INTERVENTION TABLE 23

Transportation

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
United States						
Brown, Werner (2007) Utah	The addition of a convenient rail stop to increase access to transport and ridership rates in the community ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Before and after study ***DURATION:*** Rail installed in Fall 2005 ***SAMPLE SIZE:*** *Pre-test/Time 1:* 102 residents *Post-test/Time 2:* 51 residents (47 accelerometer) ***PRIMARY OUTCOME:*** Physical activity ***MEASURES:*** 1. Survey (frequency of ridership over 2 week period) 2. Accelerometers (1 week of activity bouts >1952 counts per minute, respondents reported exact time and day of an activity) ***DATA COLLECTION:*** In a pretest–post-test design, data were collected from residents before (Summer 2005) and after (Summer 2006) a new light-rail stop was added to their neighborhood (Fall 2005). Respondents completed surveys at both times 1 and 2. Accelerometer counts of moderate bouts were accumulations of 8 or more moderate minutes, and short interruptions up to 2 minutes were allowed for intersection crossing, etc. Moderate bouts were calculated per hour the accelerometer was worn to provide comparable time frames. ***LIMITATIONS:*** Sample size was small and response rates were low; the study provided information in Spanish and English only; survey data was self-reported	Adults, General , Lower-income 41 ± 13.82 years old (average age Time 2 sample), 79% White (Time 2 sample),16% Hispanic (Time 2 sample), 55% Single-family detached housing (Time 2 sample) (evaluation sample) Gender, ethnicity, and home ownership were comparable to Salt Lake City census statistics. Consistent with city revitalization designation, the neighborhood was substantially poorer, and household incomes averaged $24,000 compared to $43,367 for Salt Lake City (after Consumer Price Index inflation adjustments to the year 2005). The residential areas had gridded street patterns and tree-lined sidewalks, but few walkable destinations beyond convenience stores. ***ELIGIBILITY:*** All participants signed a consent form In order to be eligible, residents' home locations had to be safe and accessible to researchers as well as within 1/2 mile of new rail stop. Participants were required be able to communicate with researchers, be physically able to ride the trail, and own a working telephone. ***EXPOSURE/PARTICIPATION:*** Site visits yielded 529 addresses (similar to Census 2000 reports) able to access the rail stop easily.	***LEAD AGENCY:*** Researchers were from the University of Utah. ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not reported ***ADOPTION:*** Not reported ***IMPLEMENTATION:*** The new rail stop was added between two existing stops and paid for by Salt Lake City. ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** 1. Labor and materials to build the rail stop 2. Land to convert to rail area 3. Labor and personnel to operate rail ***FUNDING:*** Research was funded by the University of Utah's Institute of Public and International Affairs, the University Research Committee, the Research Experience for Undergraduates Program, and the National Science Foundation. ***STRATEGIES:*** Not reported	***PHYSICAL ACTIVITY:*** 1. Pre-and-post-test measures revealed that rail ridership is significantly related to more accelerometer measured bouts of moderate activity (Time 1, F [5,42] =3.12, p=0.018; Time 2, F [5,40]=4.71, p=0.002). 2. The addition of a convenient stop related to a significantly increased ridership of 68.75% at post-test (paired t [47] =-2.65, p=0.011). New rail riders did not simply switch from bus to rail use (reported bus ridership in previous 2 weeks; pre-test=1.90, post-test=1.85 rides).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Li, Harmer (2009), Li, Harmer (2008), Li Harmer (2009) Oregon	Density and access to transit stations **OTHER INTERVENTION COMPONENTS:** *Multi-component:* 1. Density of neighborhood fast food outlets 2. Land-use mix and total number of neighborhood destinations 3. Neighborhood aesthetics 4. Safety crossing the street 5. Physical disorder in the neighborhood *Complex:* 1. Social Support	**DESIGN:** Prospective cohort and cross-sectional studies **DURATION:** Not applicable **SAMPLE SIZE:** 1221 adults aged 50-75 residing within Portland's Growth Management Boundary; random selection of households from 120 neighborhoods; block groups represented variety of urban forms, in ethnically and socioeconomically diverse populations. **PRIMARY OUTCOME:** Overweight/obesity (BMI), active transportation, and meeting recommendations **MEASURES:** 1. In-person Interview (individual level measures: BMI [anthropometric measures of height and weight]; eating out behavior [frequency fast-food / buffets]; eating self-efficacy for fruit and vegetable consumption [adapted from Resincow et. al.]; fried food consumption; fruit and vegetable consumption; physical activity [assessed with BRFSS questions]; sociodemographics) 2. Geographic Information System (GIS) data (fast food outlet locations and density), 3. Existing geographic databases managed by the Portland Regional Land Information System (land use mix , residential density [number of people per residential acre in each block group], density of street connectivity, density of public transit stations, green spaces). 4. Walkability index (land-use mix, street connectivity, public transit stations, green and open spaces) **DATA COLLECTION:** An in-person interview was used to collect sociodemographic info, dietary and physical activity behaviors, weight and height measurements at baseline (2006-2007) and one year follow-up (2007-2008). Fast-food restaurant information was purchased, compiled, spatially geo-coded and integrated within GIS using ArcView software. Land use mix data were generated using existing geographic databases managed by the Portland Regional Land Information System and land use mix index was generated. Walkability was assessed as a composite score. Scores were divided into quartiles, individuals in or above the 75th percentile resided in high walkability neighborhoods. *(continued next page)*	Adults aged 50-75 27% Lower- income 92% White 57% Male (evaluation sample) **ELIGIBILITY:** Between 50 and 75 years of age, English speaking, independently ambulatory, and no history of major mental deficits **EXPOSURE/ PARTICIPATION:** Not applicable	**LEAD AGENCY:** The research teams at Oregon Research Institute, Willamette University, Oregon State University, and Metro Regional Services, Portland, OR. **THEORY/ FRAMEWORK:** Not reported **EVIDENCE-BASED:** Not reported **REPLICATION/ ADAPTATION:** Not applicable **ADOPTION:** Not applicable **IMPLEMENTATION:** Not applicable **FORMATIVE EVALUATION:** Not reported **PROCESS EVALUATION:** Not reported	**RESOURCES:** Not applicable **FUNDING:** The evaluation was supported by a research grant from the National Instituted of Environmental Health Sciences. **STRATEGIES:** Not applicable	**OVERWEIGHT/OBESITY:** 1. (N=1145) Multi-level analyses show that after adjustment for neighborhood- and resident-level socio-demographic characteristics high walkability was associated with a decrease in 2.65 pounds in weight and 0.62 inches in waist circumference among residents who increased their levels of vigorous physical activity ($p<0.05$). 2. (cross-sectional data) Using Poisson regression model analyses, a 10% increase in the even distribution of square footage across all land uses (i.e., residential, public [offices and institutions], commercial) was associated with a 25% reduction in prevalence of overweight/obesity ($p<0.01$). 3. (cross-sectional data) Residents living in high density fast food outlet neighborhoods who visited fast food or buffet restaurants 1 or 2 times weekly or more, were 1.878 (95% CI=1.063,3.496; $p<0.05$) times more likely to be obese than those who lived in low density fast food outlet neighborhoods. 4. (cross-sectional data) Similar results for high density fast food outlet neighborhoods compared to low density fast food outlet neighborhoods were found for residents who did not meet recommended levels of physical activity, OR=1.792 (95%, CI=1.006, 3.190, $p<0.05$); reported low self efficacy in eating healthy food; OR=1.212 (95%, CI=1.057, 1,391, $p<0.005$) or were non-Hispanic black residents, OR=8.057 (95% CI=1.705, 38.086, $p<0.005$). 5. (N=1145) Multi-level analyses show that after adjustment for neighborhood- and resident-level socio-demographic characteristics a high density of fast-food outlets was associated with an increase of 3.09 pounds in weight and 0.81 inches in waist circumference among residents who frequently ate at fast-food restaurants ($p<0.05$). 6. (cross-sectional data) A one standard deviation increase in the density of fast-food outlets was associated with a 7% increase in the prevalence of overweight/obesity ($p<0.01$). **PHYSICAL ACTIVITY:** 7. (cross-sectional data) The density of public transit stations was associated with more walking for transportation (estimated prevalence = 1.147, $p=0.011$) and meeting physical activity guidelines (estimated prevalence = 1.069, $p=0.03$); green and open spaces for recreation was also associated with more neighborhood walking (estimated prevalence = 1.119, $p=0.032$) and meeting physical activity requirements (estimated prevalence = 1.065, $p<0.001$). *(continued next page)*

