

MAKING YESLER TERRACE A HEALTHY COMMUNITY
Public Health-Seattle & King County

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EXPLANATION: This is a partial compilation of major features of the built and natural environments and how and why they affect community health and personal health. The purpose of this information is to provide guidance and examples to planners, designers, and developers responding to the RFQ for the Yesler Terrace Redevelopment Plan.

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Built Environment, Planning, and Design Feature	Example of How Built Environment, Planning, and Design Feature Affects Health	Possible Planning and Design Opportunities at Yesler Terrace That are Characteristics of Healthy Communities
<p>Transportation (private vehicles, transit, biking, and walking)</p>	<p>1) Walking or biking to work, for errands or for recreation helps people meet minimum requirements for physical activity. Twenty- nine percent of people using transit to get to work meet their daily requirements for physical activity from walking to work.³⁸ Health benefits of physical activity include a reduced risk of premature mortality and reduced risks of obesity, coronary heart disease, hypertension, colon cancer, and diabetes mellitus.³⁹</p> <p>2) Traffic volume increases the risk of pedestrian, cyclist and motorist injury and death.⁴⁸ Pedestrians, cyclists and motorized two wheeler users bear a disproportionate share of the global road injury burden and are all at high risk of crash injury.⁴⁹</p> <p>3) Easy access to public transit increases walking to transit stops and use of public transit</p>	<ul style="list-style-type: none"> • Sidewalk and pathway design and quality • Traffic calming • Connectivity (within site and to surrounding neighborhood) • Bike paths • Wayfinding signage • Inviting, safe, weather-protected transit stops • Convenient, easy transit proximity

³⁸. Besser LM, Dannenberg AL. Walking to public transit: steps to help meet physical activity recommendations. Am J Prev Med. 2005;29(4):273-80.

³⁹. Task Force on Community Preventive Services. Increasing Physical Activity: A Report on Recommendations of the Task Force on Community Preventive Services. Morbidity and Mortality Weekly Report. October 26, 2001.

⁴⁸. Ewing R, Frank L, Kreutzer R. Understanding the Relationship between Public Health and the Built Environment: A Report to the LEED-ND Core Committee. 2006.

⁴⁹. World Health Organization (WHO), Edited by Margie Penden, Richard Scurfield, David Sleet, et al. World Report on road traffic injury prevention, 2004. Accessed at: http://www.who.int/world-health-day/2004/infomaterials/world_report/en/

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Community Space, Parks, Green Space, Fences	<p>1) The number of neighborhood parks in proximity to one's residence and the types of amenities at the park are associated with physical activity in children.⁸¹</p> <p>2) Exposure to nature in parks, gardens, and natural areas can improve psychological and social health.ⁱ</p> <p>3) Presence of green surroundings in urban settings is associated with fewer crime reports after controlling for the number of apartments per building, building height, vacancy rate, and number of occupied units per building.⁵⁷</p> <p>4) The presence of views and access to natural vegetation in the urban environment increases concentration and is associated with fewer behavior problems among children.⁵⁸</p> <p>5) Public participation in policy and the political process can have diverse impacts on the social and environmental conditions that affect health.¹²⁴</p> <p>6) Social cohesion and strong social networks are associated with less anti-social behaviors and positive health outcomes. Meeting spaces and community organizing promote cohesion and networking.</p>	<ul style="list-style-type: none"> • Destinations and high quality pedestrian environments exist for walkers and walking groups • Community center accommodates recreational activities • Playgrounds, pocket parks and fields • Safe places to play • Meeting space for community organizing, meetings, and community-building events • Design landscapes that will be attractive, sustainable, and low-toxicity for SHA and residents to maintain. • Separate units by low fencing to encourage neighbor-to-neighbor interaction.

⁵⁷ Kuo FE, Sullivan WC. Environment and crime in the inner city: does vegetation reduce crime? *Environment and Behavior*. 2001;33(3):343-367.

⁵⁸ Taylor AF, Kuo FE, Sullivan WC. Coping With ADD: The Surprising Connection to Green Play Settings. *Environment and Behavior*. 2001;33(1):54-77.

⁸¹ Cohen DA, Ashwood JS, Scott MM, Overton A, Evenson KR, Staten LK, Porter D, McKenzie TL, Catellier D. Public parks and physical activity among adolescent girls. *Pediatrics*. 2006;118(5):e1381-1389.

