

4 MARIPOSA HEALTHY LIVING TOOLKIT



MARIPOSA HEALTHY LIVING TOOLKIT



Positive Health Outcomes in Community Redevelopment

Introduction

What is it?

The Mariposa Healthy Living Tool (Tool) is a guide to assess the health conditions of residents and identify opportunities for improvement through the built environment in urban redevelopment projects. This process is similar to a review process called a Health Impact Assessment (HIA), which is typically performed by public health government agencies, community organizations and academic institutions. The Tool was created for practitioners, developers and urban designers to improve health outcomes. The Tool affects health outcomes by advancing evidence-based and effective strategies that improve social and environmental determinants of health - specifically by targeting design, implementation, and construction in redevelopment projects.

It is based on a similar tool originally developed by the San Francisco Department of Public Health called the Healthy Development Measurement Tool (HDMT). In 2009, the Denver Housing Authority sponsored the customization of the HDMT, creating the Denver HDMT for use to identify priority health issues and guide the Mariposa redevelopment. The Mariposa Healthy Living Tool represents an evolution of the Denver HDMT.

Why?

The Mariposa Healthy Living Tool uses a new approach, providing a comprehensive evaluation tool and implementation guide for practitioners to incorporate health into design, redevelopment, and construction. The Tool considers comprehensive health needs in urban development with the ultimate goals of achieving higher quality social and physical environments that advance resident health, and draws on health evidence and standards. The Mariposa Healthy Living Tool focuses on health determinants related to projects and programs that can be shaped by designers and developers. The Mariposa Healthy Living Tool organizes determinants into the following dimensions, or sectors, of a healthy community:

- Healthy Housing
- Sustainable and Safe Transportation
- Environmental Stewardship
- Social Cohesion
- Public Infrastructure (services and amenities)
- Healthy Economy

User Guide

The Mariposa Healthy Living Tool was created to be used by developers, urban designers, architects, design professionals in all disciplines, practitioners, service providers, government organizations, and community groups to guide planning and redevelopment decisions and actions to improve health and health determinants. The Tool is intended to promote cross-sector partnerships, to use a participatory approach that values resident and stakeholder experience, and to provide the best available evidence to decision-makers. The Tool should be used in a timely manner with the best evidence available to effectively inform redevelopment decisions.

The Tool was created to be used for Mariposa redevelopment, and includes objectives, indicators, and strategies relevant to this target community. The

Tool should not be considered an exhaustive resource; however it was created to be used as a template that could be customized for use in other redevelopment efforts. If considered for use elsewhere, it should be customized before application to reflect the influences and characteristics of the particular community*.

The Mariposa Healthy Living Tool can be used in five steps to inform redevelopment decisions. This process is designed to be rigorous and evidence-based, to ensure strategies are responsive to identified needs, and to be tuned to the pace and decision-making process inherent in redevelopment and neighborhood revitalization. The Tool draws from the health impact assessment framework as described by the Center for Disease Control (CDC) and World Health Organization (WHO) and recent practice

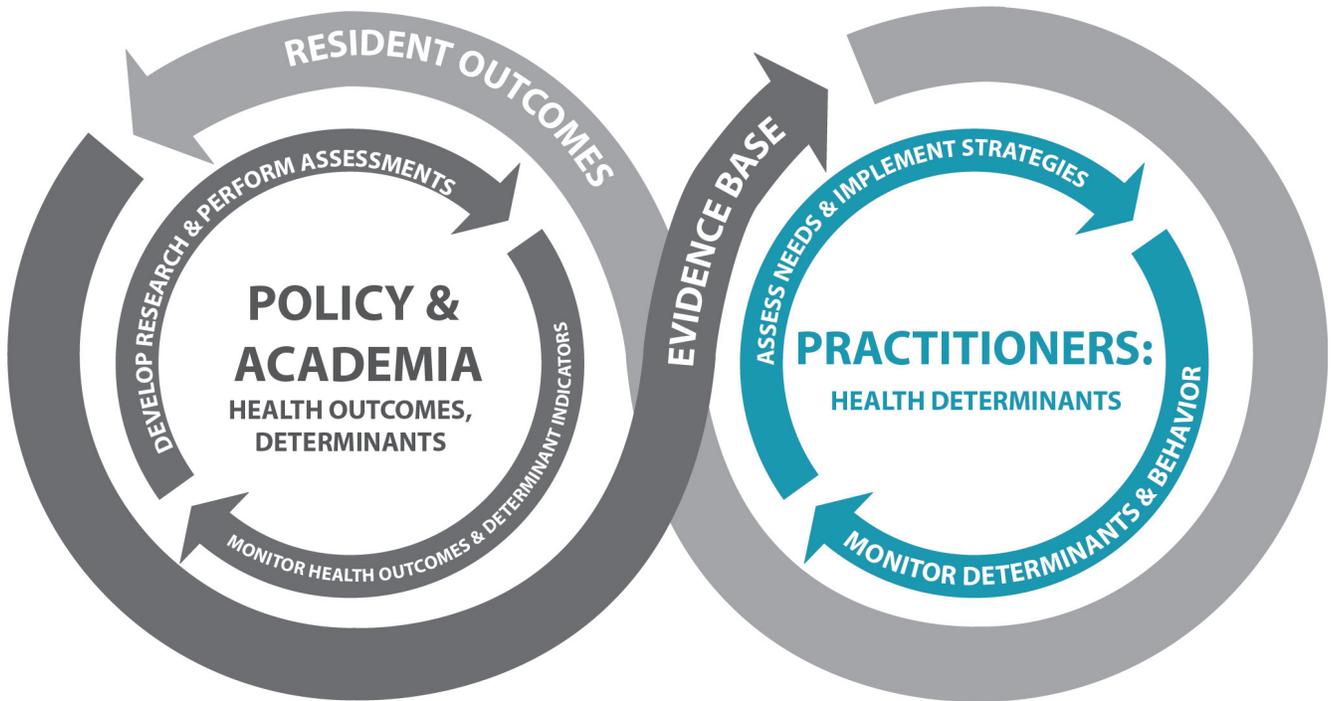


Fig. 5 Cross sector partnerships, review, and monitoring.

standards,⁵³ as well as the methodology described by The Roadmaps to Health Action Center, which is geared towards community activism and engagement⁵⁴. Using the Mariposa Healthy Living Tool, however, does not constitute completing a Health Impact Assessment.

⁵³ The Minimum Elements and Practice Standards for Health Impact Assessment, Version 2

⁵⁴ Based at the University of Wisconsin Population Health Institute, and available through the Healthy County program.

*MARIPOSA HEALTHY LIVING TOOL CUSTOMIZATION

The Denver Housing Authority respectfully requests that if you are planning on applying the Mariposa Healthy Living Tool to a development plan or project, that you notify us of your intention to do so. As we share the Mariposa Healthy Living Tool with a range of interested parties, we would like to track how it is being used.



“Application” of the Mariposa Healthy Living Tool means the evaluation of population health and a particular development project against our development targets and making a general assessment of the “healthfulness” of a plan/project. We do not consider the use of the indicator data, research citations, standards, or development targets as reference material in your work or in developing evaluation materials to be an “application.”

If you do plan to apply the tool, we would like to be notified. In addition, we would also appreciate receiving materials related to your application – e.g., a description of the project you are evaluating or a completed application. Please note that receipt of any such documents is not the equivalent of an endorsement of your evaluation.

Endorsement Disclaimer: The Mariposa Healthy Living Tool represents a vision for healthy redevelopment at Mariposa that will positively influence the La Alma / Lincoln Park neighborhood. It provides a framework for practitioners to understand positive and negative health impacts of redevelopment, with the goal of recommending strategies to improve health determinants. While the Tool is intended to be useful for other practitioners, use of the Mariposa Healthy Living Tool alone does not constitute an endorsement of that particular redevelopment project.

Using the Mariposa Healthy Living Tool

1. Assess Needs and Resources:

Define the resident population or community of focus. Identify the decision-makers, an assessment team, technical resources, and a community engagement strategy. Using indicators from the Tool, conduct a baseline assessment of needs and resources. Consider conducting a Health Impact Assessment if there is a specific plan/ policy target.

Use the indicators as a guide to determine the status of health determinants in the community and to map existing assets and resources. Seek this information from residents and community stakeholders as well. *Use the Report Card Template to create your baseline, and customize it for your community.*

2. Focus on What’s Important:

Based on indicator data, status of health determinants, and map of assets and resources, identify priority issues for the community of focus. Determine areas of concern not yet addressed, and gather qualitative data on the lived experience of residents and community stakeholders through outreach and engagement. Consider which health determinants and characteristics are controlled by decision-makers and can be influenced by the redevelopment project.

Using the baseline indicator data, develop and set targets for how you want those indicators to evolve over time (e.g. decrease, increase) to reflect the desired future of the community. Customize the targets to the specific community if appropriate. Assess areas of concern not yet addressed, and gather feedback from advisory groups, community members and residents, and stakeholders to help inform priorities. Focusing on a single “message” or priority at a time leads to higher levels of success rather than spreading resources across a range of action items.

3. Choose Effective Strategies:

In order to influence the baseline indicators and improve health and health determinants, use the Tool to choose strategies that are relevant to the priority issues and targets. Refer to the evidence base and standards to learn more about whether the particular strategy will be applicable or appropriate to the redevelopment project. To be successful, prioritize a very limited number of strategies.

Report and recommend strategies to promote positive health effects or reduce adverse effects to the decision-makers and stakeholders for consideration.

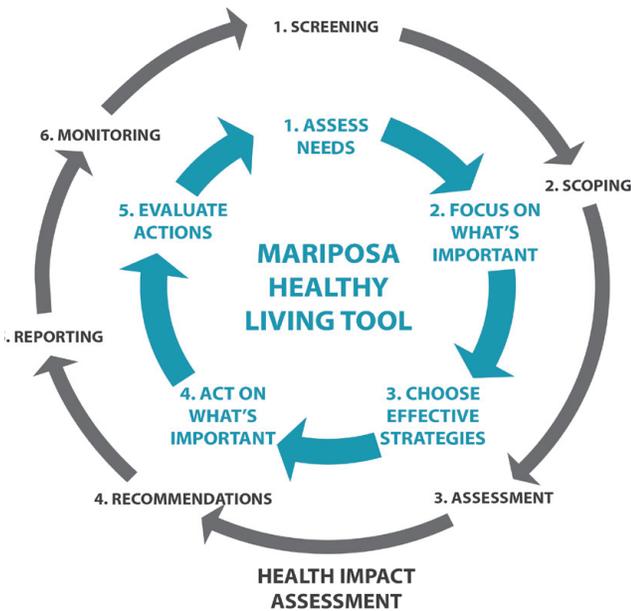


Fig. 6 Relationship between Mariposa Healthy Living Tool and Health Impact Assessment

4. Act on What's Important:

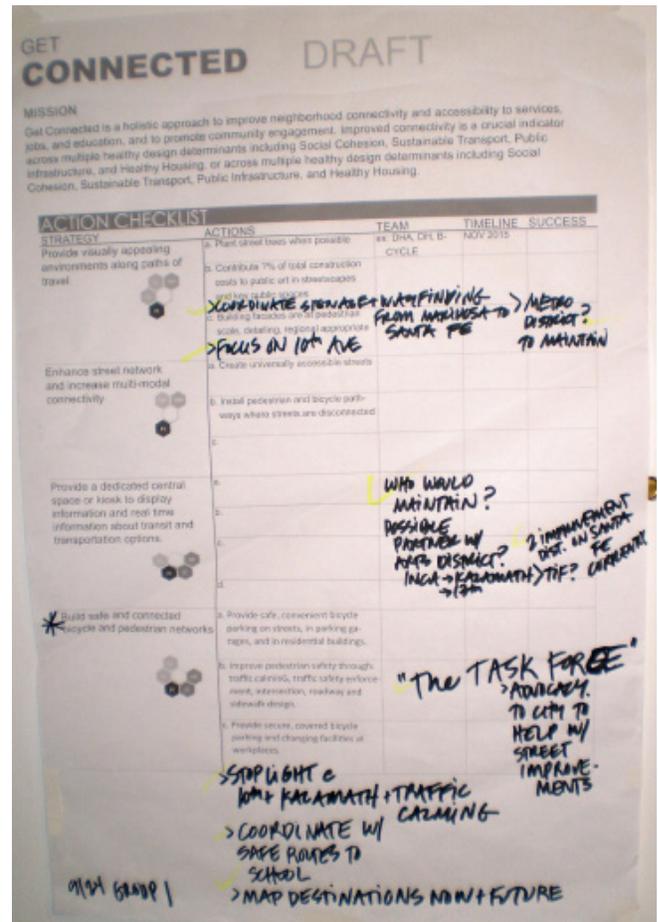
With buy-in from decision-makers and end-users, use the priority strategies to influence change in the redevelopment. Related strategies can be bundled together into campaigns. To create a road map for action, structure the campaigns in a series of steps to build measurable success, improve participation, and foster interest. Use a layers of engagement framework to be clear about who can be involved and how. Use the Campaign Checklist template from the Mariposa Healthy Living Toolkit to document your campaigns, responsible parties, and timeframes for action.



