

The Design of Our Communities:

What's Health Got To Do With It?



Teri Duarte, MPH
Executive Director
May 8, 2013





Guanajuato, Mexico



City life is quiet,
safe, and socially
connected









Sacramento, California

For thousands and thousands of years, human beings have led very physically active lives



It is only very recently - in the past 3-4 generations - that large numbers of people are living inactive lives





Moving makes the heart and lungs do their work

Maintain lung capacity
to pull in oxygen
essential for all body
functions.



Regular movement also:

- Improves skeletal durability
- Increases muscular strength

Without regular exercise,
health status tends to decline.

Chronic diseases...

- Diabetes
- Heart disease
- Cancer
- High blood pressure
- Osteoporosis

and other conditions

- Higher stress levels
- Poor sleep quality
- Decreased mental alertness
- Depression

Physical activity
is a *protective factor* for health.

How much exercise do we need?

- 30 minutes on most days
- Can be split up



Surgeon General's
1996 Physical Activity
Recommendation

Physical Activity Levels Among Adults in:

United States

No activity	14%
Some activity	38%
Active enough for health	48%

*U.S Centers for Disease
Control*

Sacramento County

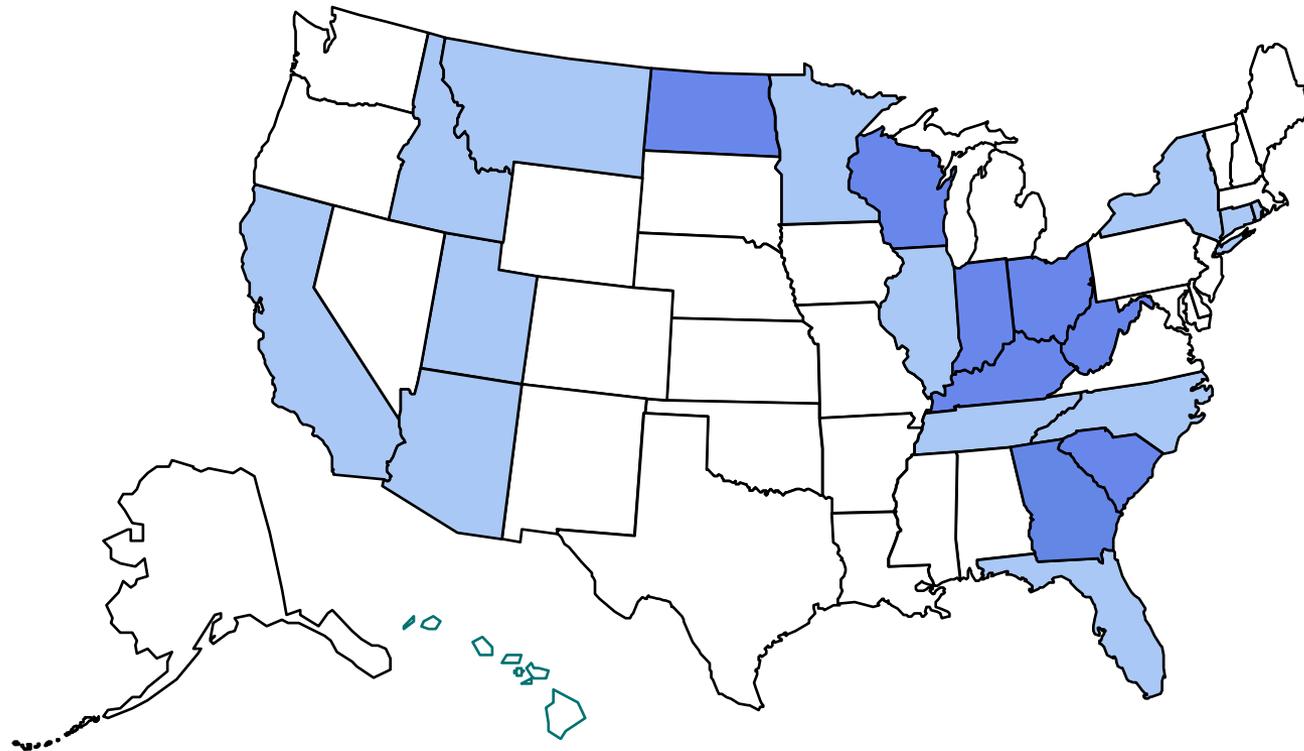
No activity	15%
Some activity	48%
Active enough for health	37%

