

# Winter Cities Can Be A Lot More Fun – and Healthy Too!

Dr. Karen Lee, MD MHSc FRCPC

[www.drkarenlee.com](http://www.drkarenlee.com)



**They want communities that are liveable, vibrant and sustainable**

**Accessibility, Walkability, Beauty and Community**

Access to **public transportation (Bus and LRT)** that can connect them to other parts of the city

Places such as **shopping, restaurants, a library, and a school** are accessible and act as community hubs where neighbours can connect with each other

**Walkability** with quick access to amenities/services, activities or recreation – density and a more pedestrian lifestyle can help bring communities closer together

People **walking outside, kids playing and recreation opportunities**

Neighborhoods that are **attractive and beautiful** make them more livable and sustainable

# People Elsewhere Want Healthier Communities Too!

## 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**

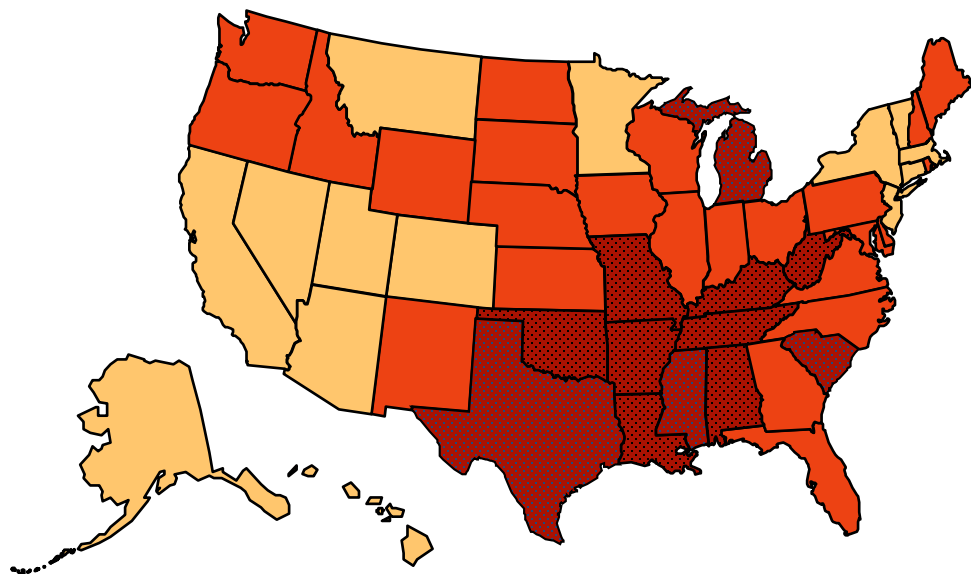
**Parking is limited** when you decide to drive to local stores, restaurants, and other places

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

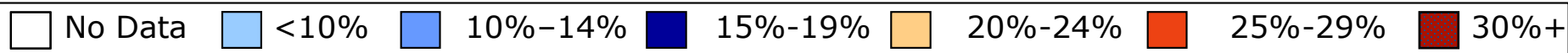
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# WHY IS THIS IMPORTANT?

## 1. GOOD FOR PEOPLE



Obesity in the U.S., 2010



## **Non-Communicable Diseases** (including Heart Disease & Strokes, Cancers, Diabetes, Chronic Lung Disease)

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

Leading Risk Factors accounting for large % of deaths:

- Tobacco (6m deaths/y)
- **Physical Inactivity (3.2m deaths/y)**
  - **Unhealthy Diets**
- Harmful Use of Alcohol (2.3m deaths/y)
- **High Blood Pressure (7.5m deaths/y)**
- **Overweight and obesity (2.8m deaths/y)**
  - **High Cholesterol (2.6m deaths/y)**
- Cancer-associated infections (2m deaths/y)

WHO, 2010 – see [http://www.who.int/nmh/publications/ncd\\_report\\_summary\\_en.pdf?ua=1](http://www.who.int/nmh/publications/ncd_report_summary_en.pdf?ua=1)

# OBESITY is a GLOBAL EPIDEMIC

Worldwide obesity has more than doubled since 1980.

In 2014, more than 1.9 billion adults, 18 years and older, were overweight (39%). Of these over 600 million were obese (13%).

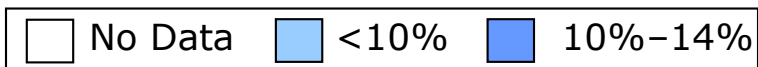
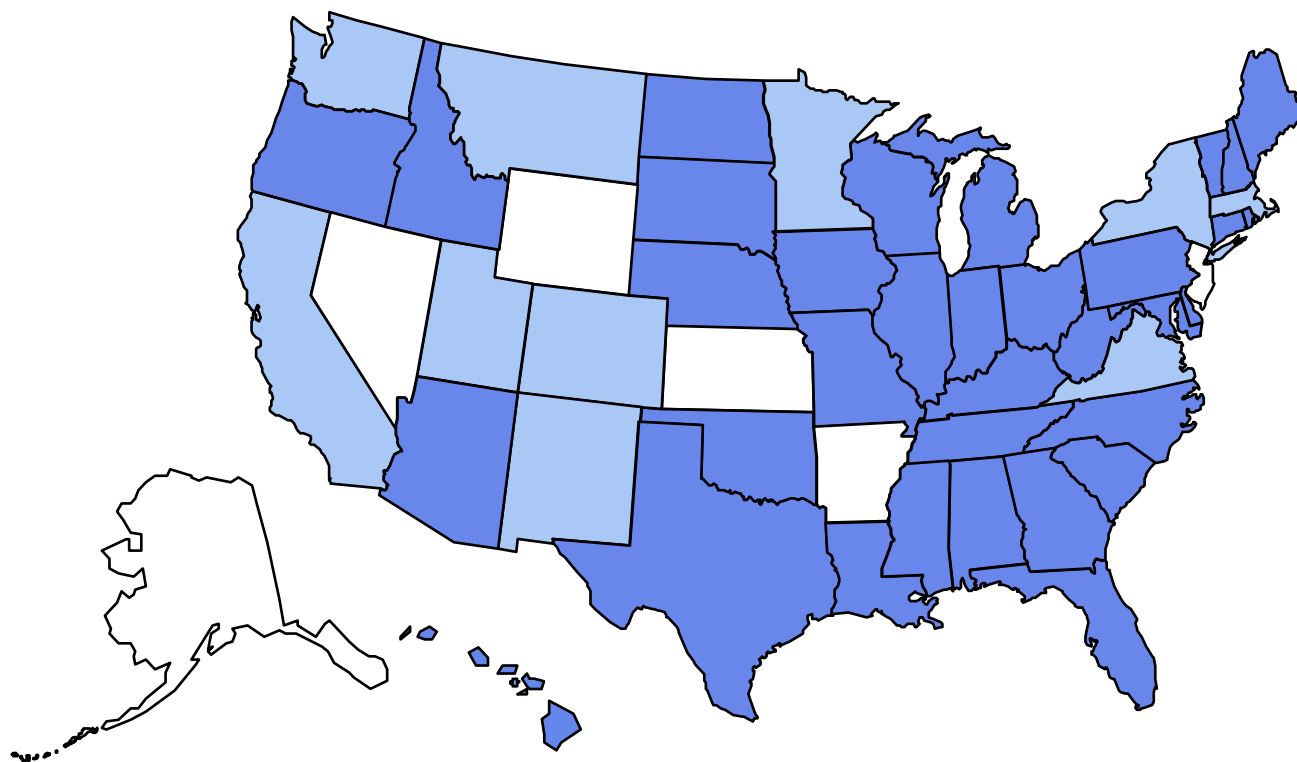
42 million children under the age of 5 were overweight or obese in 2013.