5. Evaluate Actions:

Monitor the progress of the redevelopment over time, tracking which recommendations and strategies are implemented. See "Measuring Progress" below for more information and guidance on monitoring. Evaluate the effect of the Tool on redevelopment decisions, and track resident health determinants using the indicators identified in step one to measure progress. Progress on these indicators can also be measured through the use of surveys or validation studies to understand the impact of strategies on resident behavior.

Guidance for indicator tracking and validation studies is available in the Mariposa Healthy Living Toolkit. Periodically, the strategies should be reassessed to identify whether adjustments in implementation or design are needed to better respond to resident experiences and any changing needs. Priority issues can then be readjusted as needed with this process. Use the Report Card Template to track progress and indicators.



September 2012 Mariposa Healthy Living Tool Advisory Panel Workshops, Credit: Perspective-3



MARIPOSA HEALTHY LIVING TOOLKIT

HEALTHY HOUSING

SUSTAINABLE, SAFE TRANSPORTATION

ENVIRONMENTAL STEWARDSHIP

SOCIAL COHESION

PUBLIC INFRASTRUCTURE

HEALTHY ECONOMY



INDICATORS



STRATEGIES



RESOURCES

The Toolkit includes six sections, or dimensions of a healthy community. Each contains objectives and rationale related to health outcomes, recommended indicators and strategies, and referenced resources for additional information. The Toolkit also includes a template Report Card for tracking indicators, a template Campaign Checklist, to organize action and track progress, and a list of relevant organizations and potential partners.

CAMPAIGN CHECKLIST

CAMPAIGN CHECKLIST TEMPLATE

STRATEGY	ACTIONS	PARTNERS	GOAL	STATUS
Improve access to and provide safe pedestrian routes to health care, providers, and counselors.	a. Improve access, safe pedestrian routes, and transportation to Denver Health. Coordinate a free shuttle to Denver Health.	DHA Resident Community Services (RCS); Denver Health	2014	✓ See "Success Stories," page 49
	b.			

REPORT CARD TEMPLATE

	INDICATOR	RATIONALE	DATA SOURCE (2009/2012)	GEOGRAPHIC SCOPE	CAVEATS & LIMITATIONS
HOUSING	PERCENT OF POPULATION LIVING BELOW POVERTY LEVEL	Poverty limits access to important health-enabling resources, including proper nutrition, good medical care, stable health insurance, and favorable housing ¹¹ .	Census 2000/ ACS 2006-2010	Auraria - Lincoln Park statistical area	The data sourced utilized aggregate the poverty rate for the Auraria and Lincoln Park neighborhoods. Because it is an institutional campus, Auraria has a very low number of residents which may alter the indicator results.
	PERCENT OF HOUSEHOLD INCOME SPENT ON HOUSING	This item can make be the largest expenditures in a household budget, effecting the amount of money available for health related costs ¹² .	Census 2000/ Census 2012	Census block group 19.01.2	
TRANSPORTATION	HOUSING INDOOR ENVIRONMENT (AIR QUALITY, TEMPERATURE, HUMIDITY)	Homes that have inadequate heating or ventilation, can lead to the growth of mold, and dust mites, leading to asthma and respiratory allergies ¹³ .		Site/Building monitoring	Currently, baseline and monitoring data is not available for this indicator. The indicator relies on building evaluation.
	AVERAGE TRANSIT COMMUTE TIME IN MINUTES	Reducing time spent on public transit can help incentivize transit as an alternative to driving. Residents dependent on transit that live in areas that experience higher than average commute times have less time available for physical and leisure activities that promote health and social well-being ¹⁴ .	n/a/ACS estimate	Auraria Lincoln Park statistical area	As is the case with all surveys, statistics from sample surveys are subject to sampling and non-sampling error.
	COST OF TRANSPORTATION AND HOUSING AS % OF AVERAGE INCOME	These two items make up the largest expenditures in a household budget; including transpo costs is more reflective of actual cost of living than just housing costs ¹⁵ .	H-T INDEX 2010/2012, derived from ACS and other datasets	Census block group 19.01.2	H-T Affordability Index methodology uses a model to estimate three dependant variables from independant variables. For the ACS housing cost data, renters paying with vouchers may be excluded.
	NUMBER OF TRAFFIC INJURIES/ COLLISIONS/ FATALITIES	This is an indicator of the safety risk of the street network for road users, including pedestrians, cyclists, drivers and passengers. Traffic collisions involving motor vehicles are one of the leading causes of preventable injury in the nation ¹⁶ .	Denver Police 2009/2012	Auraria - Lincoln Park statistical area	This data is currently being collected from the Denver Police Department.



Why is this a health determinant? Adverse housing environments can be substandard, overcrowded, or undesirably located; high costs may leave fewer resources for food, transportation, health care ¹⁻⁴. Homeownership positively impacts social cohesion and civic participation ⁵.

Desired objectives: Provide a range of housing options: size, tenure, affordability; protect from involuntary displacement; decrease concentrated poverty; ensure access to healthy, quality housing and home environment.



HEALTHY HOUSING INDICATORS

-  Percent of population living below poverty level
-  Housing supply and options Index and match of need
-  Percent of household income spent on housing and transportation
-  Housing health & safety



HEALTHY HOUSING STRATEGIES

-  Support a housing “ladder” in the neighborhood through educational and support programs and by increasing the available range of housing types and affordability levels. Support residents moving from deeply subsidized to middle income housing to homeownership ^a.
-  Install a ventilation system for the dwelling unit capable of providing fresh air per ASHRAE requirements to ensure indoor air quality ^b.
-  Construct energy efficient housing to reduce utility costs and to improve outdoor air quality ^c.
-  Include casual, everyday opportunities for physical activity in indoor spaces as well as in the functionality of commercial workplaces and residential buildings ^{6-7, d}.
-  Implement and enforce a no smoking policy within buildings and 25 feet around all residential buildings ^e.
-  Provide interior daylighting in 90% of common areas and 75% of all areas ^f.
-  Provide access to views of nature in 90% of common areas and 75% of all areas ^f.
-  Within multi-family and mixed-use buildings, provide visually appealing environments along hallways and paths of travel ^g.
-  Design a minimum of 15% of the dwelling units (no fewer than one) in accordance with ICC /ANSI A117.1, Type A, Fully Accessible guidelines ^h.

(#) - See page 108 for reference
 (x) - See resources opposing page

 Indicates strategies linked to health evidence and academic research.



HEALTHY HOUSING RESOURCES

- a. **LEED ND - NPDC4 - Mixed Income Diverse Communities:** To promote socially equitable and engaging communities by enabling residents from a wide range of economic levels, household sizes, and age groups to live in a community.
- b. **LEED ND- GIBC2: Building Energy Efficiency** - To encourage the design and construction of energy-efficient buildings that reduce air, water, land pollution and adverse environmental effects from energy production and consumption.
- c. **Enterprise Green Communities Criteria 5.1 -5.8 Energy Efficiency:** Improvements in building energy performance result in utility cost savings from more efficient heating, cooling, hot water, lights and appliances, which improves residents' comfort and lowers operating costs.
- d. **NYC Active Design Guidelines - 2.1 Land Use Mix** - When planning urban-scale developments, provide for a mix of uses—for example, residences, offices, schools, retail stores, cultural and community spaces, and recreational facilities.
- e. **Enterprise Green Communities - Criteria 7.16 Smoke Free Building:** Implement and enforce a no-smoking policy in all common and individual living areas, and with a 25-foot perimeter around the exterior of all residential projects. The lease language must prohibit smoking in these locations and specify that it is a violation of the lease to smoke and the restriction applies to all owners, tenants, guests, and service-persons.
- f. **LEED NC- EQc8.1-8.2: Daylight and Views** - To provide building occupants with a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.
- g. **NYC Active Design Guidelines 2.9 - Designing Pedestrian Pathways:** Create or orient paths and sidewalks toward interesting views. Research indicates that the provision of attractive open views from a path encourages increased walking.
- h. **Enterprise Green Communities - Criteria 1.2 Universal Design:** Design a minimum of 15% of the dwelling units (no fewer than one) in accordance with ICC /ANSI A117.1, Type A, Fully Accessible guidelines, **LEED ND NPDC11 - Visibility and Universal Design.**



Why is this a health determinant? Quality, safe pedestrian and bicycle environments support an increase in physical activity with benefits including the prevention of obesity, diabetes, and heart disease as well as stress reduction and mental health improvement ¹⁸⁻²¹.

Desired objectives: Reduce VMT; provide accessible, affordable public transportation; create safe, quality environments for walking and biking.



SUSTAINABLE, SAFE TRANSPORTATION INDICATORS

-  Transportation mode split
-  Average transit commute time
-  Cost of transportation and housing as a percentage of average income
-  Number of (pedestrian, bicycle) traffic injuries/ collisions/ fatalities



SUSTAINABLE, SAFE TRANSPORTATION STRATEGIES

-  Improve the pedestrian infrastructure and environment, for all ages and abilities ^{22-25, a}.
-  Implement traffic calming measures as part of street design to address areas of conflict ^{26, b}.
-  Consider ongoing tracking of pedestrian and bicycle counts and accident reporting (Use the Pedestrian Environmental Quality Index (PEQI) or other pedestrian audit tools) ^c.
-  Enhance the bicycle network and infrastructure and improve cyclist safety, and promote bicycle sharing within the neighborhood ^{27-28, d}.
-  Prioritize new development and housing close to high quality public transportation options and in locations with walkable amenities and services ^{29, e}.
-  Enhance the street network and increase multi-modal street connectivity ^{30, a, f}.
-  Provide transit facilities that are safe and close to housing and services, amenities, and destinations ^g.
-  Provide “last mile” options to get from transit to destinations ^h.
-  Provide no-cost or reduced cost shuttles between worksites, homes, health care facilities, and regional public transit ⁱ.
-  Promote carshare/carpooling within neighborhoods ^{h, j}.
-  Implement a Transportation Demand Management (TDM) program. Consider funding a transit pass program, and subsidizing free or discounted passes for income-qualified households ^{h, j}.

(#) - See page 108 for reference
(x) - See resources opposing page

 Indicates strategies linked to health evidence and academic research.



SUSTAINABLE, SAFE TRANSPORTATION RESOURCES

- a. **Enterprise Green Communities Criteria 5.1 -5.8 Energy Efficiency:** Improvements in building energy performance result in utility cost savings from more efficient heating, cooling, hot water, lights and appliances, which improves residents' comfort and lowers operating costs.
- b. **NYC Active Design Guidelines - 2.8 Traffic Calming** -Promote walking and improve the overall pedestrian experience through traffic calming measures. Slowing traffic helps to maintain the human scale—and pace—of city streets.
- c. **Pedestrian Environmental Quality Index** draws on published research and work from numerous cities to assess how the physical environment impacts whether people walk in a neighborhood. <http://www.sfphes.org/elements/24-elements/tools/106-pedestrian-environmental-quality-index>
- d. **LEED ND- SSLc4 Bicycle Network and Storage Requirements:** To promote bicycling and transportation efficiency, including reduced vehicle miles traveled (VMT). To support public health by encouraging utilitarian and recreational physical activity.
- e. **LEED ND- SSLc3 - Locations with Reduced Automobile Dependence:** To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other adverse environmental and public health effects associated with motor vehicle use.
- f. **LEED ND- NPDc1 - Walkable Streets:** To promote transportation efficiency, including reduced VMT. To promote walking by providing safe, appealing, and comfortable street environments that support public health by reducing pedestrian injuries and encouraging physical activity.
- g. **LEED ND- NPDc7 - Transit Facilities:** To encourage transit use and reduce driving by providing safe, convenient, and comfortable transit waiting areas and safe and secure bicycle storage facilities for transit users.
- h. **LEED ND- NPDc5 - Reduced Parking Footprint:** To design parking to increase the pedestrian orientation of projects and minimize the adverse environmental effects of parking facilities.
- i. **LEED ND- NPDc8 - Transportation Demand Management:** To reduce energy consumption, pollution from motor vehicles, and adverse health effects by encouraging multi modal travel.
- j. **Victoria Transport Policy Institute. 2011. Online TDM Encyclopedia.** Available at: <http://www.vtpi.org/tdm/>.



Why is this a health determinant? Access to open space and natural areas with outreach and education can increase the frequency of physical activity by 48%⁸. Exposure to fine particulate air pollution is associated with cardiovascular risk and increased risk of death⁹⁻¹⁰. Long term exposure to noise can adversely affect sleep, school and work performance¹¹.