¹²⁴ Minkler M, Wallerstein N. eds. *Community-Based Participatory Research for Health*, San Francisco, Jossey-Bass, 2003.

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Schools and Educational Institutions	<p>1) Educational outcomes positively associated with lifetime earnings, positive health behaviors, and prolonged life expectancy.⁷⁸</p> <p>2) Research on travel mode choice also shows that when schools are located closer to home, more children walk and/or bicycle to school and vehicle pollution emissions fall.⁷⁹</p> <p>3) Long distances to school and traffic-related dangers are a primary barrier to walking to school.⁸⁰</p>	<ul style="list-style-type: none"> • Create safe routes between the site and all schools

⁷⁸. Backlund E, Sorlie PD, Johnson NJ. A comparison of the relationships of education and income with mortality: the National Longitudinal Mortality Study. Soc Sci Med. 1999;49(10):1373-84.

⁷⁹. Ewing R, Forinash CV, Schroer W. Neighborhood Schools and Sidewalk Connections. What are the impacts on travel mode choice and vehicle emissions. Transportation Research News. March-April 2005 pp 4-10.

⁸⁰. Dellinger A, Staybtib C. Barriers to Children Walking and Bicycling to School. Morbidity and Mortality Weekly Report. 2002;51:701-704.

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Food Systems Approach	<p>1) Research has found that the presence of a supermarket in a neighborhood predicts higher fruit and vegetable consumption and a reduced prevalence of overweight and obesity.⁹⁰⁻⁹¹</p> <p>2) Urban agricultural sites create opportunities for health education, for example, how to cook food that is grown and to improve knowledge of nutritional benefits of fruits and vegetables. These sites also create opportunities for social interaction, trust building, community building, and increased civic participation.¹⁷</p> <p>3) Locally produced, fresher and seasonally available food reduces food transport miles, thus reducing environmental impacts from transport pollution, as well as costs to the consumer.¹⁸</p>	<ul style="list-style-type: none"> • Design for free water, trash pick-up, and other municipal operations that support community gardens. • Include community and individual garden spaces in site plan. • Develop mixed-use retail "clusters" in which small food stores can flourish through zoning and economic development strategies. • Acquire and/or convert underutilized or vacant land for a farmer's market. • Improve transportation services to food markets. • Plan for supermarket within walking distance. • Include community kitchen space.

¹⁷. SF Food Systems. 2005 SF Collaborative Food System Assessment. Available at: <http://www.sffoodsystems.org/index.html>

¹⁸. La Trobe, H. Farmers' markets: consuming local rural produce. International Journal of Consumer Studies. 2001;25;(3): 181-192.

⁹⁰. Morland K, Diez Roux AV, Wing S. Supermarkets, other food stores, and obesity: the atherosclerosis risk in communities study. Am J Prev Med. 2006;30(4):333-9.

⁹¹. Inagami S, Cohen DA, Finch BK, Asch SM. You are where you shop: grocery store locations, weight, and neighborhoods. Am J Prev Med. 2006;31(1):10-7.

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Local Retail Shops and Services	<p>1) Neighborhoods with diverse and mixed land uses can create proximity between residences, employment, and goods and services, reducing vehicle trips and miles traveled and increasing active transportation such as walking and biking.⁸⁹</p> <p>The density of alcohol outlets is strongly associated with greater rates of physical assaults, violent crimes, and violence in general.⁶⁶</p> <p>2) Impairment by alcohol continues to contribute to crash injury and increases the risk of the injury.⁶⁷</p>	<ul style="list-style-type: none"> • Provide mixed-use destinations within walking distance that serve residents. • Consider economic development strategies that allow residents to be business owners including grants, tax breaks, and the guarantee or facilitation of market-based or interest-free loans.

⁶⁶. Lipton R, Gruenewald P. The spatial dynamics of violence and alcohol outlets. Journal of Studies on Alcohol. 2002 Mar; 63(2):187-95.

⁶⁷. Lascala EA, Gerber D, Gruenewald PJ. Demographic and environmental correlates of pedestrian injury collisions: a spatial analysis. Accid Anal Prev. 2000;32(5):651-8.