- World Health Organization, 2015

# Obesity Trends\* Among U.S. Adults

## BRFSS, 1990

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5' 4" woman)



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

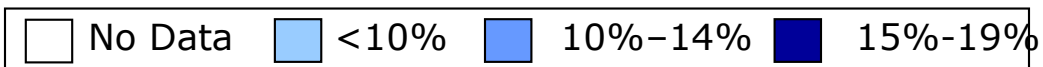
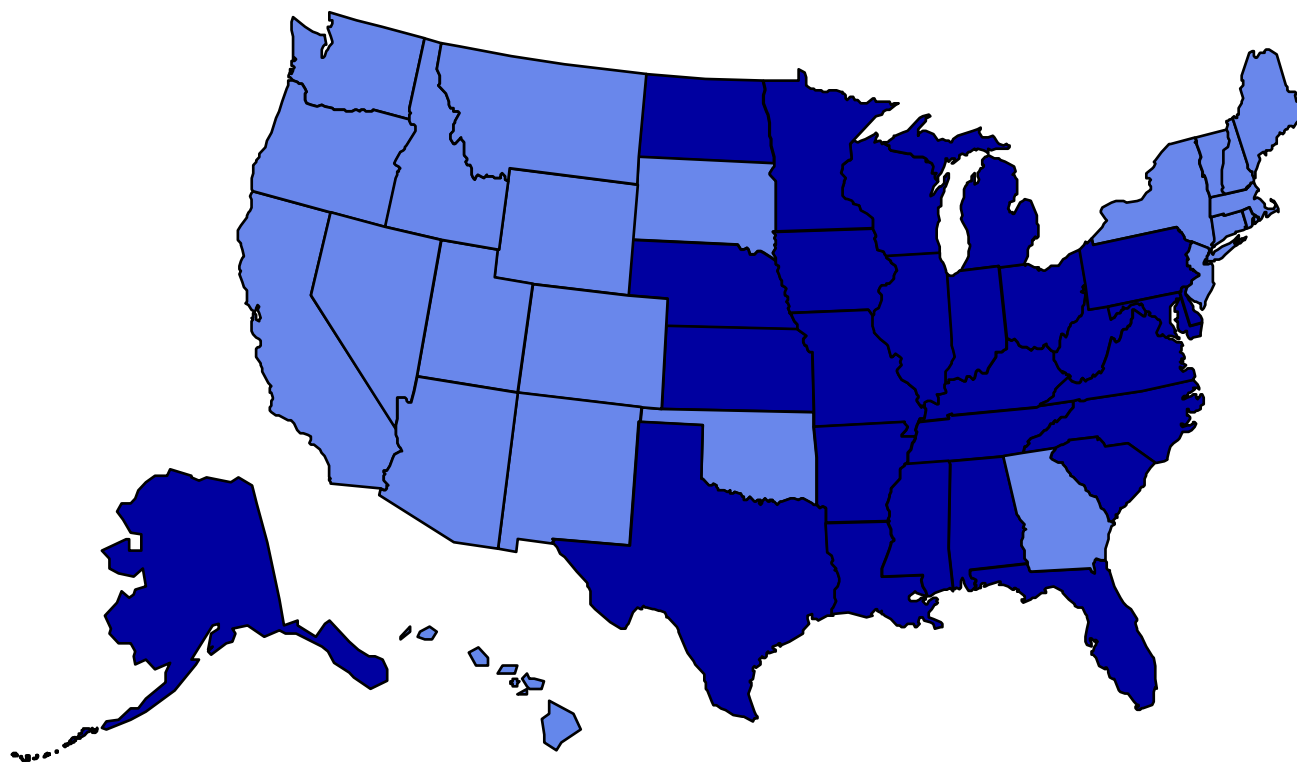
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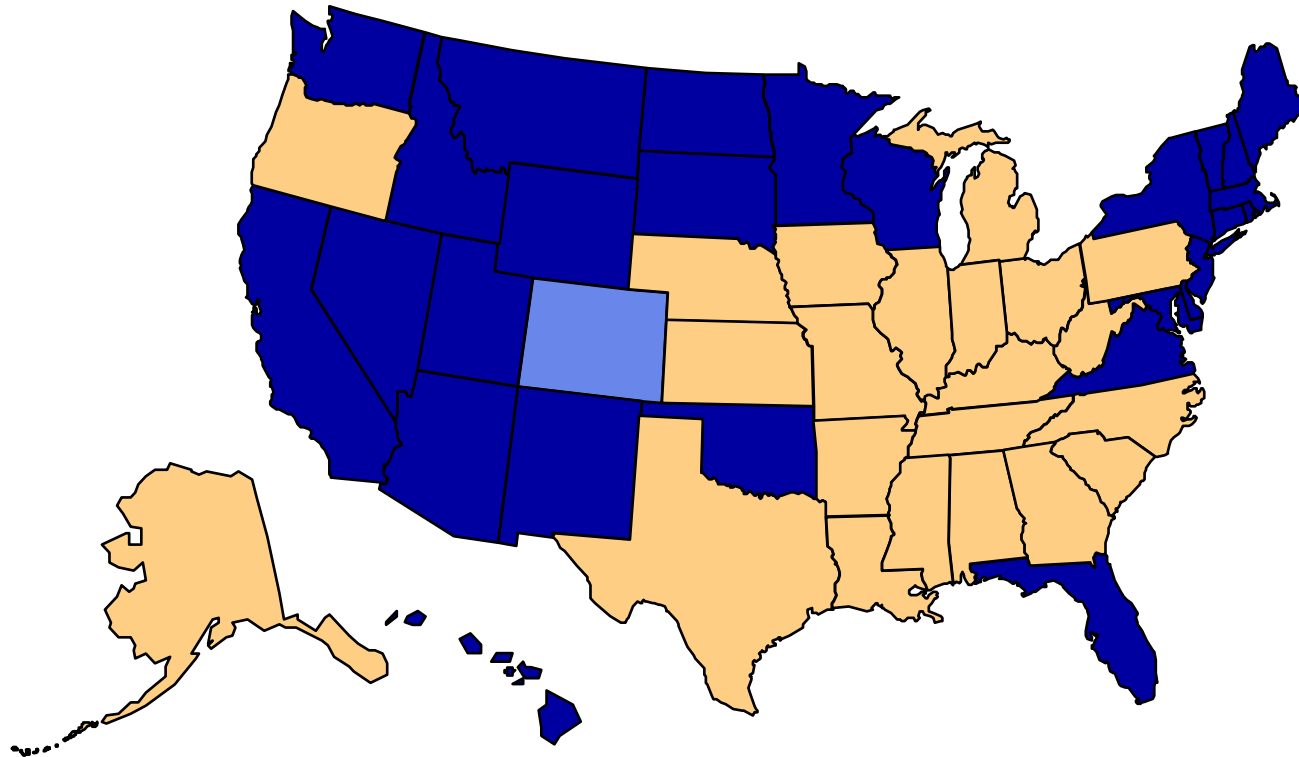
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# Obesity Trends\* Among U.S. Adults