Desired objectives: Restore, preserve, and enhance natural areas and open space; preserve clean air quality and water quality; maintain safe levels of community noise.



ENVIRONMENTAL STEWARDSHIP INDICATORS

-  Open space/ nearby nature within neighborhood
-  Air quality - particulate matter
-  Vehicle Miles Traveled (VMT) per capita per day
-  Average daytime and nighttime outdoor noise levels



ENVIRONMENTAL STEWARDSHIP STRATEGIES

-  Provide publicly accessible outdoor open space and coordinate maintenance and programming^{12,a}.
-  Provide, improve, and if possible maintain natural areas, vegetation, and tree canopy to improve air quality issues and mitigate crime^{13-15, b}.
-  Re-designate truck routes away from residential and sensitive areas.
-  Use dust control measures and emissions technologies for construction equipment to improve air quality during demolition and construction^c.
-  Mitigate or remediate any contaminated sites or pollution point sources^d.
-  Design units and buildings exposed to high noise levels to mitigate noise using sound attenuation in the building, and with interior courtyards and patios that open into acoustically protected and shielded areas^{16,e}.
-  Provide comfortable, healthy indoor environments with good air quality, access to daylight, and views to nature^{17, f}.
-  Reduce vehicle miles traveled (VMT) to improve air quality^{17, g}.
-  Design and build the project to a density of at least 15 dwelling units per acre to support mass transit^h.

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ENVIRONMENTAL STEWARDSHIP RESOURCES

- a. **Enterprise Green Communities-Criteria 2.6-7 Preservation of and Access to Open Space:** Access to open space and natural resources improves quality of life and provides the opportunity to better understand the importance of the natural environment.
- b. **SITES: Credit 4.7** - Provide outdoor spaces for mental restoration and **SITES Credit 4.8** -Provide outdoor spaces for social interaction.
- c. **SITES: Credit 4.4 - Minimize Soil Disturbance in Design and Construction:** Limit disturbance of healthy soil to protect soil horizons and maintain soil structure, existing hydrology, organic matter, and nutrients stored in soils.
- d. **SITES: Credit 7.3 Restore Soils Disturbed by Previous Development:** Restore soil function in areas of previously disturbed topsoils and subsoils to rebuild the site's ability to support healthy plants, biological communities, water storage, and infiltration.
- e. **SITES: Credit 6.7 - Provide Views of Vegetation and Quiet Outdoor Spaces for Mental Restoration:** Develop and implement a plan to provide views of vegetation and access to quiet outdoor space(s) on site to optimize mental health benefits of site users.
- f. **Enterprise Green Communities: Criteria #7 - Healthy Living Environment** - Optimal ventilation improves indoor air quality and the flow of fresh air throughout the home, contributing to a healthier living environment.
- g. **Enterprise Green Communities: Criteria #2 Location and Neighborhood Fabric** - Locating a project within an existing neighborhood and in close proximity to infrastructure encourages more resource-efficient development of land, reduces development costs, conserves energy, and adds to the vitality of the overall community.
- h. **Enterprise Green Communities-Criteria 2.4 Compact Development:** Design and build the project to the density required for the location type.



Why is this a health determinant? Neighborhood crime strongly influences a willingness to allow children to actively commute (e.g. walk or bike)³¹⁻³³. Group membership and political participation is associated with improved health outcomes³⁴⁻³⁵.

Desired objectives: Promote a socially cohesive community; support a diverse population; promote a safe and secure community; support community gathering and spaces for interaction; support mental health.



SOCIAL COHESION INDICATORS

-  Proportion of population within 1/2 mile to community gathering spaces
-  Residential mobility (% residents living at their current residence for less than 1 year)
-  Voting Power: Percentage of population of eligible adults who voted
-  Perceived safety
-  Violent and property crime rate per 1,000 people



SOCIAL COHESION STRATEGIES

-  Provide affordable space for nonprofit providers within community^a.
-  Provide translation services at meetings intended for community input to encourage diverse participation^b.
-  Actively engage with community groups and organizations to assure equitable participation in all planning processes^c.
-  Provide meeting areas and community spaces for voting, community meetings, after school programming, mentoring, or other social programs^{36, d}.
-  Apply Crime Prevention through Environmental Design (CPTED) principles in public realm and infrastructure design and construction, building design and construction, and infrastructure design and construction^{37-38, e}.
-  Support programs and organizations supporting voter registration and civic engagement^f.
-  Address barriers to eligibility, provide information about, and address affordability of services and resources related to housing, food, and employment services^{39, g}.
-  Encourage the development of neighborhood groups that are involved and active in community issues^h.
-  Track and share crime rate and statistics to make information accessible to communityⁱ.

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 (x) - See resources opposing page

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SOCIAL COHESION RESOURCES

- a. **Social Support Measurement and Intervention.** Cohen S, Underwood LG, Gottlieb BH. 2000. Oxford University Press. New York.
- b. **The Evidence Base for Cultural and Linguistic Competency in Health Care,** T. D. Goode, M. C. Dunne, and S. M. Bronheim, The Commonwealth Fund, October 2006
- c. **LEED ND- NPDc12: Community Outreach and Involvement:** To encourage responsiveness to community needs by involving the people who live or work in the community in project design and planning and in decisions about how it should be improved or how it should change over time.
- d. **Social Support Measurement and Intervention.** Cohen S, Underwood LG, Gottlieb BH. 2000. Oxford University Press. New York.
- e. **Effectiveness of crime prevention through environmental design (CPTED) in reducing robberies.** Casteel C, Peek-Asa C. 2000. Am J Prev Med 18:99-115.
- f. **A multilevel analysis of key forms of community- and individual- level social capital as predictors of self-rated health in the United States.** Kim D, Kawachi I. 2006. Journal of Urban Health 83(5):813-826.
- g. **Case Management Society of America. (2010).** (CMSA) Standards of Practice for Case Management. Retrieved April 18, 2010, <http://www.cmsa.org/portals/0/pdf/memberonly/StandardsOfPractice.pdf>
- h. **Crime Prevention Research Review No. 3: Does Neighborhood Watch Reduce Crime?** Holloway, Katy, Trevor Bennett, and David P. Farrington. Washington, D.C.: U.S. Department of Justice Office of Community Oriented Policing Services, 2008
- i. **The Piton Foundation - Community Facts:** a tool developed to make data about the health and well-being of Denver-area families and communities widely accessible. Community Facts provides detailed information about geographical areas related to demographics, education, housing, economics, health, safety, and more. <http://www.piton.org/CommunityFacts>



Why is this a health determinant? Academic performance is related to educational achievement, predicting health outcomes and the effects of education on lifetime earnings⁴⁰. Access to healthy food choices and neighborhood amenities is directly correlated to obesity and diabetes rates⁴¹⁻⁴³.

Desired objectives: Promote access to, and affordability of quality public infrastructure: education, child care, public health and recreation facilities, daily goods and services; promote affordable and high-quality food access.



PUBLIC INFRASTRUCTURE INDICATORS

-  Neighborhood Completeness Indicator for public services and retail
-  School performance within neighborhood (include graduation rate as a complementary indicator)
-  % of population within 1/2 mile of retail food, a full service supermarket or grocery store, farmers market, or Community Supported Agriculture drop-off site
-  Public health facility and recreation facility access within 1/2 mile and by transit



PUBLIC INFRASTRUCTURE STRATEGIES

-  Contribute a percentage of total construction costs to creation of public art, public performance on site, or contribute to public arts fund.
-  Improve the pedestrian-level design of buildings to promote and reinforce cultural vitality^a.
-  Improve access to healthcare facilities and sources. Address access with a Transportation Management Plan and by encouraging transit density near hospitals and health facilities^b.
-  Encourage grocery stores and corner stores within walking distance to provide a minimum of 10% shelf space to fresh produce⁴⁴.
-  Promote small scale, distributed healthy food choices, including new fresh foods markets and healthy restaurants^{44, c}.
-  Require food vendors to accept food stamps/Electronic Benefits Transfer (EBT) and WIC vouchers (Women, Infants and Children)^d.
-  Promote transit density near hospitals and other health facilities, to minimize public parking and use of cars^e.
-  Coordinate with local school districts, parks and recreation facilities, and non-profits to maximize youth programming opportunities during non-school hours^f.
-  Provide child care and early education facilities in the new development or support development of facilities in the neighborhood^{h, i}.
-  Support community partnerships that promote continuing education, high quality education and life-long learning^{a, g}.
-  Improve access to and provide safe pedestrian routes to educational facilities and institutions, including neighborhood schools^{a, h}.

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SOCIAL COHESION RESOURCES

- a. LEED ND- NPDC1 - Walkable Streets:** To promote transportation efficiency, including reduced VMT. To promote walking by providing safe, appealing, and comfortable street environments that support public health by reducing pedestrian injuries and encouraging physical activity.
- b. Enterprise Green Communities Criteria 2.5 Proximity to Services:** Locate the project within designated distances from community support facilities.
- c. LEED ND NPDC13 - Local Food Production:** To promote community-based food production, improve nutrition through increased access to fresh produce, and support local economic development that increases the economic value and production of farmlands and community gardens.
- d. Enterprise Green Communities Criteria 2.12 Access to Fresh, Local Foods:** Access to fresh produce offers healthy food options for residents.
- e. LEED ND - SSLc3 - Locations with Reduced Automobile Dependence:** To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other adverse environmental and public health effects associated with motor vehicle use.
- f. LEED ND NPDC10 - Access to Recreation Facilities:** To improve physical and mental health and social capital by providing a variety of recreational facilities close to work and home to facilitate physical activity and social networking.
- g. Center on School, Family, and Community Partnerships.** John Hopkins University. <http://www.csos.jhu.edu/P2000/center.htm>
- h. LEED ND NPDC15 - Neighborhood Schools:** To promote community interaction and engagement by integrating schools into the neighborhood. To support students' health by encouraging walking and bicycling to school.
- i. Including Child Care in Local Planning.** Child Care Law Center. 2005. <http://www.ccc-oc.org/Resource/Regulations/Including%20Child%20Care%20in%20Local%20Planning.pdf>



Why is this a health determinant? Income is one of the strongest and most consistent predictors of health and disease in the public health research literature.

Desired objectives: Increase quality, healthy employment opportunities and access for residents; increase equity in income and wealth; promote entrepreneurship, locally and resident owned businesses.



HEALTHY ECONOMY INDICATORS

-  Unemployment, including by race
-  Percent of jobs paying wages equal to or greater than self sufficiency
-  Proportion of jobs available by transit, walking, or bicycle
-  Number of new businesses in area
-  Access to banks and credit unions
-  Percent of population aged 25 and above without a high school education or GED



HEALTHY ECONOMY STRATEGIES

-  Provide Green jobs training and access to Green jobs.
-  Provide and/or support job training programs, especially in sectors that provide self-sufficiency wages and good benefits ^{45-46, a}.
-  Promote the expansion/retention of neighborhood-serving, full-service financial institutions in the neighborhood ^{47, b}.
-  Provide financial literacy education and training (e.g. credit repair, first time homebuyer training) ^{48, c}.
-  Encourage financial institutions to offer Individual Development Accounts which match the savings of debt-free, income-qualified personal accounts with both federal dollars and private donations ^{49, d}.
-  Provide space under favorable terms (e.g. % of sales rent) in the project for new and relocated locally-owned or Section 3 businesses.
-  Increase the quantity and quality of start-up spaces.
-  Provide business management training programs or business support programs ^{50, e}.

(#) - See page 108 for reference
(x) - See resources opposing page

 Indicates strategies linked to health evidence and academic research.



HEALTHY ECONOMY RESOURCES

- a. **WOW Congressional Testimony on WIA: Recommendations to Improve the Effectiveness of Job Training.** Hearing on “Workforce Investment Act: Recommendations to Improve the Effectiveness of Job Training” July 26, 2007.
- b. **National Housing Institute “When Your Bank Leaves Town: How Communities Can Fight Back”.** <http://www.nhi.org/online/issues/126/bankclosings.html>
- c. **A. Lusardi, “Household Saving Behavior: The Role of Financial Literacy, Information, and Financial Education Programs,”.** NBER Working Paper No. 13824, February 2008, and forthcoming in “Implications of Behavioral Economics for Economic Policy.”
- d. **CFED Assets and Opportunities Scorecard: Reviewing Individual Development Accounts Benefits and Costs.** http://scorecard2009.cfed.org/financial.php?page=support_ida_programs
- e. **“Local Capitalism, Civic Engagement, and Socioeconomic Well-Being.”** Tolbert, Charles M., Thomas A. Lyson, and Michael D. Irwin. 1998. *Social Forces* 77(2):401–428.



