Quantifying the Physical Activity Benefits of Transportation Investments

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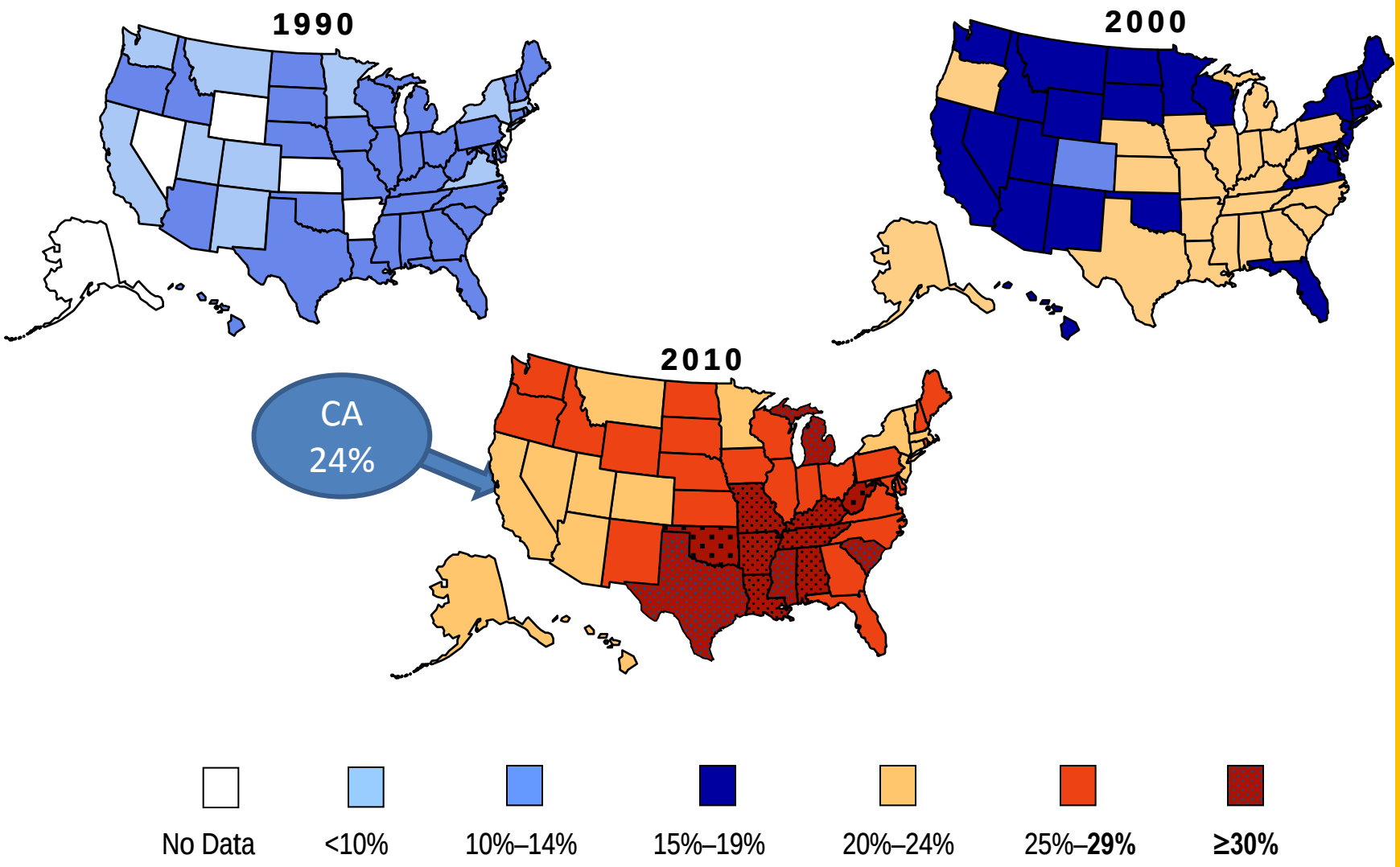
Obesity Trends Among U.S. Adults