*California Health Interview
Survey, 2007*

Obesity Trends* Among U.S. Adults

BRFSS, 1985

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

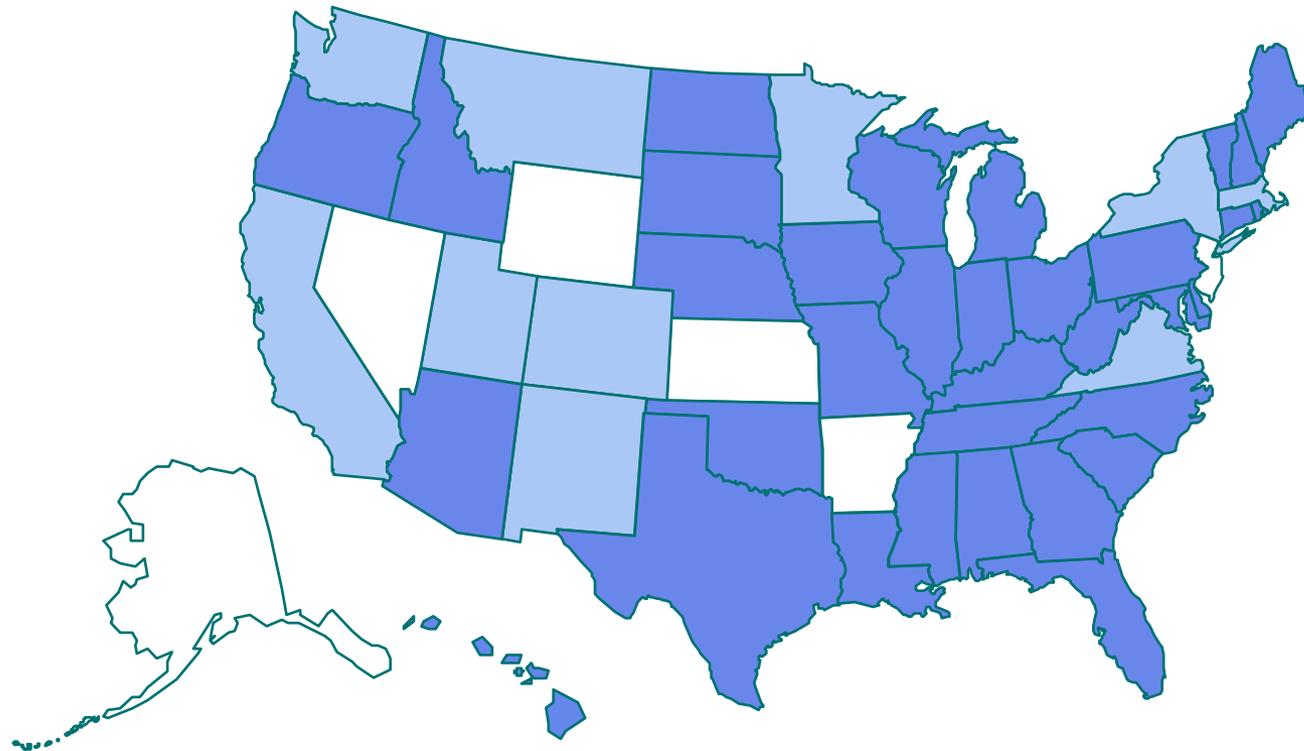


□ No Data ■ <10% ■ 10%–14%

Obesity Trends* Among U.S. Adults

BRFSS, 1990

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

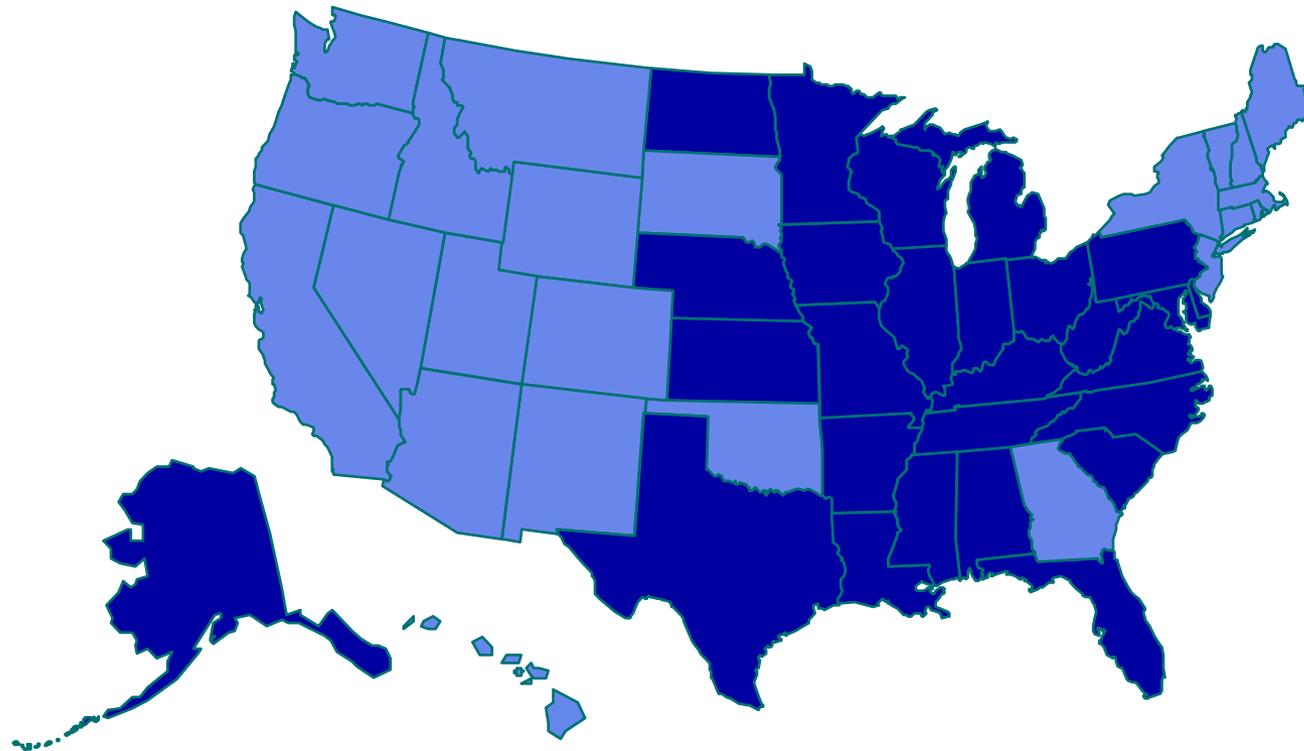


□ No Data ■ <10% ■ 10%–14%

Obesity Trends* Among U.S. Adults

BRFSS, 1995

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

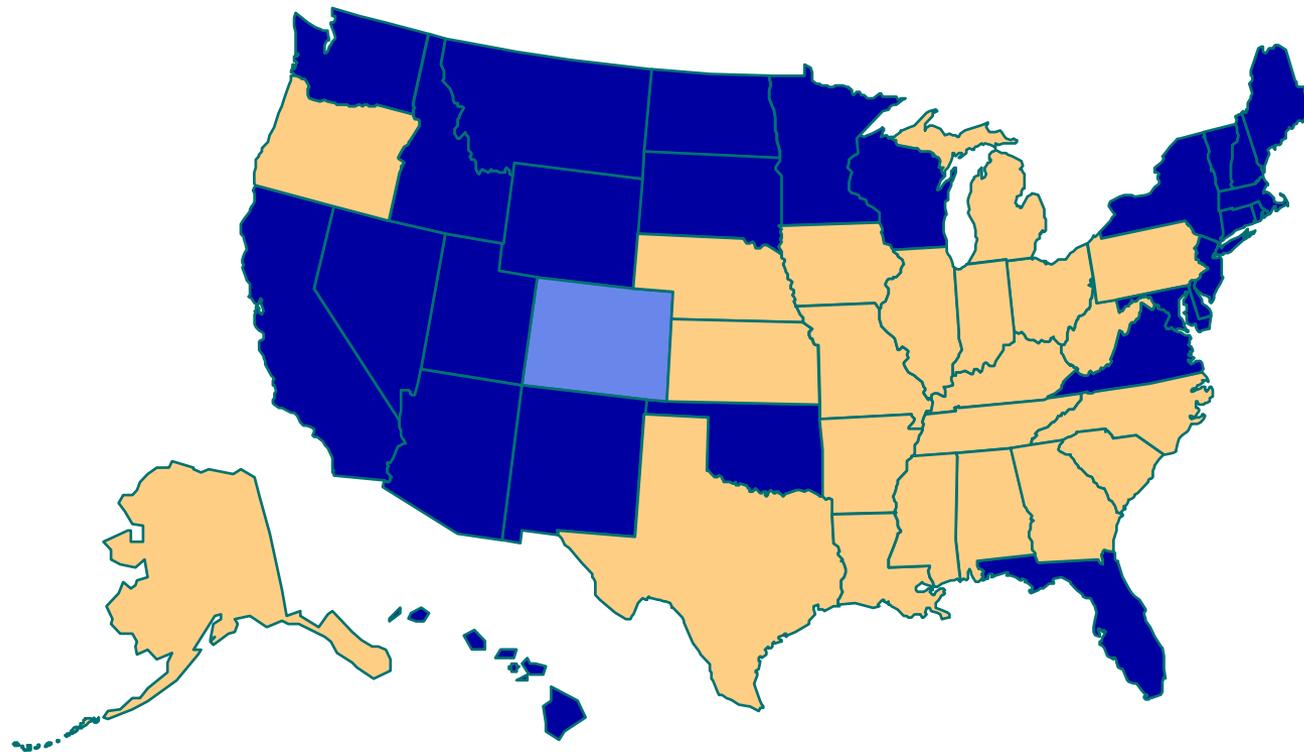


□ No Data □ <10% □ 10%-14% □ 15%-19%

Obesity Trends* Among U.S. Adults

BRFSS, 2000

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

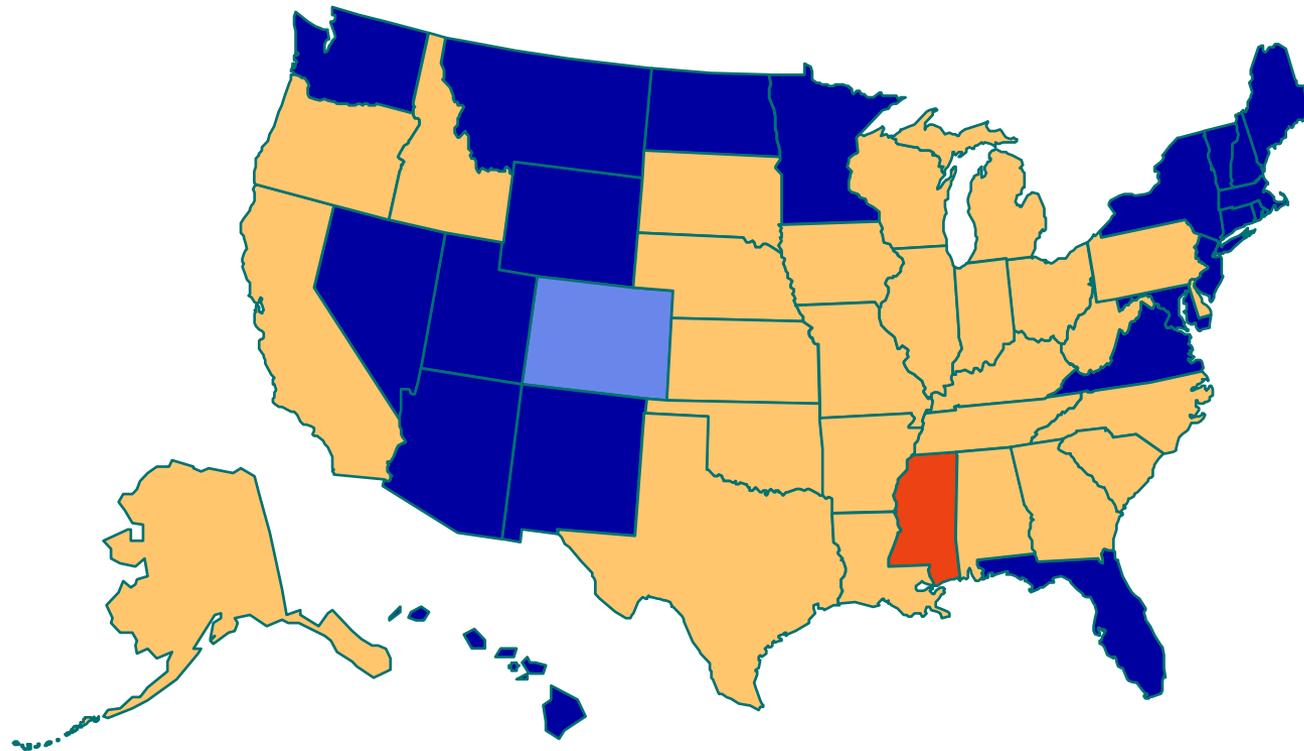


No Data <10% 10-14% 15-19% $\geq 20\%$

Obesity Trends* Among U.S. Adults

BRFSS, 2001

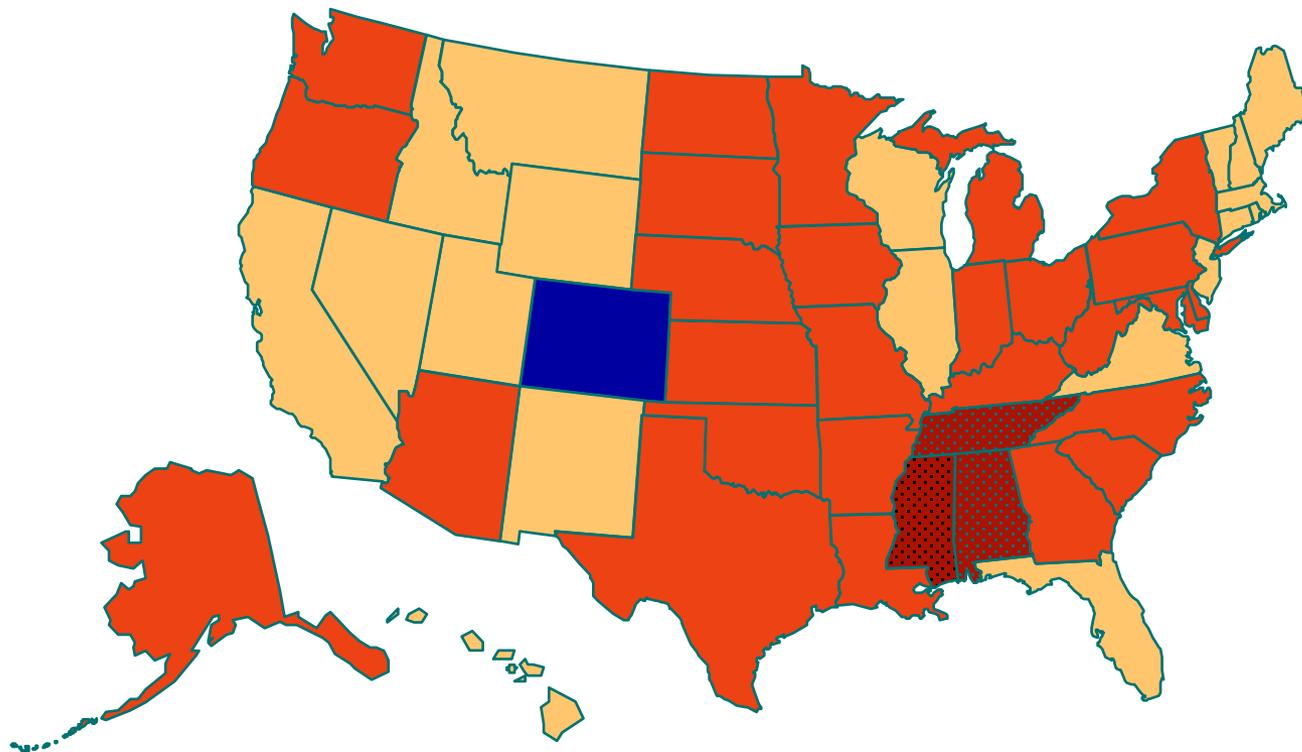
(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 2007

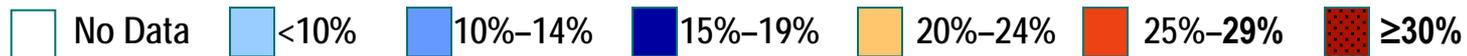
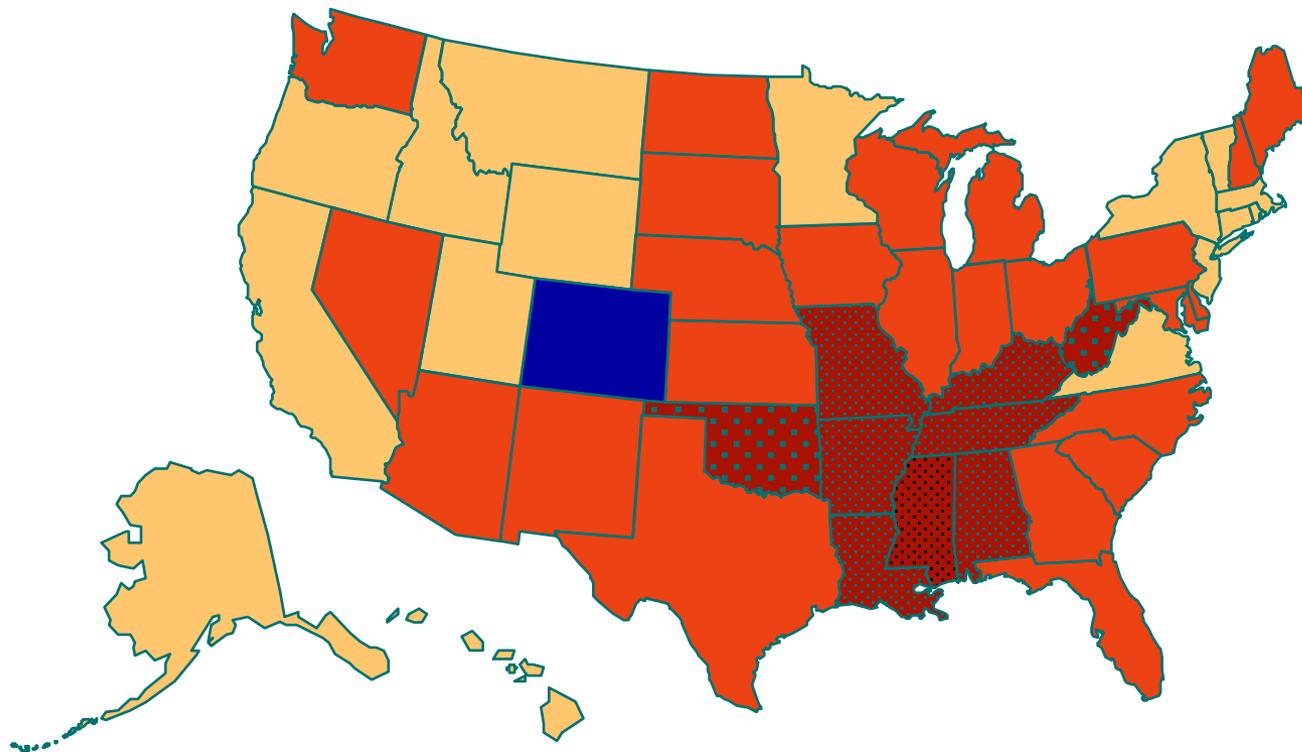
(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 2009