(Continued from previous study)						
		LIMITATIONS: Cross-sectional design precludes causality conclusions - observing change in built environment requires long periods of time, which is a challenge in the study of interaction effects of individual and environmental food outlet factors on obesity; factors related to the built environment surrounding participants' places of work or homes, such as absence of sidewalks and neighborhood environment features such as automobile dependent or live and work suburban style environments, were not measured; participants self-reported measures of fast food restaurant visits; because the exact location of each restaurant visit was not recorded, researchers could not verify visits were within the study area				8. (cross-sectional data) A one unit increase in mixed land use was associated with a 5.76 times increase in walking for transportation ($p<0.001$), a 4.066 times increase in neighborhood walking ($p<0.000$), 1.495 increase in walking for errands ($p<0.047$) and 1.463 times increase in meeting physical activity recommendations ($p=0.025$). 9. (cross-sectional data) A one standard deviation increase in street connectivity increased walking prevalence by 16% for neighborhood walking ($p=0.034$), 20% for transportation ($p=0.004$) and 11% for errands ($p=0.025$).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Chen, Gong (2008) New York, New Jersey, Connecticut	Access to public transit **OTHER INTERVENTION COMPONENTS:** *Multi-component:* Not reported *Complex:* Not reported	**DESIGN:** Cross-sectional study **DURATION:** Not applicable **SAMPLE SIZE:** 2089 trips were selected from a recruitment of 27,369 individuals from 11,264 households making 118,134 trips in 28 counties of the tri-state area. **PRIMARY OUTCOME:** Physical activity (PA) **MEASURES:** 1. 1997/1998 Household Interview Survey (24 hour travel diary, car ownership, propensity to use auto, socio-economic characteristics, built environment attributes, tour-level characteristics) 2. Geographical Information Systems (ArcGIS) database (access to mass transit) 3. 2000 Census Transportation Planning Package/2000 Census (census tract level; population and employment density) 4. 2002 Best Practice Model (regional forecasting model for job accessibility for each census tract, travel cost, zone-to-zone travel time) **DATA COLLECTION:** In 1997/1998, the New York Metropolitan Transportation Council and the New Jersey Transportation Planning Authority sponsored the Household Interview Survey including a 24-hour travel diary. ArcGIS was used to compute straight line distance between a stop in a tour and the nearest public transit station. For each individual tour included in the sample, a zone-to-zone travel time and travel cost by auto and transit was calculated to obtain generalized travel cost by mode in the region. Data was checked against the 1990 Census and the 1995 National Personal Travel Survey for comparability for variables that existed in the relevant datasets. The study dataset was found to be comparable for most variables. Higher job accessibility at work was defined as increased access to mass transit and areas near the CBD (area south of 60th street over 2 million individuals work in this area). Employment density examined how many individuals were working in the same area or populating the space during the work day. Home based worked tours were defined as trips that started and ended at home, had at least one work related activity between start and finish, were not exclusively conducted by non-motorized mode of travel, and were conducted by individuals with at least one household vehicle. **LIMITATIONS:** Data was self-reported; similarities were assumed across variables and across multiple surveys; surveys were collected during different years; self-selection was not controlled	General Population About 70% of the sample in the 1997/1998 survey lived outside of New York City, where the main mode of transportation is auto. The New York Metropolitan Region was chosen because it is an ideal place to study mode choice decisions because of the diversity in population demographics, the range of transportation alternatives offered, and land use mixes and densities. **ELIGIBILITY:** Respondents with trips starting and ending at home, having at least one work activity within the tour, involving some type of motorized travel, and owning at least one vehicle were eligible. **EXPOSURE/ PARTICIPATION:** Not applicable	**LEAD AGENCY:** The research team was from the City College of New York and the Hunter College of the City University of New York. **THEORY/ FRAMEWORK:** Not reported **EVIDENCE-BASED:** Not reported **REPLICATION/ ADAPTATION:** Ye et. al (2006) compared 3 relationships between trip chaining pattern and mode choice using the 2000 Swiss micro-census Travel Survey. For this study, researchers adopted previous results and assumed that the number of stops in a tour is determined prior to mode choice. **ADOPTION:** Not applicable **IMPLEMENTATION:** Not applicable **FORMATIVE EVALUATION:** Not reported **PROCESS EVALUATION:** Not reported	**RESOURCES:** Not applicable **FUNDING:** Not reported **STRATEGIES:** Not applicable	**PHYSICAL ACTIVITY:** 1. Higher job accessibility at work by transit will significantly deter people from using auto in home-based work tours (β=-0.00026; p<0.05). 2. Longer distance to public transit stations will increase the propensity to use auto in home-based work tours (β=0.25E-04; p<0.05 for distance between the nearest transit stop and home, and β=0.28E-04; p<0.05 for distance between the nearest transit stop and work). 3. Both zone-to-zone travel time and travel cost have a negative coefficient (β=-0.0032; p<0.05 and β=-0.0013; p<0.05, respectively) suggesting that the longer travel time or the higher the travel cost, the lower the probability of choosing a mode. 4. Employment density at work is a significant barrier to the auto mode (coefficients; -0.10 E-05, p<0.05).

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Chatman (2003) United States	Access to transit ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* Not reported *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 34,560 workers with complete work periods and mileage information ***PRIMARY OUTCOME:*** Travel behavior and physical activity (active transit) ***MEASURES:*** 1. 1995 Nationwide Personal Transportation Survey (personal and travel day trip files [vehicle miles traveled, personal vehicle miles traveled for personal commercial purposes: shopping, medical/dental, etc], sociodemographic data, distance from residence and to transit, transit availability, vehicles per driver, parking fees at workplace, time spent at work) 2. Census (tract-level data; workplace density, retail density, employment share retail, block-group; housing unit density) ***DATA COLLECTION:*** This data is drawn from the Person and Travel Day Trip files of the 1995 Nationwide Personal Transportation Survey (NPTS) gathering information about complete work periods and complete mileage. ***LIMITATIONS:*** Survey data was self-reported; neighborhood self-selection was not accounted; causal and temporal inferences cannot be made using cross-sectional data	Adults General population Respondents missing data on workplace land use and household income systematically differed from the rest of the sample. ***ELIGIBILITY:*** Individuals who identified themselves as drivers, owning at least one vehicle, and stated that transit was available to them were eligible to participate. Respondents in the upper 1% of personal commercial vehicle miles traveled (greater than about 50 miles) are excluded. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Researchers were from the University of California, Los Angeles. ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** This research was supported by a Dwight D Eisenhower Graduate Fellowship from FHWA. ***STRATEGIES:*** Not applicable	***PHYSICAL ACTIVITY:*** 1. Using a joint logit regression two variables showed that subway/streetcar availability (rail) significantly decreases the likelihood (coefficient= -0.305, 95%CI= -0.504- -0.107, p=0.003) of driving to work, whereas having to pay to park (paypark) is significantly associated with an increased likelihood of driving to work (coefficient= 0.422, 95%CI= 0.174-0.669, p=0.001). ***OTHER:*** 2. Using a joint logit regression analysis revealed that workplace employment density is associated with a lower likelihood of car commuting (coefficient=-0.032, 95%CI= -0.036- -0.027, p<0.001). For every addition of 1.5 employees per gross acre at work the probability of using a vehicle decreases by 3%. 3. Using a joint logit regression revealed that workplace employment density is associated with reduced personal commercial vehicle miles traveled regardless of whether a car was used to commute to work (coefficient= -0.025, 95% CI= -0.048- -0.002, p=0.030). 4. Using a joint logit regression revealed that for every additional 1.5 residential housing units per gross acre there is a 12% lower likelihood of car commuting (coefficient=-0.125, 95%CI= -0.170 to -0.080, p<0.001). The direct effect of residential density on personal commercial vehicles miles traveled is statistically indistinguishable from zero.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Rodriguez, Aytur (2008) Minnesota and Maryland	Access to public transit ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Land-use mix diversity *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 887 adults from Minneapolis-St Paul metropolitan area that included 36 zones sampled at random from the universe of zones representing the four extreme category combinations (high density, high block size; high density, low block size; low density, high block size; low density, low block size). 274 adults were sampled from the Montgomery County area 613 adults were sampled from the Twin Cities area ***PRIMARY OUTCOME:*** Transport walking ***MEASURES:*** 1. The International Physical Activity Questionnaire-IPAQ (measured frequency, intensity, and duration of occupational, transportation, home, leisure/sport, and sitting activity over the previous 7 days) 2. Geographic Information System –GIS (distance to nearest bus stop, participants home address, density of bus stops within 1/4 mile, sidewalk density within 1/4 mile) 3. Neighborhood Environment Walkability Scale (NEWS) (perceptions of parking, transit, walkways and crosswalks, sidewalks, traffic, and access to destinations) 4. Secondary data (objective participant-specific measures and transit availability and sidewalk availability) 5. Questionnaire (social cohesion, self-efficacy, demographic information) ***DATA COLLECTION:*** Researchers from the University of North Carolina, Chapel Hill took data for two different studies and analyzed it. They also compiled secondary data from local and county officials for transit availability and sidewalk availability. ***LIMITATIONS:*** Self reported data for physical activity and neighborhood walkability; combined data for two studies does makes independent associations difficult to assess	Adults ***ELIGIBILITY:*** Able-bodied; healthy adults residing in one of the selected zones, not traveling out of town during the week of data collection and reporting the capability to walk unassisted for 20 minutes or longer ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Researchers from the University of North Carolina, Chapel Hill ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not reported ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** The Robert Wood Johnson Foundation Active Living Research ***STRATEGIES:*** Not applicable	***PHYSICAL ACTIVITY:*** 1. The interaction effect of high transit access in the presence of high access to destinations is related to higher walking levels for transport (OR 1.23; 95%CI: 1.01, 1.30). 2. Self-reported ease of walking to a transit stop was negatively associated with transport walking (OR 0.86; 95%CI: 0.76, 0.97) and to non-occupational walking (OR 0.85; 95%CI: 0.73, 0.99). 3. The results confirmed the association between parking difficulty and transport walking (OR 1.40; 95% CI: 1.17, 1.67) and the association between parking difficulty and overall walking (OR1.17; 95% CI: 1.02, 1.35). 4. Higher perceived parking difficulty in local shopping areas is positively related to more transport walking (OR 1.41; 95% CI: 1.18, 1.69) and overall walking (OR 1.18; 95% CI: 1.02, 1.37). (Note: P-values not reported.)

