.32 | 2.21 | 2.00 | 8.53 |
| Road infrastructure with pedestrian facilities | • | | • | | 9 | 4.58 | 1.82 | 2.01 | 8.42 |
| Road infrastructure only (no bike or pedestrian components) | • | | | | 11 | 4.06 | 1.86 | 1.83 | 7.75 |

Building bicycle and pedestrian infrastructure creates more jobs per dollar invested, compared to road infrastructure only



Source: Political Economy Research Institute: June 2011

Co-benefits: Create desirable places to live, work & play

Sprawl Community :

Preferred by 43%

There are **only single-family houses** on large lots

There are **no sidewalks**

Places such as shopping, restaurants, a library, and a school are within **a few miles** of your home and **you have to drive** most places

There is enough parking when you drive to local stores, restaurants, and other places

Public transportation, such as bus, subway, light rail, or commuter rail, is **distant or unavailable**

Smart Growth Community :

Preferred by 56%

There is a **mix** of single-family detached houses, townhouses, apartments, and condominiums on various sized lots

Almost all of the streets have **sidewalks**

Places such as shopping, restaurants, a library, and a school are within **a few blocks** of your home and **you can either walk or drive**

Parking is limited when you decide to drive to local stores, restaurants, and other places

Public transportation, such as bus, subway, light rail, or commuter rail, **is nearby**

Integrating Health into Urban & Building Design Policies & Practices

- The Need for **Partnerships Across Sectors**
- **Finding Synergies and Co-Benefits**
- **Complementary Roles of Partners**
 - Health: Data on key health issues; evidence for interventions; helped organize meetings/conferences for cross-sector discussions; co-leader/partner in initiatives; health-related evaluations
 - Planning, Transportation, Parks, Public Works, Housing, School Construction, Buildings, Private Sector Architects/Developers: Ideas of what's feasible in the current local context; identifying opportunities and mechanisms, including and especially synergistic efforts; co-Leadership and participation in the efforts
 - Researchers: evidence reviews and synthesis, evaluation research
- Using **Evidence-Based and Best-Practice Strategies**
- Using **Annual Conferences as Strategic Milestones**
 - E.g. Annual NYC Fit City Conferences since 2006

U.S. - Built Environment & Health Initiatives



Boston MA ~ Cherokee Nation OK ~ Chicago IL ~ Cook County IL ~

Douglas County NE ~ Jefferson County AL ~ King County WA ~ Louisville KY ~

Miami-Dade County FL ~ Multnomah County OR ~ Nashville TN ~ Philadelphia PA ~

Pima County AZ ~ San Diego CA



COMMUNITIES
PUTTING PREVENTION
TO WORK

Cross-Sector Partnerships in U.S. Cities

Key Intergovernmental Partners in Local Communities
(n=15, incl. NYC):

- Public Health – 15
- Planning – 15
- Transportation – 14
- Education/School Construction – 12
- Parks and Recreation – 12
- Public Works – 8
- Housing Development or Management – 6
- Buildings – 3

Cross-Sector Partnerships in U.S. Cities

Non-Governmental Partnerships (n=15 communities, incl. NYC):

- Community-Based/Non-Profit Groups – 13
- Environmental Organizations – 9
- American Planning Association local chapter – 7
- American Institute of Architects local chapter – 5
- American Society of Landscape Architects local chapter – 3
- Local Architecture, Planning and Design Institutions – 3
- Building Owners and Managers Association – 1

The Canadian Context



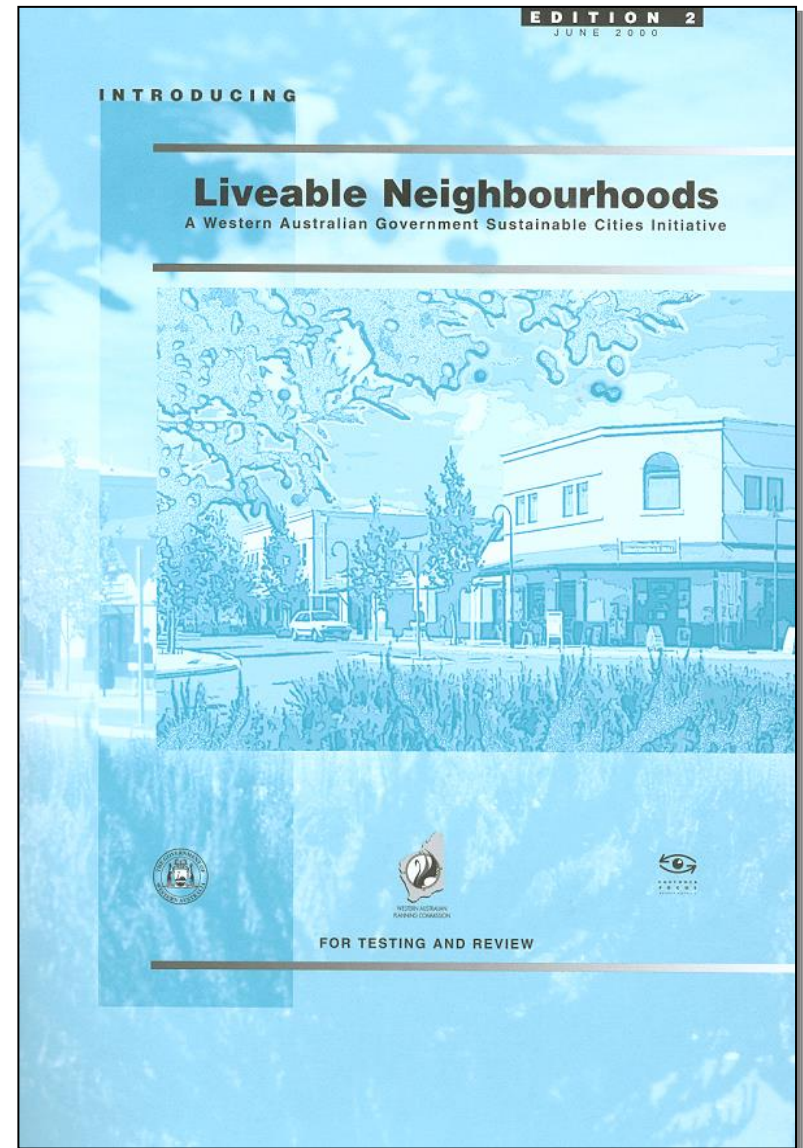
An initiative of:



- Goal: creating healthy communities that support active transportation and physical activity
- Partnership: national health, planning and transportation organizations
 - + non-governmental organizations + university researchers
 - + regional and local health authorities in 8 of the 10 provinces:
 - B.C., Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia, New Brunswick, Newfoundland

Integration of Health and Sustainability in Western Australia

- Liveable Neighbourhood Guidelines
- Guidelines incorporate 6 design elements:
 - Community Design
 - Movement Network
 - Lot Layout
 - Public Parkland
 - Urban Water Management
 - Utilities
- RESIDE study evaluating impact on:
 - walking, cycling, public transport use, sense of community and mental health



Cheonggyecheon Area before Retrofitting

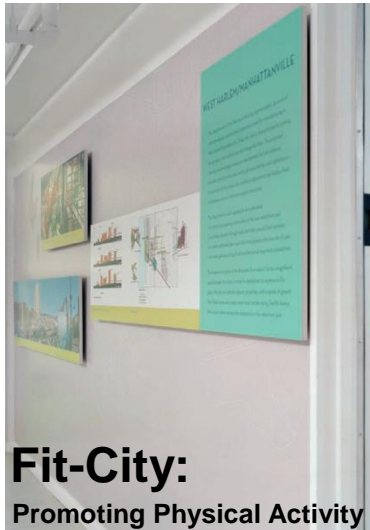


Cheonggyecheon Area after Retrofitting



THE CASE STUDY OF NEW YORK CITY

Fit City Conferences



Fit-City:
Promoting Physical Activity Through



FitCity7 PROMOTING PHYSICAL ACTIVITY
THROUGH DESIGN



Fit-City 3:
Promoting Physical Activity Through Design



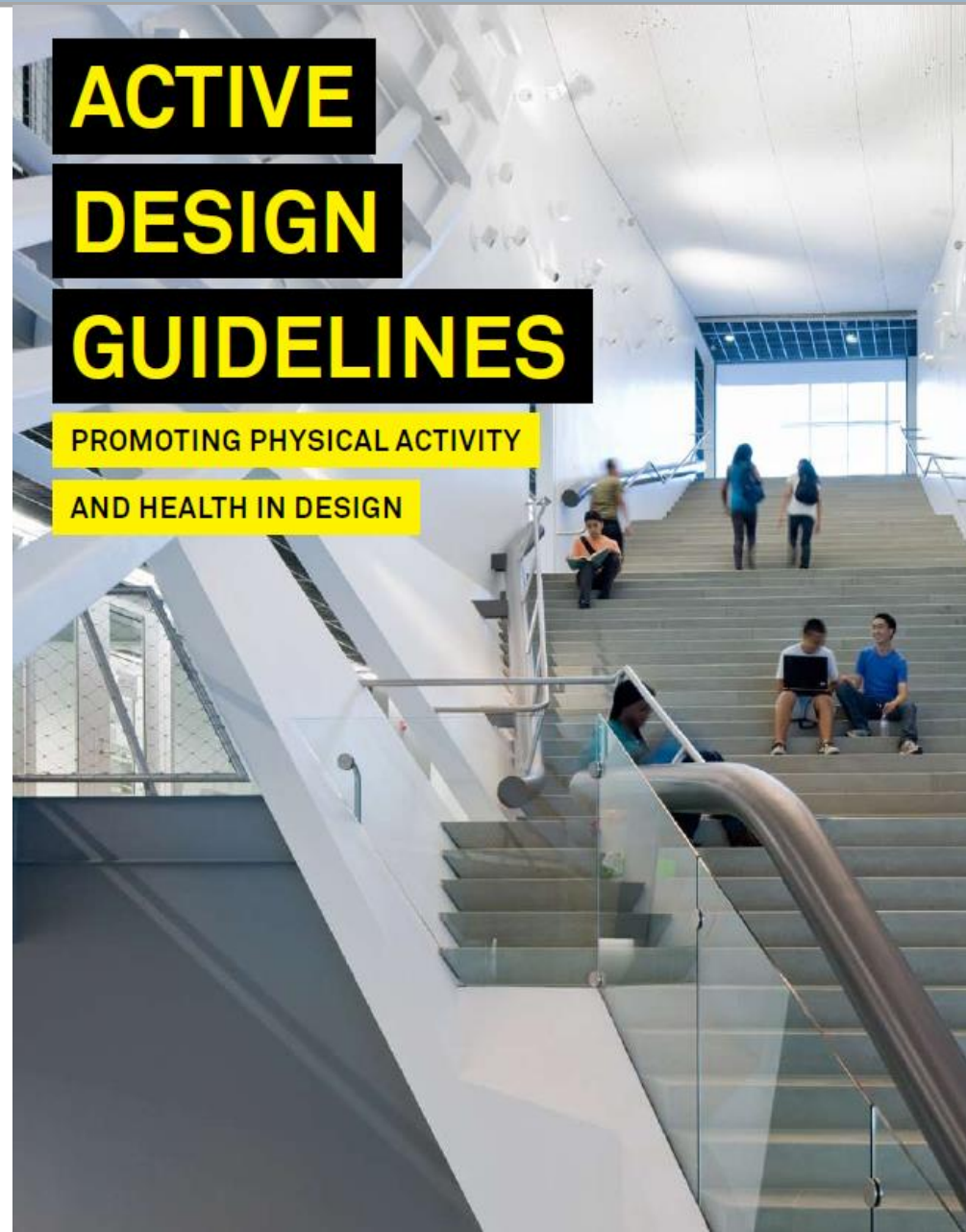
Fit-City 4:
Promoting Physical Activity through Design

The Active Design Guidelines

Chapters

- 1) Environmental Design and Health: Past and Present
- 2) Urban Design: Creating an Active City
- 3) Building Design: Creating Opportunities for Daily Physical Activity
- 4) Synergies with Sustainable and Universal Design

<http://a856-citystore.nyc.gov/2/Municipal-Publications/12/Surveys-Reports/90/Active-Design-Guidelines>



Creation of the Guidelines

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Alternatives

Thanks to all the design
practitioners and organizations
who participated in the 2009
Design Charrette to help test the
Guidelines prior to its publication.

