“IS IT SAFE TO WALK HERE?”
SAFETY AND SECURITY CONSIDERATIONS AND THEIR EFFECTS ON WALKING

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IMPORTANCE OF ALTERNATIVE TRANSPORTATION MODES

Environmental Benefits

Economic Benefits

Health Benefits
Changes in walking and biking for the journey to work 1960-2010

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<tbody>
<tr>
<td>Walk</td>
<td>6,416</td>
<td>5,690</td>
<td>5,413</td>
<td>4,489</td>
<td>3,759</td>
<td>3,966</td>
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<tr>
<td></td>
<td>9.9%</td>
<td>7.4%</td>
<td>5.6%</td>
<td>3.9%</td>
<td>2.9%</td>
<td>2.9%</td>
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<tr>
<td>Bicycle</td>
<td>N/A</td>
<td>N/A</td>
<td>468</td>
<td>467</td>
<td>488</td>
<td>766</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>0.5%</td>
<td>0.4%</td>
<td>0.4%</td>
<td>0.6%</td>
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</table>

*Source: U.S. Census*
(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see [www.census.gov/acs/www/](http://www.census.gov/acs/www/))

<table>
<thead>
<tr>
<th>Year</th>
<th>Bicycle</th>
<th>Walk</th>
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<tbody>
<tr>
<td>1980 Census</td>
<td>0.5</td>
<td>5.6</td>
</tr>
<tr>
<td>1990 Census</td>
<td>0.4</td>
<td>3.9</td>
</tr>
<tr>
<td>2000 Census</td>
<td>0.4</td>
<td>2.9</td>
</tr>
<tr>
<td>2008-2012 ACS</td>
<td>0.6</td>
<td>2.8</td>
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</table>

Factors affecting walking and biking

- Individual-level capacities (sociodemographic, cultural, behavioral characteristics, lifestyle preferences)
- Society-level characteristics (social norms, public policies, market forces)
- Built environment/urban form characteristics
Webinar focus

FOCUS: Link between built environment, perceived or actual safety, and walking or biking
Research Questions

1. What is the link between perceptions of risk, fear, and walking and biking?

2. How perception of safety may vary because of socio-psychological, demographic, and environmental factors?

3. What are appropriate design and policy interventions that can help people feel safer in public settings?
**HUMAN**

- Heavy Traffic
- Reckless drivers

**NON-HUMAN (ENVIRONMENTAL)**

- Criminals
- Unattended dogs
- Poor roadway infrastructure

**Injury from falls, pedestrian- or bike-automobile crashes**

**Pedestrian- or bike-automobile crashes**

**Crime violence**

**Injury from bites**
Perceived safety is one of the most important prerequisites for walking (Bauman et al. 1996, Booth et al. 2000)

Negative association between fear of crime, and walking (Ross 1993; Chandola 2001)

Negative associations between perceived traffic safety and walking, and biking (Caitlin et al. 2003)

Higher prevalence of inactivity/obesity among those who perceive their neighborhoods as unsafe (Weinstein et al. 1999)
Factors influencing fear of crime

• Psychological factors
  o Prior experiences and memories, prior victimization, media stories, parental admonitions

• Socio-demographic factors
  o Gender, race/ethnicity, age, income

• Physical characteristics of places
Socio-demographic characteristics influencing fear of crime

GENDER
- Women are found to be typically more fearful than men.
- Research has shown that fear often prompts women to avoid walking or using public transit, and avoid certain public settings.
- Safety is a particular concern for minority women.
RACE/ETHNICITY

Studies have found:

• Higher fear of crime and more barriers to walking in ethnic and immigrant neighborhoods (Seefeldt 2002)

• Higher levels of inactivity (Amesty 2003)
Socio-demographic characteristics influencing fear of crime

AGE

- Older people are more fearful even though young adults are statistically more at risk.
- Studies have found a strong association between physical inactivity in older adults and safety concerns (CDC 1999; Brownson et al. 2000, Booth et al. 2000)
Percentage of respondents reporting physical inactivity, by sex, age group, and perceived neighborhood safety

Source: CDC 1999
Socio-demographic characteristics influencing fear of crime

AGE

• Parental concerns about safety affect children walking and biking to school and their propensity to play in public outdoor settings (TRB 2002).
Travel modes for journey to school in the U.S.