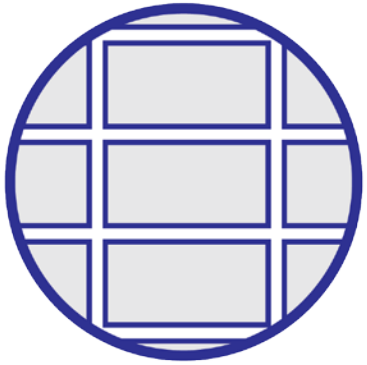
BRFSS, 1990, 2000, 2010

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

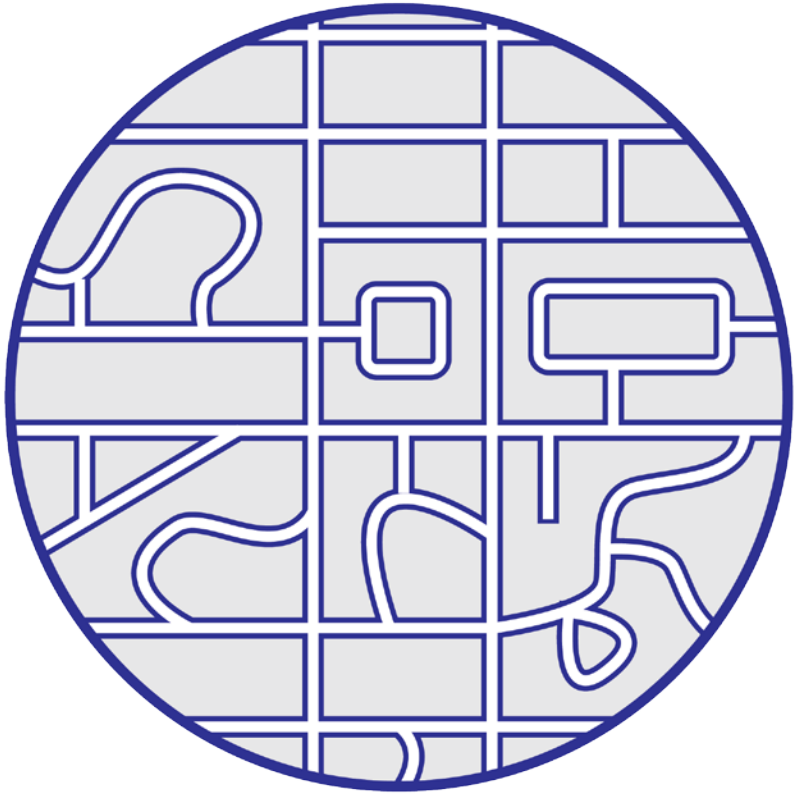


Average Daily Vehicle Miles Traveled Per Person

1950

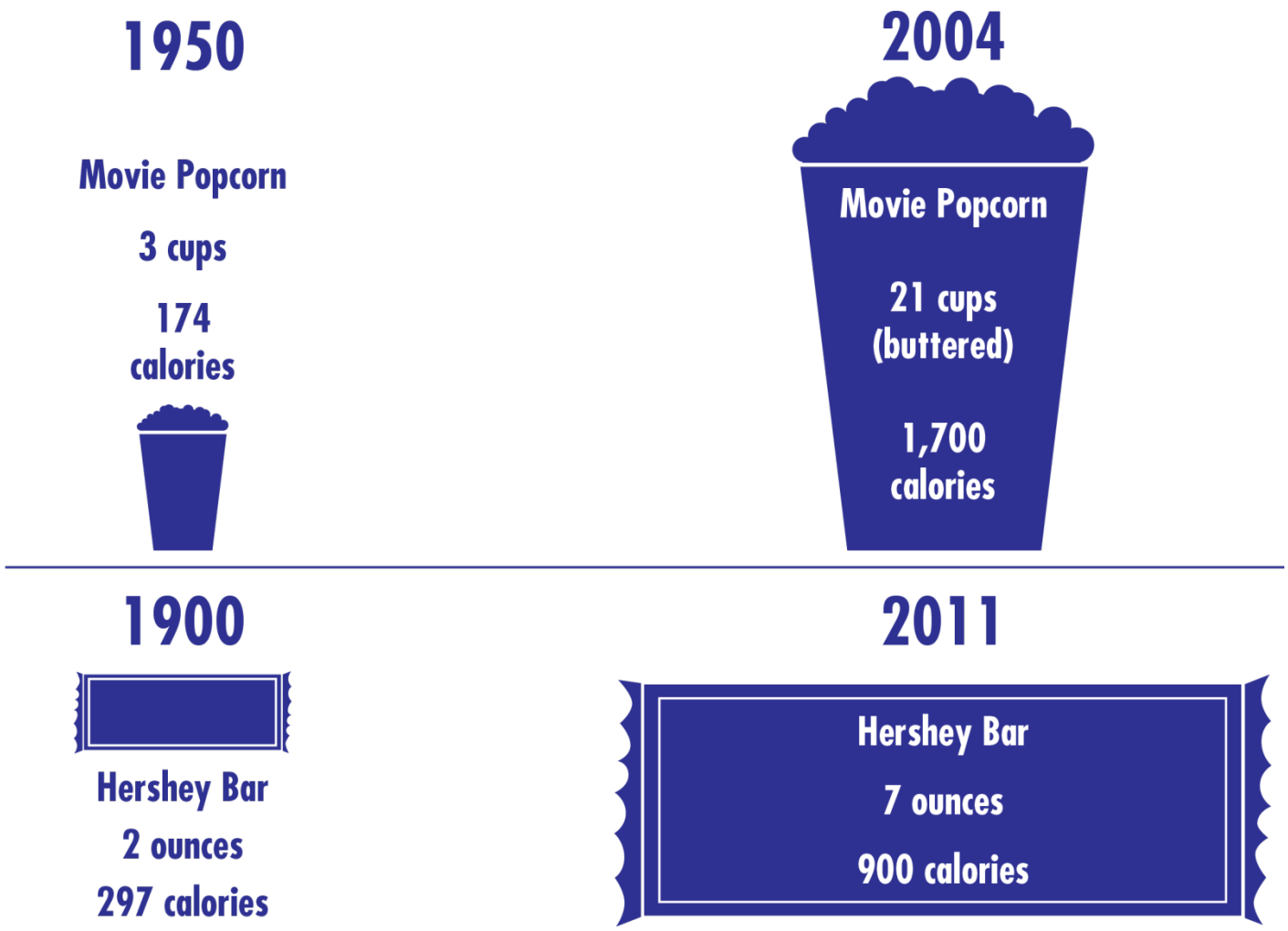


2000

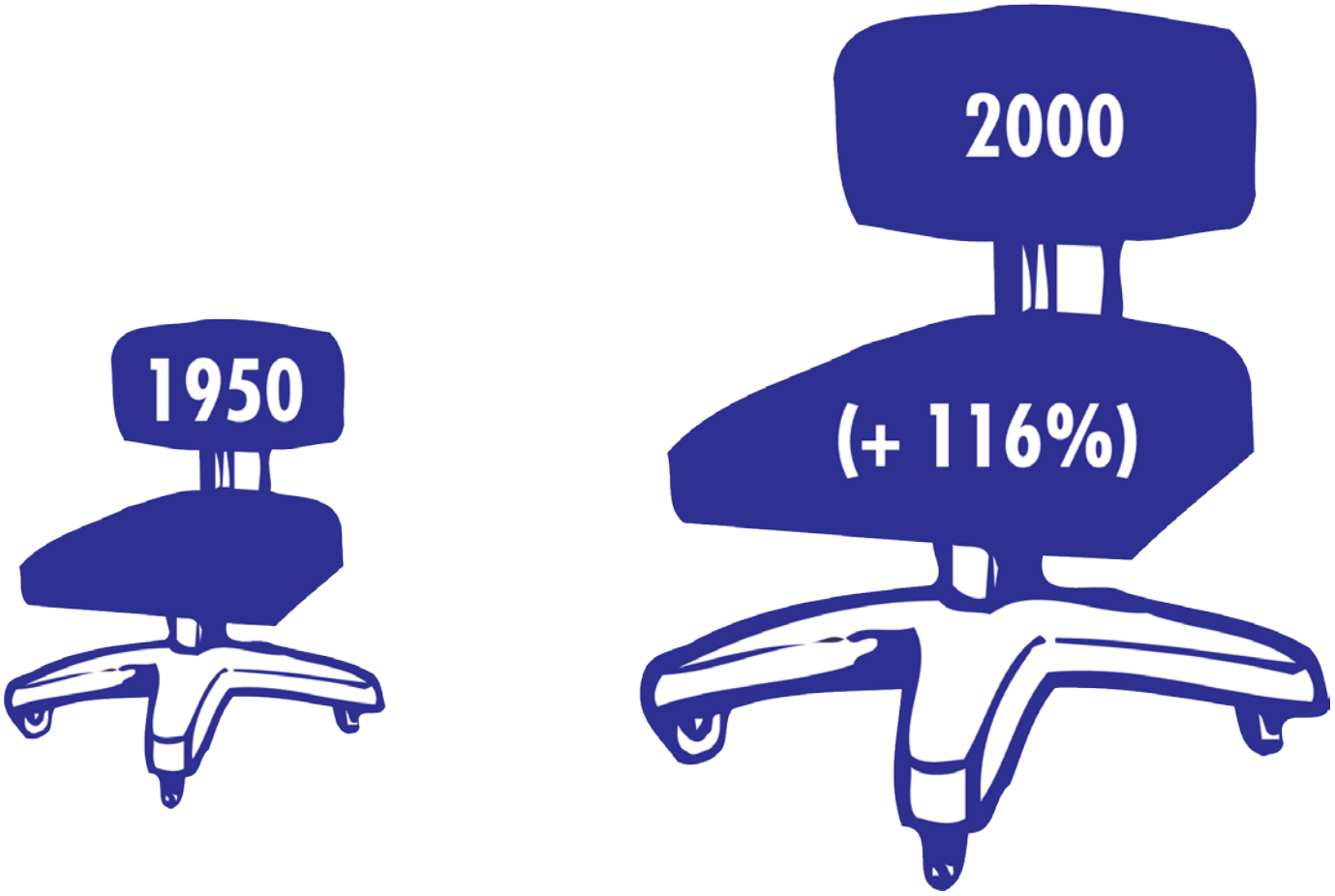


(+224%)

Changing Portion Sizes in America



Work in low physical activity occupation



Methodology of Evaluating Active Transportation

Travel Model calculates effects of investments on trips

Activity Based Travel Model – changes in walk, bike and walk to transit trips from each project

Minutes of each trip were calculated on average trip distance and time