RELEVANT ORGANIZATIONS

Healthy Housing

- **The Denver Housing Authority** is a quasi-municipal corporation with a portfolio of more than 11,000 units and housing choice vouchers, providing affordable housing to more than 26,000 very low, low and middle income individuals representing more than 10,000 families. DHA has transformed public housing in Denver creating vibrant, revitalized, sustainable, transit-oriented, and mixed-income community of choice. www.denverhousing.org
- **The Denver Office of Economic Development (OED)** is committed to the preservation, rehabilitation and development of affordable housing. OED offers programs in quality affordable housing, an enhanced living environment, energy saving options, and expanded economic opportunities to benefit those with low and moderate incomes, tenants with special needs and the low-income elderly. For more information, go to www.denvergov.org/

Sustainable, Safe Transportation

- **Regional Transportation District (RTD)** offers bus, light rail, and “skyride” services within the Metro Denver area. RTD has more than 140 Local, Express, and Regional bus routes serving 10,000 bus stops, five light rail lines (and growing) providing more than 35 miles of light rail service. Go to rtd-denver.com for schedules and information.
- **Denver B-cycle** is a citywide public bike sharing system made for people taking short trips around the city. A member of Denver B-cycle can pick up a bike at any B-station and return it to that station or any other B-station when they are done riding. Memberships

can be purchased at any kiosk or online. Go to denver.bicycle.com for more information.

- **eGo CarShare** is a local non-profit car sharing organization that serves the Denver-Boulder Metro area. Their mission is to provide and promote alternatives to individual car ownership, thereby reducing the environmental and social impacts associated with motor vehicle use. Anyone can become a member and rent a car, go to carshare.org for more information.
- **Bike Denver** is Denver’s bicycle advocacy organization and the leading non-profit to promote and encourage bicycling as an energy efficient, non-polluting, healthy and enjoyable transportation alternative in and around Denver. Go to bikedenver.org for more information.
- **Institute of Transportation Engineers** is an international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs. ITE facilitates the application of technology and scientific principles to research, planning, functional design, implementation, operation, policy development and management for any mode of ground transportation. Through its products and services, ITE promotes professional development of its members, supports and encourages education, stimulates research, develops public awareness programs and serves as a conduit for the exchange of professional information. Go to <http://www.ite.org/> for more information.

Environmental Stewardship

- **The Trust for Public Land** is a national nonprofit that conserves land for people to enjoy as parks, gardens, historic sites, rural lands and other natural places. The organization works from the inner city

to the wilderness, ensuring livable communities for generations to come. For more information, go to www.tpl.org/

- **The Northwest Earth Institute** helps lead the curious and the motivated to take responsibility for Earth. NEWI offers remote learning in a variety of topics, including the following: Choices for Sustainable Living, A World of Health, Hungry for Change, Reconnecting With Earth, and many more. For more information, go to www.nwei.org
- **The City of Denver's Parks and Recreation** provides more than 200 city and mountain parks for people to enjoy year round. Denver Parks and Recreation's Parks maintains parks, greenhouses, fountains, river and trails, and more. The organization also has a focus on sustainability, especially with water conservation. For more information, go to denvergov.org/parks

Social Cohesion

- **The Denver Police Department**, in partnership with the community, the Denver Police Department endeavors to deliver high quality public safety services so all people may share a safe and healthy environment. For non-emergency help call, 720-913-2000 or go to denvergov.org/police
- **Lincoln Park Neighborhood Association (LPNA):** Denver's Registered Neighborhood Organizations (RNOs) are organizations registered with the City of Denver that are formed by residents and property owners within a neighborhood (or other defined set of boundaries) that meet regularly. The RNO for La Alma/ Lincoln Park is called Lincoln Park Neighborhood Association. RNOs receive notification of proposed zoning amendments, landmark designation applications, planning board and board of adjustment

hearings, liquor and cabaret licenses and other activities occurring in the neighborhood as stipulated in the Revised Municipal Code. For more information, go to <http://www.lincolnparkneighborhood.org/>

- **Denver Health and Hospital Authority** is a comprehensive, integrated organization providing level one care for all, regardless of ability to pay. Twenty-five percent of all Denver residents, or approximately 150,000 individuals, receive their health care at Denver Health. As Colorado's primary safety net institution, Denver Health has provided billions of dollars in uncompensated care. Denver Health is an integrated, efficient, high-quality health care system serving as a model for other safety net institutions across the nation. For more information, go to <http://denverhealth.org>

Public Infrastructure

- **The Auraria Campus** is an educational facility located in Downtown Denver. The campus houses three universities and colleges: (1) The University of Colorado Denver (UCD), (2) Metropolitan State University of Denver, (3) Community College of Denver. For more information, go to <http://www.ahec.edu/>
- **Center for Work, Education and Employment** ("CWE") assists single parents (mostly single mothers) in reaching self sufficiency. Located across Osage from Lincoln Park, the program is a three month program that participants attend five days per week, from 9AM to 4PM. For more information, go to www.cwee.org/
- **Catholic Charities Child Care Services and Head Start Services'** mission is to promote family and child development through a partnership which involves staff, families, children and the community. Their vision is to provide quality Child Care and



RELEVANT ORGANIZATIONS

early childhood programs by using developmentally appropriate practices in a safe and nurturing environment. By honoring and supporting children and their families, we wish to help them reach their highest potential. For more information, go to www.ccdenver.org

- **The Colorado Child Care Assistance Program (CDHS)**, a Division of Child Care, is the lead agency on the Colorado Child Care Assistance Program (CCCAP). The program provides child care assistance to low-income families that are working, searching for employment or are in training, and families that are enrolled in the Colorado Works Program and need child care services to support their efforts toward self-sufficiency. For more information, go to www.colorado.gov/cs
- **Emily Griffith**, which is a DPS school, is an accredited technical college founded in 1916. It is similar to community college, but offers only career and technical (not general) education. Emily Griffith uses the same course numbering system as the Colorado community colleges and all credits are transferable to community colleges. Courses are offered under nine tracks: the Apprentice Training Division; Business and Technology; Design Industries; Health Sciences, Trades and Industry, the Language Learning Center (ESL), Corporate Training, Emily Griffith High School (for those under 21), and Extended Learning (adult education/GED). EG was founded to educate and care for non-traditional students. For more information, go to www.egos-school.com
- **The Bridge Project's** mission is to provide educational opportunities for children living in Denver's public housing neighborhoods so they graduate from high school and attend college or learn a trade. For more information, go to <http://www.du.edu/bridgeproject/>
- **Boys and Girls Clubs** are places where young people come to learn, do homework, develop social skills, express themselves creatively, and participate in sports. Boys & Girls Clubs of Metro Denver also owns and operates a residential summer camp near Ward, Colorado called Gates Camp. The Clubs are staffed by full-time professionals and located in neighborhoods where they are needed most. For more information, go to <http://www.bgcmd.org/>
- **Childcare Law Center The Child Care Law Center** uses legal expertise to secure good, affordable child care for low-income families and communities. Every day, we break down barriers to child care for working parents because without it they cannot support their families. Every day, we stand up for child care providers because children need good early care and education to thrive. For more information, go to <http://www.childcarelaw.org/>
- **The Center on School, Family, and Community Partnerships's** mission is to conduct and disseminate research, programs, and policy analyses that produce new and useful knowledge and practices that help parents, educators, and members of communities work together to improve schools, strengthen families, and enhance student learning and development. For more information, go to <http://www.csos.jhu.edu/p2000/center.htm>
- **The Healthy Corner Stores Network** supports efforts to increase the availability and sales of healthy, affordable foods through small-scale stores in underserved communities. Because together, we can create better meal alternatives in our communities than just chips and soda. For more information, go to <http://www.healthycornerstores.org/about-us>

Healthy Economy

- **The Rocky Mountain MicroFinance Institute**

(RMMFI) is a non-profit organization that provides learning, lending and coaching to grow Community Entrepreneurs who build businesses to advance along the pathway to self-sufficiency and self-worth. RMMFI's brand of microfinance combines affordable and approachable business support services and flexible microloans to help individuals turn a good idea into an income-generating business. For more information, go to www.rmmfi.org/

- **Mi Casa** is a leading career and business development center dedicated to advancing the success of Latino Families in Denver. Mi Casa's Career Development track focuses on high growth industries, short term job training programs that enable people to work as quickly as possible, career paths that offer strong earning potential and jobs that favor bilingual individuals. Focus industries are business and financial operations, healthcare support and construction. Within this tract, Mi Casa offers a pre-apprentice program, with a green energy focus for those interested in construction. The program, offered four times per year, trains 20 people in each class. The financial services program, offered four times per year, trains 15 people in each class. The healthcare program is still under development. CITC and Emily Griffith are training partners for Mi Casa. The Business Development tract helps Latinos start a new business or expand/sustain an existing one, specifically by helping participants develop a business plan, address specific needs, connect with funding sources, and network with other businesses. The Youth and Family Development tract empowers students to succeed and stay in school, while learning about advocacy, college,

career paths and entrepreneurial skills. The Removing Barriers to Success tract offers case management, job placement assistance, ESL, Spanish, GED, Adult Basic Education, Financial Literacy, life skills and seminars. For more information, go to micasadenver.org/

- **Denver Public Schools** For more information, go to <http://www.dpsk12.org/>
- **OED's Division of Workforce Development** runs five Work Force Centers throughout the City. The centers assist those seeking jobs in developing career goals, assessing skills, identifying resources (education and training opportunities, and funding assistance) to close knowledge gaps, identifying job opportunities, and applying for job opportunities. Workforce Center Services are free to the public. The main offering for adults is a two week job readiness program that covers basic computer skills, resume writing, interviewing, networking, professional goal setting etc. The Workforce Centers also offer job placement programs for youth ages 14 through 21, including Youth training Academies run in partnership with DHA. Mariposa lies between two work force centers (the Westside Center at 13th and Federal in the Denver Human Services building, and the Speer Workforce Center on 14th and Speer above King Soopers. The Westside Center serves approximately 22,000 people per month, and the Speer Center serves about 11,000 people per month. The Culinary Youth Trades Academy is at South Lincoln (at 1401 Mariposa). Workforce has a TAG Program that focuses on refugees. Certain youth and adult programs have income and other restrictions tied to funding sources. For more information, go to www.denvergov.org/

REPORT CARD TEMPLATE

	INDICATOR	RATIONALE
HEALTHY HOUSING	PERCENT OF POPULATION LIVING BELOW POVERTY LEVEL	Poverty limits access to important health-enabling resources, including proper nutrition, good medical care, stable health insurance, and favorable housing ⁵¹ .
	PERCENT OF HOUSEHOLD INCOME SPENT ON HOUSING	This item can make be the largest expenditures in a household budget, effecting the amount of money available for health related costs ⁵² .
	HOUSING INDOOR ENVIRONMENT (AIR QUALITY, TEMPERATURE, HUMIDITY)	Homes that have inadequate heating or ventilation, can lead to the growth of mold, and dust mites, leading to asthma and respiratory allergies ⁵³ .
SUSTAINABLE, SAFE TRANSPORTATION	AVERAGE TRANSIT COMMUTE TIME IN MINUTES	Reducing time spent on public transit can help incentivize transit as an alternative to driving. Residents dependent on transit that live in areas that experience higher than average commute times have less time available for physical and leisure activities that promote health and social well-being ⁵⁴ .
	COST OF TRANSPORTATION AND HOUSING AS % OF AVERAGE INCOME	These two items make up the largest expenditures in a household budget; including transpo costs is more reflective of actual cost of living than just housing costs ⁵⁵ .
	NUMBER OF TRAFFIC INJURIES/ COLLISIONS/ FATALITIES	This is an indicator of the safety risk of the street network for road users, including pedestrians, cyclists, drivers and passengers. Traffic collisions involving motor vehicles are one of the leading causes of preventable injury in the nation ⁵⁶ .
ENVIRONMENTAL STEWARDSHIP	PERCENT OF RESIDENTS WITH ACCESS TO OPEN SPACE/ NATURE WITHIN NEIGHBORHOOD	Parks and natural open space areas promote physical activity and social interaction. Areas with natural vegetation also have direct effects on physical and mental health ⁵⁷ .
	AIR QUALITY - PARTICULATE MATTER	Increased exposure to PM2.5 is associated with detrimental cardiovascular outcomes, including higher blood pressure and heart disease ⁵⁸ .
	VMT PER CAPITA PER DAY	Traffic related noise and air pollution is associated with cardiovascular and respiratory diseases, including asthma. Traffic also increases chances of injury and fatalities from collisions ⁵⁹ .