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Forsyth, Hearst (2008); Forsyth, Oakes (2007); Oakes, Forsyth (2007) Minnesota	Access to neighborhood transit ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Street connectivity 2. Access to pedestrian and bicycle paths 3. Residential density and land-use mix 4. Perceptions of neighborhood safety from crime *Complex:* 1. Social environment	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 716 individuals from 36 neighborhoods ***PRIMARY OUTCOME:*** Walking behavior and total physical activity ***MEASURES:*** 1. Height and weight (body mass index [BMI]) 2. International Physical Activity Questionnaire (IPAQ: n=716) (physical activity, metabolic equivalent times scale [METs]) 3. 7-day travel and walking diary (n=709) (modified version of National Household Travel Survey) (mean miles walked) 4. Geographic Information Systems (GIS) (focus areas, street pattern, residential density) 5. Accelerometers (n=712) (physical activity [activity counts]) 6. US Census (density, street connectivity) ***DATA COLLECTION:*** The data reported is from the Twin Cities Walking Study, which was collected from April to November. The IPAQ and Travel diary, modified National Household Travel Survey, were used to assess walking behavior and overall physical activity. Accelerometer data were processed as mean total activity counts per 24-hour day and were calculated by summing counts within all valid days then dividing by the number of valid days. Accelerometer reliability in children and adolescents is ICC=0.76, and is reliable in adults as well. High density was defined as greater than 24.7 persons per gross hectare (ha) excluding water bodies only; low density was defined as less than 12.4 persons/ha. Small median block size was defined as below 2 ha, which was related to standard block sizes in the area. Large blocks were larger than 3.2 ha. Twenty per cent of participants, or 147 people, completed repeated measures for a reliability assessment ***LIMITATIONS:*** Only the first 20 volunteers from each area were taken for the study; all potential confounders were not controlled; the threat of residual confounding was severe; self-selection was not controlled; cross-sectional study design restricts temporal and causal inferences; data was self-reported	Adults 65% Female 81% Caucasian (sample) 51% Female 76% Caucasian (2000 Census) Study participants appear relatively homogenous with respect to SES but heterogeneous with respect to density and street connectivity. The northern sector of the Minneapolis-St. Paul metropolitan area was chosen for its environmental diversity. ***ELIGIBILITY:*** Participants were ≥25 years of age, had primary residence in one of the 36 neighborhoods, and were able to walk for 20 minutes unaided. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Researchers from the University of Minnesota, Cornell University, University of Pennsylvania ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not reported ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** This study was supported by a grant from the Robert Wood Johnson Foundation through the Active Living Research program. ***STRATEGIES:*** Not applicable	***PHYSICAL ACTIVITY:*** 1. Travel walking measured both by survey and diary was positively correlated with social land uses (IPAQ; CE; 0.4166; Diary; CE; 0.3379), sidewalks (length per unit (lpu)/IPAQ; CE; 0.4866; lpu Diary; CE; 0.6224; length/ road(l/r) IPAQ; CE; 0.5282; l/r Diary; CE; 0.5945), transit (IPAQ; CE; 0.3716, Diary; CE; 0.4652), litter/graffiti (IPAQ; CE; 0.3325; Diary; CE; 0.5238) and connected street patterns (# access pts./IPAQ; CE; 0.5176, # pts/Diary; CE; 0.5384; intersections IPAQ; CE; 0.4052, int. Diary; CE; 0.5279; 4-way IPAQ; CE; 0.4602; 4-way Diary; CE; 0.5782; nodes IPAQ; CE; 0.4284, nodes Diary; CE; 0.4673; ratio 4-way IPAQ; CE; 0.4164, 4-way Diary; CE; 0.4698) (all $p<0.05$). 2. Leisure walking was negatively correlated with some of the same features; transit (IPAQ CE; -0.4882; Diary CE; -0.3360), sidewalks (length/road IPAQ CE; -0.3318), street lights, connected street patterns (IPAQ # access points CE; -0.3349; IPAQ connected nodes CE; -0.3643), social land uses (IPAQ CE; -0.5067), as well as tax exempt land uses (IPAQ CE; -0.4214) (all $p<0.05$). 3. High density areas have twice the odds of increased travel walking as low density areas (OR=1.99; 95%CI 1.29, 3.06), but block size has no similar effect. For the negative binomial model the odds ratio was 1.47, $p<0.10$. 4. Larger blocks seem to increase odds ratios for leisure walking by about 40% (OR=1.40; 95%CI 0.96, 2.05, $p<0.05$). 5. There are small positive correlations between mean and median accelerometer counts of total physical activity with straight-line and network distances to the nearest video store, hardware store, and pharmacy, although not to other destinations. Park distance was negatively correlated with accelerometer readings, however while the values were significant they were low (results not shown). 6. Using Spearman's correlations there was significant positive association with accelerometry physical activity and whether people spoke to others in their neighborhood, perceptions of crime, having places to go in walking distance from their home, hills, nearness to book stores and participant's job, and access to bicycle and pedestrian paths (although significant, r values were low with the highest being r=0.13 for closeness to job or school) (data not shown). 7. Regression models reveal high density areas are marginally associated with an increase in total walking and, in some cases, total physical activity for racial minorities, those without college degrees, the less healthy, and the obese (data not shown). *(continued next page)*

(Continued from previous study)						
						8. There are very few correlations with the 3 measures of total physical activity and these are all negative correlations with measures of retail (accelerometer mean; CE; -0.3488) and commercial uses (accelerometer mean; CE; -0.3473) ($p<0.05$). 9. Total walking in mean miles per day is positively correlated with sidewalks (length per unit area; CE; 0.4510; length divided by road length; CE; 0.3449), street lights (CE; 0.4874), traffic calming (CE; 0.3629), and several of our many measures of connected street patterns (signs vary) ($p<0.05$). 10. Notably absent were any positive correlations with mixed use-apart from a modest one with miscellaneous retail (CE; 0.3505, $p<0.05$).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Hoehner, Brennan (2005) Missouri and Georgia	Proximity to public transportation **OTHER INTERVENTION COMPONENTS:** *Multi-component:* 1. Land-use, access to locations, and neighborhood features 2. Presence or absence of sidewalks 3. Access to recreational areas 4. Neighborhood physical disorder *Complex:* Not reported	**DESIGN:** Cross-sectional study **DURATION:** Not applicable **SAMPLE SIZE:** 1053 adults (Savannah [n=600] and St Louis [n=473]) in 1158 street segments **PRIMARY OUTCOME:** Transportation activity and meeting physical activity recommendations **MEASURES:** 1. ArcView Geographic Information [GIS] (street segment attributes [sums, counts, frequencies, means, buffers]) 2. Global Positioning System (street location, attribute data, neighborhood features [walking trails]) 3. Audit (data on each street segment); audits were constructed from a review of >30 existing tools 4. Telephone survey with modified International Physical Activity Questionnaire (perceived environmental measures, access to recreational facilities, presence/absence of facilities, minutes walked, land-use). 5. 2000 US Census/TIGER line road files (tract data, line segment data) **DATA COLLECTION:** From February to June 2003 telephone survey data was collected. Most questions used Likert- or ordinal-type response categories. Audits were conducted during daylight hours from March to May 2003. Physical and social environmental variables were chosen from an expert consensus development process carried out between October 2001 and June 2002 to be measured in parallel by the telephone survey and audit. Cut-points for objective environmental measures were based on quartiles. Respondents were geo-coded onto Census TIGER/line road files. Mapping survey respondents (as points) and the environmental audit data (as vectors) with GIS software provided a linkage between survey and audit data. The IPAQ has test-retest coefficient of approximately 0.80 and examines 7 days of PA over 4 domains: occupation, transportation, house/yard, and recreation/leisure. **LIMITATIONS:** Audit instrument provided limited variation and was not systematic; not all crime and income variables were accounted for; not all street network characteristics and distances within the fringe area were examined; the IPAQ-long form is long, repetitious, and associated with over-estimation; there may have been measurement error, low statistical power, and/or a limited direct effect related to features measured.	Adults 18 to 96 years old 63.6% White, 32.6% Black, 3.8% Other minority (sample) The sample was diverse with respect to age, ethnicity, and educational attainment, and slightly under-represented men. **ELIGIBILITY:** Adults were eligible if their residence could be geocoded and they were physically able to perform tasks. **EXPOSURE/ PARTICIPATION:** Not applicable	**LEAD AGENCY:** Researchers were from the Saint Louis University Prevention Research Center, and the University of California at Davis. **THEORY/ FRAMEWORK:** Not applicable **EVIDENCE-BASED:** Not applicable **REPLICATION/ ADAPTATION:** Not applicable **ADOPTION:** Not applicable **IMPLEMENTATION:** Not applicable **FORMATIVE EVALUATION:** Not reported **PROCESS EVALUATION:** Not reported	**RESOURCES:** Not applicable **FUNDING:** Robert Wood Johnson Foundation and the Centers for Disease Control and Prevention. **STRATEGIES:** Not applicable	**PHYSICAL ACTIVITY:** 1. People in the highest quartile for the total number of nonresidential destinations were two to three times more likely to engage in any transportation activity (OR=3.5, 95%CI: 2.3-5.5) or meet recommendations (OR=3.3, 95%CI: 2.0-5.4) through transportation activity than respondents in the lowest quartile ($p<0.05$ for trend). 2. Those who agreed that they had many places to exercise in their community and who reported more facilities within a 5-minute walk were slightly more likely to meet recommendations, but the direction of the trends and significance of the associations at different levels of these measures were inconsistent (data not shown). 3. Compared with never using the park in the last 30 days, the odds of meeting recommendations through recreational activity individuals were 1.2 (95%CI: 0.8-1.7) for using it 1 to 5 days; 2.1 (95%CI: 1.3-3.4) for using it 6 to 10 days; and 4.3 (95%CI: 2.9-6.2) for using it >10 days ($p<0.05$ for trend). 4. Compared to never using the nearest trail in the past 30 days, the odds of meeting recommendations through recreational activity were 1.4 (95%CI: 0.97-2.0) for 1 to 5 days; 2.4 (95%CI: 1.4-4.1) for 6 to 10 days; and 3.4(95%CI: 2.2-5.1) for >10 days ($p<0.05$ for trend). For use of the nearest private fitness facility, individuals were 1.3 times more likely (95%CI: 0.8-1.9) for 1 to 5 days; 2.3 times more likely (95%CI: 1.3-4.0) for 6 to 10 days; and 5.3 times more likely (95%CI: 3.3-8.6) for > 10 days ($p<0.05$ for trend) to meet recommendations through recreational activity. 5. Levelness of sidewalks as assessed by the audit showed a significant negative association (OR=0.6, 95%CI: 0.4-0.9) for engaging in any transportation activity and with meeting recommendations (OR=0.5, 95%CI: 0.3-0.8) through transportation activity ($p<0.05$ for trend). 6. Those in the top quartile for street segments of bus stops were 1.5 times more likely to engage in transportation activity (95%CI: 1.0-2.3) and 1.6 times more likely to meet recommendations through transportation activity (95%CI: 0.99-2.6) compared to those in the lowest quartile as assessed by the audit ($p<0.05$ for trend). *(continued next page)*