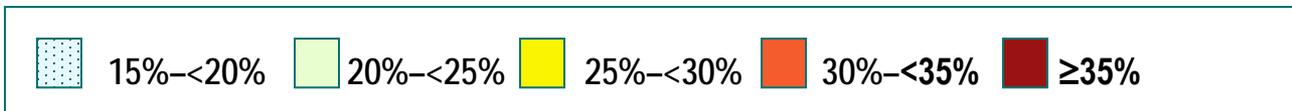
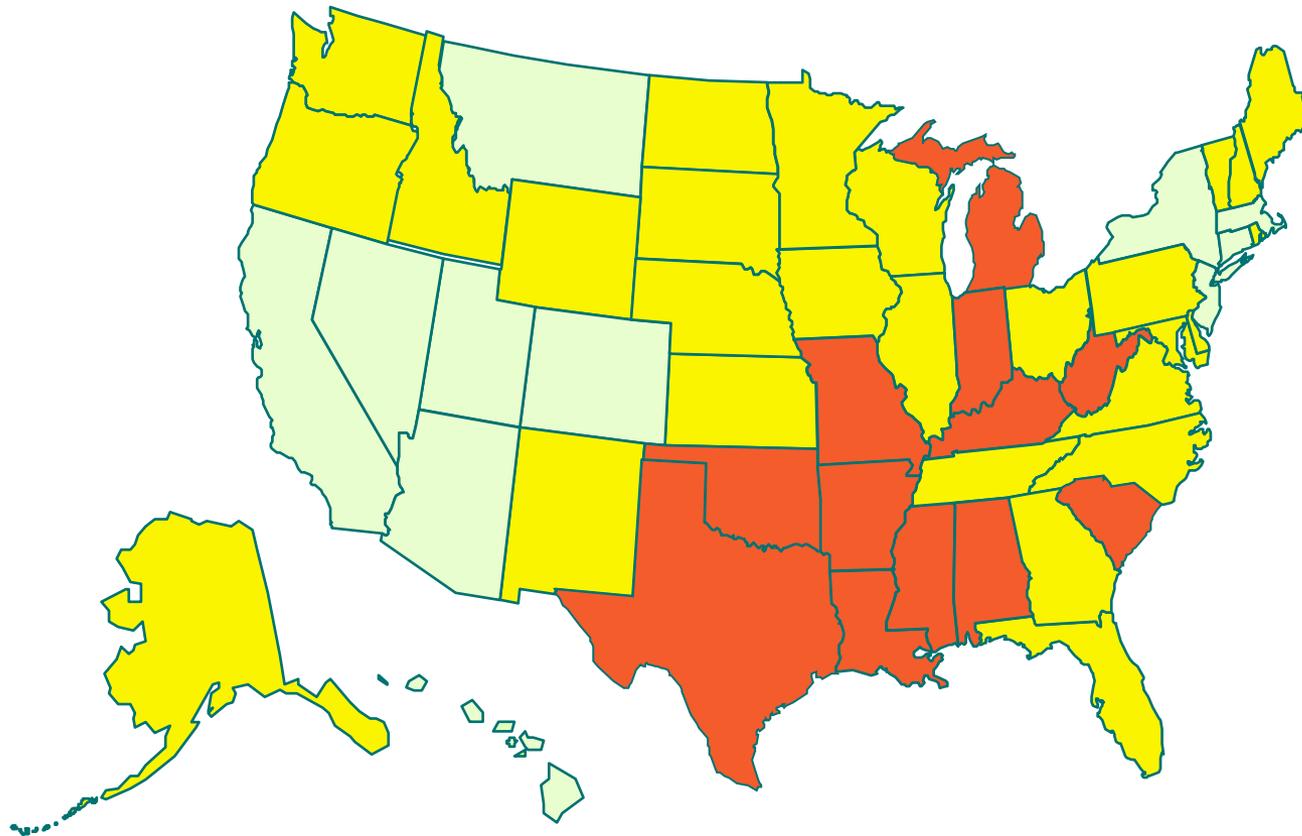
(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



Prevalence* of Self-Reported Obesity Among U.S. Adults

BRFSS, 2011

*Prevalence reflects BRFSS methodological changes in 2011, and these estimates should not be compared to previous years.



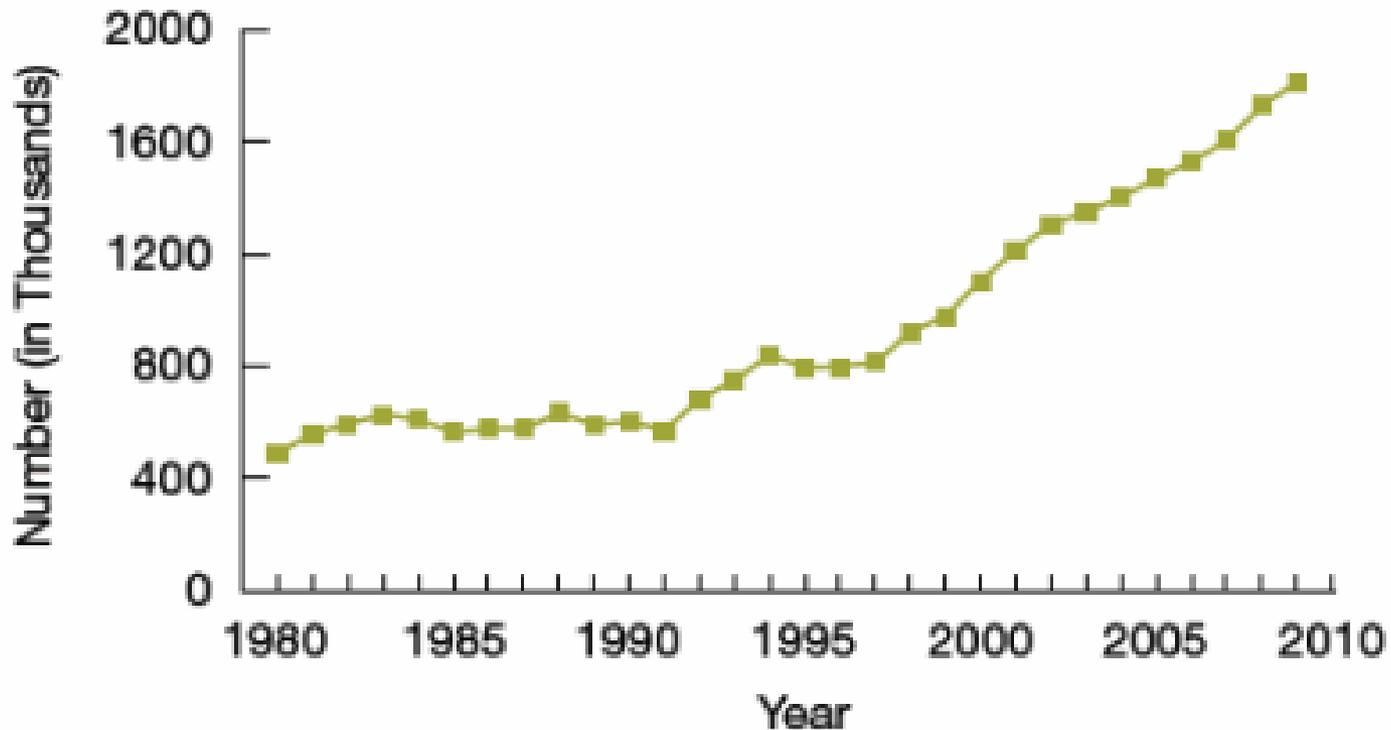
36% of American adults now obese

- Another 33% overweight
- A total of 69% carry extra weight



Dramatic diabetes increase in past 30 years

New Cases of Diagnosed Diabetes Among U.S. Adults Aged 18–79 Years, 1980–2009



Source: <http://www.cdc.gov/diabetes/statistics/incidence/fig1.htm>.

And this epidemic is costing us...

- The medical costs of obesity and physical inactivity include treatment for high blood pressure, stroke, heart disease, diabetes...



Chenoweth D: *The Economic Costs of Physical Inactivity, Obesity, and Overweight in California Adults: Health Care, Workers' Compensation, and Lost Productivity*. California Department of Health Services, 2005

The Economic Costs of Overweight, Obesity and Physical Inactivity Among California Adults - 2006, California Center for Physical Activity, 2009.

*What has changed
since 30-70 years ago?*



K Street, Sacramento, 1940s

SACRAMENTO
FREE PUBLIC
LIBRARY



In Sacramento, only 4% of people walk or bike to work



We're building an "Asphalt Nation"

- 250% increase in vehicle miles traveled 1960-1997
- Elk Grove residents now average 60 minutes in commute time, up by 10% from 2000
- North Natomas average 50 minutes commute



Roads are designed for vehicles only



Arena Blvd at Truxell

Franklin Blvd north of Fruitridge



Our environment has changed...



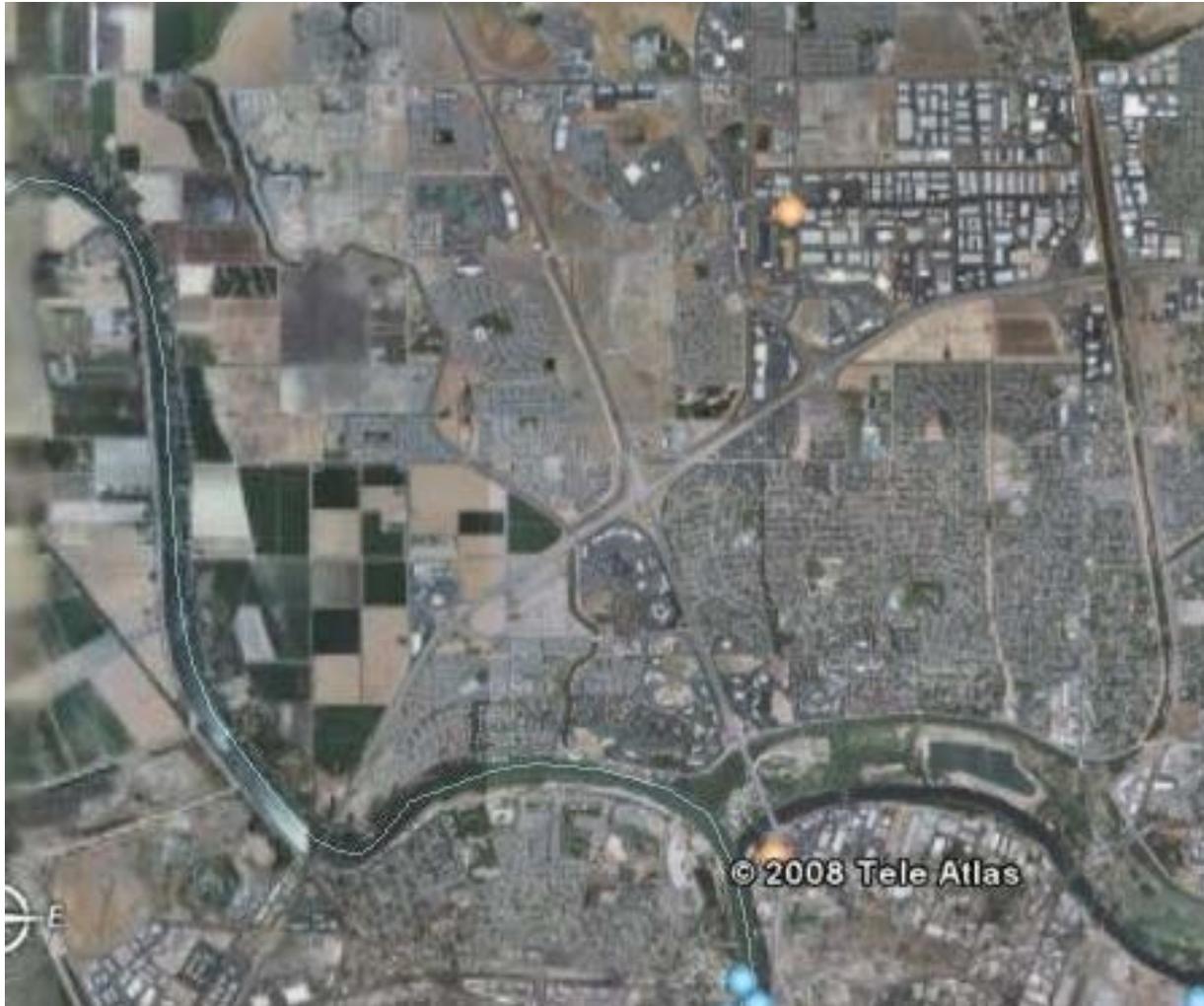
From 2000 to 2009, 90 square miles were urbanized in the Sacramento region.