*We also thank the many city
agencies that gave input including
the Depts of Parks and
Recreation, Buildings, Housing
Preservation and Development,
School Construction Authority,
Aging, and Mayor’s Offices of
Long-Term Planning and
Sustainability, and of People with
Disabilities.



Community Design Strategies

- Land Use Mix
- Access to Supermarkets, Farmers Markets, Drinking Water
- Parks / Play Areas / Plazas
- Transit Access
- Pedestrian Friendly Environment
- Bicycle Network and Infrastructure





Building Design Strategies

- Bicycle Parking and Storage
- Active Recreation Spaces for Children + Adults
- Stairs: Accessibility, Visibility, Convenience
- Stairs: Aesthetics
- Stairs: Signage and Prompts
- Skip-Stop Elevators
- Improving Access to Drinking Water



**Burn Calories,
Not Electricity**



Take the Stairs!

Walking up the stairs just 2 minutes a day helps prevent weight gain. It also helps the environment.

Learn more at www.nyc.gov or call 311.

Michael R. Bloomberg Mayor **nyc**    

General Approach



Added a Public Health Chapter:

“New York City is one of the healthiest cities in the United States, with a life expectancy that exceeds the national average.

This achievement is the result of visionary planning and sustained investment.....

.....Despite these successes, health challenges remain—and new ones are emerging—that require creative, modern shifts in how the city operates.”

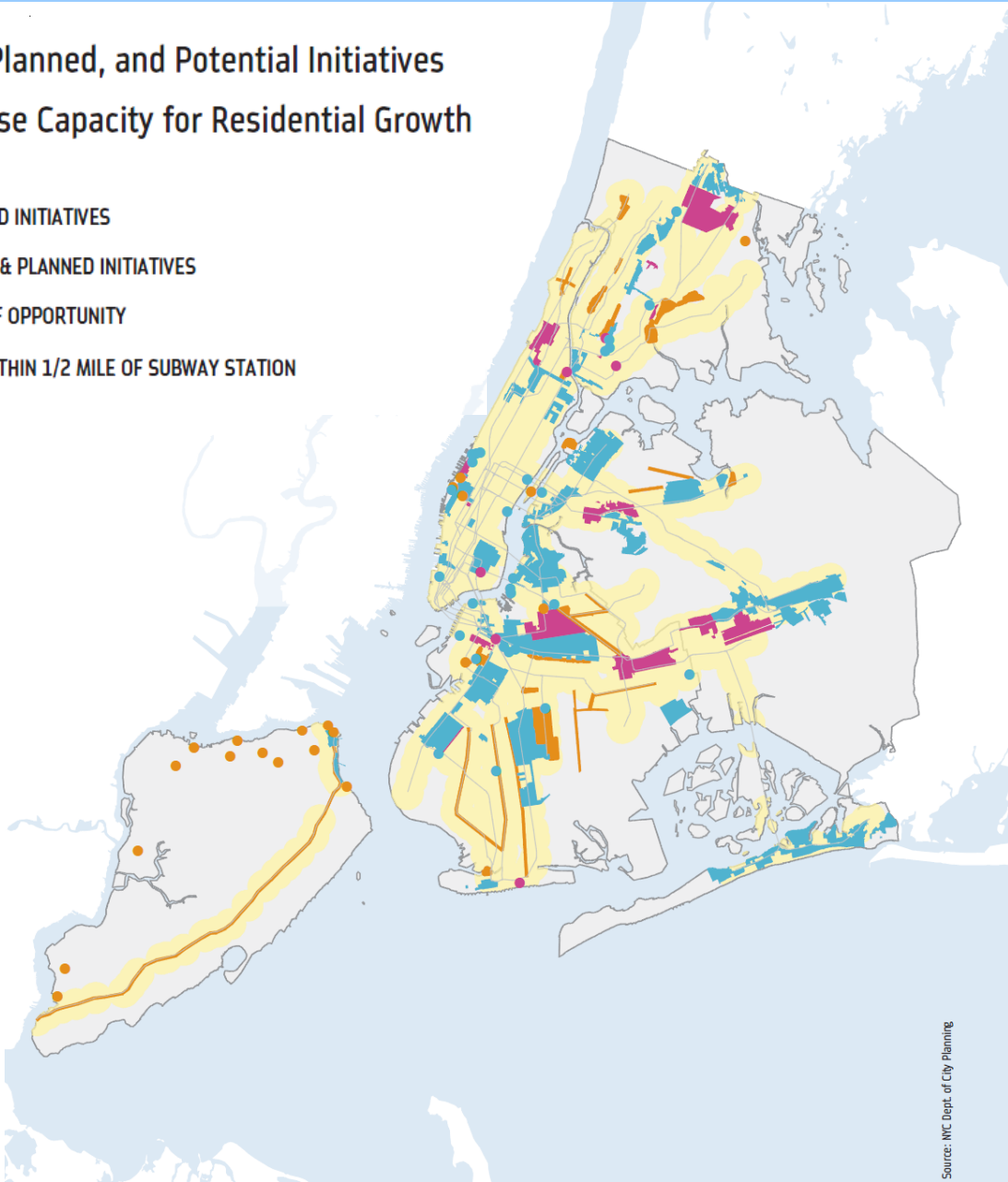
General Approach

Smart Growth

Focusing the development for 1 million new people by the year 2030 near public transit access.