## BRFSS, 2000

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5' 4" woman)



No Data
  <10%
  10%–14%
  15%–19%
  20%+

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



**DR. KAREN LEE** HEALTH + BUILT ENVIRONMENT CONSULTING

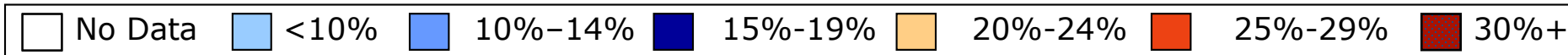
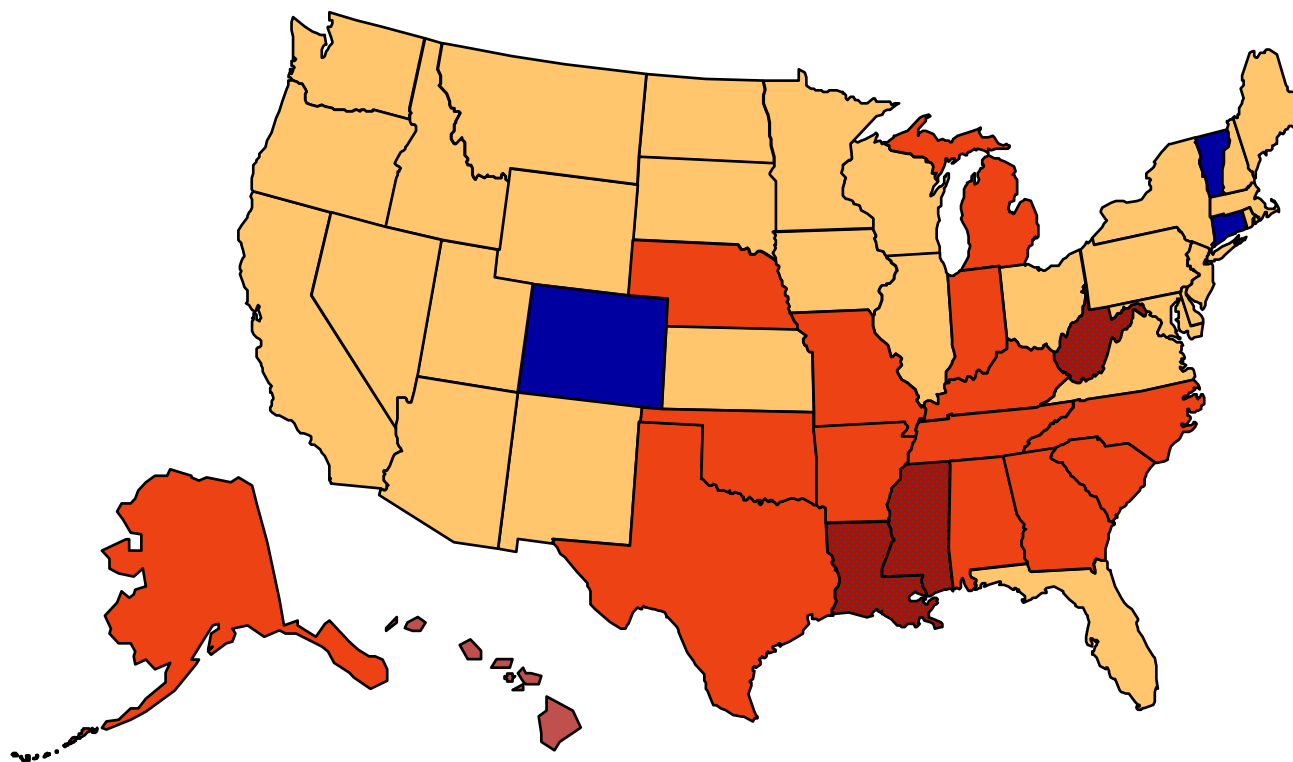
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# Obesity Trends\* Among U.S. Adults

## BRFSS, 2005

(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5' 4" woman)



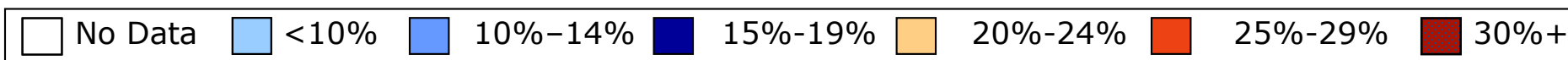
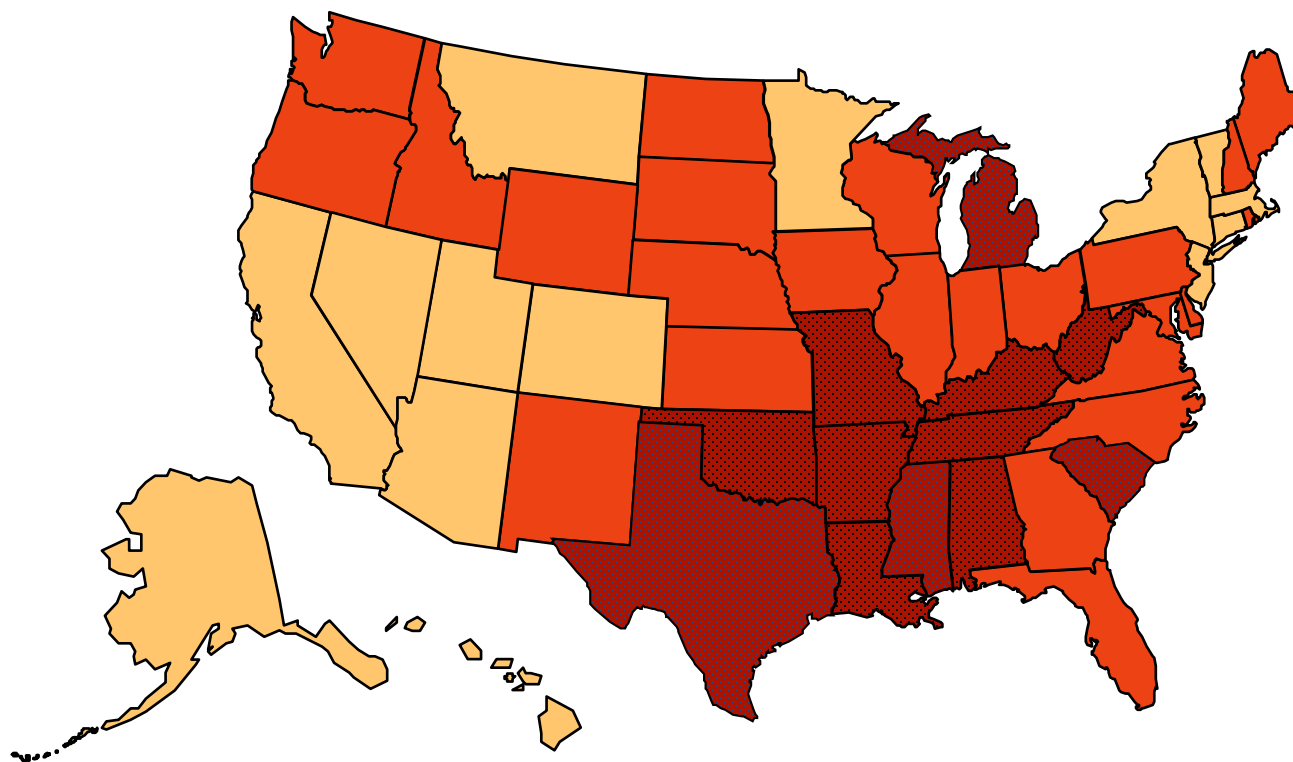
Source: U.S. Centers for Disease Control and Prevention (CDC)