Average bike trip distance 2.27 miles

Average speed of bike trip 12 mph

Average walk trip distance 0.92 miles

Average speed of walk trip 3 mph

Methodology of Evaluating Active Transportation

% of Active Individuals

$$\frac{\text{(Change in minutes/person/day) * (inactive population 62\%)}}{\text{(Minutes to become active -30)}}$$

Active individuals from the project

Percent of active or inactive individuals * Projected Bay Area Population

Health Care Cost Savings

California Health Interview Survey (CHIS) – 62% of Bay Area residents are inactive

$1220 Savings per Active Person

Health care costs from California Center for Public Health Advocacy, - based on disease types attributable to physical inactivity

Lost productivity to inactive lifestyle

Attributable Fraction of Disease Burden Due to . . .

- What percentage of this disease burden is related to individual risk factors like smoking, alcohol, diet, physical inactivity, violence, etc.?

Causes of Death, U.S., 2000	Number	PAF, %
Tobacco	435,000	18.1
Poor diet and physical inactivity	400,000	16.6
Alcohol consumption	85,000	3.5
Microbial agents	75,000	3.1
Toxic agents	55,000	2.3
Motor vehicle	43,000	1.8
Firearms	29,000	1.2
Sexual behavior	20,000	0.8
Illicit drug use	17,000	0.7
Other environmental causes	109,000	4.5
Total of known risk factors	1,159,000	48.2