(Continued from previous study)						
						7. Those in the highest quartile for segments with minimal garbage, litter, or broken glass were 0.4 times less likely (95%CI: 0.3-0.7) to engage in transportation activity and 0.4 times less likely (95%CI: 0.2-0.7) to meet recommendations through transportation activity than those in the lowest quartile ($p<0.05$ for trend). Similarly, those in the highest quartile of physical disorder were 0.5 (95%CI: 0.3-0.8) and 0.4 (95%CI: 0.2-0.7) times less likely to engage in transportation activity or meet recommendations through transportation activity, respectively ($p<0.05$ for trend). 8. Respondents with >92 active people observed within 400 meters of their home (highest quartile) were about two to three times more likely to engage in any (OR=2.1, 95%CI: 1.4-3.2) or recommended levels of activity (OR=2.7, 95%CI: 1.7-4.3) through transportation compared to those with <47 active people.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Coogan, Karash (2007) United States	Access to transit ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Neighborhood density *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 865 residents from 11 major metro-areas across the US (467 "high values"; 398 "'low values) (222 compact neighborhood; 463 non-compact) ***PRIMARY OUTCOME:*** Walking behavior ***MEASURES:*** 1. Survey (walking for transportation, primary mode of transport, number of automobiles, attitudes, neighborhood compactness and form, access to transit) ***DATA COLLECTION:*** "Walking" or "walk trips" refers to trips taken to a destination, for a purpose other than exercise or pleasure. Respondents reported on nine trip purposes: work, school, shop, entertainment/dining, medical, parks, family, friends, and church. Pro-urban/environmental factors had an ICC=0.85. The sample was divided into two groups: high scores referred to as high values group and low scores referred to as the low values group. A respondent is referred to as living in a 'compact neighborhood if (1) there is some form of housing other than a single family home within 1/3 of a mile from the location, (2) there is a commercial district within walking distance of the location, and (3) there is transit service to the location. Low availability refers to fewer cars than adults. High availability refers to cars equal to or greater than the numbers of adults. ***LIMITATIONS:*** The sample was not random; causal inferences cannot be made using cross-sectional data	Adults 36% < 30 years of age, 33% 30-40 years of age, 67% Female, 81% White, 19% Minority (evaluation sample) ***ELIGIBILITY:*** Individuals considering a residential move or having moved with access to public transportation were eligible for the study. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Collaboration between the New England Transportation Institute, TranSystems Corporation, Resource Systems Group, and San Diego University. ***THEORY/ FRAMEWORK:*** Theory of Planned Behavior ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Transystem Corporation conducted the project from which this data is drawn. It was undertaken in the Transit Cooperative Research Program, "Understanding How Individuals Make Travel and Location Decisions: Implications for Public Transportation." ***STRATEGIES:*** Not applicable	***PHYSICAL ACTIVITY:*** 1. Using a regression analysis, all 3 variables were associated with walking; neighborhood form; (β= -0.23, t= -6.91, p<0.001), auto availability; (β= -0.21, t=-6.22, p<0.001), urban values; (β= -0.18, t=-5.39, p<0.001). 2. For urban and environmental values, the high values group had a 16% mode share to walking, while the low values group has a 6% mode share. 3. Individuals living in a compact neighborhood have approximately a 20% walk mode share; while those not living in such a neighborhood have less than a 9% mode share. 4. Car ownership changed the amount people walking for transportation; those with one car per adult had a walk share of 19%; those from households with at least one car per adult have a walk share of 8%. 5. For individuals living in a compact neighborhood, the high values group has a 24% walk mode share, while the low values group has only 10% (p<0.01). 6. Individuals with high values in a non-compact neighborhood have a 12% walk mode share and those with low values in a non-compact neighborhood with a 6% walk mode share (p<0.01). 7. For individuals with low levels of auto availability, the high values groups had a 21% walk share, compared with the low values groups at 11% (p<0.01). 8. Individuals with high levels of auto availability in the high values group had a walk share of 12% walk compared with low values at 5% (p<0.01). 9. Individuals living in a compact neighborhood with low auto availability showed a 27% walk share compared with only 13% for those with high auto-availability (p<0.01). 10. Individuals with a high auto availability in a compact neighborhood had a 13% walk share compared with 7% living outside such a neighborhood (p<0.01). 11. When there is a combination of the three supportive conditions there is a range from 28% walk share while with three non-supportive conditions there is a 5% walk mode share (p<.01).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Zhu, Lee (2009) Texas	Access to public transit ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Perceptions of neighborhood traffic safety 2. Access to land-use mix 3. Availability and quality of sidewalks *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 2,695 parents/guardians from 19 of the 74 elementary schools in the Austin Independent School District (AISD) in Austin, Texas. ***PRIMARY OUTCOME:*** Physical activity (PA) ***MEASURES:*** 1. 3-Page Questionnaire [PedsQL] (family information form, sociodemographic data, personal attitude, child's travel mode to school, social and physical environment [parent's perceptions of safety and the environment: sidewalk availability and quality, maintenance and condition of neighborhood amenities, presence of tree shade and street lighting, presence of bus stops, land-use mix diversity]) ***DATA COLLECTION:*** This study was conducted in collaboration with the city's Child Safety Program and the Austin Independent School District. The first phase was conducted in April, 2007 and the second phase was conducted in November, 2007. The questionnaire used information gathered from literature and 3 previously validated instruments. Bilingual questionnaires (English and Spanish) were distributed. The PedsQL Family Information Form has adequate reliability and validity. 2 other validated questionnaires with moderate-to-high reliability were used. Sidewalk availability and quality was a factor captured by maintenance, width, buffers from traffic, and no obstructions. ***LIMITATIONS:*** Cross-sectional study design limits causal inferences; study sampling process was not randomized, and a few schools had low response rates; reliability of several survey items is unknown: there is potential non-response bias; the risk of Type I error is present because of the reduced variations resulting from this clustering	5-12 year olds, Urban and Suburban (evaluation sample) 55.4% Hispanic, 60.3% eligible for free or reduced lunch (2005-2006 Austin Independent School District) ***ELIGIBILITY:*** Not reported ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Researchers were from the Departments of Architecture and Landscape Architecture and Urban Planning at Texas A&M University. ***THEORY/ FRAMEWORK:*** Social ecological perspective ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Preparation of this study was supported by a grant from the Robert Wood Johnson Foundation Active Living Research Program. ***STRATEGIES:*** Not applicable	***PHYSICAL ACTIVITY:*** 1. The presence of bus stops (coefficient= -0.305, OR=0.737, 95% CI= 0.580-0.936, p<0.05) and certain features such as convenience stores (coefficient= -0.548, OR=0.578, 95% CI= 0.432-0.774, p<0.001) and office buildings (coefficient=-0.536, OR=0.585, 95% CI=0.393-0.872, p<0.05) en route were negative correlates with walking behavior. 2. Maintenance, tree shade, quietness, street lighting, and perceived convenience of walking were marginally significantly related to walking (coefficient= 0.108, OR=1.114, 95% CI= 0.991-1.252, p<0.1). 3. Sidewalk availability and quality (maintenance, width, buffers from traffic, and no obstructions) was not significantly associated with children's walking behaviors. 4. Children were less likely to walk (coefficient= -1.201, OR=0.301, 95% CI=0.224-0.404, p<0.001) if schools provided bus services. 5. A child was about 4 times more likely to walk if the parent perceived the distance to be close enough for the child to walk (coefficient= 1.390, OR=4.014, 95% CI=3.128-5.150, p<0.001). 6. Parents' safety concerns (range: -2.8 to 2.0) and the need to cross highways or freeways were negative correlates to children's walking behaviors (coefficient= -0.253, OR=0.776, 95% CI= 0.695-0.867, p<0.001; coefficient= -0.485, OR=0.616, 95% CI= 0.422-0.898, p<0.05, respectively).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
International						
Rabin, Boehmer (2007) Europe	Access to public transportation ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Availability of fruits and vegetables 2. Urbanization (urban population density) *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** Approximately 591 million participated in this study that was conducted in 24 European countries. ***OUTCOME:*** Overweight/obesity ***MEASURES:*** 1. National-level Surveys and Databases (self-reported body mass index [BMI], disease prevalence, total amount of food available for consumption, percent of total energy available from fat, average available fruits and vegetables per person, urbanization, number of people living in a household, number of vehicles per household, price of gasoline, percentage of paved roads, density of motorways, government policies [accountability, stability, effectiveness, regulatory quality, control of corruption, rule of law], economic components [gross domestic product, students in tertiary education, unemployment rates]) 2. Geographical Information System (GIS) software (mapped data of obesity prevalence) ***DATA COLLECTION:*** A search was performed to identify physical, economic, and policy macro-environmental indicators from databases of international health, economic, and other governmental organizations for the selected countries. Databases included: World Health Organization non-communicable diseases InfoBase, World Health Organizations European Health for All Databases; the United Nations Economic Commission for Europe/ Environment and Human Settlements Division trends in Europe and North America; the World Bank Institute World Development Indicators; the Panorama of transport, statistical overview of transport in the EU, European Commission, and Eurostat; and the World Bank Institute Governance indicators for 1996-2002. Average governance indicator was calculated as a mean of the six policy variables for each country. ***LIMITATIONS:*** Cross-sectional study design introduces potential biases and cannot establish temporality; conclusions are limited to country-level associations, ignoring within-country variations and individual-level associations; self-reported obesity data was used; quality of data identified from international databases may differ depending upon the accuracy and methodology used by reporting countries; not all countries had the same types of information	General Population As part of the selection criteria only studies that were nationally representative (both rural and urban samples) and based on self-reported data were used. ***ELIGIBILITY:*** Countries were eligible if they had data in all 3 of the obesity categories. ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** The research team was from Saint Louis University. ***THEORY/ FRAMEWORK:*** Ecological model ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Not reported ***STRATEGIES:*** Not applicable	***OVERWEIGHT/OBESITY:*** 1. Overall obesity prevalence was inversely associated with economic variables (real domestic product: β=-0.175, p=0.002; gross domestic product: β=-0.168, p<0.001), food availability (available fat: β=-0.323, p=0.010, available fruits/vegetables: β=-0.019, p=0.049), urbanization (urban population: β=-0.095, p=0.080), transportation (total passenger cars: β=-0.017, p<0.001, new passenger cars: β=-0.081, p=0.018, price of gasoline: β=-0.095, p=0.042, paved roads: β=-0.064, p=0.033, motorways: β=-0.224, p=0.022), and policy (governance indicator: β=-2.528, p=0.007). 2. Female obesity prevalence was inversely associated with economic variables (real domestic product: β=-0.257, p=0.001), food availability (available fat: β=-0.399, p=0.004), transportation (passenger cars: β=-0.020, p<0.001, new passenger cars: β=-0.087, p=0.028, price of gasoline: β=-0.096, p=0.041, paved roads: β=-0.073, p=0.032, density of motorways: β=-0.227, p=0.030), and policy (governance indicator: β=-3.575, p<0.001). 3. Male obesity prevalence was inversely associated with available fruits/vegetables (β=-0.022, p=0.028) and density of motorways (β=-0.197, p=0.067).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Giles-Corti, Donovan (2002); Giles-Corti, Donovan (2002); Giles-Corti, Donovan (2003); Giles-Corti, Macintyre (2003); McCormack, Giles-Corti (2007); McCormack, Giles-Corti (2008) Australia	Access to transit stations **OTHER INTERVENTION COMPONENTS:** *Multi-component* 1. Land-use mix and urbanization 2. Access to sidewalks, tree-lined streets, and paths 3. Access to recreation destinations 4. Neighborhood perceptions of traffic safety 5. Neighborhood perceptions of safety from crime *Complex* Not reported	**DESIGN:** Cross-sectional study **DURATION:** Not applicable **SAMPLE SIZE:** 1755 participants in Perth, Australia **PRIMARY OUTCOME:** Overweight/obesity and walking behavior **MEASURES:** 1. Survey (physical activity [type, frequency, duration, and intensity during past 2 weeks], streetscape of the respondents home, attractiveness of open spaces, physical activity club memberships, access to a motor vehicle, recreation destinations [inside or outside neighborhood, free or pay parking], perceptions of safety and interest [traffic and hazards], perceptions of the social environment, perceptions of access [sidewalks, etc.], opportunities for activity within walking distance, height and weight [body mass index; BMI]) 2. Geographic Information Systems [GIS] (geo-coded address, shortest road network distance [destination present within 400 meters (m) and 1500m of home], individual access for destinations and facilities [Hansen's spatial accessibility model; objective factors for access]) 3. Environmental Scan (access to footpaths, shops, traffic, aesthetic environment) 4. Yellow and White Pages Telephone Directory, the Australian postal service, the Western Australian Department of Transport, and the Western Australian Ministry of Planning (total count for available destinations, commercial addresses for post boxes, convenience stores, newsagents, schools, bus stops, transit stations, parks, the river, and beaches) 5. Socioeconomic Index for Areas (SEIFA; Australian Bureau of Statistics) (socioeconomic status, demographic data) **DATA COLLECTION:** This study used data from the Study of Environmental and Individual Determinants of Physical Activity (SEID 1). Only items with an intra-class coefficient or k greater than or equal to 0.60 were included in the main study. The survey was modified using items from other major Australian studies. Objective assessments were made on the street in front of the respondent's home. Data collection began in late spring 1995 and took 5 months to complete (August 1995-March 1996). One household participant was interviewed in a face-to-face meeting. Interviews were followed-up with a telephone survey 2-4 weeks later. Perceptions of access were placed into quartiles. *(continued next page)*	Adults 18-59 years old (evaluation sample) The sample was comprised of relatively young, healthy, sedentary workers and homemakers living in high or low SES areas. **ELIGIBILITY:** Eligible participants were under the age of 59, employed, residing in their suburb for 1 or more years, could not regularly exercise at work, could not have a medical condition restricting physical abilities, and had to be proficient in English. **EXPOSURE/ PARTICIPATION:** Not applicable	**LEAD AGENCY:** Researchers were from the University of Western Australia and the University of Glasgow. **THEORY/ FRAMEWORK:** Theories utilized include the Theory of Planned Behavior and the Theory of Trying. These are derived from the theory of reasoned action, an 'expectancy model' that states that individuals are more motivated to perform behaviors they believe will result in highly valued outcomes. **EVIDENCE-BASED:** Not reported **REPLICATION/ ADAPTATION:** Not applicable **ADOPTION:** Not applicable **IMPLEMENTATION:** Not applicable **FORMATIVE EVALUATION:** The reliability of newly developed items was assessed in the extensive pilot phase. Modified weights for attractiveness were derived from a survey of urban planners. **PROCESS EVALUATION:** Not reported	**RESOURCES:** Not applicable **FUNDING:** Western Australian Health Promotion Foundation (Healthway) Health Promotion Research Scholarship, a NHMRC/ NHF Career Development Award **STRATEGIES:** Not applicable	**OVERWEIGHT/OBESITY:** 1. Overweight individuals were more likely to live on highways (OR=4.24; 95%CI: 1.62-11.09), streets with no sidewalks (OR=1.4, 95%CI: 1.01-1.95), streets with sidewalks on one side only (OR=1.32; 95%CI: 0.98-1.79) and perceive no paths within walking distance (OR=1.42; 95% CI: 1.08-1.86). 2. Those who always had access to a motor vehicle were about half as likely to be obese as those who never had access to a motor vehicle (OR=0.56, 95%CI: 0.32-0.99). 3. Obese individuals were nearly twice as likely as others to perceive that there was no shop within walking distance (OR=1.84, 95%CI: 1.01-3.36). 4. Individuals with poor access to 4 or more recreational facilities were 68% more likely to be obese compared with others (95%CI: 1.11-2.55). **PHYSICAL ACTIVITY:** 5. Having a transit station located within 1500 m was positively associated with regular walking for recreation (OR=1.50, 95% CI: 1.09-2.05, p<0.05), while having a beach within 1500 m was positively associated with irregular walking for recreation (OR=1.97, 95% CI: 1.01-3.83, p<0.05) and regular vigorous physical activity (OR=1.93, 95% CI: 1.20-3.13, p<0.01). 6. In comparison with those who had major traffic and no trees on their street, the odds of achieving recommended levels of walking were nearly 50% higher among those who lived on a street with one or both of these features (combined)R=1.49, 95%CI: 0.96-2.33). 7. In comparison with those who had no sidewalk and no shop on their street, those who had access to either or both of these attributes were about 25% more likely to achieve recommended levels of walking (combined OR=1.25, 95%CI: 0.90-1.74) 8. Among individuals who frequented pay for use recreational destinations, each additional pay destination (OR=1.51, 95%CI: 1.32-1.73, p<0.001), having access to a motor vehicle (OR=0.51, 95%CI: 0.26-0.99, p<0.05), and having a club membership (OR=6.83, 95%CI: 3.39-13.73, p<0.001) were associated with the use of pay-destinations located in the neighborhood. 9. Those who used a pay destination located within or outside (OR=8.46, 95%CI: 3.98-18.00, p<0.001 and OR=3.48, 95%CI: 2.59-4.66, p<0.001, respectively) the neighborhood were more likely than those who did not use a pay destination to achieve sufficient vigorous-intensity physical activity. *(continued next page)*