Source: TRB 2002

Legend:
- 5 to 10 yrs old
- 11 to 13 yrs old
- 14 to 15 yrs old
- 16 to 18 yrs old

Graph categories:
- Bicycling
- Other Bus
- Walking
- School Bus
- Passenger Vehicle (Adult Driver)
- Passenger Vehicle (Teen Driver)
Environmental Factors Contributing to Fear

Physical Incivilities

Lack of maintenance, physical and social disorder, graffiti, litter, unkempt and abandoned buildings, poor environmental quality
Environmental Factors Contributing to Fear

Desolation

Darkness

Lack of surveillance opportunities from surrounding establishments
Settings eliciting fear

Enclosed spaces with limited exit opportunities

Anonymous and deserted open spaces
Crime and the Built Environment

Crime and the built environment are related in a systematic manner.

Different types of crime occur under different environmental conditions.

Certain features of place can affect crime:
- multiple escape routes
- crime generating land uses
- physical disorder/ ‘broken windows’
Design and Policy Interventions for Crime Safety

Fixing broken windows

Facilitating eyes on the street

Institute of Transportation Studies
Design and Policy Interventions for Crime Safety

Lighting the way

Eliminating bad neighbors
Design and Policy Interventions for Crime Safety

Creating safe territories

Protecting access routes to destinations (first mile/last mile)
Urban form impediments to walking and biking
Pedestrian “Impediments”

- Very wide, difficult-to-cross streets
- Lack of medians in many arterials
- Absent or obstructed sidewalks
- Absence of pedestrian infrastructure (lighting, trees, crosswalks, etc.)
- Segregation of land uses requiring long walks
Factors influencing Collisions

• Social and behavioral characteristics of drivers and victims

• Road design characteristics (type of road, lane width, intersection geometry, pavement characteristics, marked crosswalks, raised medians, etc.)

• Traffic characteristics (traffic volumes, traffic speeds)

• Urban form characteristics
### Design and policy interventions to mitigate the effects of traffic

<table>
<thead>
<tr>
<th>TARGET</th>
<th>OBJECTIVE</th>
<th>PLANNING &amp; DESIGN ACTIONS</th>
<th>POLICY ACTIONS</th>
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</table>
| **DRIVERS**     | Manage/regulate vehicular traffic                   | - Traffic control through traffic signals, roadway signs, crosswalks, pavement markings, etc. | - Enforcement of traffic regulations  
|                 |                                                     |                                                                                           | - Fees/penalties for non-complying drivers                                     |
|                 | Reduce vehicular traffic                           | - Pedestrian, bike, transit infrastructure: sidewalks, paths, bike lanes, busways          | - Congestion pricing  
|                 |                                                     |                                                                                           | - Gasoline and license taxes, parking fees                                      |
|                 | Reduce traffic speed                               | - Traffic calming: deflections, medians, road narrowing, etc.                             | - Designation of slow-speed areas: Woonerfs, school zones, home zones           |
| **PEDESTRIANS** | Increase safety for pedestrians and cyclists        | - Pedestrian, bike, transit infrastructure: sidewalks, crosswalks, bike lanes, lighting    | - Preferential treatment of non-motorized modes when they interface with motorized modes. |
| **CYCLISTS**    |                                                     | - Elimination of sidewalk obstructions;  
|                 |                                                     | - Pavement upkeep                                                                          | - Crossing aids near schools; - Escort to school programs                      |
|                 | Educate, inform about traffic dangers               |                                                                                           | - Helmet programs  
|                 |                                                     |                                                                                           | - Training programs for kids                                                    |
THANK YOU!