DATA SOURCE (2009/2012)	GEOGRAPHIC SCOPE	MONITORING PERIOD	CAVEATS & LIMITATIONS
Census 2000/ ACS 2006-2010	Auraria - Lincoln Park statistical area	3 years	The data sourced utilized aggregate the poverty rate for the Auraria and Lincoln Park neighborhoods. Because it is an institutional campus, Auraria has a very low number of residents which may alter the indicator results.
Census 2000/ Census 2012	Census block group 19.01.2	1 year	
	Site/Building monitoring	Post-construction and 1 year after occupancy	Currently, baseline and monitoring data is not available for this indicator. The indicator relies on building evaluation.
n/a/ACS estimate	Auraria Lincoln Park statistical area	3 years	As is the case with all surveys, statistics from sample surveys are subject to sampling and non-sampling error.
H+T INDEX 2010/2012, derived from ACS and other datasets	Census block group 19.01.2	1 year	H+T Affordability Index methodology uses a model to estimate three dependant variables from independent variables. For the ACS housing cost data, renters paying with vouchers may be excluded.
Denver Police 2009/2012	Auraria - Lincoln Park statistical area		This data is currently being collected from the Denver Police Department.
Mithun Map Analysis 2009 /2012 (based on SITES)	1/2 mile radius from Mariposa site	1 year	The quality and utility of recreational spaces is influenced by many other factors beyond land area, including the range of facilities, like playgrounds, sports fields/courts, swimming pools, bathrooms, etc., and the safety and cleanliness of the space.
http://http://apcd.state.co.us	Monitoring station located at 2105 Broadway and 14th at Albion St., Denver	1 year	
Census 2000 / n/a	Auraria-Lincoln Park statistical area/baseline and Census block group 19.01.2	1 year	This indicator does not currently capture socio-demographic differences in daily distance travelled in autos for residents. While DRCOG provides modeled VMT estimates, this data was not used for the indicator because data has not been validated.

REPORT CARD TEMPLATE



INDICATOR

RATIONALE

	INDICATOR	RATIONALE
SOCIAL COHESION	PROPORTION OF POPULATION WITHIN 1/2 MILE TO COMMUNITY GATHERING SPACES	Social networks and social integration are beneficial to health, including buffering from negative impacts of stress and providing better access to health services and programs ⁶⁰ .
	TOTAL CRIME RATE PER 1,000 PEOPLE	Concerns about crime strongly influence walking rates and outdoor physical activity participation. Witnessing crime also increases stress, emotional, and behavioral problems ⁶¹ .
	PERCENTAGE OF ELIGIBLE ADULTS WHO VOTED	Public participation in policy and political process can have diverse impacts on the social and environmental conditions that affect health ⁶² .
	PERCENTAGE OF POPULATION WHO FEEL SAFE ALONE AT NIGHT IN NEIGHBORHOOD	Residents' feelings about safety can be a disincentive to engage in physical activity outdoors and to engage in social interaction, and a source of chronic stress ⁶³ .
PUBLIC INFRASTRUCTURE	PROPORTION OF POPULATION WITHIN 1/2 MILE KEY RETAIL	Being within walking distance of neighborhood goods and services promotes physical activity, reduces vehicle trips and miles traveled, and increases neighborhood cohesion and safety ⁶⁴ .
	NEIGHBORHOOD SCHOOL PERFORMANCE	Academic performance is related to educational achievement, which both predicts positive health outcomes directly as well as the effects of education on lifetime earnings ⁶⁵ .
	# OF HEALTHY FOOD OUTLETS WITHIN 1/2 MILE OF NEIGHBORHOOD	Access to healthy food choices is directly correlated to obesity and diabetes rates, which occur in higher rates among people living in low-income communities with worse food environments ⁶⁶ .
HEALTHY ECONOMY	UNEMPLOYMENT RATE	Unemployment has been consistently linked to poor health, and has been associated with higher mortality rates, especially from heart disease and suicide ⁶⁷ .
	AVERAGE ANNUAL INCOME COMPARED TO THE SELF-SUFFICIENCY WAGE	The relationship between income and health is mediated through nutrition, employment conditions, parenting resources, leisure and recreation, housing adequacy, and neighborhood environmental quality, community violence, and stress ⁶⁸ .
	NUMBER OF BUSINESSES AND NUMBER OF JOBS IN NEIGHBORHOOD	For working age adults, employment is a fundamental resource for good health. Active commutes, via walking or bicycling, help meet requirements for physical activity, and reduce the environmental consequences of driving ⁶⁹ .

DATA SOURCE (2009/2012)	GEOGRAPHIC SCOPE	MONITORING PERIOD	CAVEATS & LIMITATIONS
Neighborhood Survey 2009/2012	1/2 mile radius from Mariposa site	1 year	The number of community centers is one among many possible indicators of social cohesion within a neighborhood. Taken alone, the existence of community centers does not necessarily mean that a neighborhood is socially cohesive, and vice versa.
Denver Police Dept 2005/2012	Auraria - Lincoln Park statistical area	1 year	This indicator data includes crimes reported to the Denver Police Department. Reports are dynamic and numbers may vary. Excludes runaways, traffic offenses, unfounded reports and non-criminal activity.
	Neighborhood Surveys	4 years	A voting rate data source was not available for this report. Many interrelated factors impact whether individuals register to vote and participate in elections.
DHA Resident Survey 2009 / tbd	1/2 mile radius from Mariposa site/ baseline; Walkscore used Lincoln Park Neighborhood	3 years	As is the case with all surveys, statistics from sample surveys are subject to sampling and non sampling error.
n/a / Walkscore 2012	n/a	1 year	While this indicator demonstrates the geographic distribution of key retail services, two residents may have very different access to any service, due to the cost, hours of operation, and language and cultural accessibility. Walk Score uses a variety of data sources including Google, Education.com, Open Street Map, and Localeze; however not all data has been verified. Due to the frequent turnover, the actual businesses can change quickly.
n/a / Colorado Department of Ed 2012	Auraria - Lincoln Park statistical area	3 years	Many other factors affect school quality such as: availability of books and resources; actual and perceived safety at the schools; proximity to green space; training and experience of teachers and staff; and involvement of parents in children’s education. Performance must be considered within the broader context of neighborhood, social and economic conditions.
Neighborhood Survey 2009/2012	1/2 mile radius from Mariposa site	1 year	Due to the frequent turnover, the actual businesses in the neighborhood can change quickly. Many factors affect access to retail food sources, including cost, hours of operation, the presence of physical barriers, perceived and actual safety, cultural preferences, etc.
Piton 2002/ City Data	Auraria - Lincoln Park statistical area	3 years	Unemployment figures indicate how many are not working for pay but seeking employment for pay. The impacts of the recession upon household incomes today may not be accurately reflected in the data.
Piton 2002, City of Denver / Census 2012, City of Denver	Auraria - Lincoln Park statistical area	3 years	Although the self-sufficiency standard accounts for variation in the costs of living by county and by family type, it does not address differential access to public or private assistance.
tbd, Census via ESRI 2012	Lincoln Park statistical area/ H+T used Census block group 19.01.2	3 years	Jobs are reported by the employer’s address, which may not necessarily be where the employee works. Certain types of jobs may be more likely to be accurately represented than others in this dataset.



REFERENCED STANDARDS

- **LEED for Neighborhood Development (LEED-ND) v 2.0**, available at <https://new.usgbc.org/leed/rating-systems>
- **LEED for New Construction (LEED-NC) v 2.0**, available at <https://new.usgbc.org/leed/rating-systems>
- **Enterprise Green Communities Criteria 2012**, available at <http://www.enterprisecommunity.com/solutions-and-innovation/enterprise-green-communities>
- **NYC Active Design Guidelines 2010**, available at http://www.nyc.gov/html/ddc/html/design/active_design.shtml
- **Sustainable Sites Initiative (SITES) 2009**, available at <http://www.sustainablesites.org>

CAMPAIGN CHECKLIST TEMPLATE

CAMPAIGN CHECKLIST TEMPLATE

STRATEGY	ACTIONS	PARTNERS	GOAL	STATUS
<p><i>Improve access to and provide safe pedestrian routes to health care, providers, and counselors.</i></p> 	<p>a. <i>Improve access, safe pedestrian routes, and transportation to Denver Health. Coordinate a free shuttle to Denver Health.</i></p>	<p><i>DHA Resident Community Services (RCS); Denver Health</i></p>	<p>2014</p>	<p>✓ See "Success Stories," page 49</p>
	<p>b.</p>			
	<p>a.</p>			
	<p>b.</p>			
	<p>c.</p>			
	<p>a.</p>			
	<p>b.</p>			
	<p>a.</p>			
	<p>b.</p>			
	<p>c.</p>			

Measuring Progress

The fifth step in using the Mariposa Healthy Living Tool is to “Evaluate Actions”. Measuring progress is important to align actions with goals, yet it can be challenging.

The approach and initial guidance for a monitoring plan described here is based on the Health Impact Assessment approach for monitoring⁵⁵, and has been revised to reflect real estate development influences, timing, and data availability factors.

Goals for Monitoring

The objective of the Mariposa Healthy Living Tool is to change the way we practice design, development, and provide housing and services to residents to focus on improving health outcomes. As practitioners, our role is to serve these needs and implement projects and programs, which are determinants of resident health. The goals for monitoring of the Mariposa Healthy Living Tool are to understand how use of the Tool influenced decision-making, which recommendations were implemented, and whether residents’ behaviors have changed as a result.

The ultimate goal of monitoring is to provide feedback on whether the strategies that were implemented were successful in improving opportunities for healthy living, and to help inform management or other actions that may be needed to effectively change behavior and improve opportunity for resident health. The role of monitoring for DHA and their partners at Mariposa is distinct from the role of public health agencies, organizations, academic institutions, and governments, who monitor and report population health outcomes, such as obesity rates or asthma rates, and will continue to report that information for not only the La Alma/ Lincoln Park neighborhood, but also the populations of other neighborhoods, as well as the City and County of Denver.

⁵⁵ A Health Impact Assessment Toolkit A Handbook to Conducting HIA, 3rd Edition, Oakland, CA: Human Impact Partners. February 2011.

Resident Health and Health Determinant Indicators

The Report Card Template developed for the Mariposa Healthy Living Tool includes a range of indicators. The recommended or possible data sources for each indicator have been noted in Chapter 3 of this report. The recommended geographic scope of indicators is also noted. The health determinant indicators in the Report Card should be tracked every three to five years. As monitoring is conducted, any changes in the determinants and the direction of change should be recorded. If available through regularly collected data, indicators can be included annually or more frequently in the Report Card.

Some indicators can more directly inform decision-making and implementation. These have been noted and should be prioritized, if possible, in monitoring to provide an early warning for issues that remain to be addressed. The Report Card Template can be used for monitoring and includes recommendation of update frequency, taking into account data sources and collection methods. The results should be shared with the Campaign team, residents, stakeholders, and the public. Monitoring indicators will provide valuable data on health determinants within the community, and the results should be used as a needs assessment to identify how priority issues may have changed over time and any new actions that could be needed.

Current Indicator Reporting and Data Collection at Mariposa

As part of the 2012 status update and data collection, most indicators were updated. Some new indicators have been added because they are particularly meaningful to goals at Mariposa and to inform actions. Data collection was not

possible to complete for every indicator for this update. As a result, there are a few recommendations for data collection for these new and ‘in progress’ indicators.

- **Housing Indoor Air Quality:** Baseline data is not available on the indoor air quality of housing units at South Lincoln prior to redevelopment. The new units at Mariposa are being designed for healthy indoor air quality. Consider integrating health goals and outcomes in the building commissioning scope for new construction, which can be fairly simple to accomplish if planned for ahead of time. To align with health goals, testing could include factors such as: temperature and humidity, total volatile organic compounds (TVOC), energy and water usage and costs, formaldehyde, CO, and CO₂. After the post-construction commissioning, the indoor environment of units should be monitored periodically, potentially one year after occupancy. Ideally, the indoor environment would be measured pre-construction, post-construction, and after occupancy. For more information about indoor environmental quality testing and methodologies, refer to the National Center for Healthy Housing⁵⁶ at <http://www.nchh.org/>, and to ASHRAE standards at <http://www.ashrae.org/>.
- **Particulate Matter and Outdoor Air Quality:** Data is available on a regional basis; however the most relevant way to measure this information is through on-site monitoring. On-site ozone monitors can be installed for a relatively low cost, and result including temperature, wind speed and direction, and other data can be logged and compared to data from the regional monitoring network. The data available from this type of monitor does not comply

with air quality regulations, however, is suitable for informing status on site and identifying any issues that should be mitigated. Other benefits of this type of on-site monitoring include potential for coordination with resident education programs. A non-profit organization called GO3 is currently providing this type of monitoring equipment to schools and community groups. For more info, go to: <http://www.go3project.com/>

- **Collision Data:** The number of traffic collisions, including vehicular collisions and number of pedestrian and bicyclist injuries and fatalities as a baseline and current data is being collected from the Denver Police Department but not available at the writing of this report.
- **Number of Businesses and Jobs in the Neighborhood:** Baseline data is not currently available for the number of businesses and for job density in the neighborhood prior to redevelopment. This data is likely available through the Denver Office of Economic Development, and is recommended for collection. New business data that is used for the status update was obtained through ESRI which synthesized data from the U.S. Census and the American Community Survey. Data for current job density was obtained through the Center for Urban Sustainability.
- **Perceived Safety:** No new data is currently available, but a neighborhood level survey is recommended as a funding priority or to be coordinated with other surveys such as the Behavior Risk Factor Surveillance System (BRFSS).