(Continued from previous study)						
		LIMITATIONS: Individual measures were self-reported; Perth has a higher standard of living than national and international standards; study only used data from participants in the top and bottom quintile of social advantage; study area was restricted by available resources; this study used distance-only model to determine spatial accessibility; use of cross-sectional data limits assumptions of causality; random chance cannot be ruled out; several destinations that may be important for transport-related and vigorous-intensity physical activity were not included				10. Respondents using free destinations within and outside (OR=1.56, 95%CI: 1.00-2.33, p<0.05 and OR=2.13, 95%CI: 1.56-2.89, p<0.001, respectively) the neighborhood were more likely to achieve sufficient levels of vigorous-intensity physical activity than those not using a free recreational destination. 11. Residing within 1500 m of destinations including schools (OR=1.75, 95% CI: 1.28-2.39, p<0.001), convenience stores (OR=1.89, 95% CI: 1.26-2.84, p<0.001), shopping malls (OR=2.07, 95% CI: 1.43-3.00, p<0.001), newsagents (OR=2.20, 95% CI: 1.60-3.03, p<0.001), and transit stations (OR=2.38, 95% CI: 1.67-3.39, p<0.001) was significantly associated with regular walking for transport. 12. For each additional different type of destination (including recreational and utilitarian destinations) within 400 and 1500 m, the odds of regular walking for transport increased by 43% (95% CI: 1.27-1.61, p<0.001) and 41% (95% CI: 1.26-1.58, p<0.001) and the odds of irregular walking for transport increased by 27% (95% CI: 1.12-1.44, p<0.001) and 23% (95% CI: 1.12-1.35, p<0.001). 13. For each additional type of destination located within 1500 m the odds of regular walking for recreation increased by 16% (95% CI: 1.06-1.27, p<0.01), while the odds of irregular walking increased by 12% (95% CI: 1.01-1.26, p<0.05). 14. The mix of utilitarian destinations within 1500 m was positively associated with regular walking for recreation (OR=1.17, 95% CI: 1.05-1.29, p<0.01). 15. Destination mix was not associated with time spent walking for recreation or vigorous physical activity. 16. Respondents were more likely to walk for transport if they were in the top quartile for access to attractive public open space (OR=1.35, 95%CI: 1.05-1.73, p=0.02) and if they perceived that their neighborhood had sidewalks (OR=1.65, 95%CI: 1.12-2.41, p=0.011), a shop within walking distance (OR=3, 95%CI: 2.04-4.4, p<0.001), and more traffic and busy roads (OR=1.26, 95%CI: 1.01-1.56, p=0.038). 17. The likelihood of walking for recreation was higher in residents in the top quartile of access to the beach (OR=1.49, 95%CI: 1.14-1.93, p=0.003) and those who perceived their neighborhood as being attractive safe and interesting (OR=1.49, 95%CI: 1.14-1.95, p=0.003), and that there was support for walking locally (OR=1.8, 95%CI: 1.36-2.4, p<0.001) 18. Respondents were more likely to walk as recommended if they were in top quartile of access to public open space (OR=1.43, 95%CI: 1.07-1.91, p=0.015) and perceived their neighborhood as being attractive, safe, and interesting (OR=1.50, 95%CI: 1.08-2.09, p=0.017), and supportive of walking locally (OR=1.52, 95%CI: 1.09-2.11, p=0.014). 19. Those who exercised vigorously were more likely to live in high SES areas (OR=1.00), to be in the top quartile of access to the beach (OR=1.38, 95%CI: 1.07-1.79, p=0.013), to perceive their neighborhood as being attractive, safe, and interesting (OR=1.39, 95%CI: 1.08-1.79; p=0.01); and to claim that there were sidewalks in the neighborhood (OR=1.52, 95%CI: 1.05-2.21, p=0.027). 20. The greater the number of significant others who exercised weekly with the respondent, the more likely recommended levels of activity were achieved (four or more vs. none, OR=1.37, 95%CI: 0.83-2.25) test for trend p<0.001). 21. Walking at recommended levels was significantly associated with perceived behavioral control, frequency of a behavioral skill used in past month, intention to be active (high vs. low, OR=1.83, 95%CI: 1.14-2.94, p=0.13), having a club membership (OR=0.53, 95%CI: 0.39-0.74, p<0.01), owning a dog (OR=1.58, 95%CI: 1.19=2.09), social support for physical activity in the past 3 months, and being in the top quartile of access to attractive public open space (OR=1.47, 95%CI: 1-2.15, p=0.048). 22. Relative to respondents in the lowest determinant score categories, the odds of achieving recommended levels of walking were 3.1 times higher among those in the high individual determinant score category (95%CI: 2.2-4.37, p<0.001), 2.79 times higher among those in the high social environmental determinant score category (95%CI: 2-3.9, p<0.001), and 2.13 times higher among those in the high physical environmental determinant score category (95%CI: 1.54-2.94, p<0.001). More associations with socioeconomic, demographic, irregular walking, minutes of walking, social support and attractive environment in text, not shown.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Hume, Timperio (2009); Timperio, Crawford (2004) Australia	Access to public transportation ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Neighborhood perceptions of traffic safety 2. Access to facilities for physical activity *Complex:* Not reported	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 309 children (121 children, 188 adolescents) from 19 state primary schools in areas of varying socioeconomic status. ***OUTCOME:*** Physical activity (walking or cycling) ***MEASURES:*** 1. Height and weight (body mass index [BMI]) 2. Parent questionnaire (usual commute choice to school and frequency of active commute, perceptions of traffic, walking distance, strangers, road safety, sports facilities, public transport, neighborhood infrastructure and design, aesthetics, and safety, sociodemographic data) 3. Child Questionnaires (preferences for playing outside, perceptions of traffic, strangers, road safety, neighborhood sports facilities, and neighborhood social environment) ***DATA COLLECTION:*** Data for the present study came from the Children Living in Active Neighborhoods (CLAN) cohort study. Initial data were collected in 2001 and follow-up data were collected in 2004 and 2006 with an analysis in 2008. Activity was assessed in 2004 and 2006; however, the predictor variables were assessed only for 2004. Height and weight of participants were measured by trained researchers at the child's school, using calibrated portable digital scales and a portable stadiometer. For both assessments, parents completed a survey at home and adolescents completed a survey at school in the presence of a teacher and research assistant. One week test-retest reliability (ICC) was 0.96 among parents of 5-6 year old children and 0.97 among parents of 10-12 year old children. Individual-level Factors test-retest reliability measures among parents of younger children and among adolescents showed that all items had very agreement (81%-100%). Social factors test-retest reliability was very high for each item for follow-up (78%-98%). For initial ICC for 5-6 year old parents was 0.60 and 0.89 and for 10-12 year old parents was 0.63-0.91.Test-retest reliability of these items for child perception ranged from 0.51-0.84. ***LIMITATIONS:*** Questionnaires use self-reported information; sample size and participation rates were low/attrition rates were high; minimal heterogeneity was present in the sample; causal inferences cannot be made using a cross-sectional study design	5-18 year olds; mean age=9.1±0.3 years (younger children), mean age= 14.5±0.6 years (adolescents), 47% Male (2004 evaluation sample) ***ELIGIBILITY:*** Active consent was sought and required. Eligible participants were required to maintain residence and same school enrollment throughout the study (2004-2006). ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** Researchers were from Deakin University and the University of Western Australia. ***THEORY/ FRAMEWORK:*** Social ecological framework ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** Funding was provided by the Financial Market Foundation for Children (2004) and by the National Health and Medical Research Council and the Victorian Health Promotion Foundation (2009). ***STRATEGIES:*** Not applicable	***BASELINE: 2001*** 1. A lower likelihood of walking or cycling among older girls was associated with parent's belief that their child needed to cross several roads to reach play areas (OR=0.4, 95% CI=0.2, 0.8, p<0.01), that there was limited public transport in the area (OR= 0.7, 95% CI=0.4, 0.97, p<0.05), and child's belief that there were no parks or sports grounds near home (OR=0.5, 95% CI=0.3, 0.8, p<0.01). 2. Five to six year old girls whose parents owned more than one car and whose parents believed that public transport was limited in their area were 70% (95% CI=0.1, 0.8) and 60% less likely (95% CI=0.2, 0.9) than other children to walk or cycle at least three times per week (p<0.05 for both). 3. Ten to twelve year old boys whose parents believed that there were no lights or crossings for their child to use were 60% less likely to walk or cycle (OR=0.4, 95% CI=0.2, 0.7, p<0.01). 4. Five to six year old boys whose parents believed that there was heavy traffic in their area were 2.8 times more likely to walk or cycle at least three times per week than other children (95% CI=1.1, 6.8, p<0.05). ***FOLLOW-UP: 2004-2006*** 5. Active commuting significantly increased between 2004 and 2006 among children (mean increase=1.04 trips/week, SD=3.15, p=0.0004) and adolescents (mean increase=0.65 trips/week, SD=3.66, p=0.02). 6. Adolescents whose parents reported that there were no traffic lights or crossings available were only half as likely to increase their active commuting (OR=0.4; CI=0.2, 0.8; p=0.01) , while those whose parents were satisfied with the number of pedestrian crossings in their neighborhood were twice as likely to increase their active commuting (OR=2.4; CI=1.1, 5.4; p=0.03). 7. Children whose parents knew many people in their neighborhood were more likely to increase their active commuting compared with other children (OR=2.6, CI=1.2, 5.9; p=0.02).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Humpel, Owen (2004); Humpel, Marshall (2004) Australia	Access to public transit **OTHER INTERVENTION COMPONENTS:** *Multi-components* 1. Perceptions of traffic safety 2. Accessibility of paths, parks, and other walking opportunities 3. Perceptions of community convenience to facilities 4. Neighborhood aesthetic quality *Complex* Not reported	**DESIGN:** Cross-sectional study **DURATION:** Not applicable **SAMPLE SIZE:** 800 faculty and general staff (n=398 women, n=402 men) of an Australian university **PRIMARY OUTCOME:** Walking behavior and physical activity (PA) **MEASURES:** 1. Survey (frequency and duration of neighborhood weekly walking, type of walking [e.g., transport] perceptions of neighborhood aesthetics, convenience, access to services, and traffic) 2. International Physical Activity Questionnaire (IPAQ)-short form items (intensity, frequency, and duration of physical activity, total physical activity) 3. Australian Bureau of Statistics 1996 Census data (postal code data, distinguishing coastal from non-coastal regions) **DATA COLLECTION:** The results of this study came from a larger study examining a physical activity intervention trial designed to test the efficacy of a website-delivered self-help physical activity program in a workplace setting. The researchers administered the survey to participants via telephone and used a rating scale of 1-10 to determine participants' perception of their environment; higher scores meant more positive perceptions of the environment. The intra-class correlation and 95% confidence interval for the total sample were 0.92 (0.88-0.95). The survey also combined items from the IPAQ-short form, which has been designed and evaluated for reliability and validity by the International Consensus Group on Physical Activity Measurement. Activity categories could be analyzed separately or summed to gain an overall estimate of the total physical activity performed in one week. **LIMITATIONS:** Causality cannot be determined using cross-sectional data; the generalizability of the sample was limited, with the majority having college educations and living in coastal areas, which may also introduce selection bias; specific and detailed environmental characteristics were not accessible through the study design	Population (target sample) Ages ranged from 18 to 71 years of age (mean age 43 years), 49.8% women (evaluation sample) Participants did not differ in their responses whether they were part of the original sample or follow-up. **ELIGIBILITY:** Not reported **EXPOSURE/ PARTICIPATION:** Not reported	**LEAD AGENCY:** The research team was from the University of Wollongong, the University of Queensland, and the University of New South Wales. **THEORY/ FRAMEWORK:** Not reported **EVIDENCE-BASED:** Not reported **REPLICATION/ ADAPTATION:** Not applicable **ADOPTION:** Not applicable **IMPLEMENTATION:** Not applicable **FORMATIVE EVALUATION:** Not reported **PROCESS EVALUATION:** Not reported	**RESOURCES:** Not applicable **FUNDING:** Heart Foundation of Australia **STRATEGIES:** Not applicable	**PHYSICAL ACTIVITY:** 1. Men with moderate aesthetics scores (OR=1.77, 95% CI=1.06-2.97, p<0.05), high aesthetic scores (OR=1.91, 95% CI=1.08-3.37, p<0.05), high scores for convenience (OR=2.20, 95% CI=2.21-3.99, p<0.01) and access (OR=1.98, 95% CI=1.12-3.49, p<0.05) were more likely to walk in their neighborhood than individuals with lower scores. 2. Men who increased their perception of aesthetics (OR=2.25, 95% CI= 1.24-4.05, p<0.01) and convenience (OR=1.95, 95% CI=1.10-3.45, p<0.05) were more likely to have increased walking and twice as likely to have increased walking more than 30 minutes (aesthetics; OR=2.0, 95% CI=1.12-3.79, p<0.05, convenience; OR=2.02, 95% CI=1.12-3.65, p<0.05) compared to men with no perception change. Men with increased perceptions of convenience were also 1.98 (95%CI=1.08-3.61; p<0.05) times more likely to have increased their walking to more than 60 minutes. 3. Men with a high convenience score were 1.82 times more likely to engage in total physical activity than those with a lower score (95% CI= 1.02-3.24, p<0.05). 4. Women with increased perceptions of convenience were twice as likely to report increased walking (any increase; OR=2.58; 95% CI=1.46-4.56, p<0.001, increase of 30 minutes or more; OR=2.31, 95% CI= 1.29-4.14, p<0.01, increase of 60 minutes or more; OR=2.01, 95% CI= 1.09-3.70, p<0.05) compared to those who did not positively change perceptions. 5. Participants with a low aesthetic scores at baseline reported a mean relative increase of 0.42 (SD=0.46), whereas those with a high initial scores reported a decrease, with a relative change score of -0.16 (SD=0.18). 6. Participants with low baseline convenience scores reported a mean relative change increase of 0.79 (SD=0.87) and those with high baseline scores reported a relative change decrease of -0.21 (SD=0.22). 7. Participants with low aesthetic scores at baseline reported a mean relative change increase of 0.42 (SD=0.46), whereas those with high scores reported a decrease, with a relative change of -0.16 (SD=0.16). *(continued next page)*