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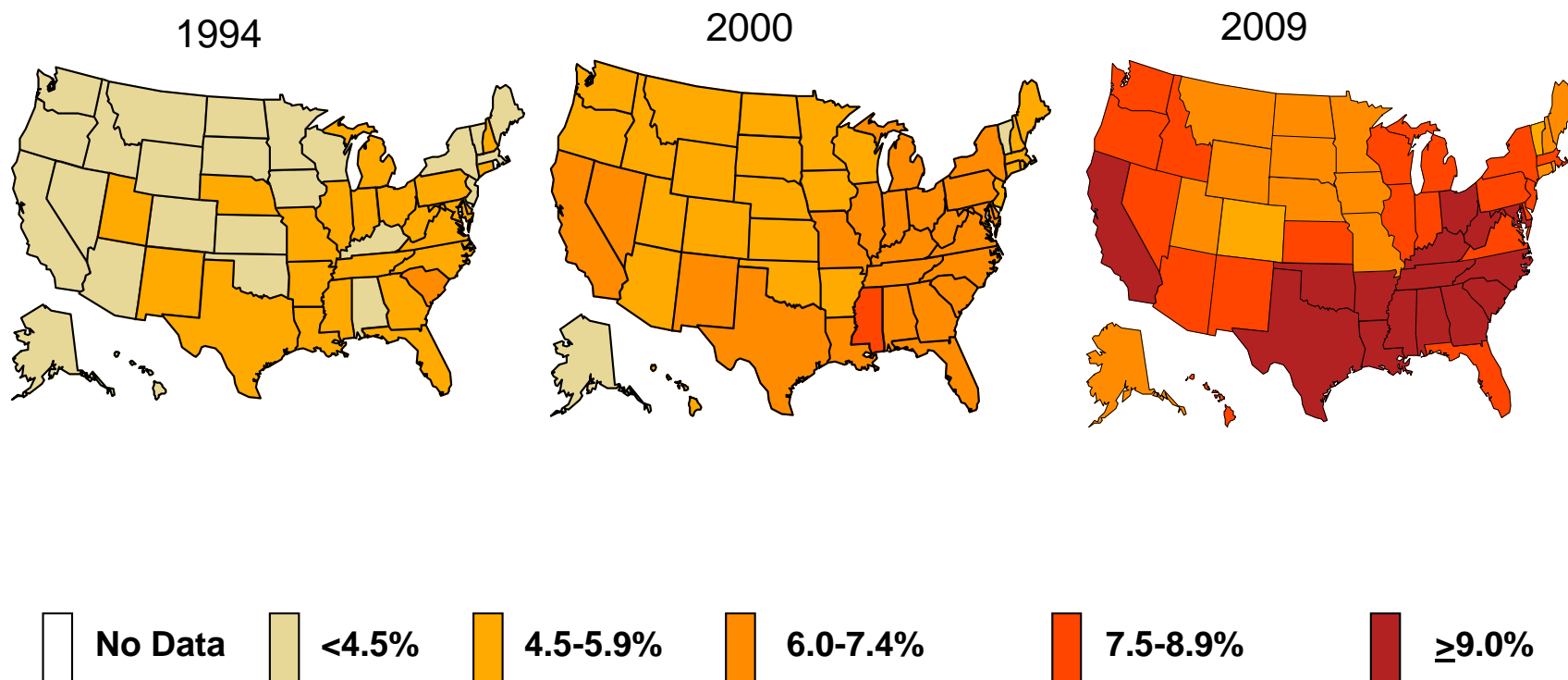


Source: U.S. Centers for Disease Control and Prevention (CDC)

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# 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>

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

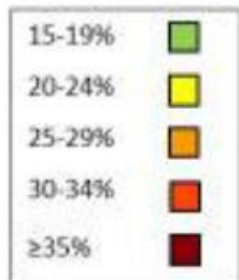
per year.

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# Obesity Trends Among Canadian Adults

Figure 1



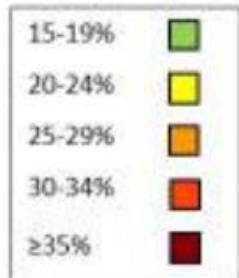
Source: Gotay C., Katzmarzyk P., Janssen I., Dawson M., Aminoltejadi, K., Bartley N. (2013). Updating Canada's obesity maps: An epidemic in progress. *Canadian Journal of Public Health*, 104(1).

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# Obesity Trends Among Canadian Adults

Figure 1



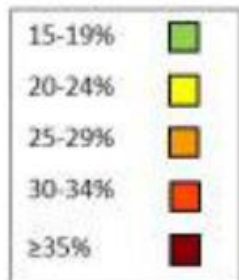
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# Obesity Trends Among Canadian Adults

**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).

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# Obesity in Children has Risen Even More Rapidly

In the US:

- Childhood obesity has more than doubled in children, and quadrupled in adolescents in the past 30 years.
- In 2012, >1/3 of children and adolescents were overweight or obese.