Our environment has changed...

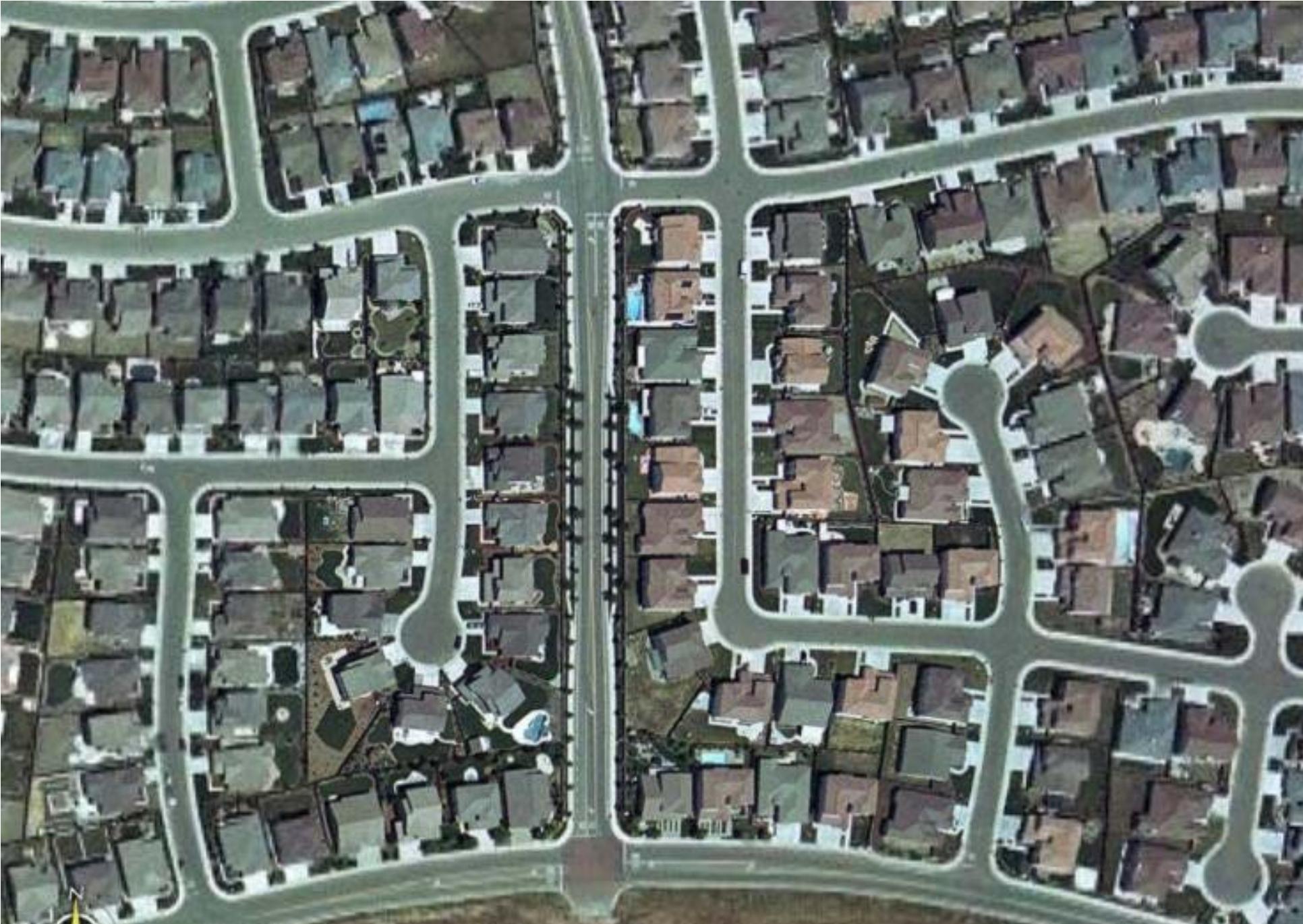


North Natomas

We're rapidly urbanizing our open space...



From 2000 to 2009, North Natomas built out 11 square miles of land.



North Natomas

We're leaving open spaces in between...

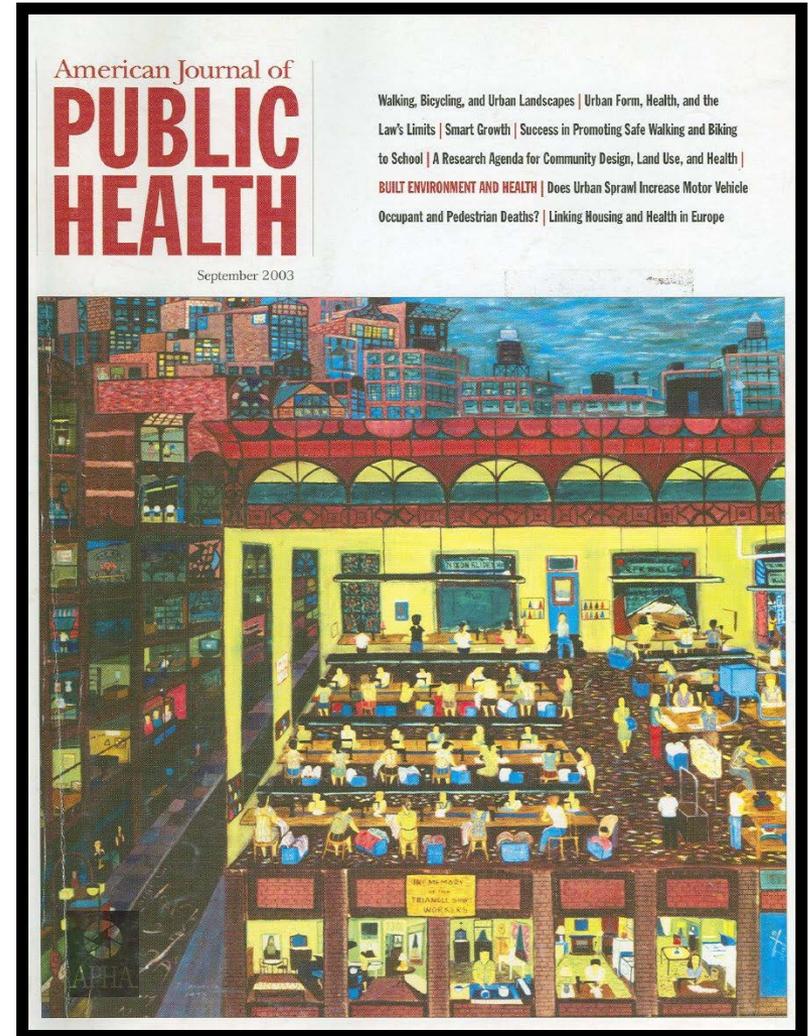
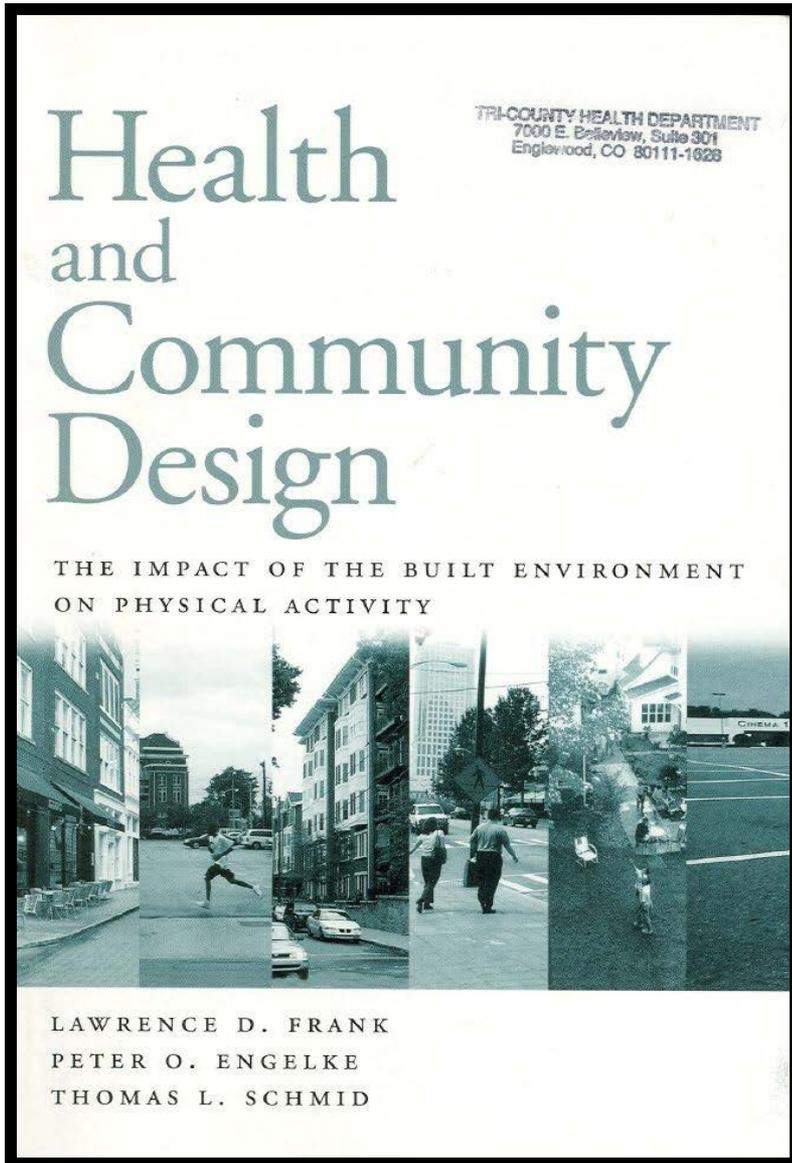


Development adjacent to a ranch in Galt



7:15 am on I-5 from Laguna to Sacramento

The research is in...



“Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity”

- Sept 2003 *American Journal of Health Promotion*: Reid Ewing et al
- Health characteristics of more than 200,000 people in 448 counties



From Mack Road looking north

Sprawl Index or "*Compactness Index*"

Average of
448 counties: 100
-density
-land use mix
-street access
-centering

San Francisco: 209

Sacramento: 116

Yolo: 106

El Dorado: 86

People in the most sprawling counties are likely to weigh 6 pounds more than people living in the most compact counties



Sacramento County

“Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars”

- *American Journal of Preventive Medicine* June 2004: Lawrence Frank, PhD
- First study to document an association between land use, weight, and travel behavior

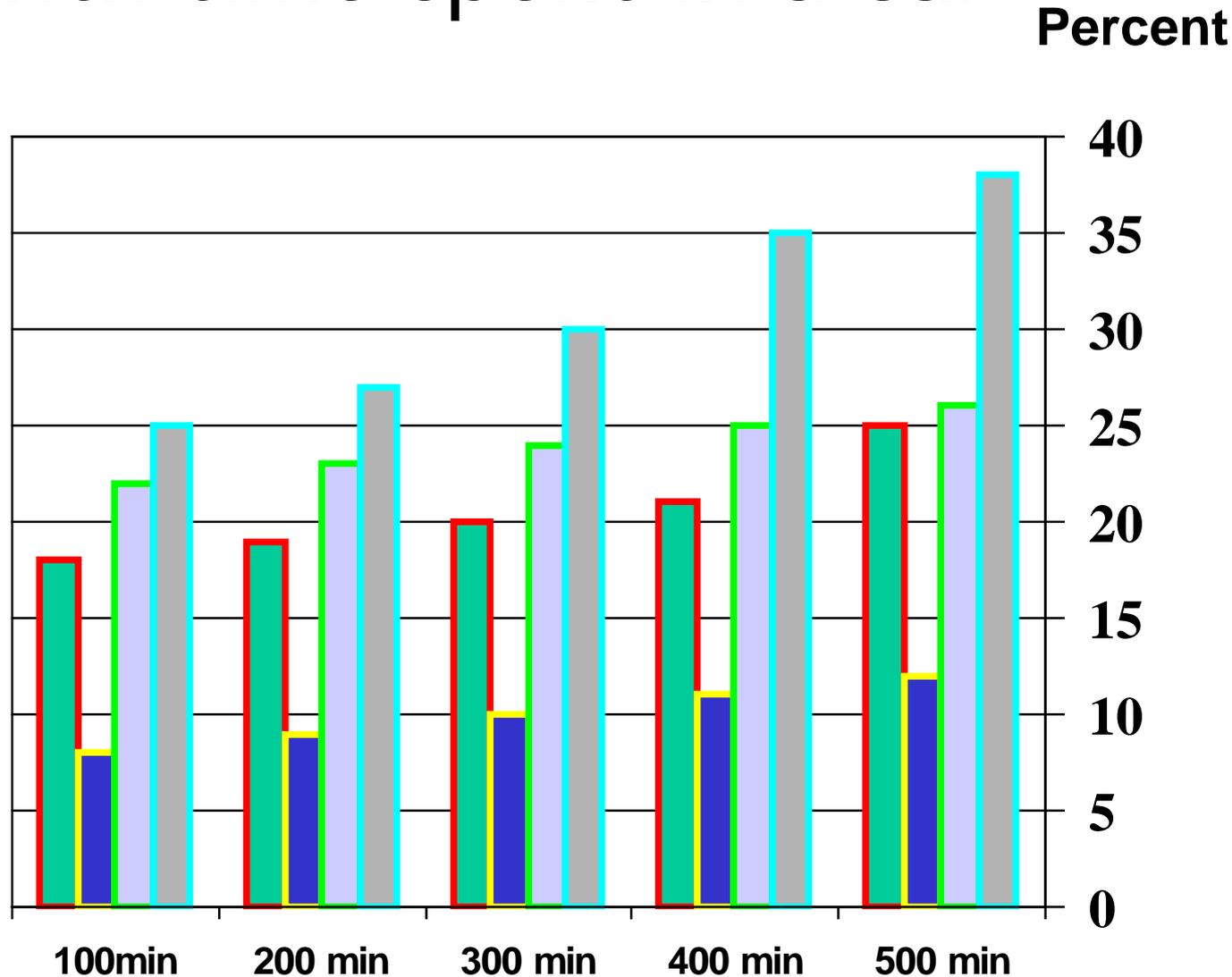
Atlanta Obesity Study



Atlanta

- Weight, travel patterns, and types of neighborhood residence of 10,500 people in Atlanta region

The probability of obesity rises with time spent in a car



Urban Design and Health

Urban form patterns



Travel behavior



Population health impacts

Three Community Design Factors Associated with Lower Obesity

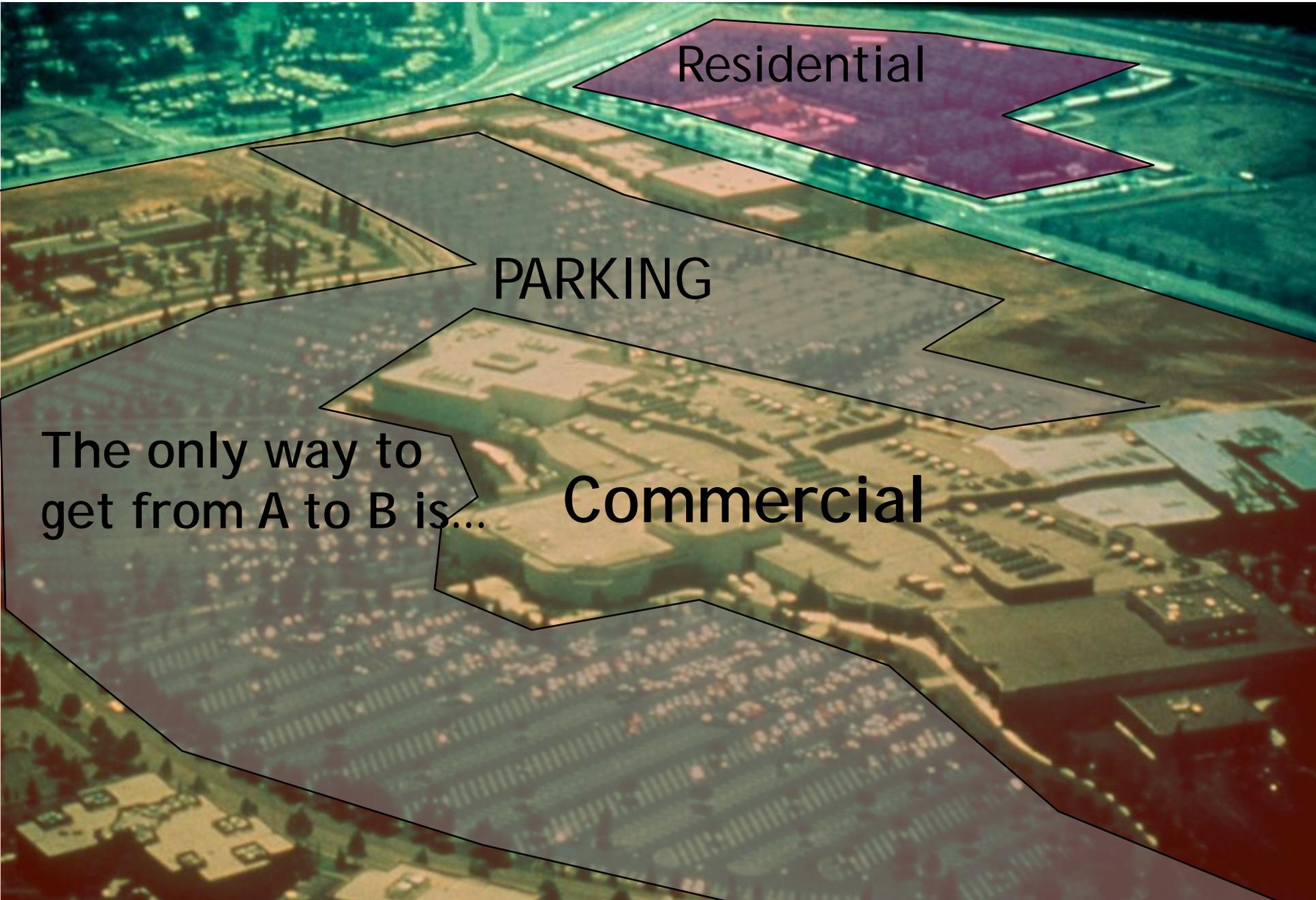
- Greater land use mix

Zoning divides communities



- Land use planning and zoning originated with an intention to protect human health
- But zoning standards focused on separation of uses haven't adapted and changed over time
- We have separated and disaggregated the very elements of daily life

When Land Uses Are *Not* Mixed



Residential

PARKING

The only way to
get from A to B is...