(Continued from previous study)						
						8. Participants with low baseline convenience scores reported a mean relative change increase of 0.79 (SD=0.87), and those with high scores reported a relative change decrease of -0.21 (SD=0.22). 9. Women with moderate convenience (OR=3.19, 95% CI=1.81-5.59, p<0.001) and access (OR=1.92, 95% CI=1,10-3.37, p<0.05) were more likely to report higher levels of walking and higher total physical activity, respectively. Women with a high convenience scores were 3.78 times more likely (95% CI=2.12-6.73, p<0.001) to report the highest levels of neighborhood walking, whereas women with high access scores were 52% less likely (OR=0.48, 95% CI=0.27-0.87, p<0.05) to walk in the neighborhood when compared to those with low scores. 10. Men who perceived traffic as being less of a problem were found to be less likely to have increased their walking across all three outcome variables (any increase in walking; OR=0.40, 95% CI=0.22-0.72, p<0.01, increase of 30 minutes; OR=0.29, 95% CI=0.15-0.54, p<0.001, increase of 60 minutes; OR=0.39, 95% CI= 0.21-0.73, p<0.01). 11. Increased perceptions that traffic was not a problem were significantly associated with women being 1.76 (95% CI=1.01-3.05, p<0.05) times more likely to have increased their walking for 30 minutes or more. 12. Participants with low initial access scores reported a mean relative change increase of 0.35 (SD=2.14), and a decrease score of -0.24 (SD=0.24) was reported for those with an initial high score. 13. Participants with low baseline scores reporting traffic as a problem had a relative change increase of 1.13 (SD=1.83), whereas those with high initial scores reported a decrease of -0.2 (SD=0.22).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
De Bourdeaudhuij, Sallis (2003) Belgium	Access to public transportation **OTHER INTERVENTION COMPONENTS:** *Multi-component:* 1. Quality of and access to sidewalks and bike lanes 2. Access to shops, residential density, land use mix, connectivity 3. Access to physical activity facilities 4. Perceptions of neighborhood safety from crime *Complex:* Not reported	**DESIGN:** Cross-sectional study **DURATION:** Not applicable **SAMPLE SIZE:** 521 residents of Ghent, Belgium **OUTCOME:** Overweight/obesity and vigorous and moderate intensity physical activity, walking, sedentary behavior **MEASURES:** 1. Height and weight (body mass index [BMI]) 2. International Physical Activity Questionnaire (IPAQ) short-form items (past 7 day duration and intensity of physical activity and sedentary behavior) 3. Seven-page questionnaire (IPAQ-items [physical activity], environmental perceptions and factors, demographic data, anthropometric data) 4. Environmental items from 2 questionnaires (residential density, land use mix, access to public transportation, availability of sidewalks and bike lanes, neighborhood aesthetics, perceived safety from crime and traffic, connectivity of the street network, satisfaction with the neighborhood and its services, recreational physical activity [worksite environment, physical activity equipment in the home, convenience of physical activity facilities]) **DATA COLLECTION:** A seven page questionnaire was mailed with a letter explaining the purpose of the study and addressed to the randomly selected person who was requested to answer to the questionnaire. At 6 and 12 weeks non respondents received additional requests to complete the questionnaire. Two existing questionnaires were combined to measure environmental correlates of physical activity. A separate study was executed to test the reliability of the newly combined items it had interclass coefficients ranging from 0.40 to 0.97 and validity coefficients ranging from 0.21 to 0.91. The International Physical Activity Questionnaire short, self-administered, 7 items to identify physical activity in the past 7 days. Validity and reliability results in 12 countries demonstrate that the IPAQ has comparable reliability and validity to other self-report measures of physical activity. **LIMITATIONS:** Purpose of walking was not distinct; survey data was self-reported; study conducted in one city limits generalizability; causal relations cannot be obtained using cross-sectional data; there was a lack of context specific physical activity measures; using the IPAQ short form, the difference between the purpose or context of an activity could not be disentangled	Adults,18-65 year olds (target sample) 41 ± 12.22 (mean) years, 48.3% Female, 70.1% employed, 39.3% urban dwellers, 54.9% suburban, 5.9% countryside (evaluation sample) Respondents appear to have better jobs, have a higher education, are more often employed, and under represent the number of individuals living alone compared with the Flemish reference population. **ELIGIBILITY:** Not reported **EXPOSURE/ PARTICIPATION:** The local government from the pool of all residents of Ghent, a city with 224,000 inhabitants and consisting of a city center, suburbs, and countryside	**LEAD AGENCY:** Researchers were from Ghent University in Belgium and San Diego State University in California **THEORY/ FRAMEWORK:** Not reported **EVIDENCE-BASED:** Not reported **REPLICATION/ ADAPTATION:** Not applicable **ADOPTION:** Not applicable **IMPLEMENTATION:** Not applicable **FORMATIVE EVALUATION:** A separate study was executed to test the reliability of the newly combined environmental items. It was translated to Flemish and pretested with a small sample (n=40). **PROCESS EVALUATION:** Not reported	**RESOURCES:** Not applicable **FUNDING:** Not reported **STRATEGIES:** Not applicable	**OVERWEIGHT/OBESITY:** 1. Participants with a higher BMI reported less safety from crime (Pearson r= -0.11, p<0.05), less physical activity equipment in the home (Pearson r= -0.15, p<0.001), and fewer convenient physical activity facilities (Pearson r=-0.11, p<0.05). **PHYSICAL ACTIVITY:** 2. In males, vigorous intensity physical activity was related to more convenient physical activity facilities (semi-partial correlate; 0.11, p≤0.05). In females, vigorous intensity physical activity was related to more convenient physical activity facilities (semi-partial correlate; 0.14, p≤0.05) and supportive worksite environment was related to more high intensity activity (semi-partial correlate; 0.12, p≤0.05). 3. In males, the amount of sitting was related to higher perceived criminality in the neighborhood (semi-partial correlate; -0.22, p≤0.01), longer distances to shops and businesses (land use mix, diversity) (semi-partial correlate; 0.14, p≤0.05), and more convenience of shopping in local stores (land use mix, access to local shopping) (semi-partial correlate; 0.15, p≤0.01). 4. Greater availability of sidewalks in the neighborhood was associated with walking in males (semi-partial correlate; 0.14, p≤0.05). In females, more walking was associated with greater ease of the walk to public transportation stops (semi-partial correlate; 0.16, p≤0.05) and to longer distances to shops and businesses (semi-partial correlate; 0.15, p≤0.05). 5. In females, more moderate intensity physical activity was related to better access to shopping in local stores (semi-partial correlate; 0.16, p≤0.05) and more emotional satisfaction with the neighborhood (semi-partial correlate; 0.13, p≤0.05). **OTHER:** 6. For females, less emotional satisfaction with the neighborhood was associated with greater amounts of sitting (semi-partial correlate= -0.15, p≤0.05). 7. In males, moderate intensity activity was related to more satisfaction with neighborhood services (semi-partial correlate; 0.15, p≤0.05).