<http://www.cdc.gov/healthyyouth/obesity/facts.htm>

In CANADA:

- Since the late 1970s, overweight and obesity has risen among children and adolescents in Canada.
- 2009-2011: 31.5% of 5-17 year olds (~1.6 million) were overweight or obese; 32.8% of 5-11 year olds were overweight or obese (WHO Approach)
- Excess weight in childhood has been linked to type 2 diabetes, hypertension, poor emotional health, and diminished social well-being.
- Obese children tend to become obese adults.

<http://www.statcan.gc.ca/pub/82-003-x/82-003-x2012003-eng.htm>

<http://www.statcan.gc.ca/pub/82-003-x/2012003/article/11706-eng.htm>

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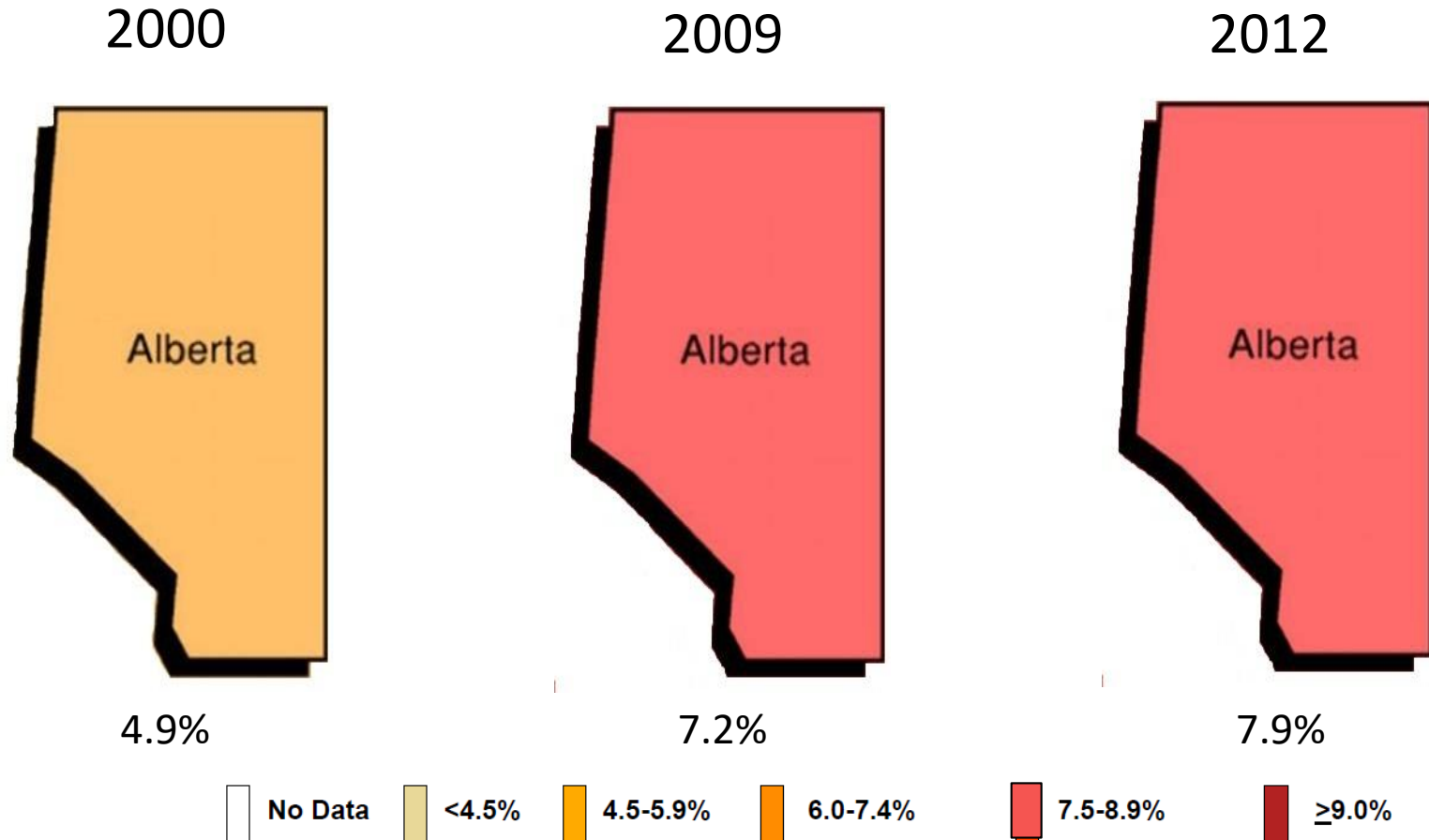
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## Alberta's Chronic Disease Rates Are Increasing

- Twice as many people are living with **diabetes** than 10 years ago 218,000 people now
- 162,000 Albertans suffering with **ischemic heart disease** in 2011
- Over 14% diagnosed with **hypertension**

# Diabetes trends among: Albertans- adults (20+)



Source: Alberta (2014). Interactive Health Data Application. Retrieved from:  
[http://www.ahw.gov.ab.ca/IHDA\\_Retrieval/ihdaData.do](http://www.ahw.gov.ab.ca/IHDA_Retrieval/ihdaData.do)

# HIGH LEVELS OF PHYSICAL INACTIVITY IN CANADA



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# WHO-Recommended Interventions

- **Protecting people from tobacco smoke and banning smoking in public places;**
- Warning about the dangers of tobacco use;
- Enforcing bans on tobacco advertising, promotion and sponsorship;
- Raising taxes on tobacco;
- Restricting access to retailed alcohol;
- Enforcing bans on alcohol advertising;
- Raising taxes on alcohol;
- Reduce salt intake and salt content of food;
- Replacing trans-fat in food with polyunsaturated fat;
- Promoting public awareness about diet and physical activity, including through mass media;
- Nicotine dependence treatment;
- Enforcing drink-driving laws;

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# WHO-Recommended Interventions

- **Promoting adequate breastfeeding** and complementary feeding;
- Restrictions on marketing of foods and beverages high in salt, fats and sugar, especially to children;
- Food taxes and subsidies to promote healthy diets.
- **Healthy nutrition environments in schools;**
- Nutrition information and counselling in health care;
- National physical activity guidelines;
- **School-based physical activity programs for children;**
- **Workplace programs for physical activity and healthy diets;**
- **Community programs for physical activity and healthy diets;**
- **Designing the built environment to promote physical activity.**

WHO, 2011 – see [http://www.who.int/nmh/publications/ncd\\_report\\_summary\\_en.pdf?ua=1](http://www.who.int/nmh/publications/ncd_report_summary_en.pdf?ua=1)

**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; natural lighting in stairwells

## **Design stairs to be more convenient and visible**

## **Skip-stop elevators**

**3300% increase** in stair use

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**Increasing  
Access to  
Healthy Foods  
and Beverages**

**Access to Supermarkets and Full-Service Grocery Stores**

**Additional Access to Fruits and Vegetables –  
e.g. Farmers Markets**

**Community Gardening Opportunities**

**Access to Drinking Fountains and Water Bottle Refilling Stations**

**Access to Spaces for Breastfeeding**

**Decreasing  
Exposure to  
Unhealthy  
Foods and  
Beverages**

**E.g. Decreasing Fast Food Outlet Density**

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# WHY IS THIS IMPORTANT?