Recent, Planned, and Potential Initiatives
to Increase Capacity for Residential Growth

- APPROVED INITIATIVES
- PENDING & PLANNED INITIATIVES
- AREAS OF OPPORTUNITY
- AREAS WITHIN 1/2 MILE OF SUBWAY STATION





City Policy + Implementation

Public Plaza Program





89% OF THE ROAD SPACE FOR
VEHICLES, 11% FOR PEOPLE



City Policy + Implementation

Public Plaza Program



Pedestrian volumes up:

- 6% in Herald Square
- 11% in Times Square

Retail up:

- in Times Square
- 49% drop in vacant storefronts in Union Square

Residential Streetscape Preservation Text Amendment



Too many curb cuts result in:

- 1. Unattractive streetscapes**
- 2. Loss of on-street parking**
- 3. Potential vehicular/pedestrian conflicts**
- 4. Loss of ground floor retail space in commercial and mixed-use districts**

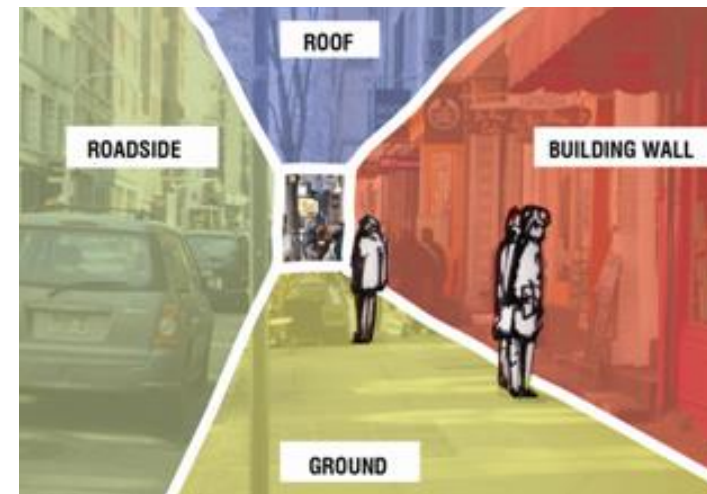
Creating a more continuous and inviting pedestrian environment