⁸⁹. Ewing R, Frank L, Kreutzer R. Understanding the Relationship between Public Health and the Built Environment: A Report to the LEED-ND Core Committee. 2006.

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Environmental Quality— Outdoor Air	<p>Populations most susceptible to poor air quality include children, the elderly, and those with existing respiratory ailments. Places that these populations are most likely to spend time at Yesler Terrace include community green spaces, playgrounds, daycare centers, and other on-site outdoor areas.</p> <p>1) Epidemiologic studies have consistently found that proximity to high traffic density or flow results in reduced lung function and increased asthma hospitalizations, asthma symptoms, bronchitis symptoms, and medical visits.²⁵ Among specific research findings:</p> <ul style="list-style-type: none"> • Reduced lung function in children associated with traffic density, especially trucks, within 1,000 feet and the association was strongest within 300 feet.²⁷ • Increased asthma hospitalizations associated with living within 650 feet of heavy traffic and heavy truck volume.²⁸ • Increased asthma symptoms with proximity to roadways with the greatest risk within 300 feet.²⁹ 	<p>Site structures and outdoor areas to minimize exposure to air pollutants from these principal sources on and near the site:</p> <ul style="list-style-type: none"> • High volume roadways • Commercial distribution centers • Rail yards • Port • Dry cleaners

²⁵. Brauer M, Hoek G, Van Vliet P, et al. Air pollution from traffic and the development of respiratory infections and asthmatic and allergic symptoms in children. American Journal of Respiratory and Critical Care Medicine. 2002;166:1092-1098.

²⁷. B, Janssen NA, de Hartog J, Harssema H, Knape M, van Vliet P. Air pollution from truck traffic and lung function in children living near motorways. Epidemiology. 1997;8:298-303.

²⁸. Lin S, Munsie JP, Hwang SA, Fitzgerald E, Cayo MR. Childhood asthma hospitalization and residential exposure to state route traffic. Environ Res. 2002;88:73-81.

²⁹. Venn A, Lewis SA, Cooper M, Hubbard R, Britton J. Living near a main road and the risk of wheezing illness in children. American Journal of Respiratory and Critical Care Medicine. 2001;164:2177-2180.

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<p>Environmental Quality— Noise</p>	<p>1) Noise can be detrimental to health with respect to hearing impairment, sleep disturbance, cardiovascular effects such as high blood pressure, psycho-physiologic effects, psychiatric symptoms, and fetal development.⁶²⁻⁶³</p> <p>2) A chronic environmental stressor - road traffic or aircraft noise - could impair cognitive development in children, such as reading comprehension, speech intelligibility, memory, motivation, attention, problem-solving, and performance on standardized tests.⁶⁴</p> <p>3) Residents of areas with greater vehicular burden and who reported the most traffic stress also had the lowest health status and greatest depressive symptoms.</p>	<ul style="list-style-type: none"> • Current noise standards may not adequately protect all populations, therefore incorporate design measures that better protect health such as robust noise-insulating windows and acoustical exterior doors and walls. • Reduce traffic speed related noise through traffic calming measures and alternative road surfacing materials. • Design units exposed to high noise levels with interior courtyards and patios that open into acoustically protected and shielded areas.

⁶². Historical Note about Recommended Lighting Levels. International Dark-Sky Association. Newsletter No. 22. October 1994.

⁶³. Stansfeld S, Haines M, Brown B. Noise and health in the urban environment. Rev Environmental Health, 2000 Vol15(1-2): 43-82

⁶⁴. Stansfeld SA, Berglund, B, Clark C, Lopez-Barrio I, Fischer P, O’hrstro’lm E, Haines MM, Head J, Hygge S, Kamp I, Berry BF, and RANCH study team. Aircraft and road traffic noise and children's cognition and health: a cross-national study. The Lancet, June 4-10, 2005, Vol. 365 (9475): 1942-49