## 2. GOOD FOR OUR ENVIRONMENT

	Fuel / Electricity Use	Air Quality	Obesity/Diabetes/ Heart Disease
<b>Biking or walking rather than automotive transport</b>	√	√	√
<b>Stairs rather than elevators and escalators</b>	√	√	√
<b>Active recreation rather than television</b>	√	√	√
<b>Fresh Produce rather than Processed Foods</b>	√	√	√
<b>Tap Water rather than Bottled Beverages</b>	√	√	√

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## WHY IS THIS IMPORTANT?

### 3. SOCIAL BENEFITS

- Safety
- Accessibility
- Equity
- Aging in Place

See

[www.drkarenlee.com/resources/usa](http://www.drkarenlee.com/resources/usa)





# A User-Friendly Environment for All, including Our Aging Populations



New York Skyline. Photo: Mark Sileman. Licensed under Creative Commons 2.0



## WORKING ACROSS SECTORS FOR HEALTH EQUITY: The case of New York City

Karen K. Lee

CONSULTANT, NEW YORK CITY, UNITED STATES OF AMERICA



# CITIES FOR HEALTH

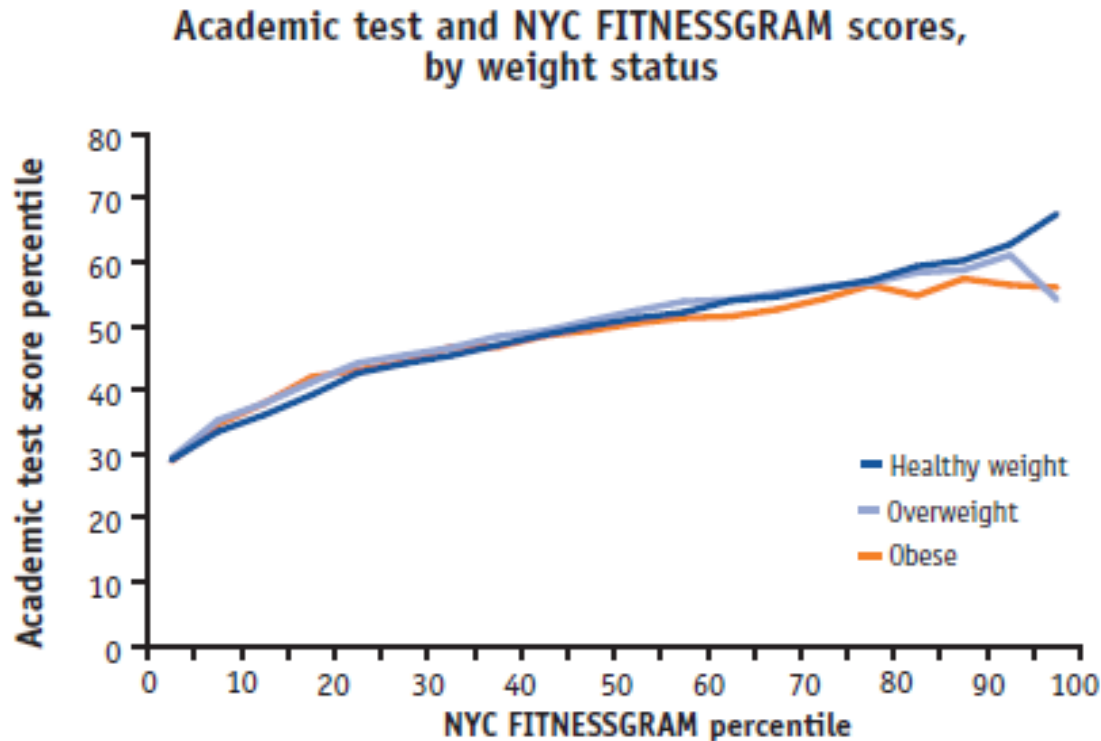


metropolis

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See [www.drkarenlee.com/resources/who-citiesforhealth](http://www.drkarenlee.com/resources/who-citiesforhealth)

# Physically Fit Children Do Better Academically



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## 4. GOOD FINANCIALLY

- Improved retail sales & rents
- Improved real estate values
- Improved tourism
- Improved competitiveness
- Decreased sickness absence and improved productivity

See

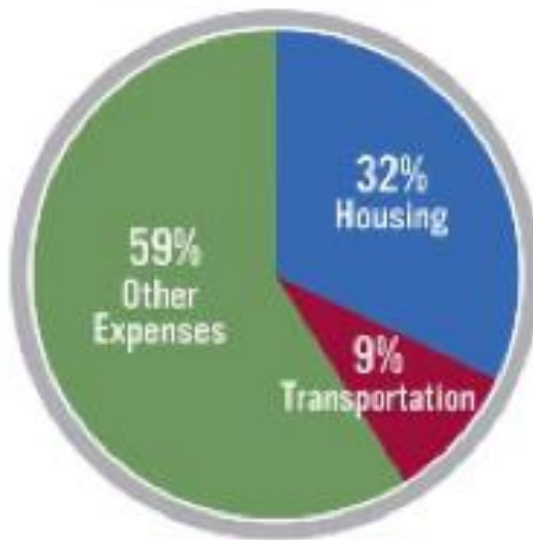
[www.drkarenlee.com/resources/who-citiesforhealth](http://www.drkarenlee.com/resources/who-citiesforhealth)



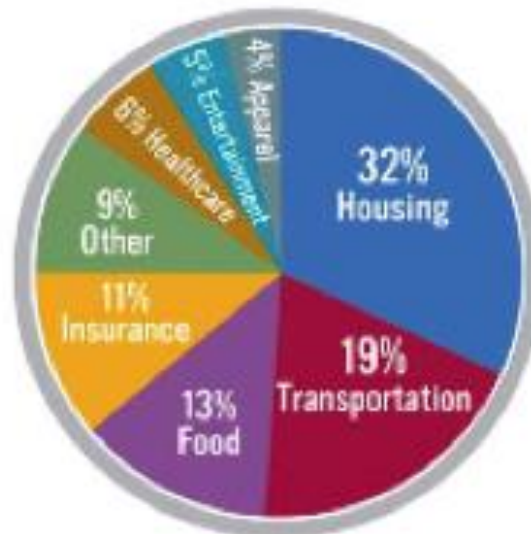
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# Healthier Communities Save Households Money

**TRANSIT RICH  
NEIGHBORHOOD**



**AVERAGE AMERICAN  
FAMILY**



**AUTO DEPENDENT  
EXURBS**



**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.**

Source: Center for Transit-Oriented Development

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# Healthier Communities Have Lower 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
<b>Savings</b>	<b>4,621,303</b>	<b>\$12.6 (10.1%)</b>	<b>188,305</b>	<b>\$109.7 (6.6%)</b>