⁵⁶ National Center for Healthy Housing (2011). Green Housing = Improved Health: A Winning Combination. http://www.nchh.org/Portals/0/Contents/green_build_symposium_r3.pdf

Campaigns and Implementation

The Campaign Checklists set up a structure for monitoring the implementation of campaigns, strategies, and recommendations. The Campaign Checklist can be used to track progress on these factors, which can be done quarterly or biannually. The Checklist should identify who will be accountable for monitoring, who will be responsible for implementation, who has been consulted in the decision, and who was informed of the decision.

The results of Campaign monitoring should be shared amongst the Campaign team on a biannual basis, and an approach should be determined on how to respond if recommendations are not being met. In addition, the Campaign results should be shared annually with residents, stakeholders, and the public, online if possible.

Resident Behavior and Health Status

Ideally, resident behavior should be monitored to understand whether the actions and strategies implemented to address priorities are effective at actually moving indicators among the target population. For example, did a new playground result in more daily exercise for children in Mariposa? If not, why? Furthermore, are there specific issues that can be addressed via tweaks to strategy implementation?

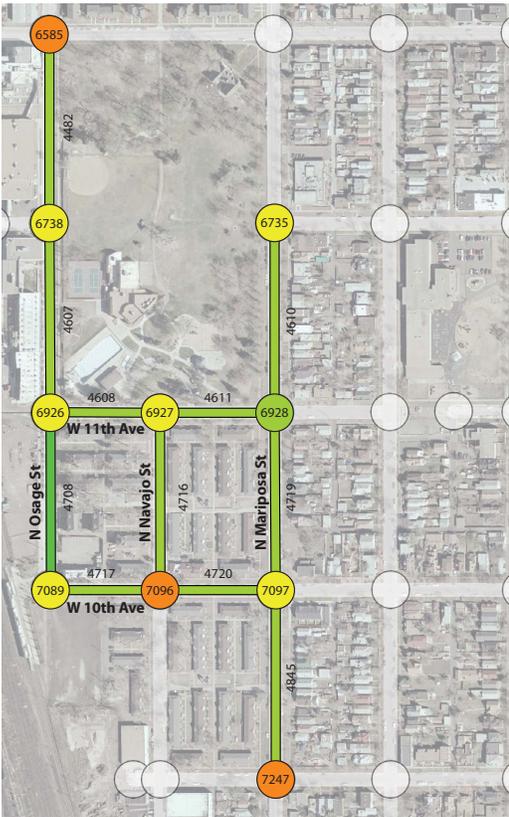
As each phase of development and new buildings are opened at Mariposa, an initial survey of residents should be conducted to establish a baseline of health conditions, behaviors, and determinants for future evaluation purposes. The baseline surveys may also help to identify previously unknown needs that could be addressed through Campaigns. For ongoing assessment, resident behavior and responses to implemented strategies can be tracked by using short surveys conducted annually, or on an established periodic basis, with Mariposa residents.

Survey questions regarding health behaviors should be developed using validated survey instruments, such as those used in the Behavior Risk Factor Surveillance System (BRFSS) and others, as a way to: 1) reduce the resources necessary to develop the surveys, and 2) compare survey responses to those of the general population. If possible, the surveys should be coordinated with other points of contact with residents, such as annual inspections, other surveys (such as post occupancy evaluation or energy behaviors), or community health ambassador visits. DHA should work with partners to assess whether Institutional Review Board (IRB) approval is necessary, particularly if biological measures are being collected. If personal information is being collected in surveys, DHA should work with partners to determine whether an informed consent process is needed and review privacy issues related to sharing information. Survey results may require analysis.

The results of these surveys should be reported to the Campaign teams and to residents, to help inform any adjustments or management responses that may be necessary. Consider the possibility of partnering with public health agencies or organizations and academic institutions to develop and potentially conduct these surveys. Additional guidance on surveys and resources are available from the World Health Organization⁵⁷ and the National Association of County and City Health Officials⁵⁸.

57 World Health Organization. 1995. Measuring Health, A Step in the Development of City Health Profiles. P. Garcia, M. McCarthy. http://www.euro.who.int/__data/assets/pdf_file/0017/101645/WA95096GA.pdf

58 National Association of City and County Health Officials. Community Health Survey Template and Survey Examples. 2007-2010. <http://www.naccho.org/toolbox/veritysearch/search.cfm?keywords=survey&x=55&y=11&p=MAPP+Related+Toolkit%7C16&st=ALL&jurisdiction=ALL>



PEQI Intersection and Street Scores

- 0 - 20 Environment not suitable for pedestrians
- 21 - 40 Poor pedestrian conditions
- 41 - 60 Basic pedestrian conditions
- 61 - 80 Reasonable pedestrian conditions
- 81 - 100 Ideal pedestrian conditions



Pedestrian Environmental Quality Index observational survey analysis results, 2009. Conducted by Boys and Girls Club teens and analysis performed by Mithun.

Decision-Making

In addition to monitoring Campaigns and behavior, tracking how health is being integrated into the decision-making and implementation process is required. Use a chart to annually track:

- To what extent did residents and stakeholders use the Mariposa Healthy Living Tool?
- To what extent did DHA and decision-makers use the Mariposa Healthy Living Tool?
- Did the Tool inform discussions of trade-offs involved in the project?
- Are there any recommendations that are not being implemented, and if not, is there further action that is required?
- Were discussions of connections between the project and health evident in media, outreach, or policy statements?
- Is the Tool helping to build consensus and buy-in for implementation?
- Did the Tool lead to interest from previously uninvolved groups?

- Did the Tool encourage new partners to participate, or existing partners to participate in new ways in implementation?
- What are lessons learned during implementation that should be shared with stakeholders, the community, and other practitioners? What are the successes that should be celebrated?

Monitoring Schedule and Communicating Progress

Below is a summary of each element that should be monitored and frequency of data collection and reporting. The Campaign leads and team members should be convened biannually to review progress, discuss actions and implementation, and lessons learned. At this time, Campaign leads can determine any decisions or authorizations needed by various organizations, or new actions that require partnerships or funding. The Campaign team can also discuss any recommendations that were not implemented, and whether any follow up action is

MONITORING AND COMMUNICATION SCHEDULE

ELEMENT	DATA COLLECTION FREQUENCY	REPORT TO CAMPAIGN TEAM AND DECISION-MAKERS	REPORT TO RESIDENTS AND PUBLIC
Report Card Indicators	Three to five years	Three to five years	Three to five years, coordinate with annual report
Campaigns and Implementation	Quarterly or bi-annually	Bi-annually	Annually
Resident Behavior and Health Status: Baseline Assessment	Upon move-in	Coordinate with Campaign report bi-annually	Coordinate with annual report
Resident Behavior and Health Status: Ongoing Assessment	Annually or established basis	Annually	Annually
Decision-Making	Annually	Annually	Annually

required. The Campaign leads should coordinate with DHA leadership, and report to the DHA Board and Local Resident Councils (LRC) on a biannual or annual basis. Annually, the progress, successes, and lessons learned should also be reported broadly to residents and the general public, and made available online if possible.

The Mariposa Healthy Living Initiative should consider public and creative ways to communicate progress to the Mariposa residents, La Alma/ Lincoln Park neighborhood, and visitors to the community. Some examples include sharing Report Card Indicators and Campaigns online on a community website, on a community kiosk, or even through art and murals in public gathering spaces such as the 10th and Navajo plaza currently under construction. The Mariposa Healthy Living Initiative information should be available to residents and others through a potential Community Health Navigator, by hard copy, as well as electronically.

Data Management

To successfully learn from and use the data, indicators, and survey information that is collected through monitoring, a system to maintain and manage this information is critical. DHA should consider how this data tracking and management might coordinate with current and ongoing reporting and data management within Resident Community Services, the Real Estate Department, or Housing Management. Alternately, DHA could work with a third party to manage the data on an ongoing basis. DHA should seek to have a data management system in place by the end of the first quarter of 2013. The management system should easily integrate into current reporting mechanisms, and be accessible to those who will be managing the Campaigns and other decision-makers within DHA to ensure that the data is being used to the maximum extent possible.

Monitoring Resources

Peer-reviewed studies connecting land use decisions to health are available in Human Impact Partners' Evidence Base: Connections between Health and Place: Review of the Evidence Base for Health Impacts of Planning Projects. Available at: <http://www.humanimpact.org/evidencebase>. A database of evidence-based recommendations and findings on interventions and policies that improve health and prevent disease in communities is available on the Center for Disease Control website at: <http://www.thecommunityguide.org/index.html#topics>

Searchable databases for epidemiological literature include:

- PUBMED (maintained by the National Institutes of Health): www.ncbi.nlm.nih.gov/pubmed.
- Guide to Community Preventive Services (maintained by the Centers for Disease Control and Prevention (CDC): www.thecommunityguide.org.
- Campbell Collaboration provides systematic reviews of social interventions in education, crime and justice and social welfare: www.campbellcollaboration.org/.
- United States Census Bureau, American Fact Finder: population data on demographics, social and economic characteristics, at state, county, city, zip code, census tract and block level.
- Centers for Disease Control, Behavioral Risk Factor Surveillance System: the largest, ongoing telephone health survey, tracking health conditions and risk behaviors in the U.S.; data are collected monthly.
- Public Agencies: Public health, planning, environmental, and transportation agencies.

Data and indicator resources for the Denver area include:

- City of Denver Department of Environmental Health: <http://www.denvergov.org/deh/DepartmentofEnvironmentalHealth/2011HealthStatusReport/tabid/443019/Default.aspx>
- Be Healthy Denver: <http://www.denvergov.org/behealthydenver>
- Denver Health and Hospital Authority: <http://denverhealth.org/Services/PublicHealth/2011CommunityHealthAssessment.aspx>
- Colorado Department of Public Health and Environment (CDPHE), including Behavioral Risk Factor Surveillance Surveys at the County level: http://www.chd.dphe.state.co.us/topics.aspx?q=Adult_Health_Data, <http://www.colorado.gov/airquality/>
- The Piton Foundation is a foundation whose mission is to provide opportunities for children and their families to move from poverty and dependence to self reliance. The Piton Foundation aggregates and provides indicator data on their website at piton.org/
- Denver Region Council of Governments (DRCOG): <http://gis.drcog.org/datacatalog/>
- Regional Air Quality Council: <http://www.raqc.org/>
- Denver Fastracks Quality of Life Program: <http://asap.fehrandpeers.com/projects/denver-fastracks-quality-of-life-program/>
- The Health Indicators Warehouse: <http://healthindicators.gov/>

Data Collection tips:

Whether just beginning a baseline assessment or updating indicators and monitoring, these considerations may be helpful.

- Data collection can be accomplished in a variety of ways: through regularly updated sources such

as census or American Community Survey data, by interviewing residents and stakeholders to incorporate lived experiences, or by working with community members to collect observational survey data.

Methods for collecting new data include: modeling (air quality, noise), surveys, forecasting tools, and studies.

- Some indicators may require analysis – we have provided guidance in the following section. Use qualitative analysis for issues that don't lend themselves to quantitative forecasting.
- Don't start from scratch - work with partners and other organizations to leverage data that is already being collected and/or reported for other purposes. These might include reports on a project, accounts from meetings or public agencies, or interviews with decision-makers and stakeholders. Use tools and methods that already exist.
- Consider how you are interacting with residents for other purposes and look for opportunities to integrate health data collection. For example, if you are doing a new resident interview or unit inspection, can surveys be incorporated? Can community service providers that interact with residents on a regular basis keep tabs on important indicators?
- Keep track of aspirational data, and advocate for ways to track this data in the future.
- Expect that there will be data gaps, and note the gaps when they exist. Acknowledge assumptions, strengths, and limitations of data and methods. The goal is to inform decision-making on a timely basis with the best information available at that time.
- Use indicators to both inform need and recommend action, as well as to report progress and measure success. Indicators can act as an "early warning" system to identify unexpected consequences and create a structure for addressing them.