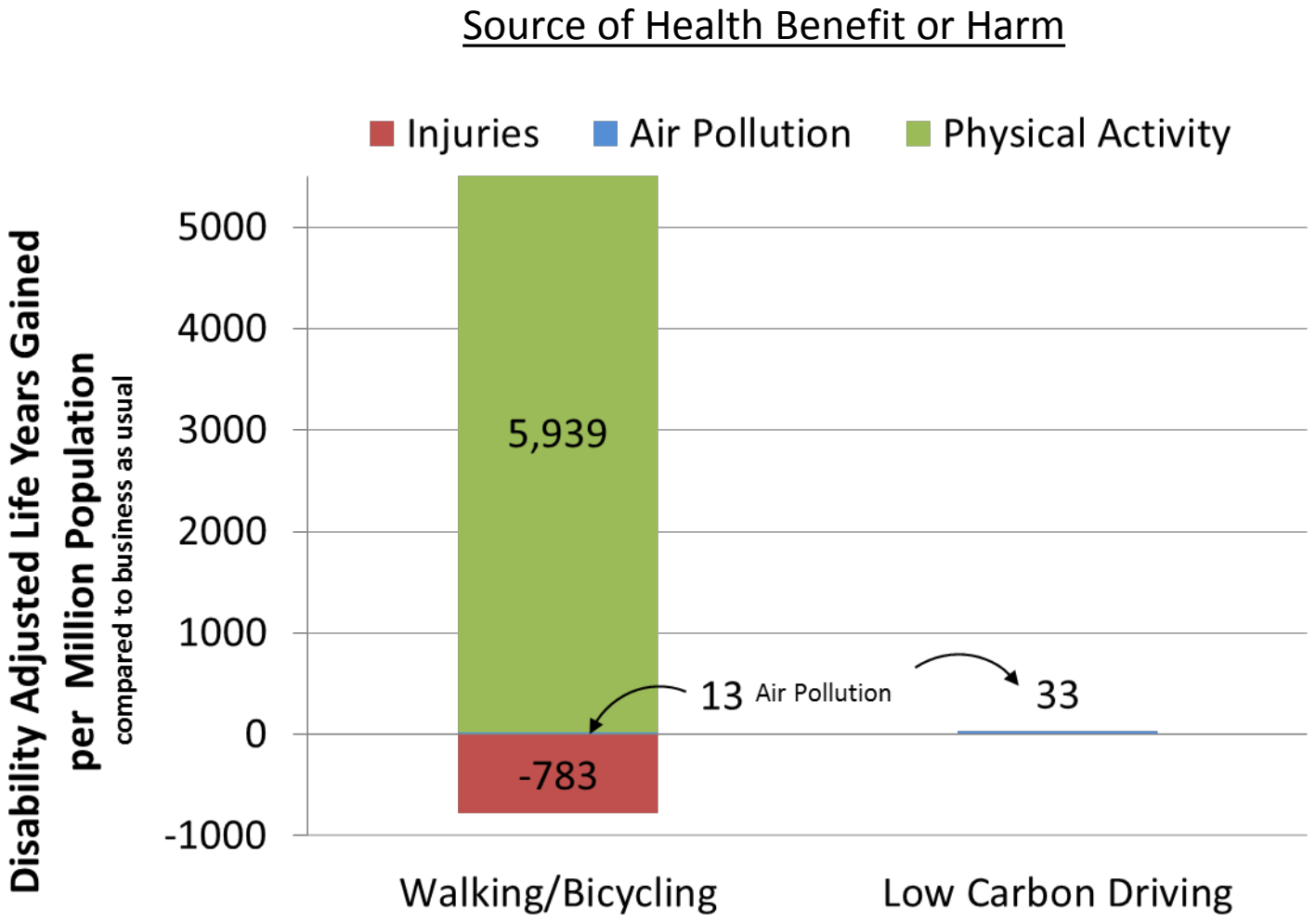
Source: Mokad et al. Actual Causes of Death in the United States, 2000. JAMA. 2004;291:1238-1245