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



# Healthier Communities Create More 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**

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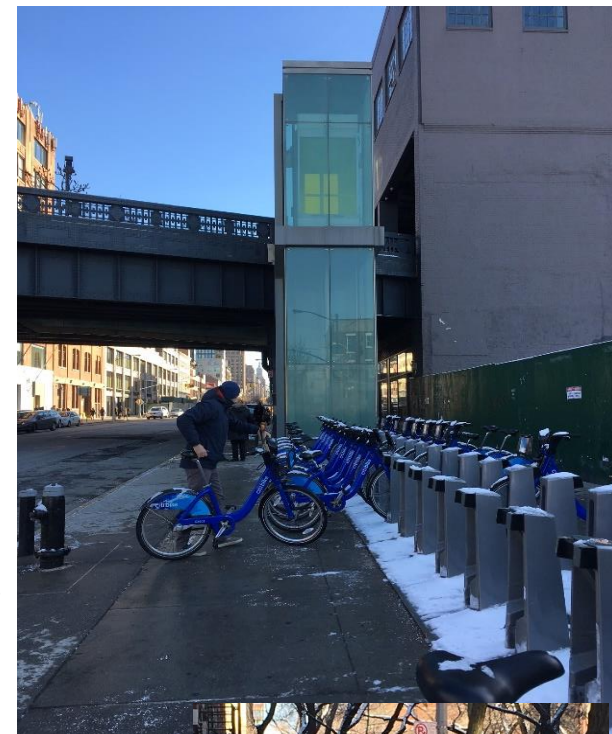
# WHAT CAN WINTER CITIES DO TO BECOME HEALTHIER COMMUNITIES?

## 1. SUPPORT ACTIVE TRANSPORTATION (WALKING, CYCLING & TRANSIT) ALL YEAR ROUND

- Sidewalks – design; safety; connectivity; clearing
- Bike lanes – design; safety; connectivity; clearing
- Other Bicycle Amenities – Bike Parking; Bike Share
- Transit stop designs
- Faster, More Convenient Transit Options



NY, NY, USA



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## Clearing, design, amenities



Copenhagen, Denmark

## Connectivity

*Maas River Tunnel –  
cars left; bikes right*



Rotterdam, Netherlands



## 2. SPACES OF RESPITE ALONG YOUR WALK OR BIKE RIDE

### - Indoor Spaces



NY, NY, USA



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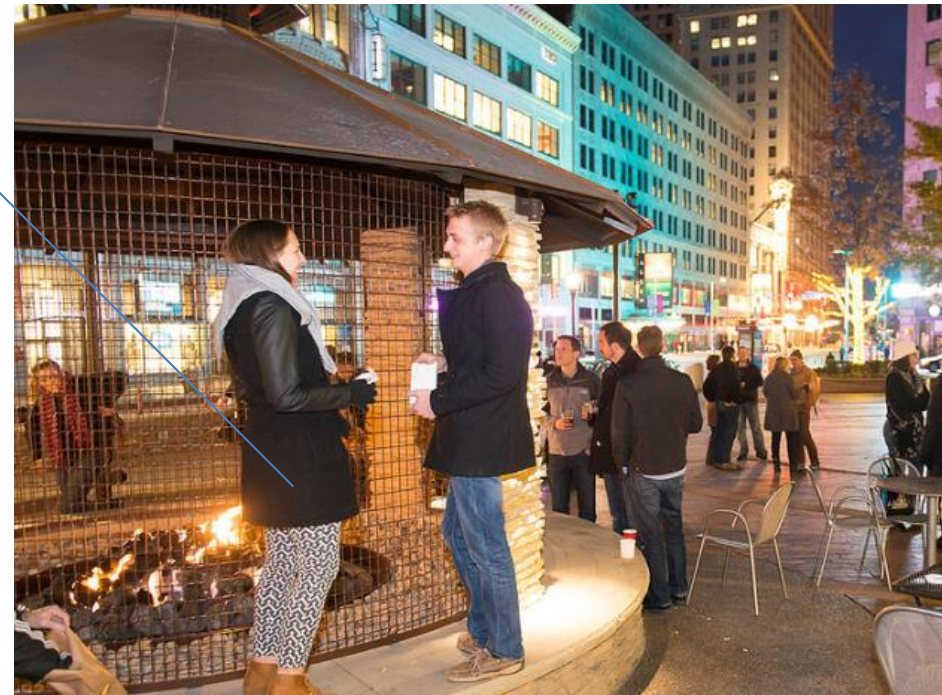
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## 2. SPACES OF RESPITE ALONG YOUR WALK OR BIKE RIDE

### - Outdoor Spaces



NY, NY, USA



Cleveland, OH, USA

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### 3. SUPPORT ACTIVE RECREATION ALL YEAR ROUND

#### - Within Recreation Spaces



Central Park, NY, NY, USA



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### 3. SUPPORT ACTIVE RECREATION ALL YEAR ROUND - Outside Usual Recreation Spaces



Read more about Pop-Up  
Play Spaces at:

[www.drkarenlee.com/news/  
press](http://www.drkarenlee.com/news/press)

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Pop-up Skating Rink, NY, NY, USA



#### 4. CONNECT TRANSPORTATION & RECREATION

- Recreation spaces within transport corridors (e.g. Pedestrian Plazas and places to linger & play)