Residential Streetscape Preservation Text Amendment



Creating a more continuous and inviting pedestrian environment

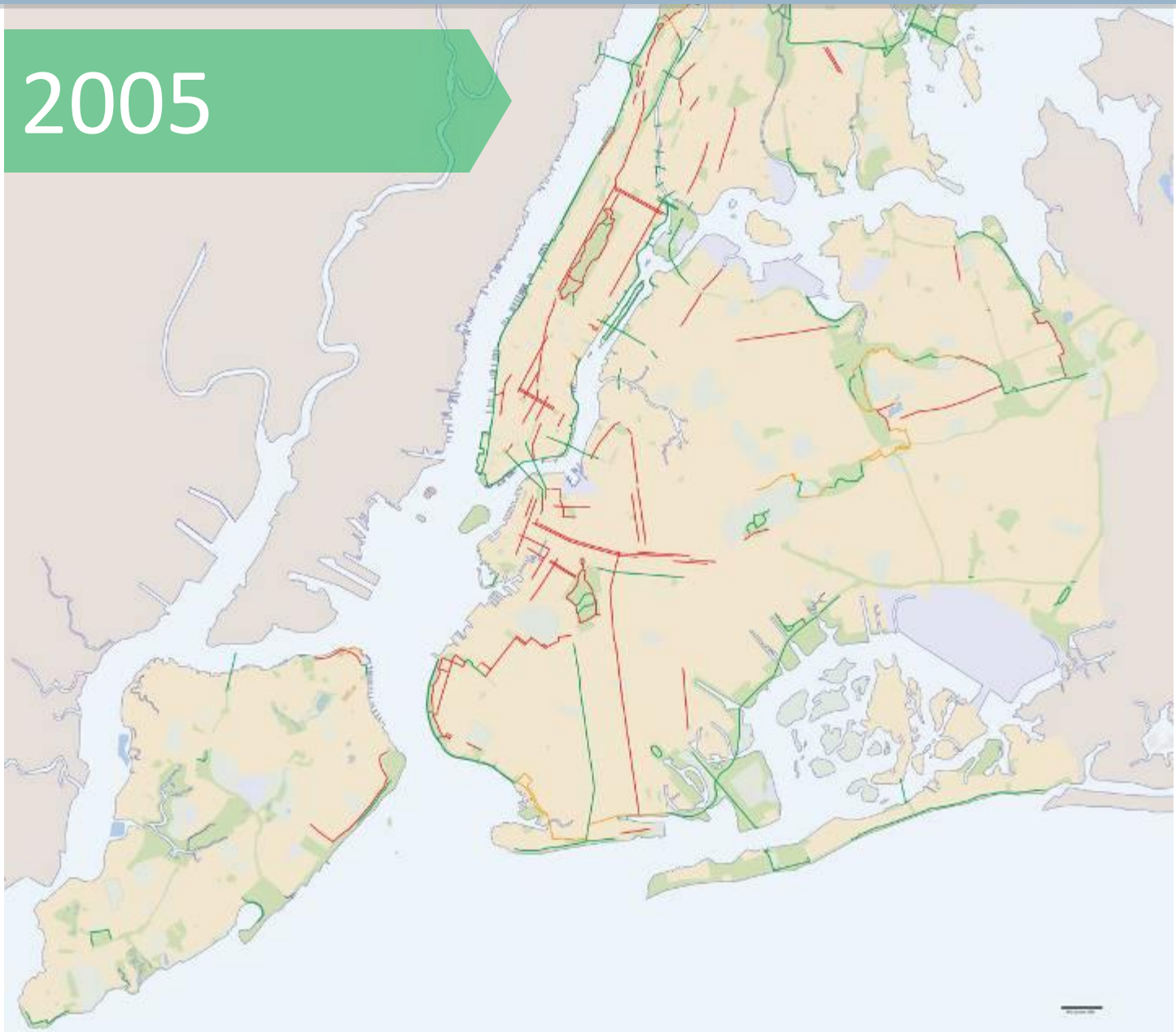
Improving Sidewalks



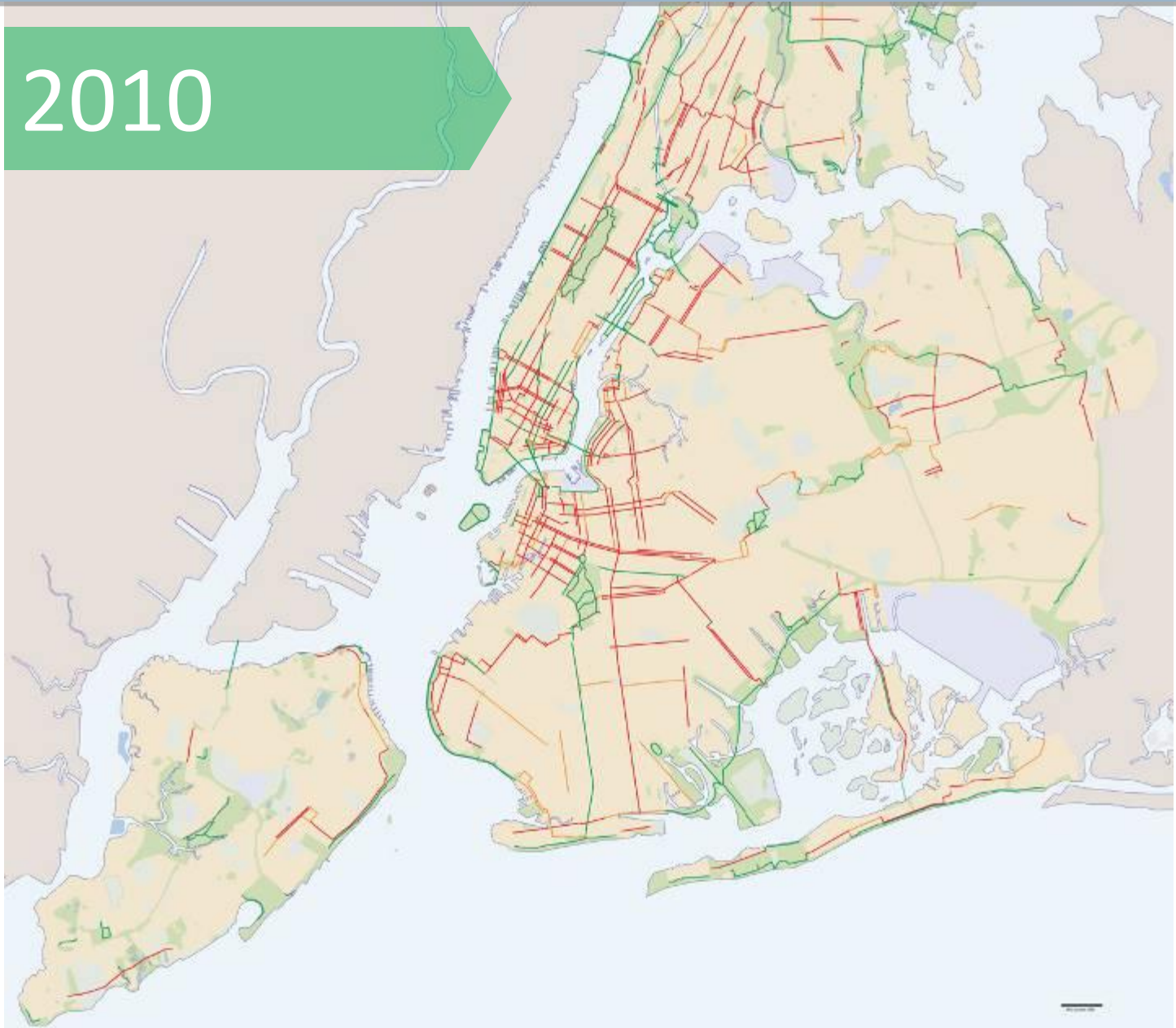
http://www.nyc.gov/html/dcp/html/sidewalk_experience/index.shtml