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Craig, Brownson (2002) Canada	Access to different transportation modes ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Perceptions of safety from crime 2. Access to walkable routes for pedestrians 3. Neighborhood aesthetics 4. Neighborhood perceptions of traffic safety *Complex:* 1. Social support in the environment	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** Approximately 296,541 residents from a convenience sample of 27 neighborhoods in Ontario, Quebec, and Alberta. ***PRIMARY OUTCOME:*** Physical activity (PA) ***MEASURES:*** 1. 1996 Canadian Census self-administered questionnaire (education, income, mode of transportation, family size) 2. Neighborhood observations: Environment Score (level of urbanizations, number of facilities, mix of facilities, accessible to pedestrian, potential to see other people, walking routes, meets pedestrians' needs, connection to transport modes and traffic, amount and variety of stimuli, aesthetics, time and effort, traffic threats, safety from crime, potential for crime) ***DATA COLLECTION:*** The current study was designed to merge data from two Canadian sources, a neighborhood observational study (27 observations) and the 1996 Canadian Census. Data collectors received a two-day training before conducting observations. Ratings were compiled for the neighborhoods using a ten-point Likert-type scale between late fall 1999 and early spring 2000. Observations were taken during the morning and afternoon over both weekday and weekend days. In a small sub-study, the same observers independently coded environmental factors in two or four assigned neighborhoods, which yielded 156 values. Environment score was a composite score of 18 items. 3-level hierarchical linear models estimated inter-rater reliability, correlations ranged from 0.9-1.0. One fifth of the Census respondents received a longer version, including questions on education, income, and usual mode of transportation to work, with the latter including "walking to work" as a distance response category. ***LIMITATIONS:*** Cross-sectional study design does not allow for causal or temporal inferences to be made; distance of destination was not accounted for in the study design	General Population (target population) The observed neighborhoods were known for diversity of urban design, social class, and economic status. ***ELIGIBILITY:*** All citizens, landed immigrants, and nonpermanent residents were eligible to participate ***EXPOSURE/ PARTICIPATION:*** Not applicable	***LEAD AGENCY:*** The research team was from the Canadian Fitness and Lifestyle Research Institute, Saint Louis University, and the Cooper Institute for Aerobics Research. ***THEORY/ FRAMEWORK:*** Not reported ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** The Physical Activity Unit, Health Canada, Government of Canada ***STRATEGIES:*** Not applicable	***PHYSICAL ACTIVITY:*** 1. The predicted environment score was lower in both small urban (T-ratio (23)=-3.61, p=0.002; Coefficient; -0.77) and suburban neighborhoods (T-ratio (23)=-4.42, p<0.0001; Coefficient=-0.12) than in urban neighborhoods. 2. The environment score was related to the percentage walking to work, controlling for degree of urbanization (T-ratio (23)=2.03, p=0.054; Coefficient=0.02). 3. Walking to work was significantly related to the environment score (T-ratio (25)=3.32, p=0.003), with a one-unit increase in the score being associated with a 25-percentage-point increase in the percentage walking to work. 4. The degree of urbanization altered the relationship between the environment score and walking to work (no statistical data) ***OTHER:*** 5. The environmental factor coefficients ranged from -1.82 to 2.20. Each factor was a significant contributor to the variation of the environment score (mean p=0.10 for "transportation system" and p<0.05 for other factors), except for visual interest and aesthetics. The inclusion of environmental factors (destinations, social dynamics, transportation system, and traffic) reduced the variation in the score by 46%.