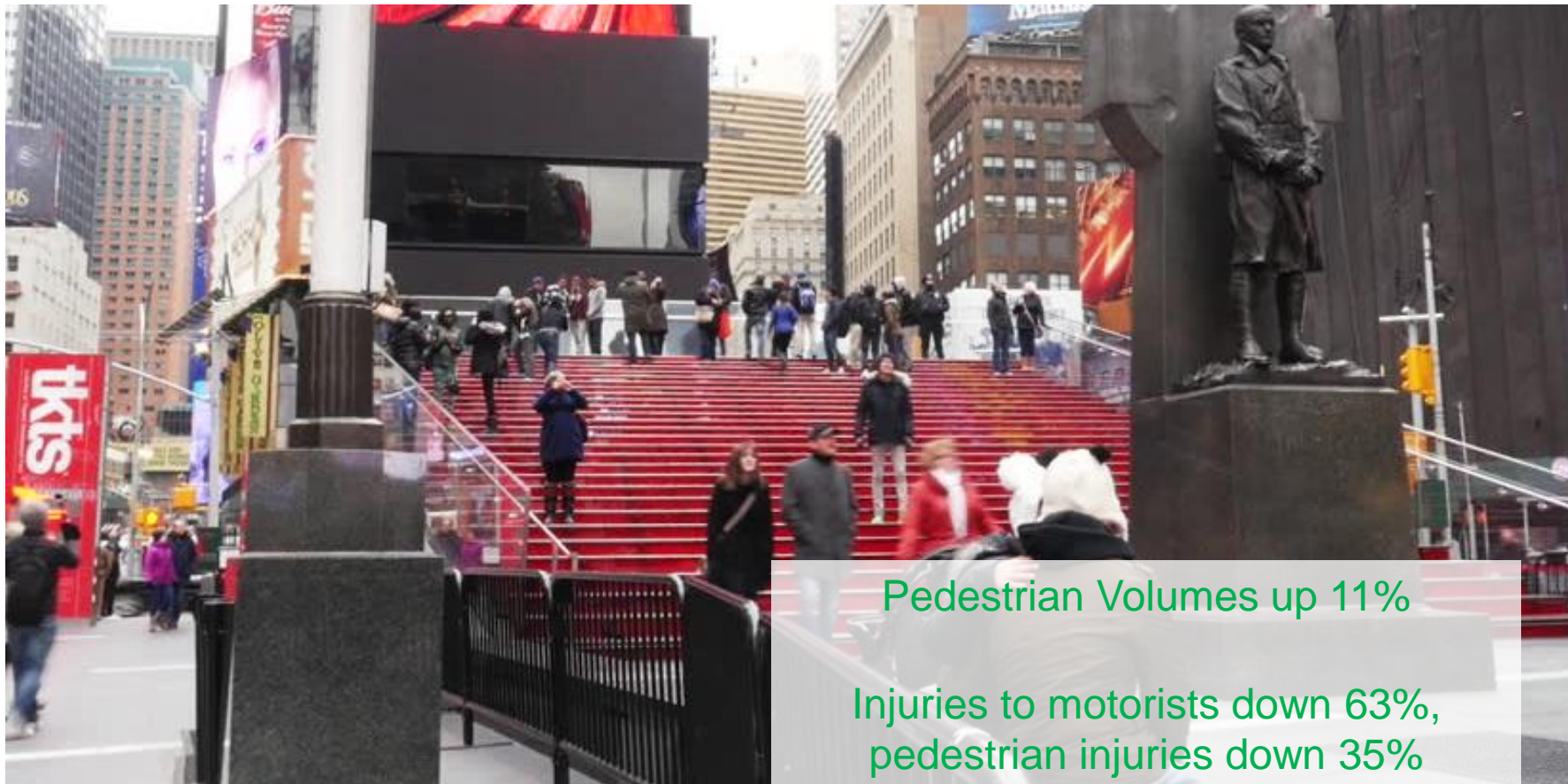


Times Square, NY, NY, USA

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Pedestrian Volumes up 11%

Injuries to motorists down 63%,  
pedestrian injuries down 35%

Times Square, NY, NY, USA

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Air pollution also down

Retail sales up



#### 4. CONNECT TRANSPORTATION & RECREATION

- Transportation within recreation corridors  
(e.g. Multi-Use Trails)



West Side Greenway, NY, NY, USA



## 5. HEALTHY FOOD & BEVERAGE AMENITIES

**Supermarket Availability**

**Winter Farmers' Markets**



**Year Round Local Food Production – e.g. Hydroponics**

**Year Round Water Fountains**





## 5. HEALTHY FOOD & BEVERAGE AMENITIES

### Year Round Local Food Production – e.g. Hydroponics



Sky Vegetables on Roof of Arbor House Affordable Housing, Bronx, NY, USA

See [www.drkarenlee.com/projects](http://www.drkarenlee.com/projects)



## 6. ACTIVE BUILDINGS

Outside Copenhagen, the [Amagerforbrændingen Energy Plant](#) is being converted from a waste treatment facility to an energy plant combined with urban ski hill you can ski down!

*BIG, Denmark*



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## Montreal, Quebec Transit Stop



## **HOW CAN WINTER CITIES BECOME HEALTHIER COMMUNITIES?**

**WORKING TOGETHER ACROSS SECTORS**

**ENGAGEMENT OF CITY RESIDENTS**

**PROFESSIONAL TRAININGS IF NEEDED**

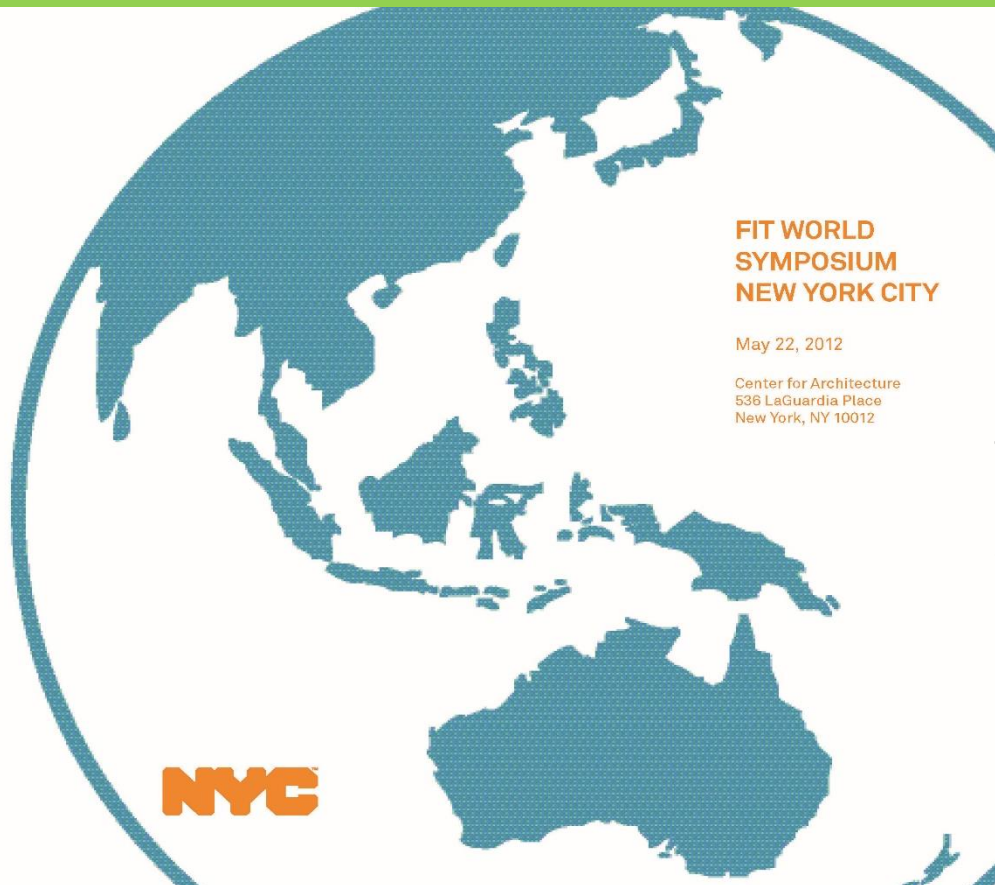
**TECHNICAL ASSISTANCE IF NEEDED**

**FACILITATION IF NEEDED**

**GET STARTED WITH A FIT CITY CONFERENCE OR COURSE**



# Cross-Sector Work Has Begun Globally



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