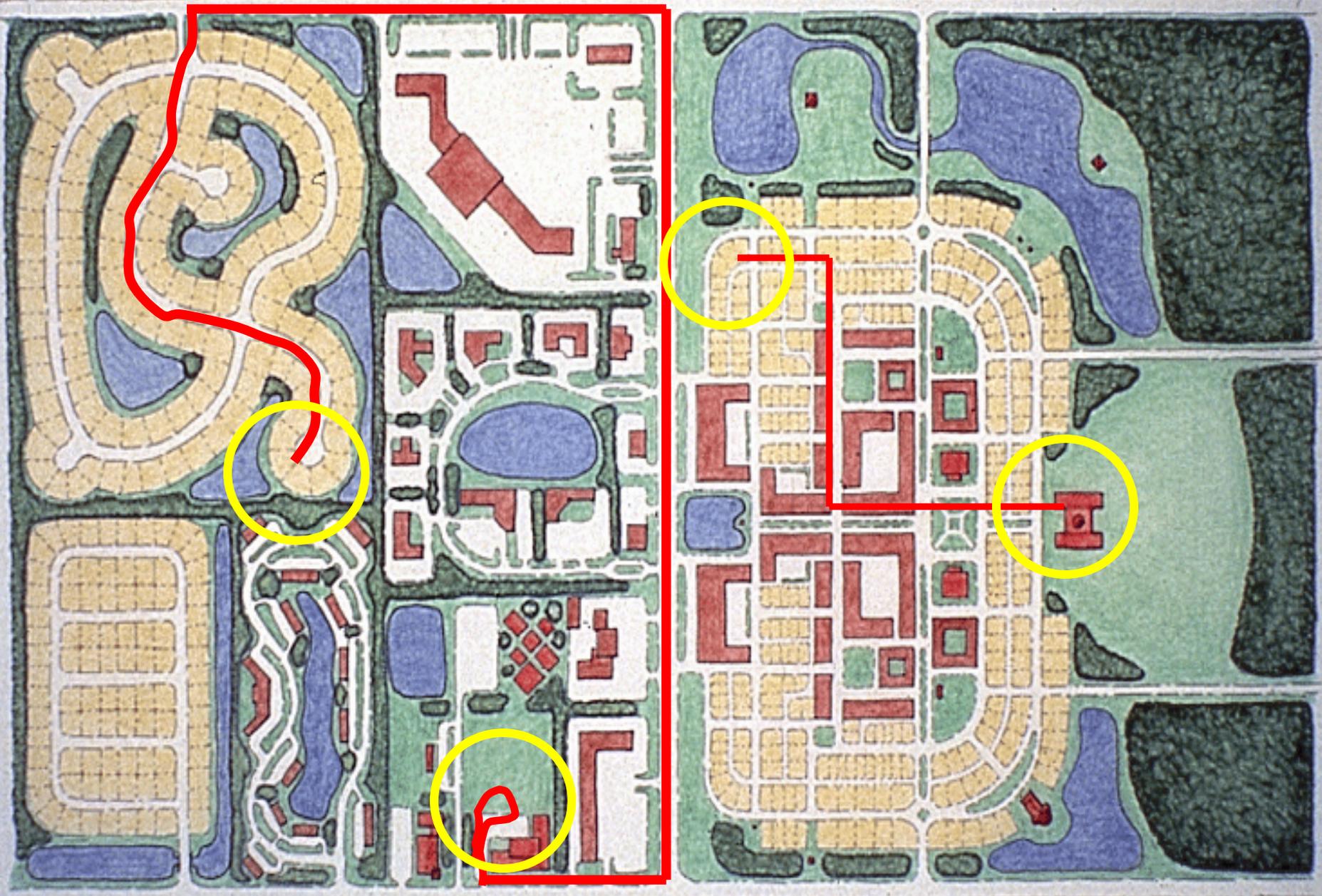
Commercial

Land Use Mix: The probability of obesity falls in balanced neighborhoods



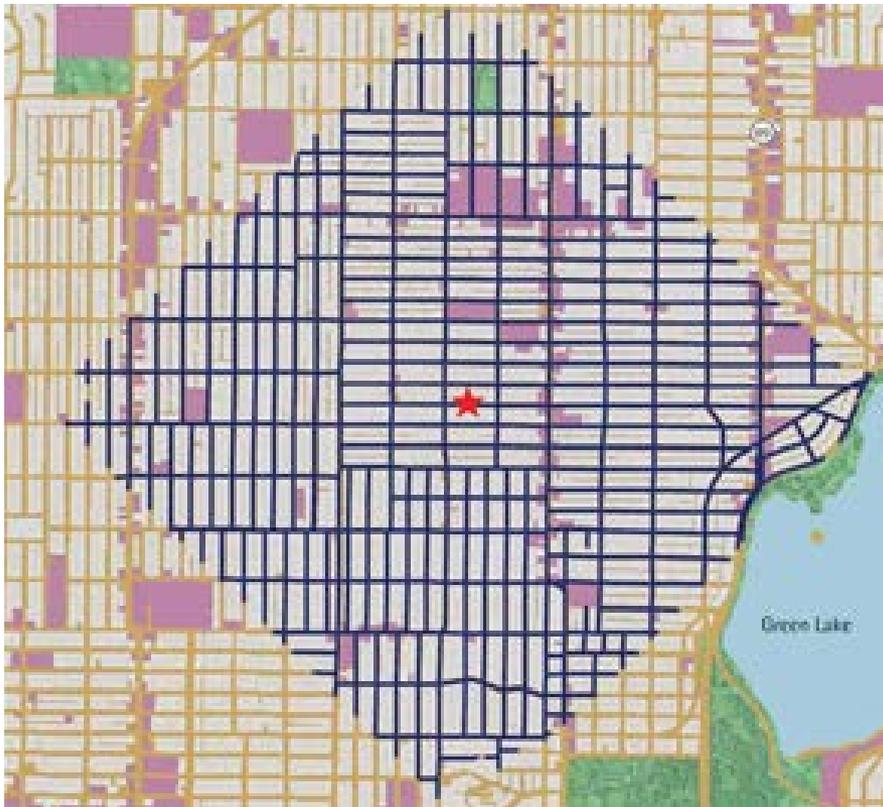
Three Community Design Factors Associated with Lower Obesity

- Greater land use mix
- Greater street connectivity

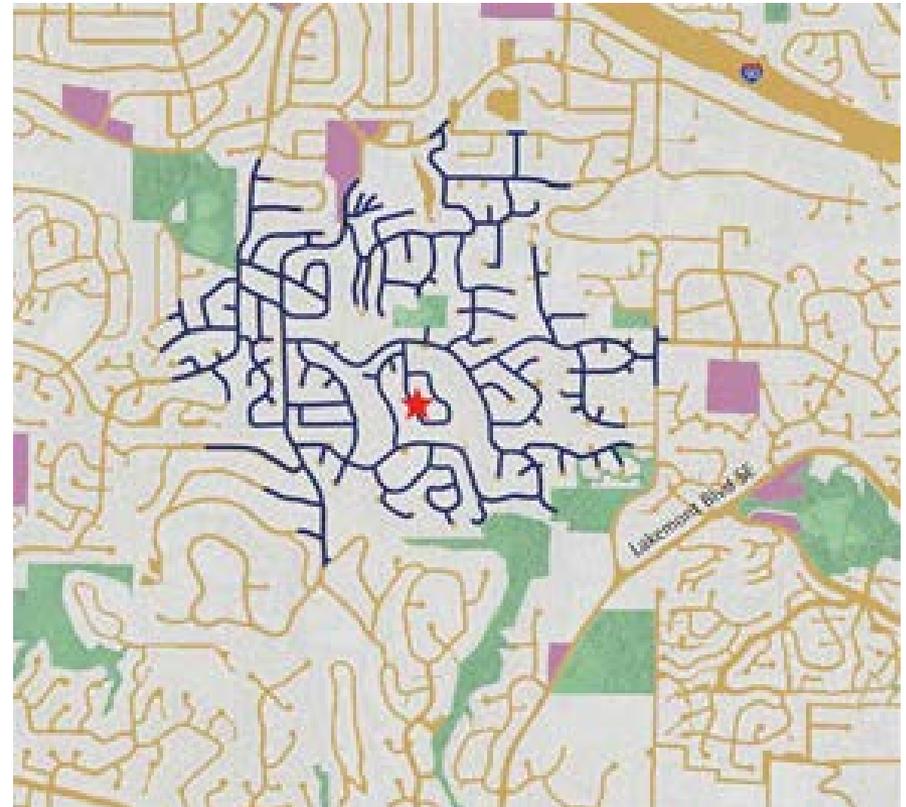


High Street Connectivity Makes More Land Available

One-Mile Walk in a
Compact Neighborhood



One-Mile Walk in a
Sprawling Suburb



Three Community Design Factors Associated with Lower Obesity

- Greater land use mix
- Greater street connectivity
- Higher residential density

Higher residential density levels are linked to lower obesity levels

- 23% obesity in the least dense neighborhoods
- 12% obesity in the most dense neighborhoods



Other public health issues connected to the built environment

- Traffic injuries
- Mental health
- Access to healthful foods
- Air pollution

Community Design and Traffic Injuries



The LEADING CAUSE of death of people aged 1 - 24 years is automobile crashes.

Community Design and Pedestrian Injuries



Howe Ave at Alta Arden

Pedestrian deaths are greater in sprawling areas, where there are fewer pedestrians.

Community Design and Mental Health

- Stress
 - Driving is sedentary and stressful
 - Traffic jams unpredictable - lack of sense of control
 - Increases aggression and “road rage”



Community Design and Mental Health

- More symptoms of depression in suburban sprawl neighborhoods
- Depression related to isolation, boredom, loneliness, and lack of exercise



Access to Healthy Foods

- No retail sources of food in sprawling developments



Air Pollution



A view of Sacramento from the El Dorado Hills

Most air pollution in Sacramento is generated by cars and trucks



Hwy 99 southbound from downtown Sacramento

Walkable community design is a strategy for improving health

- One solution reduces many problems:
 - inactivity
 - obesity
 - related disorders such as diabetes
- Creates less air pollution per person



What makes a walkable community?

- What we need each day is *CLOSE BY*
- The streets are *SAFE* for walking and bicycling



If a public health professional were redesigning Sacramento...



If a
public health
professional
were
redesigning
Sacramento,
there would
be...

Shorter distances between
where we live and where
we need to go each day



J Street, Midtown Sacramento

Shorter distances translates to
increases in:

- Mixed use
- Street connectivity
- Residential density

Portland Neighborhood Environment and Health Study 2009

- 1200 residents
- 50-75 years
- Weight, height, blood pressure
- Physical activity, transportation, dietary habits
- Walkability of each participant's residence location



Results: Portland Study

For each 10% increase in **land use mix**:
25% less overweight

Residents in highly walkable neighborhoods lost an average of 1.2 kg (3 lbs) in one year



- Residents in walkable neighborhoods had small decreases in blood pressure over one year

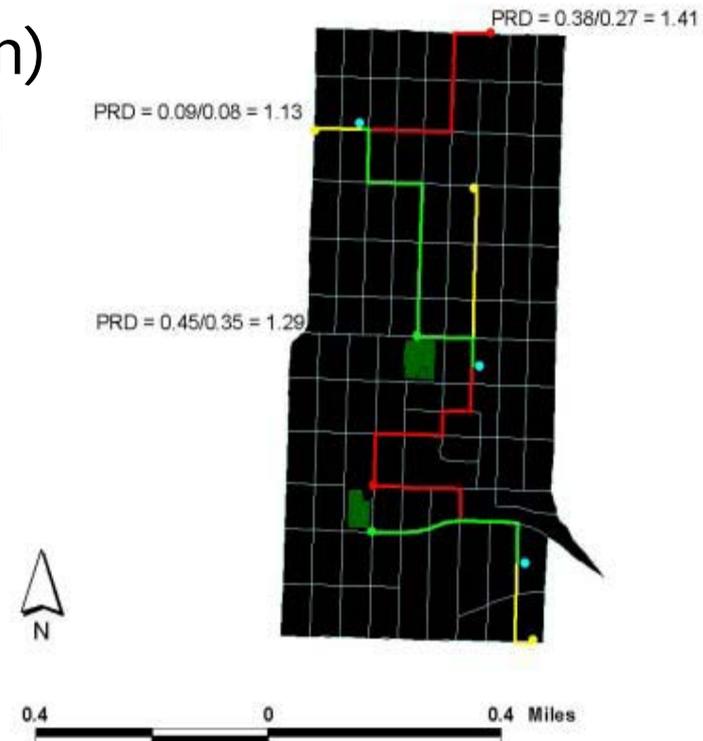
Improve connectivity with:

- A grid street layout
- Continuous networks of sidewalks
- Shorter blocks and more intersections



Measures of connectivity

- Intersection density (36 per sq mi min)
 - Midtown Sacramento around 70 per sq mi
- Average block length (200-500 ft)
- Block size (5-12 acres)
- Link-node ratio
- Route directness index
- Pedestrian route directness