Source	Intervention Components	Study Design and Execution	Reach	Adoption, Implementation and Process Evaluation	Enforcement/ Sustainability	Impacts and Outcomes
Burton, Turrell (2005) Australia	Access to public transit ***OTHER INTERVENTION COMPONENTS:*** *Multi-component:* 1. Neighborhood aesthetics 2. Access to places for physical activity 3. Access to streetlights (safety) 4. Perceptions of neighborhood traffic safety *Complex:* 1. Social support in the neighborhood 2. Self-efficacy for physical activity	***DESIGN:*** Cross-sectional study ***DURATION:*** Not applicable ***SAMPLE SIZE:*** 1827 participants from the Australian Commonwealth electoral roll current as of October 1999 ***PRIMARY OUTCOME:*** Walking, moderate-intensity and vigorous-intensity physical activity, and total physical activity ***MEASURES:*** 1. Questionnaire (frequency, duration, intensity, and types of physical activity, perceived health, cognition, self-efficacy, anticipated benefits, perceived barriers, social support, neighborhood environment, traffic, facilities, and demographic data) ***DATA COLLECTION:*** The mail surveys were delivered in September 2000. The psychological, social, and environmental correlates were measured using a battery of scales that were previously developed using qualitative and quantitative research. The questionnaire had an internal consistency of Cronbach's alpha values ranging from 0.69 to 0.89. The maximum "allowable" time doing any one of the three types of activity was 14 hours/week; any greater time was recoded to 14 hours. The maximum "allowable" time across the 3 activities was 28 hours/week; any greater time was recoded to 28 hours. For each type of activity, the total time (in minutes) was multiplied by an intensity value of METs. To measure total activity participation, the time and MET product scores for walking and intensity were summed to provide a total energy expenditure score for the preceding week. The environmental scale was developed from a battery of items, which led to the inclusion in multiple strategies. ***LIMITATIONS:*** Cross-sectional design does not allow for causal or temporal inferences to be made; questionnaire data is self-reported	Adults, 18-64 years old ***ELIGIBILITY:*** Eligible participants were registered as Australian adult citizens, 18 to 65 years of age living in Brisbane. ***EXPOSURE/ PARTICIPATION:*** Not reported	***LEAD AGENCY:*** Researchers were from the University of Queensland, St. Lucia, Queensland University of Technology, and San Diego State University ***THEORY/ FRAMEWORK:*** Contemporary ecological models ***EVIDENCE-BASED:*** Not reported ***REPLICATION/ ADAPTATION:*** Not applicable ***ADOPTION:*** Not applicable ***IMPLEMENTATION:*** Not applicable ***FORMATIVE EVALUATION:*** Not reported ***PROCESS EVALUATION:*** Not reported	***RESOURCES:*** Not applicable ***FUNDING:*** The Queensland University of Technology and the National Heart Foundation of Australia ***STRATEGIES:*** Not applicable	***PHYSICAL ACTIVITY:*** 1. Environmental variables (physical features, aesthetic features, traffic, facilities) contributed the least to vigorous intensity activity. 2. The proportion of unique variation (Nagelkerke R2) accounted for in walking, moderate-intensity, vigorous-intensity activity, and total physical activity by the environmental correlate group is 0.6, 1.1, 0.4, and 1.2, respectively. 3. Neighborhood aesthetics contributed more to walking (Nagelkerke R2=0.4%), and the barrier of family obligations contributed more to total and moderate-intensity activity.

REFERENCES

Brown, B.B. and Werner, C.M. (2007). A new rail stop: Tracking moderate physical activity bouts and ridership. *American Journal of Preventive Medicine*. 33(4): 306-309.

Burton NW, Turrell G, Oldenburg B, Sallis J. (2005). The Relative Contributions of Psychological, Social, and Environmental Variables to Explain Participation in Walking, Moderate-, and Vigorous-Intensity Leisure-Time Physical Activity. *Journal of Physical Activity and Health*. 2:181-196.

Chatman, D.G. (2003). How density and mixed uses at the workplace affect personal commercial travel and commute mode choice. Transportation Research Record; *Journal of the Transportation Research Board*. 1831:193-201.

Chen, C., Gong, H., and Paaswell, R. (2008). Role of the built environment on mode choice decisions: Additional evidence on the impact of density. *Transportation*. 35: 285-299.

Coogan, M.A., Karash, K.H., Adler, T., and Sallis, J. (2007). The role of personal values, urban form, and auto availability in the analysis of walking for transportation. *American Journal of Health Promotion*. 21(4 Suppl): 363-70.

Craig, C.L., Brownson, R. C., Cragg, S. E., & Dunn, A.L. (2002). Exploring the effect of the environment on physical activity: A study examining walking to work. *American Journal of Preventive Medicine*. 23(2S):36-43.

De Bourdeaudhuij, I., Sallis, J. F., & Saelens, B. E. (2003). Environmental correlates of physical activity in a sample of Belgian adults. *American Journal of Health Promotion*. 18(1):83-92.

Forsyth, A., Hearst, M., Oakes, J. M., & Schmitz, K. H. (2008). Design and Destinations: Factors Influencing Walking and Total Physical Activity. *Urban Studies*. 45(9):1973-1996.

Forsyth, A., Oakes, J. M., Schmitz, K. H., & Hearst M. (2007). Does Residential Density Increase Walking and Other Physical Activity? *Urban Studies*. 44(4):679-696.

Giles-Corti, B., Macintyre, S., Clarkson, J. P., Pikora, T., & Donovan, R. J. (2003). Environmental and lifestyle factors associated with overweight and obesity in Perth, Australia. *American Journal of Health Promotion*. 18(1):93-102.

Giles-Corti, B., & Donovan, R. J. (2002). Socioeconomic status differences in recreational physical activity levels and real and perceived access to a supportive physical environment. *Preventive Medicine*. 35(6):601-11.

Giles-Corti, B., Donovan, R. J. (2002). The relative influence of individual, social and physical environment determinants of physical activity. *Social Science and Medicine*. 54(12):1793-812.

Giles-Corti, B.,Donovan, R. J. (2003). Relative influences of individual, social environmental, and physical environmental correlates of walking. American Journal of Public Health. 93(9):1583-9.

Hoehner, C.M., Brennan Ramirez, L. K., Elliott, M. B., Handy, S. L., & Brownson, R. C. (2005). Perceived and objective environmental measures and physical activity among urban adults. *American Journal of Preventive Medicine*. 28(2 Suppl 2):105-16.

Hume, C., Timperio, A., Salmon, J., Carver, A., Corti-Giles, B., & Crawford, D. (2009). Walking and cycling to school: predictors of increases among children and adolescents. *American Journal of Preventive Medicine*. 36(3):195-200.

Humpel, N., A. L. Marshall, et al. (2004). "Changes in neighborhood walking are related to changes in perceptions of environmental attributes." Ann Behav Med 27(1): 60-7.

Humpel, N., Owen, N., Leslie, E., Marshall, A.L., Bauman, A.E., and Sallis, J.F. (2004). Associations of location and perceived environmental attributes with walking in neighborhoods. *American Journal of Health Promotion*. 18(3): 239-42.

Li, F., Harmer, P.A., Cardinal, B.J., Bosworth, M., Acock, A., Johnson-Shelton, D., et al. (2008). Built environment, adiposity, and physical activity in adults aged 50-75. *American Journal of Preventive Medicine*. 35(1):38-46.

Li, F., Harmer, P., Cardinal, B.J., Bosworth, M., Johnson-Shelton, D. (2009). Obesity and the Built Environment: Does the Density of Neighbourhood Fast-Food Outlets Matter. *American Journal of Health Promotion*. 23(3):203-209.

Li, F., Harmer, P., Cardinal, B.J., Bosworth, M., Johnson-Shelton, D., Moore, J.M., et al. (2009). Built environment and 1-year change in weight and waist circumference in middle-aged and older adults: Portland Neighborhood Environment and Health Study. *American Journal of Epidemiology*. 169(4):401-8.

McCormack, G., Giles-Corti, B., & Bulsara, M. (2008). The relationship between destination proximity, destination mix and physical activity behaviors. *Preventive Medicine*. 46:33-40.

McCormack, G.R., Giles-Corti, B., & Bulsara, M. (2007). Correlates of using neighborhood recreational destinations in physically active respondents. *Journal of Physical Activity and Health*. 4(1):39-53.

Oakes, J.M., Forsyth, A., & Schmitz, K. H. (2007). The effects of neighborhood density and street connectivity on walking behavior: the Twin Cities walking study. *Epidemiologic Perspectives and Innovations*. 4:16.

Rabin, B.A., Boehmer, T.K., and Brownson, R.C. (2007). Cross-national comparison of environmental and policy correlates of obesity in Europe. *European Journal of Public Health*. 17(1): 53-61.

Rodriguez, D.A., Aytur, S., Forsyth, A., Oakes, J.M., Clifton, K.J. (2008). Relation of modifiable neighborhood attributes to walking. *Preventive Medicine*. 47(3):260-4.

Timperio, A., Crawford, D., Telford, A., Salmon, J. (2004). Perceptions about the local neighborhood and walking and cycling among children. *Preventive Medicine*. 38:39-47.

Zhu, X., & Lee, C. (2009). Correlates of Walking to School and Implications for Public Policies: Survey Results from Parents of Elementary School Children in Austin, Texas. *Journal of Public Health Policy*. 30: S177-S202.