Methodology

The Mariposa Healthy Living Tool draws from a variety of data sources to measure progress, identify priorities and make recommendations. Spatial data sources vary in geographic scope, and data can also vary in quality depending on collection methods, level of accuracy, and other factors. Therefore, various indicators cannot always be used in direct comparison. Where spatial data has been used, it was collected at the lowest geography possible. The Auraria-Lincoln Park statistical area is referenced in many of the data used for indicators. This statistical area is a City of Denver planning area, also utilized by the Piton Foundation, and includes: Auraria (block group/tract – 1902) and Lincoln Park (block group/tracts 19011, 19012, 18002, and 18001). Figure 7 provides additional information on geographic scope.

Data sources used for this document include:

- US Census- Data was used from the 2000 census, as well as the 2010 census when available.
- American Community Survey – The ACS was used when complete census data was not available for a particular indicator. In several cases, ACS data projections were used in lieu of actual data summaries for 2012. ACS data are typically estimates.
- The Piton Foundation was responsible for the collection and synthesis of census data specifically for Lincoln Park neighborhood which is comprised of two tracts.
- Denver Police Department can provide data on crime, and pedestrian/traffic accidents. This information is typically not available online; therefore a direct data request is required.
- DHA Neighborhood Surveys 2009/2012- The Denver Housing Authority completed a resident survey in 2009 for the original HDMT report, which was funded by the Denver Office of Economic Development and

the Colorado Department of Public Health. Another survey was completed by the Environment, Office of Health Disparities in 2007. An additional on-the-ground survey will be needed for the 2012 update, and periodically needed in the future.

- ESRI modeling- Data was also collected from ESRI GIS maps that were generated from projected census figures.
- Colorado Department of Education publishes data on school performance, including an overall performance score, for each school in the state of Colorado.
- In order to calculate VMT per capita per day, we obtained VMT per household from the Center for Neighborhood Sustainability's (CNT) "Housing and Transportation Index" and divided that by average household size, also obtained from CNT. These data was obtained from <http://htaindex.cnt.org>
- Two sources were used to measure "Proportion of population within 1/2 mile of key retail." The 2010 baseline used the Neighborhood Completeness Indicator, per the San Francisco Department of Public Health method. <http://www.sfphes.org/elements/24-elements/tools/104-neighborhood-completeness-indicator>. For the 2012 status update, Walkscore was used. <http://www.walkscore.com/>
- To calculate "Total Crime Rate per 1,000 people" total crimes reported to the Denver Police Department in Lincoln Park neighborhood were divided by the population of that neighborhood. The neighborhood population data was obtained from the Piton Foundation.

While not ideal, projected or modeled data may be the best placeholder until more complete and accurate data is released from the 2010 census.

Data analysis used for indicators includes:

- Map Analysis- The distance from all major building entrances to open space was measured using aerial

maps. The minimum size of public open space was derived from SITES and LEED for Neighborhood Development, which states that they should provide seating for five percent of possible users, and be at least 1/6 of an acre. This analysis was used for the indicator: "Percent of residents with access to open space/nature with neighborhood."

- Visual verification: Neighborhood gathering spaces and healthy food retail were mapped through an on-the-ground visual verification of the neighborhood on 10-4-12, conducted by Urban Ventures staff, for indicators: "Number of Healthy Food Outlets within a Half Mile of the Neighborhood" and "Proportion of

Population within a Half Mile of Community Gathering Spaces." Healthy food outlets were defined per criteria used in the HDMT, as retail outlets with at least 10% of shelf space devoted to fresh produce.

Recommended for further study:

- Indoor air quality baseline data is not available, however consider post-construction commissioning and monitoring.
- The most relevant way to measure outdoor air quality, such as particulate matter concentration, is by on-site measurement.
- Voting patterns are typically not analyzed in the census at the neighborhood scale. Therefore, neighborhood



Fig. 7 La Alma/Lincoln Park Study Area & Geographic Data Sources

surveys will be required to establish and baseline and then effectively monitor change.

- The “Percentage of people who feel safe alone at night” is a key indicator of a healthy neighborhood and is best measured by a neighborhood scale survey. This survey is recommended as a funding priority, and could be coordinated with other future neighborhood surveys or with BRFSS.

Wherever possible, references were integrated into the report and the Mariposa Healthy Living Tool. In the Mariposa Healthy Living Tool, references can be found in the Why is this a health determinant? section, as well as the Strategies section. Each strategy has both an endnote and a reference to practical information that can support the implementation of the strategy. In the Mariposa Healthy Living Tool Report Card Template, baseline and current data sources are listed for all the indicators included in the tool.

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Mariposa Healthy Living Tool History & Adaptation

The Mariposa Healthy Living Tool is a road map to consider the human health impacts of urban redevelopment plans, projects, programs and implementation. It acts as a framework to assess baseline health data (through the use of as the Mariposa Healthy Living indicators or a full Health Impact Assessment (HIA) and to improve the social and physical determinants of health outcomes that are often a part of redevelopment, including economic and social factors, as well as built environment factors. The Mariposa Healthy Living Tool is an adaptation of the Healthy Development Measurement Tool (HDMT)⁵⁹, which was developed by the San Francisco Department of Public Health.

In 2009 and 2010, the Denver Housing Authority sponsored an effort to customize the HDMT to be used as a development metric to incorporate a health-based planning process in a mixed-income redevelopment effort in Denver, Colorado – the South Lincoln Redevelopment – to document the existing health of the community and determine how the proposed redevelopment might impact the health of the community. The result of this work was two-fold: the customized Denver HDMT, and application of this Denver HDMT to the South Lincoln Redevelopment to inform the redevelopment Master Plan that was currently being developed. Additional information about the Denver HDMT customization methodology, the tool itself, and the South Lincoln Redevelopment Master Plan recommendations can be found in the report, “Use

⁵⁹ The HDMT was developed by the San Francisco Department of Public Health, and is a comprehensive evaluation metric to consider health in urban development plans, projects, and programs. The HDMT explicitly connects public health to urban development planning in efforts to achieve a higher quality social and physical environment that advances health. The HDMT is composed of 6 Elements: Environmental Stewardship, Sustainable and Safe Transportation, Social Cohesion, Public Infrastructure, Adequate and Healthy Housing, and Healthy Economy. The HDMT was developed for use in neighborhood planning in San Francisco.

of the Healthy Development Measurement Tool (HDMT) in Denver: Cross-Sector Partnerships for Development and Public Health South Lincoln Homes, Denver CO.”⁶⁰ The 2010 Denver HDMT application to South Lincoln was used to provide specific development targets to guide the evolution of the master plan, as well as to inform the development of the potential Community and Supportive Services (CSS) planning that would be conducted if DHA was successful in receiving a HOPE VI grant.

⁶⁰ <http://www.denverhousing.org/development/SouthLincoln/Documents/Healthy%20Development%20Measurement%20Tool%20Report.pdf>

Use of the Healthy Development Measurement Tool (HDMT) in Denver
Cross-Sector Partnerships for Development and Public Health
South Lincoln Homes, Denver CO

SC: SOCIAL COHESION			
PRIMARY OBJECTIVES AND INDICATORS	BENCHMARKS AND DEVELOPMENT TARGETS	RECOMMENDATIONS	TIMING FOR INCORPORATION IN PLANNING PROCESS
<p>SC 1 Promote socially cohesive neighborhoods</p> <p>Indicators:</p> <ul style="list-style-type: none"> SC 1.1 Residential mobility SC 1.2 Proportion of population within 1/4 mile from community center 	<p>Residential mobility (living at address for less than 1 year) in Auraria-Lincoln Park was 39.95% in 2000, compared to 28.08% in Denver (Pilon Foundation). It is within walking distance of the La Alma rec center, the senior center, and the proposed redevelopment may include community space.</p>	<p>In design of open space meet SD Credit 4.8 to promote social interaction, and promote educational, afterschool, and other related opportunities for youth. Consider partnering with other agencies for these opportunities.</p>	<p>Detailed design, CSS planning, and implementation.</p>
<p>SC 2 Promote personal safety</p> <p>Indicators:</p> <ul style="list-style-type: none"> SC 2.1 Number of violent crimes SC 2.2 Number of property crimes 	<p>The design promotes natural surveillance and eyes on the street through CPTED principles.</p>	<p>Track the number of violent and property crimes to monitor progress. Consider working with the Police Department or other service providers to support community policing, neighborhood watch groups, and community organizing.</p>	<p>Maintain CPTED principles through design and implementation.</p>
<p>SC 3 Increase participation in social decision-making process</p> <p>Indicators:</p> <ul style="list-style-type: none"> SC 3.1 Voting rates/ community space 	<p>The design includes community space which could be used for election voting station, community meetings, afterschool programming, tutoring/ mentoring, senior center or other social programs.</p>	<p>Work with service providers and agencies to coordinate use of public community spaces in the redevelopment.</p>	<p>CSS planning and implementation.</p>

*For a detailed listing of every development target, please refer to the customized Denver HDMT.

Denver HDMT
MITHUN
SOUTH LINCOLN REDEVELOPMENT

2010 HDMT application and recommendations

DHA successfully received funding to support the South Lincoln redevelopment, including ARRA/stimulus funds awarded in 2010 which supported the Phase 1 development of Tapiz at Mariposa, a 100-unit affordable housing apartment building, and a FY 2010 HOPE VI grant, to support five additional phases of redevelopment as well as Community and Supportive Services (CSS) programming. The 2010 Denver HDMT application and recommendations have served as a guide to incorporate health considerations into the implementation of the redevelopment through design, construction, management and resident programming. In addition to Technical Assistance grants for study and modeling by the Office of Sustainable Communities in 2010, a 2011 grant by the Colorado Health Foundation further supported health programming at the redevelopment site.

In 2012, with the first phase of construction complete, two phases under construction and design of the fourth phase underway, DHA sponsored the Mariposa Healthy Living Initiative to further adapt the Denver HDMT into a tool that could act as a road map for the implementation currently underway. Further phases of redevelopment at the site will be seeking funding in 2013/2014 and interactions to connect Mariposa to the La Alma/ Lincoln Park neighborhood will benefit from this road map in the Mariposa Healthy Living Initiative.

For the 2012 Mariposa Healthy Living Tool adaptation, indicators from the Denver HDMT were first assessed for alignment with priority health outcome goals for the Mariposa redevelopment and health outcomes goals for City and Statewide initiatives. The remaining indicators were evaluated based on whether they were strongly supported by empirical evidence and whether this evidence could be easily obtained at a relevant scale and a three to five year timeframe. The final list of prioritized indicators included in the Mariposa Report Card were selected based on the criteria above and vetted with a peer

review team and Advisory Panels including residents and community stakeholders. This list of priority objectives and indicators were reviewed in order to include updated referenced standards such as LEED-ND, SITES, and Enterprise Green Communities.

In addition to indicators, the Mariposa Healthy Living Tool also further developed the Denver HDMT in several areas. Information was added to describe the relationship between the indicators or strategies and health outcomes, drawing from scientific evidence and academic studies. Strategies were refined to include those that have been proven to be effective through health evidence. Best practices and referenced standards were added to strategies to ease implementation, and citations were added. Finally, a user guide and guidance on a monitoring plan were added.

To adapt the recommended strategies and actions from the Denver HDMT into a new format of Campaigns for Action in the Mariposa Healthy Living Initiative, the team conducted an assessment of which recommendations had been completed to date, as well as an updating indicator data based on newly available information. With an understanding of current needs and progress, the team held work sessions with a series of Advisory Panels consisting of residents, community stakeholders, leaders, and service providers, to review proposed Campaigns and provide feedback. After gathering feedback from the Advisory Panels, peer review team, and DHA staff, the Campaigns for Action and next steps were finalized.