Bicycle Network

2005

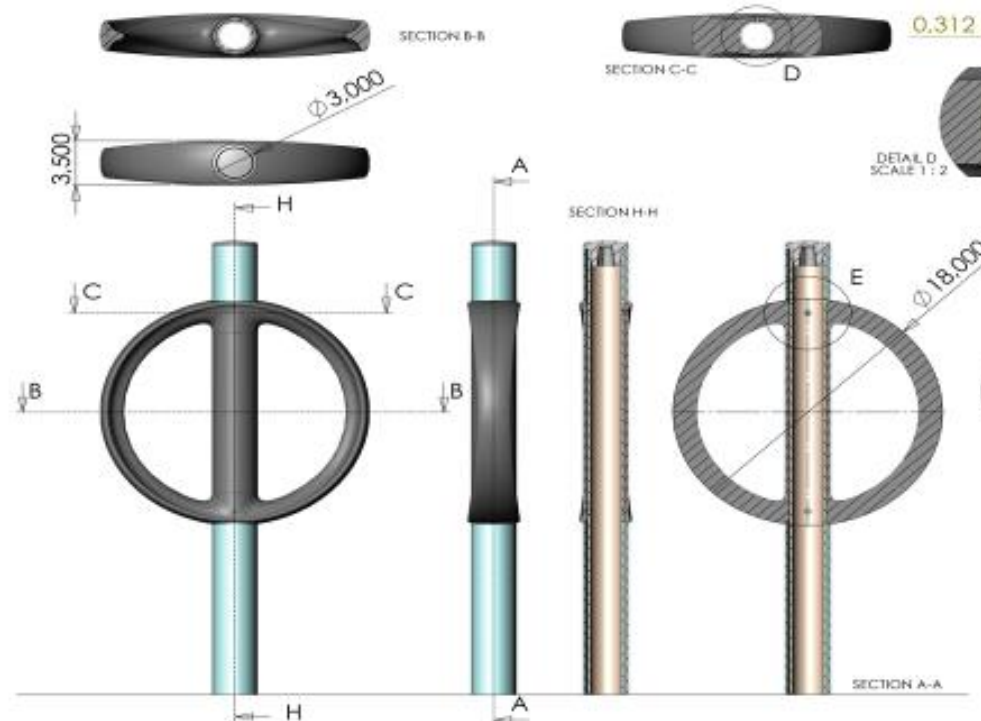


2010

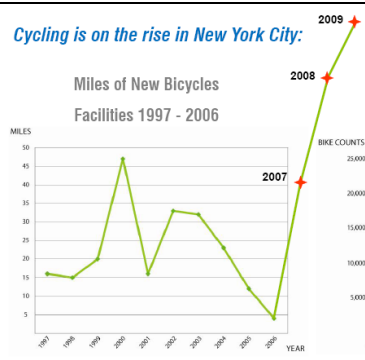
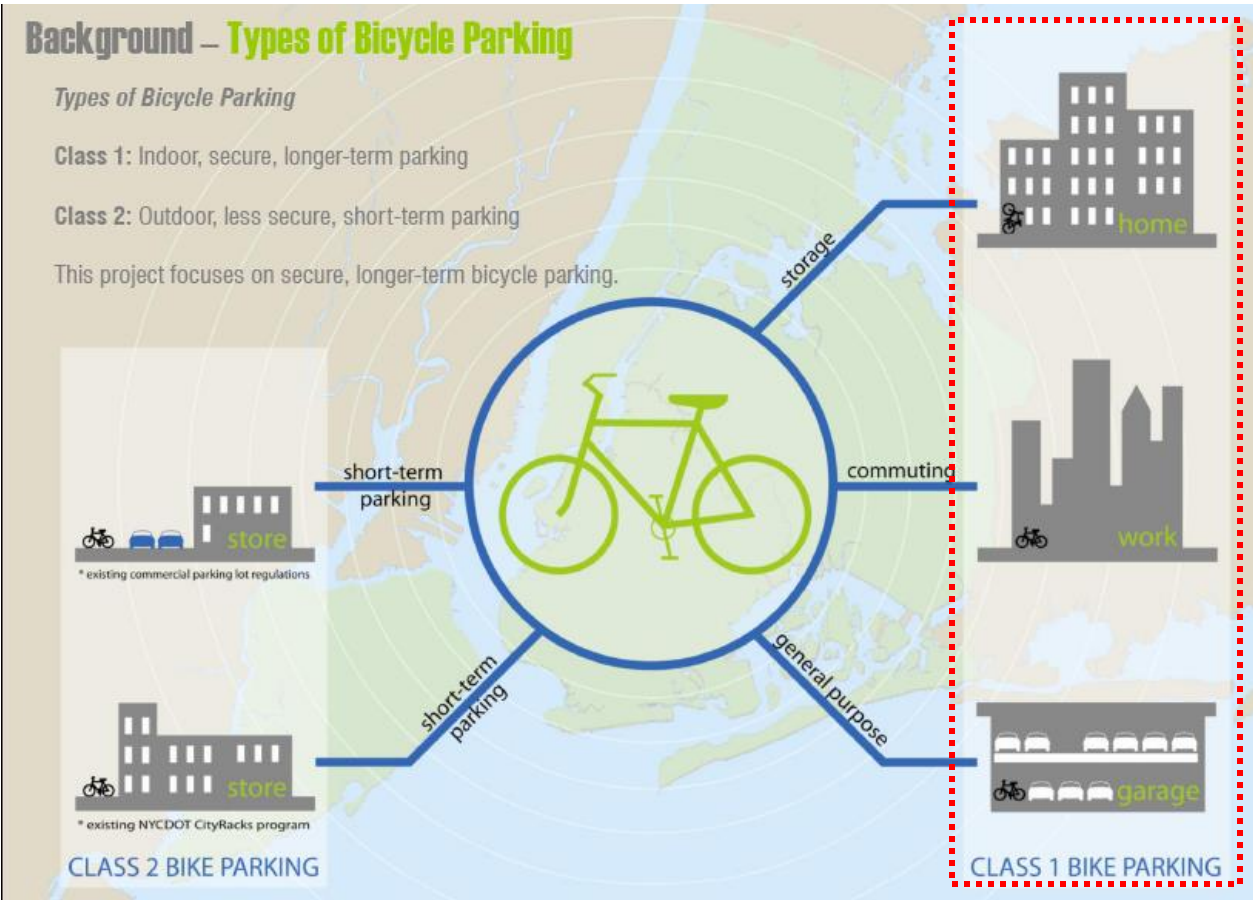
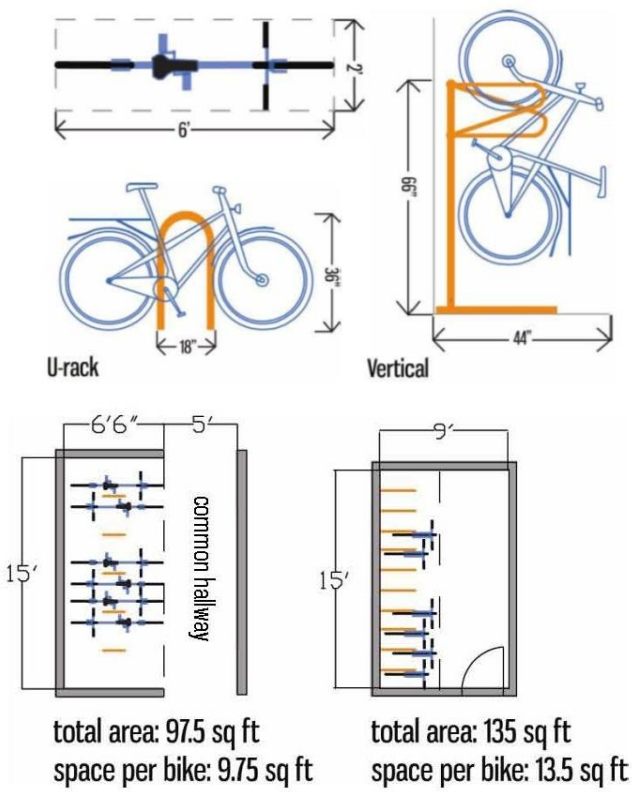