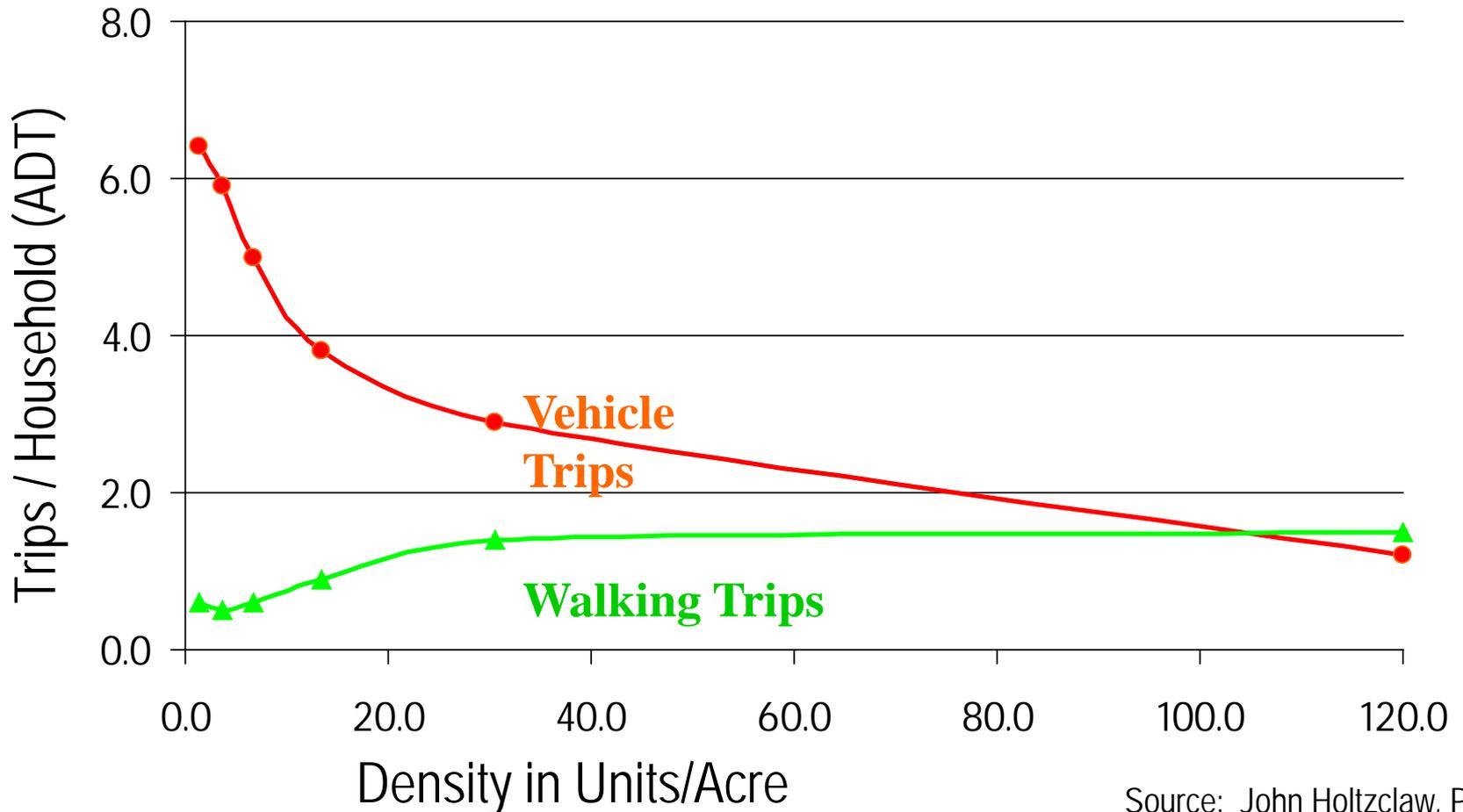


Increase residential density



Metro Square in midtown Sacramento

Higher Residential Density can Reduce Vehicle Trips



Source: John Holtzclaw, PhD,
Sierra Club

Suburban density



North Davis

If a public health professional were redesigning Sacramento, there would be...



Streets that are equally safe for *all* users



21st Street at Q Street is a “Complete Street”

Sidewalks promote physical activity

- People with access to sidewalks are 20% more likely to be physically active



Duncan M, Spence J, Mummery W. Perceived Environment and Physical Activity: A Meta-Analysis of Selected Environmental Characteristics. *International Journal of Behavioral Nutrition and Physical Activity*(2):11, September 2005.

Rietveld P and Daniel V. Determinants of Bicycle Use: Do Municipal Policies Matter? *Transportation Research Part A: Policy and Practice* 38(7):531-550, August 2004

Bike lanes promote physical activity

- Cities that invest in bike facilities have higher levels of bicycle commuting



19th Street in midtown Sacramento after the addition of bike lanes



19th Street at N in 2007 before the conversion - three lanes



2008 - After the conversion, two lanes with bike lanes on both sides

Bicycle counts before and after 19th Street was “completed”

19th Street at Capitol, heading south, 4-6 pm

Sept 2007

25

Sept 2008

65

Change

+160%

Source: Sacramento Area Bicycle Advocates

If a
public health
professional
were
redesigning
Sacramento,
there would
be...

Public transit that is easy
to use, convenient, and
inexpensive



Transit stops within ¼ mile of all residences

Transit is handicapped by sprawling development



Positive health outcomes: Transit use and weight loss

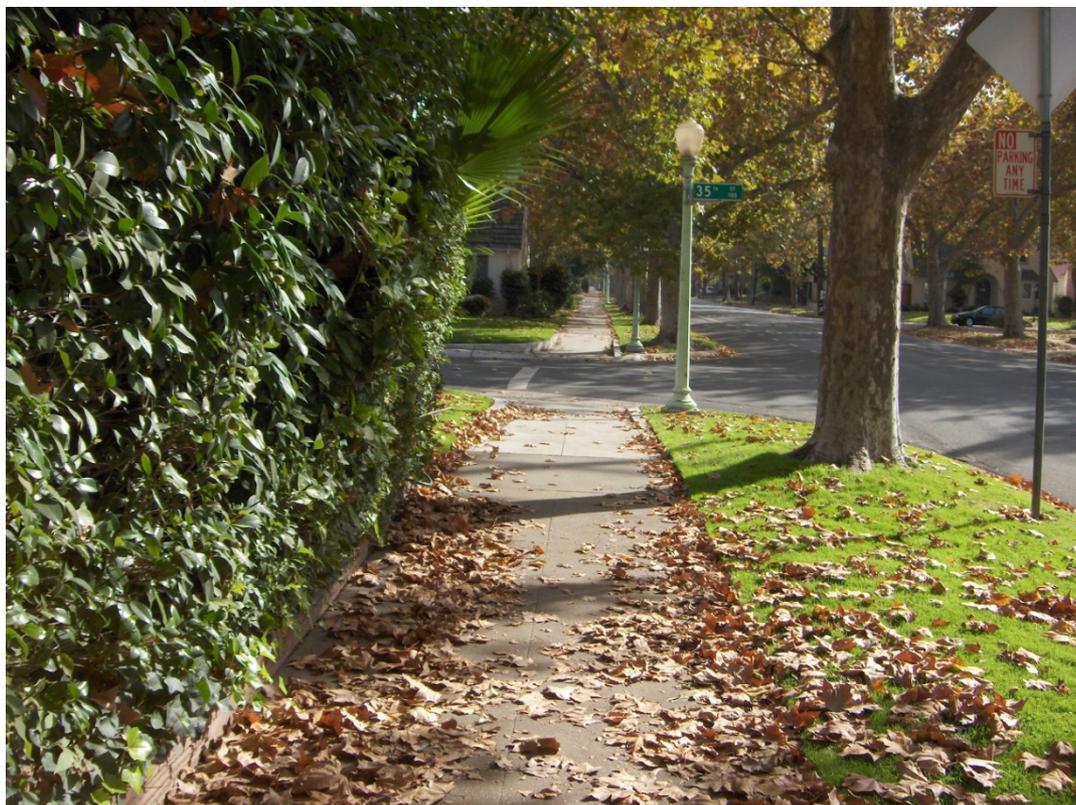


Transit line
completed 2007

Average 6.45 pounds weight loss among residents

If a
public health
professional
were
redesigning
Sacramento,
there would
be...

Tree canopies shading all
the sidewalks, transit
stops and parking lots



J Street, East Sacramento



Trees
reduce
formation
of ozone,
absorb or
intercept
pollutants
and reduce
emissions
from
parked cars

33rd and J Streets, Sacramento

Kids living in areas with street trees have less asthma

- Study of 4-5 year olds in New York City
- Those living on streets with more trees had lower asthma prevalence



Most of us are *able to walk*...



38% of adults don't walk even 10 minutes a day



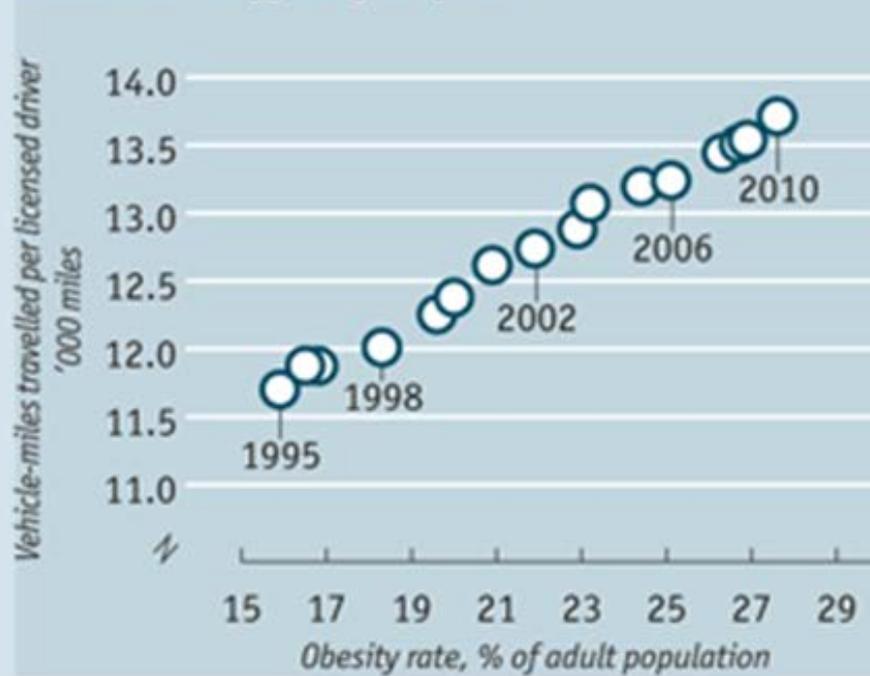
Ben Russell / Dispatch

A brisk walk in the park keeps Marey B in shape between dog shows. His owner, Columbus resident Cathy Stumbo, got up early

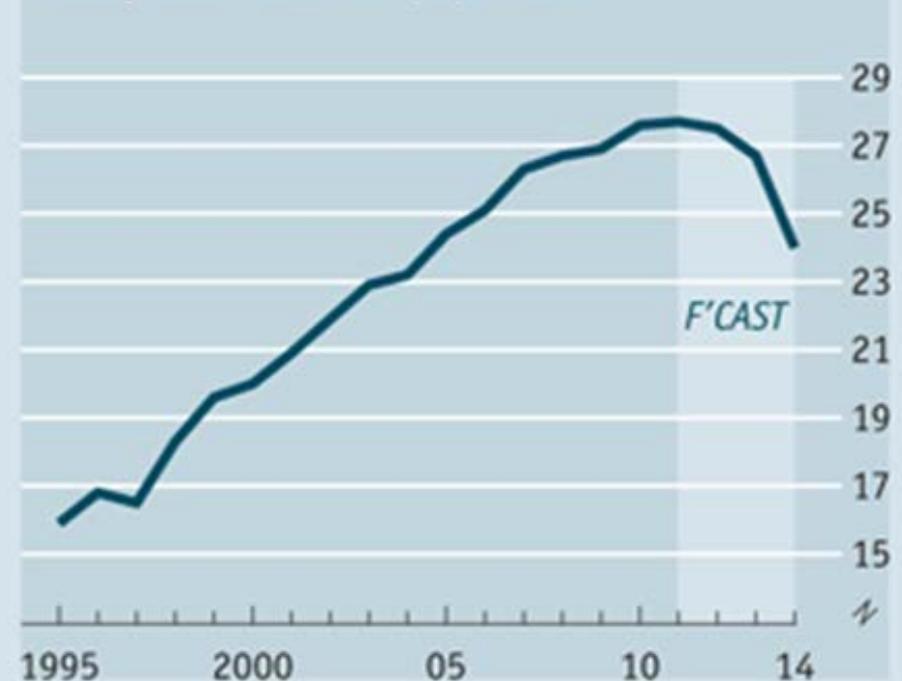
to give her 3-year-old Doberman his regular workout. They typically log 18 miles in Berlinet Park.