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<p>General Site Development</p>	<p>Levels of neighborhood crime and perceptions of safety are determined by development/construction-related factors including resident participation in community development, sidewalk cleanliness and width, street design for pedestrian safety and speed control, poor street lighting, abundance of liquor stores, community isolation, and lack of services and housing for low-income persons, as well as other factors including presence of drugs or gangs, lack of police presence, gun availability, under- and un-employment, and lack of community activities for families and youth.⁶⁸</p> <p>Homicides, physical assaults, and rapes/sexual assaults are direct and adverse health outcomes for a community. Witnessing and experiencing community violence causes longer term behavioral and emotional problems in youth.⁶⁹⁻⁷⁰ Finally, community violence also impacts the perceived safety of a neighborhood, inhibiting social interactions and adversely impacting on social cohesion.⁷¹</p> <p>Living in more hazardous neighborhoods is independently associated with an increase in the odds of obesity. In a national sample of women with young children, obesity is found to be more prevalent among those who perceive their neighborhood to be unsafe.</p>	<ul style="list-style-type: none"> • Apply four key principles of “Crime Prevention Through Environmental Design” (natural surveillance, territorial reinforcement, natural access control, and target hardening) • Design incorporates “Eyes on street” strategy • Provide lighting in key areas • Provide protected, safe public spaces • Utilize low or transparent fencing styles • Play areas safe for kids in view of parents

⁶⁸. San Francisco Safety Network. Community Survey on Public Safety . April 2006. Analysis provided by the National Council on Crime and Delinquency. Accessed on July 5, 2006 at: <http://www.safetynetwork.org/article.php?id=60>

⁶⁹. Perez-Smith AM, Albus KE, Weist MD. Exposure to violence and neighborhood affiliation among inner-city youth. J Clin Child Psychol. 2001;30(4):464-72.

⁷⁰. Ozer EJ, McDonald KL. Exposure to violence and mental health among Chinese American urban adolescents. J Adolesc Health. 2006;39(1):73-9.

⁷¹. Fullilove MT, Heon V, Jimenez W, Parsons C, Green LL, Fullilove RE. Injury and anomie: effects of violence on an inner-city community. Am J Public Health. 1998;88(6):924-7.

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Environmental Stewardship	<p>1) Electricity generated from fossil fuels produces air pollution in the form of particulate matter, nitrogen oxides, volatile organic compounds, and toxic air contaminants. Air pollution from these emissions in turn contributes to respiratory disease and deaths from cardiovascular diseases.³</p> <p>2) Electricity and natural gas generation also contribute to greenhouse gas emissions and indirectly to climate change. Climate change threatens health through more extreme weather events, increased air pollution, limitations on food production, increased water-borne and food-borne illnesses, and increased infectious disease vectors.⁴</p> <p>3) The impacts of solid waste on health relate indirectly to: 1) the use of environmental resources expended in the production of waste and, 2) the externalities related to waste disposal and waste management.⁷</p>	<p>Integrate environmental sustainability principles and techniques from such programs as:</p> <ul style="list-style-type: none"> • LEED ND • LEED • Low Impact Development Practices • Smart Growth • Green Infrastructure

³ Union of Concerned Scientists. The Hidden Cost of Fossil Fuels. Accessed: http://www.ucsusa.org/clean_energy/fossil_fuels/the-hidden-cost-of-fossil-fuels.html

⁴ Environmental Protection Agency. Climate Change and Public Health. United States Office of Policy, Environmental Protection Planning and Evaluation Agency (2171) EPA 236-F-97-005, October 1997.

⁷ RE Hester and RM Harrison, eds. Environmental and Health Impact of Solid Waste Management Activities. Royal Society of Chemistry, 1st Edition, 2003.

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Housing and Buildings	<p>Specific attributes of housing affect health:</p> <p>1) Adequate ventilation reduces exposure to airborne allergens and toxics and reduces humidity and therefore presence of mold and dust mites.</p> <p>2) Hard surface floors reduce household dust, which is a reservoir for allergens, pesticides, heavy metals and other toxics.</p> <p>3) Low VOC products reduce off-gassing of VOCs, which are asthma triggers and potential carcinogens.</p> <p>4) Inadequate lighting is associated with depression.</p> <p>5) Access to attractive, safe stairways with directional signage increases stair use and therefore physical activity.</p>	<p>Inclusion of green building concepts and materials, and other health-related features with direct health benefits such as:</p> <ul style="list-style-type: none"> • Adequate and effective ventilation • Moisture proofing • Hard flooring surfaces • Low VOC products • Hardwired smoke detector • Carbon monoxide monitor • Pest and rodent proof materials and structures • Adequate natural and artificial lighting <p>Visible, attractive stairways that invite use</p>