City Policy + Implementation

Bicycle Infrastructure



Zoning for Bicycle Parking



Bicycle parking now required for new buildings, enlargements, conversions and public parking garages (floor area is discounted)

NYC Bike Share



- Started 2013
- 10,000 bicycles, 600 stations – Manhattan, Queens, Brooklyn (including Brooklyn DPHO)
- Bike Share Health Evaluation – Chronic Disease, Injury, Environmental Health

Car Share Zoning Text Amendment

12 car share vehicles
would eliminate demand
for an estimated
28-154 cars in the area

Up to 40% of total spaces



EXAMPLE



Size of facility : 40 spaces

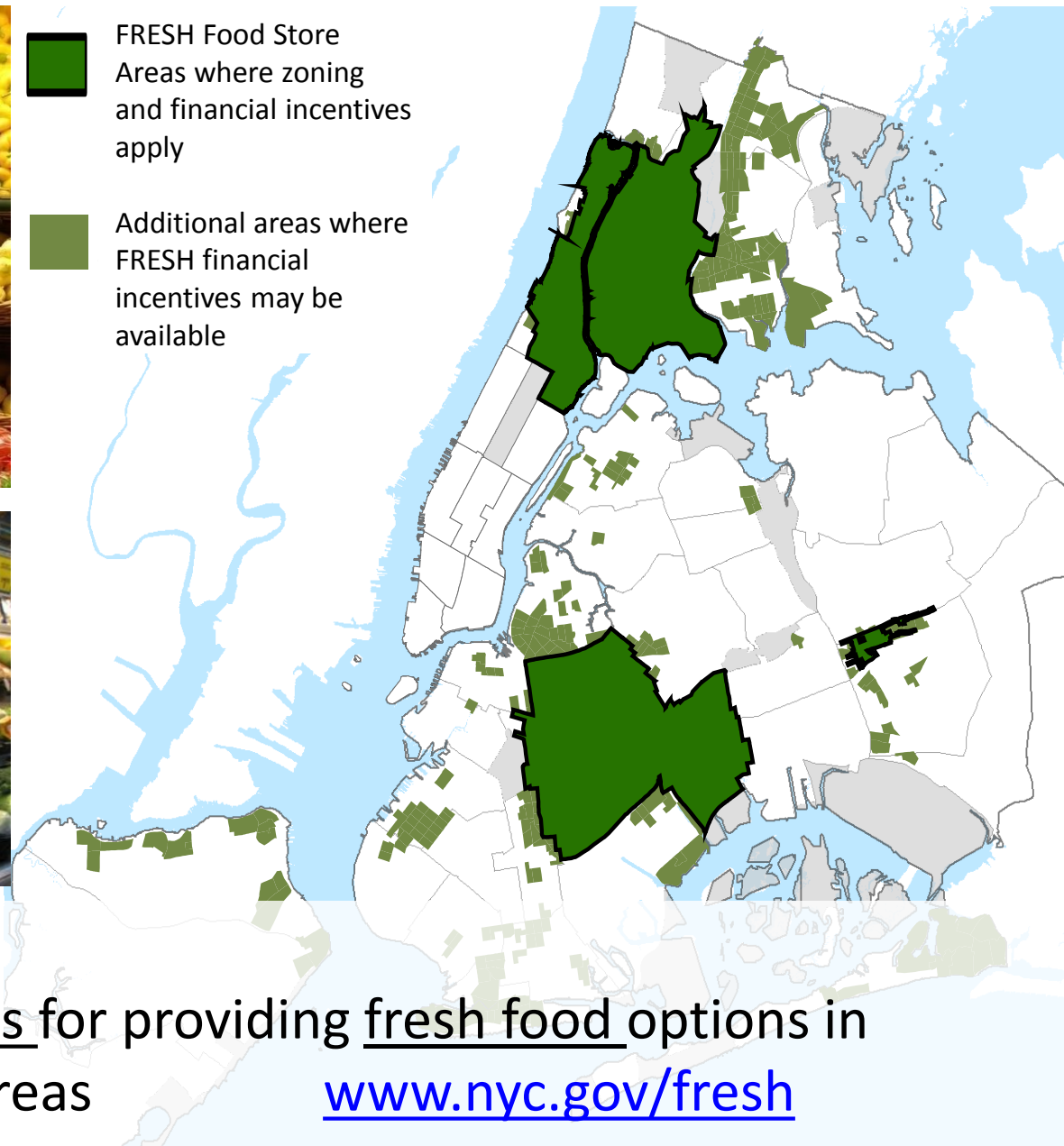
Car sharing vehicles : up to 12 cars

- Define 'car share' in the zoning resolution
- Establish rules for quantity and location

Food Retail Expansion to Support Health (FRESH)