Obesity and driving in America

Correlation, lagged by six years



Obesity rate, % of adult population



Sources: "A note on the relationship between obesity and driving" by Sheldon Jacobson et al, *Transport Policy*, 2011; Bureau of Transport Statistics; Centres for Disease Control and Prevention; Department of Transport

In a study of 33 counties in California, vehicle miles traveled and obesity levels were compared. The highest mean rank obesity was associated with the highest rank of VMT.

Vehicle Miles Traveled (VMT) *is a measure of community health*

Less driving =

- Fewer traffic injuries
- Less air pollution
- Fewer greenhouse gas emissions

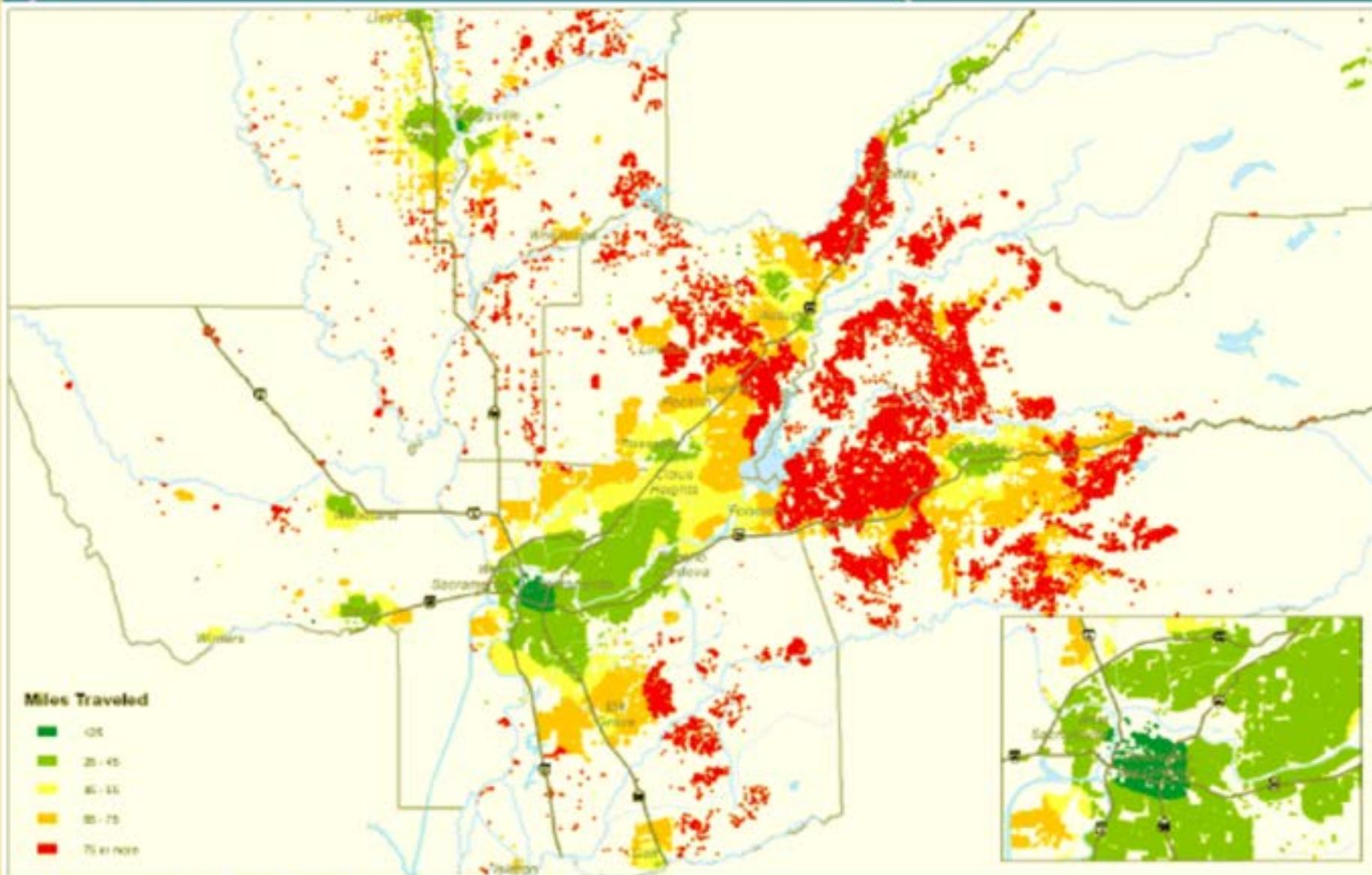


K Street, Sacramento

Proximity to destinations =

- More walking and bicycling
- Less commute time, lower transportation costs
- Better access to goods and services
- Better social connections

2005 VMT Per Household



Many car trips are short...
25% are less than one mile
One mile = 20-minute walk



J St at 56th
Sacramento

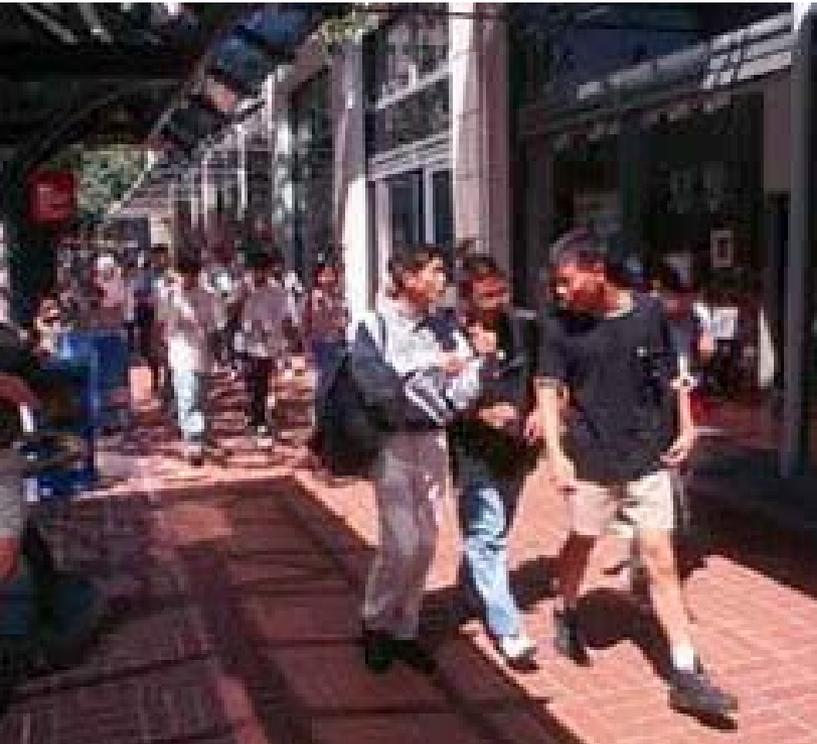
Even short walking trips count.

Imagine:

Eliminate 20 minutes of
walking,
5 days a week.

200 calories/week =
10,400 calories/year

~ 3 lbs./year, or
30 lbs./decade!





The streets are a way to get people
moving again





*Active transportation
makes healthy living easier,
cuts costs,
and improves quality of life*



How CAN WE AFFORD the INFRASTRUCTURE NEEDED TO LOWER OUR EMISSIONS?



EASY.



Signe Wilkinson • Philadelphia Daily News



WALKSacramento works to increase active transportation around:

- Schools
- Neighborhoods



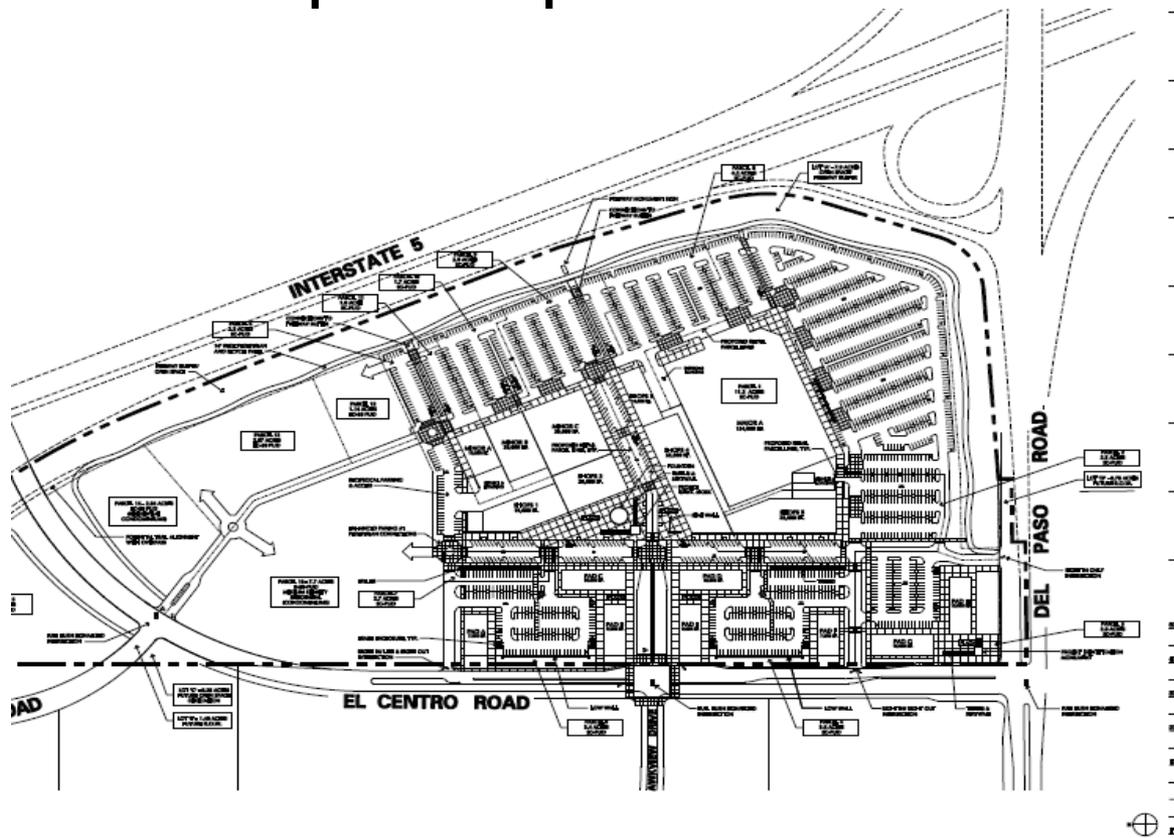
- The County
- The Region

WALKSacramento's Projects: **Safe Routes to School** City of Citrus Heights

- **Walk audits** by WALKSacramento
- **Bike audits** by Sacramento Area Bicycle Advocates (SABA)
- Trained students assist with audits
- Create a **Citrus Heights Safe Routes Master Plan**
 - Recommendations for infrastructure change
 - School program improvements

Design & Development Review:

Recommendations on development proposals to improve pedestrian access



ING
IPUTJ

SITE PLAN

ARCBS1
10.1.2015

OSE PROPERTIES

Architect - Planning, Landscape Architecture, Interior Design, Engineer
and Environmental Planning, Inc.
10000 E. 10th Avenue, Suite 100
Denver, Colorado 80231
303.750.1000

LPA

Make
the healthy choice
the easy choice.



Near Fruitvale BART
Station, Oakland

Thank you!



Teri Duarte, MPH

Executive Director

WALKSacramento

909 12th Street, Suite 203

Sacramento, CA 95814

916-446-9255

Tduarte@walksacramento.org

www.walksacramento.org