Health Impacts of Active Transport Scenarios

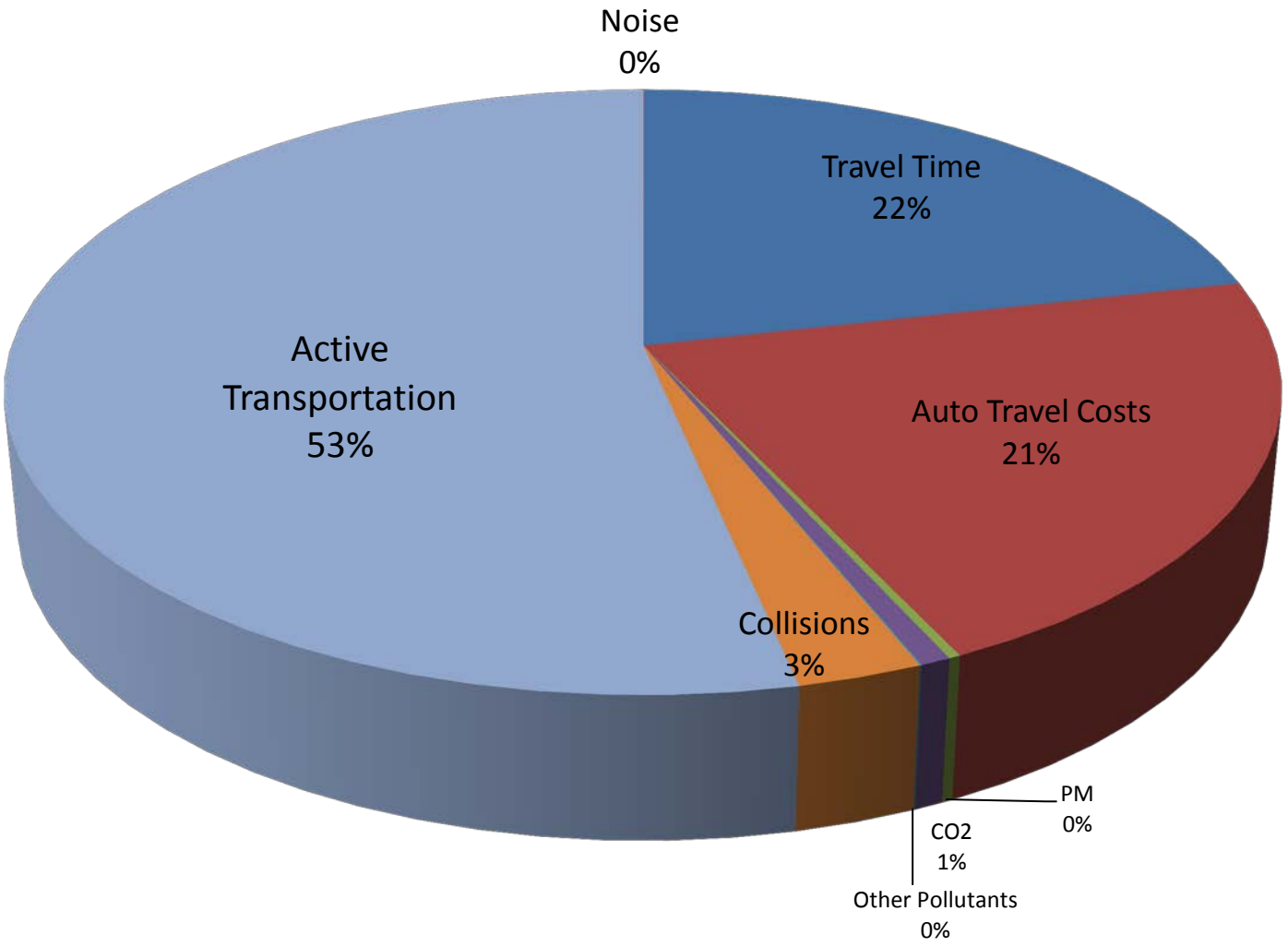
	Change in disease burden	Change in premature deaths
Cardiovascular Dis.	6-15%	724-1895*
Diabetes	6-15%	73-189
Depression	2-6%	<2
Dementia	3-10%	63-218
Breast cancer	2-5%	15-48
Colon Cancer	2-6%	17-53
Road traffic crashes	10-19%	60-113