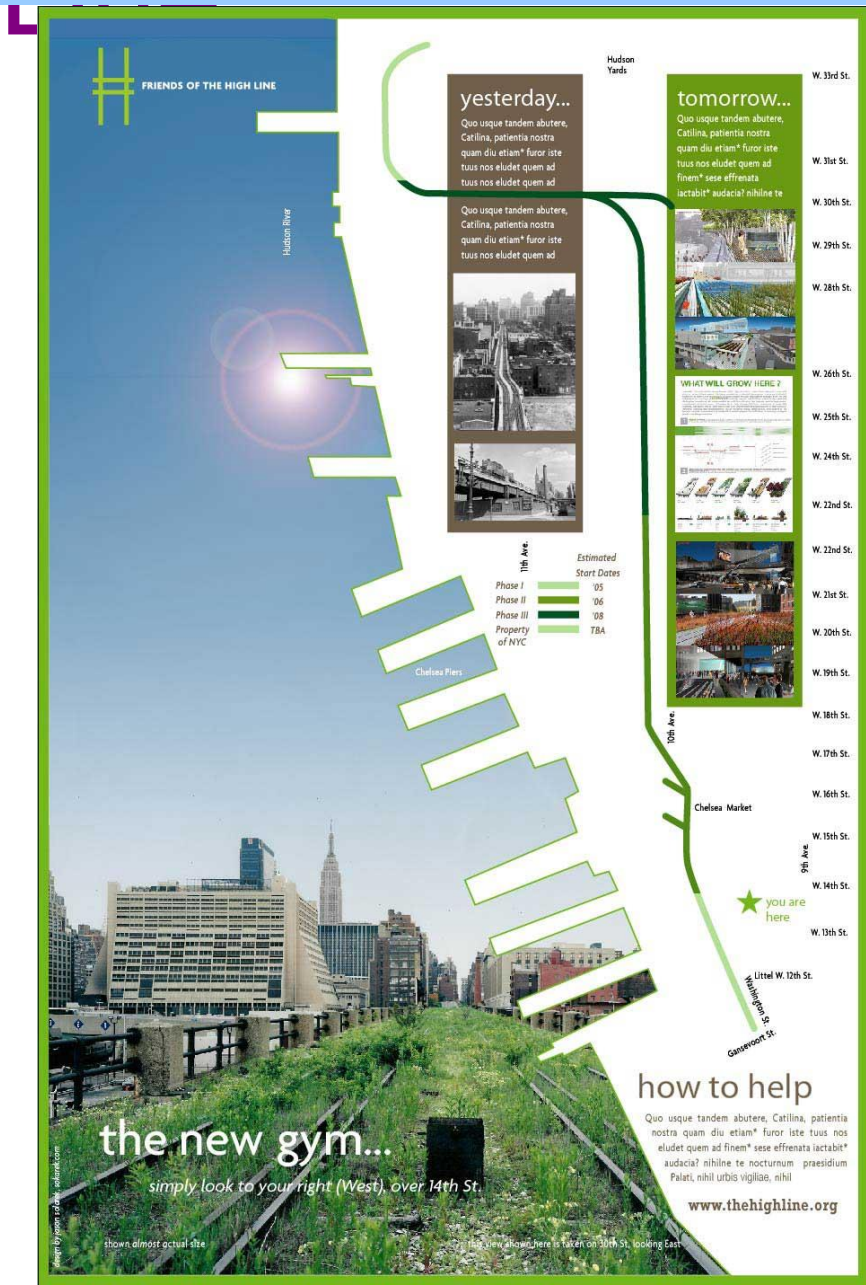
-  FRESH Food Store
Areas where zoning and financial incentives apply
-  Additional areas where FRESH financial incentives may be available



NYC FRESH Program:
Zoning and tax incentives for providing fresh food options in
the city's underserved areas

www.nyc.gov/fresh

Public Parks and Open Spaces



Vision 2020: Comprehensive Waterfront Plan



Programming Streets for Active Recreation and Non-Car Mode Uses: Summer Streets and Play Streets



Summer Streets

Evaluation:

- Average amount of physical activity from distances walked, ran, biked on route: **>40 minutes of vigorous physical activity, or >70 minutes of moderate physical activity (~1/2 of recommended weekly PA)**
- **24%** of people were **those who didn't meet PA Recs**
- **87%** of participants got to event by **active modes**



Play Streets

Evaluation:

Ages of children attending Playstreets (from surveys): Ages 1-13

Visited Playstreets at least once before: >80%

Average length of time children stayed at the Playstreet (from surveys):
~1.5hours

Most likely activity if children had not come to the Playstreet:

TV or other inside activity: **52%**

Outdoor activity: **38%**

Indoor or outdoor activity equally likely: **10%**



Improved Access to Tap Water - Public Realm & Buildings



Stair Promotion



Burn Calories,
Not Electricity



Take the Stairs!

Walking up the stairs just 2 minutes a day helps prevent weight gain. It also helps the environment.

Learn more at www.nyc.gov or call 311.

Michael R. Bloomberg
Mayor

nyc





REBNY

- Better designed buildings
- >30,000 stair prompt signs distributed to owners and managers of >1,000 buildings



Creating New Green Building Credits: LEED Pilot Credit “Design for Active Occupants”

- Adult and children’s active recreation spaces, gardening space, stair use promotion strategies – point added to existing points for site density, walkability, transit access and bike storage
- Being used in >30 NYC & U.S. buildings, incl. worksite buildings, public buildings, affordable housing developments



Integrating Health Items into City Administrative Processes Across Sectors

- Public Sector Design & Construction RFPs and Contracts
- Guidelines and Standards for Foods & Beverages served by City Agencies
- Design and Construction Guidelines and Standards in Different Agencies – Public Buildings, Streets, Schools, Housing
- Training of City staff in all relevant agencies
- >3000 U.S. architects, planners and other built environment professionals trained (>2000 in NYC)
- Training sessions shown to be **effective**
 - >**70%** **had not read** the Active Design Guidelines before
 - >**85%** say they **plan to use strategies** in Guidelines
 - >**80%** say their **employers will be receptive** and **clients will be receptive** to incorporating strategies

Impacts in NYC

- Increased:
 - Pedestrian volumes through pedestrian plazas
 - Stair use, where stair prompts are posted
 - Commuter cycling – up 289%
 - Bus and subway ridership – up 10%
 - Places for children's play - >60 new Play Streets permitted; >180 schoolyards to playgrounds opened
- Decreased:
 - Traffic fatalities 37%
 - Traffic volumes 1.5%
 - Car registrations 5%
- Started Reversing Childhood Obesity (also in Philadelphia & San Diego!)
- Positive Environmental and Economic Impacts