* Range reflects range of physical activity in scenarios

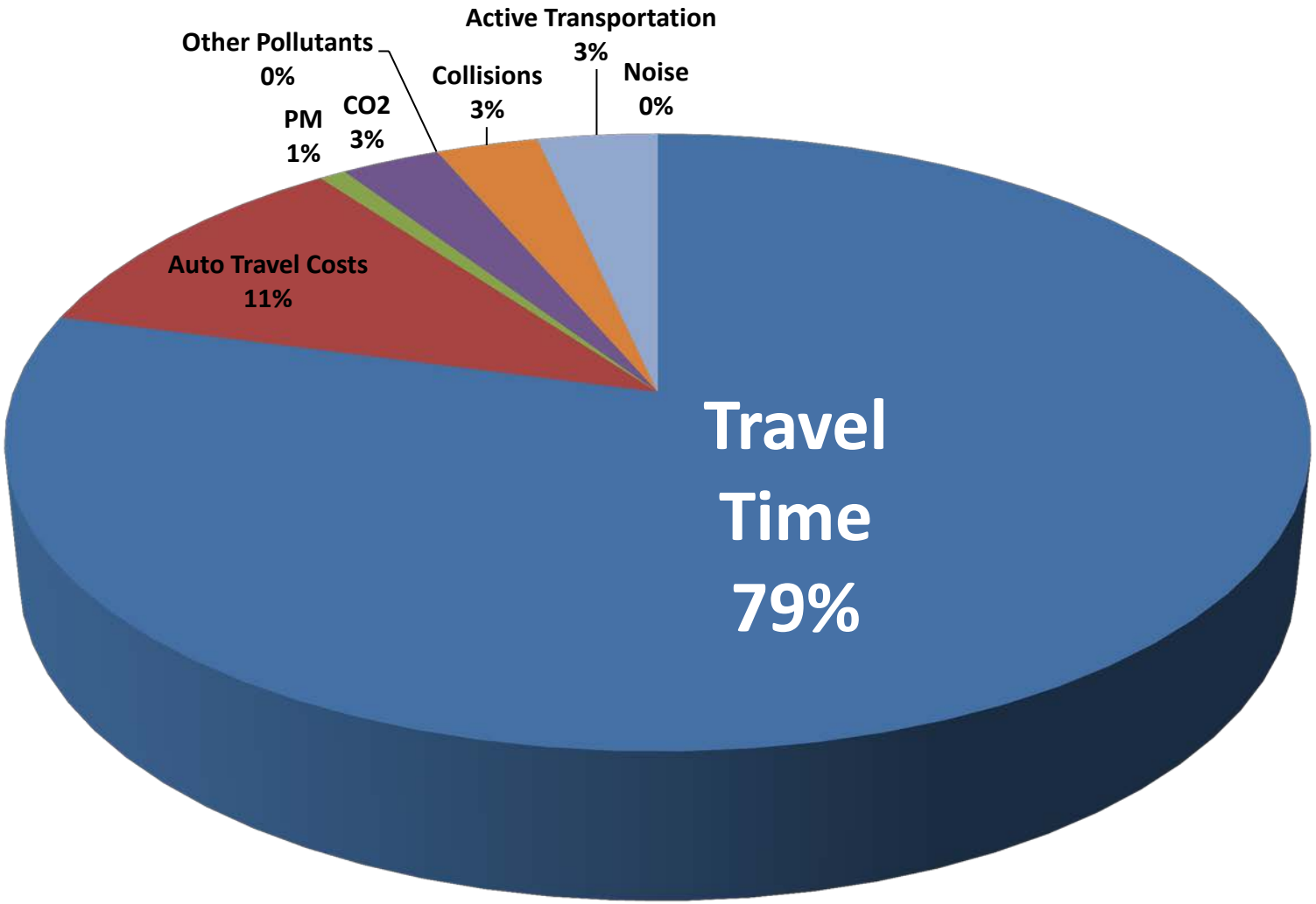
Annual Health Benefits of Active Transport and Low Carbon Driving in the Bay Area: Predictions from the ITHIM Model



Distribution of Benefits
(Regional Bicycle Network)



Total Distribution of Benefits



Total Benefit from Active Transportation

$1.1 Billion in benefits from health care cost and lost productivity reductions

Achieve Target of 15 minutes/person/day
Increase of 5 minutes over base case
10.6% of Bay Area residents becoming active

Public Private Partnership

Workplace competitiveness

Google, Facebook, Apple other tech investments in public bicycle infrastructure

Bay Area Council, Silicon Valley Leadership Group – wellness beyond the workplace

Bottom line health care costs

Next Steps

Implementation of Projects Based on Public Health Impacts

Common methodology for assessing health impacts in transportation projects

Award of projects based on health impact

What is the level of transportation investment necessary for a desired health outcome?