References & Citations

1. The Healthy Development Measurement Tool, Urban Health and Sustainability Indicators, San Francisco Department of Public Health, <http://www.thehdm.org/indicators/view/118>
2. Institute of Medicine. *Clearing the Air: Asthma and Indoor Air Exposures*. National Academy Press. Washington D.C. 2000.
3. Vries S, de Verheij RA, Groenewegen PP, Spreeuwenberg P. Natural environments - healthy environments? An exploratory analysis of the relationship between green space and health. *Environment and Planning A*. 2003;35(10):1717-1731.
4. *Parks for People: Why America Needs more City Parks and Open Space*. San Francisco: The Trust for Public Land, 2003.
5. Huie B, Patrick SA, Krueger M, Rogers RG, Hummer RA. Wealth, race, and mortality. *Soc Sci Q*. 2003;84(3):667-84. Wenzlow AT, Mullahy J, Robert SA, Wolfe BL. An empirical investigation of the relationship between wealth and health using the survey of consumer finances. Working Paper. New York, NY: Russell Sage Foundation. Available at: <http://www.russellsage.org/publications/workingpapers>. Accessed July 7, 2009.
6. Kahn EB, Ramsey LT, Brownson RC, Heath GW, Howze EH, Powell KE, Stone EJ, Rajab MW, Corso P, and the task Force on community preventive services. The effectiveness of interventions to increase physical activity: a systematic review. *American Journal of Preventive Medicine*. 2002;22(supplement 4): p. 73–107. <http://www.thecommunityguide.org/pa/paajpm-evrev.pdf>.
7. Sailer K. Movement in workplace environments: configurational or programmed? Istanbul: proceedings, 6th International space syntax symposium; 2007: p. 68–01 to 68–14.
8. Kahn EB. The effectiveness of interventions to increase physical activity. *Am J Prev Med*. 2002;22(4):73-107.
9. Simkhovich BZ, Kleinman MT, Kloner RA. Air Pollution and Cardiovascular Injury: Epidemiology, Toxicology, and Mechanisms. *J Am Coll Cardiol*. 2008;52(9):719-26.
10. International Agency for Research on Cancer. Diesel Engine Exhaust Carcinogenic. 12 June 2012. World Health Organization Press Release No. 213. Available at: http://press.iarc.fr/pr213_E.pdf
11. Dora C, Phillips M, eds. *Transport, environment and health*. WHO Regional Publications, European Series, No. 89. 1999. <http://www.euro.who.int/document/e72015.pdf>
12. NYCADG: People with nearby access to parks are more likely to attain higher levels of physical activity. Exposure to greenery and the natural world has additional benefits to health.

More generally, living in proximity to green space is associated with reduced self-reported health symptoms, better self-rated health, and higher scores on general health questionnaires: Vries S, de Verheij RA, Groenewegen PP, Spreeuwenberg P. Natural environments - healthy environments? An exploratory analysis of the relationship between green space and health. *Environment and Planning A*. 2003;35(10):1717-1731.
13. Kuo, F.E., & Sullivan, W.C. (2001). "Environment and crime in the inner city: Does vegetation reduce crime?" *Environment and Behavior*, 33(3), 343-36

14. Trees and green space also improve the physical environment by removing air pollution from the air and mitigating the urban heat island effect produced by concrete and glass: Parks for People: Why America Needs more City Parks and Open Space. San Francisco: The Trust for Public Land, 2003.
15. ADGNYC: The presence of trees has been associated with higher rates of walking to school among children. Trees and other landscape elements contribute to more appealing sidewalks and streets, provide shade in the summer, and can be used to help separate pedestrians from vehicular traffic. Trees provide natural cooling through the shading of streets and buildings thereby reducing exposure to UV radiation and the risk of skin cancer, as well as energy demand and consumption. Trees also capture air pollution, reduce carbon dioxide, increase oxygen, and help capture storm-water runoff, filtering water to reduce the amount of mercury, oil, and lead going into the Bay. Trees can also serve as buffers to traffic, reducing pedestrian injuries. Several studies show that the presence of forests, trees and other vegetation improves adult recovery from mental fatigue, leading to a reduction in socially unacceptable behavior and crime, as well as fewer behavior problems among children.

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

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

Trees and green space also improve the physical environment by removing air pollution from the air and mitigating the urban heat island effect produced by concrete and glass: Parks for People, Why America Needs more City Parks and Open Space. San Francisco: The Trust for Public Land, 2003.

16. Noise levels of 55 decibels outdoors and 45 decibels indoors are identified as preventing activity interference and annoyance. These levels of noise are considered those which will permit spoken conversation and other activities such as sleeping, working and recreation, which are part of the daily human condition. Source: Environmental Protection Agency, <http://www.epa.gov/history/topics/noise/01.htm>

Long term exposure to moderate levels of environmental noise can adversely affect sleep, school and work performance, and cardiovascular disease: Dora C, Phillips M, eds. Transport, environment and health. WHO Regional Publications, European Series, No. 89. 1999. <http://www.euro.who.int/document/e72015.pdf>

Noise and Health: Making the Link. London Health Commission, 2003. http://www.londonhealth.gov.uk/pdf/noise_links.pdf Evans G, Marcynyszyn LA. Environmental Justice, Cumulative Environmental Risk, and Health among Low and Middle Income Children in Upstate New York. *Am J Pub Health* 2004;94:1942-1944.

17. Motor vehicle emissions, power plants, and refineries are the predominant sources of fine particulate air pollution (PM 2.5). Several large-scale studies demonstrate that increased exposure to PM 2.5 is associated with detrimental cardiovascular outcomes, including increased risk of death from ischemic heart disease, higher blood pressure, and coronary artery calcification. Simkhovich BZ, Kleinman MT, Kloner RA. Air Pollution and Cardiovascular Injury:

Epidemiology, Toxicology, and Mechanisms. *J Am Coll Cardiol.* 2008;52(9):719-26.

Motor vehicles and other forms of fossil fuel combustion emit several toxic air contaminants that are either known or probable human carcinogens, including benzene, formaldehyde, acetaldehyde, and 1,3-butadiene. The U.S. Environmental Protection Agency (EPA) estimates that “mobile sources of air toxics account for as much as half of all cancers attributed to outdoor sources of air toxics.” USEPA Environmental Fact Sheet. (August 1994). Air Toxics from Motor Vehicles. Available at: <http://www.epa.gov/otaq/f02004.pdf>

18. The Healthy Development Measurement Tool, Urban Health and Sustainability Indicators, San Francisco Department of Public Health, <http://www.thehdmtool.org/indicators/view/43>
19. Bauman A, Bull F. *Environmental Correlates of Physical Activity and Walking in Adults and Children: A Review of Reviews.* London: National Institute of Health and Clinical Excellence; 2007.
20. Transportation Research Board, Institute of Medicine of the National Academies: Committee on Physical Activity, Health, Transportation, and Land Use. 2005. *Does the built environment influence physical activity?: Examining the evidence.* Special report 282. Washington, DC: Transportation Research Board.
21. Simkhovich BZ, Kleinman MT, Kloner RA. Air Pollution and Cardiovascular Injury: Epidemiology, Toxicology, and Mechanisms. *J Am Coll Cardiol.* 2008;52(9):719-26.
22. ADGNYC: Create a buffer to separate pedestrians from moving vehicles using street furniture, trees, and other sidewalk infrastructure. A buffer zone between moving automobiles and pedestrian spaces has been associated in recent research with increased walking. Provide seating, drinking fountains, restrooms, and other infrastructure that support increased frequency and duration of walking. Recent research has linked street lighting to increased path use. The presence of trees has been associated with higher rates of walking to school among children. Trees and other landscape elements contribute to more appealing sidewalks and streets, provide shade in the summer, and can be used to help separate pedestrians from vehicular traffic. Make sidewalk widths consistent with their use.
23. ADGNYC: Try to provide pedestrians with the most direct possible routes between destinations and with a choice of routes. Avoid long, continuous blocks. Maintain dedicated pedestrian and bicycle paths on dead-end streets to provide access even where cars cannot pass. Research indicates that sidewalk coverage and continuity are associated with increased walking. Research indicates that the provision of attractive open views from a path encourages increased walking.
24. ADGNYC: A number of environmental design factors have been shown to increase leisure-time activity among people with disabilities, including the quality of the path, the provision of targeted signage, and the accessibility of destinations and transportation along the path.
25. Marlon G. Boarnet, Michael Greenwald and Tracy E. McMillan (2008), “Walking, Urban Design, and Health: Toward a Cost-Benefit Analysis Framework,” *Journal of Planning Education and Research*, Vol. 27, No. 3, pp. 341-358; at <http://jpe.sagepub.com/cgi/content/abstract/27/3/341>.

26. ADGNYC: Incorporate street additions that have been shown to effectively calm traffic, such as curb extensions, medians, and raised speed reducers. Minimize road width to reduce traffic speeds and pedestrian crossing distances.
27. ADGNYC: Strive to link high-bicycling-demand areas into a cohesive network. Connect bikeways to transit stops, add additional bicycle parking by these stops, and provide adequate sidewalk space to accommodate bicycle parking. On bikeways, include signposts providing bicyclists with directions, distances, and times to various destinations. Use on-street markings or signage to visually reinforce the separation of areas for bicyclists and motorists. Strategies can include markings, painting bike lanes onto the road surface, or creating a printed buffer between the bike and traffic lanes. Adding a buffer between bicyclists and cars increases riders' confidence in biking as a safe and comfortable transportation choice. Bicycle paths can also be located between a sidewalk curb and a parking lane.
28. Buhrmann, Sebastian; Rupprecht Consult Forschung & Beratung GmbH; "New Seamless Mobility Services: Public Bicycles." Niches Consortium & JCDecaux, "CycloCity: A Revolutionary Public Transit System Accessible to All." Philadelphia Presentation.
29. ADGNYC: Evidence suggests that the more schools, grocery stores, newsstands, and other useful destinations in an area, the more likely residents are to walk. Locating schools near residential areas, for instance, encourages students to walk to school and promotes daily physical activity among children and youth. Mixed land use may also be important for encouraging mobility among the elderly. Research has found that individuals aged 65 and over who live closer to shops and services are more likely to walk and use public transportation, and take more total trips outside the home.
30. ADGNYC: Connect bikeways to transit stops, add additional bicycle parking by these stops, and provide adequate sidewalk space to accommodate bicycle parking.
31. Perez-Smith AM, Albus KE, Weist MD. 2001. Exposure to violence and neighborhood affiliation among inner-city youth. *J Clin Child Psychol* 30(4):464-72.
32. Ozer EJ, McDonald KL. 2006. Exposure to violence and mental health among Chinese American urban adolescents. *J Adolesc Health* 39(1):73-9.
33. Kerr J, Rosenberg D, Sallis JF, et al. Active commuting to school: Associations with environment and parental concerns. *Med Sci Sports Exerc.* 2006;38(4):787-79.
34. Cummins S, Stafford M, MacIntyre S, Marmot M, Ellaway A. 2005. Neighborhood environment and its associations with self-rated health: evidence from Scotland and England. *Journal of Epidemiology and Community Health* 59:207-213.
35. Kreuter MW, Lezin N. 2002. Social Capital Theory: Implications for Community-Based Health Promotion. In *Emerging Theories in Health Promotion Practice and Research*. Eds. DiClemente RJ, Crosby RA, Kegler MC. San Francisco, CA: Jossey-Bass.
36. Cohen S, Underwood LG, Gottlieb BH. 2000. *Social Support Measurement and Intervention*. Oxford University Press. New York.

37. Casteel C, Peek-Asa C. 2000. Effectiveness of crime prevention through environmental design (CPTED) in reducing robberies. *Am J Prev Med* 18:99-115.
38. Holloway, Katy, Trevor Bennett, and David P. Farrington. *Crime Prevention Research Review No. 3: Does Neighborhood Watch Reduce Crime?* Washington, D.C.: U.S. Department of Justice Office of Community Oriented Policing Services, 2008.
39. Case Management Society of America. (2010). (CMSA) Standards of Practice for Case Management. Retrieved April 18, 2010, from <http://www.cmsa.org/portals/0/pdf/memberonly/StandardsOfPractice.pdf>
40. 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.
41. Gopal K. Singh, M. Siahpush, M. D. Kogan. Neighborhood Socioeconomic Conditions, Built Environments, and Childhood Obesity. *Health Affairs.* 2010; 29, no. 3: 503-512.
42. Gopal K. Singh, M. Siahpush, M. D. Kogan. Neighborhood Socioeconomic Conditions, Built Environments, and Childhood Obesity. *Health Affairs.* 2010; 29, no. 3: 503-512.
43. Regents of the University of California, PolicyLink, and the California Center for Public Health Advocacy. *Designed for Disease: The Link Between Local Food Environments and Obesity and Diabetes.* April 2008. <http://www.policylink.org/documents/DesignedforDisease.pdf>.
44. Access to healthy food choices is directly correlated to obesity and diabetes rates, which occur in higher rates among people living in low-income communities with worse food environments. Regents of the University of California, PolicyLink, and the California Center for Public Health Advocacy. *Designed for Disease: The Link Between Local Food Environments and Obesity and Diabetes.* April 2008 <http://www.policylink.org/documents/DesignedforDisease.pdf>.

Supermarkets may provide access to a greater variety of cheaper and healthier foods, including fresh fruits and vegetables. This access helps to facilitate healthier dietary choices. 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. 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. 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.

As a result, problems of under- and over-nutrition are often attributed to lack of access to supermarkets.^{d,e} Low-income, minority communities typically have fewer supermarkets and grocery stores than higher SES neighborhoods with primarily White residents, and they therefore disproportionately suffer from problems of over- and under-nutrition. Zenk SN, Schulz AJ, Israel BA, James SA, Bao S, Wilson ML. Fruit and vegetable access differs by community racial composition and socioeconomic position in Detroit, Michigan. *Ethnicity and Disease* 2006; 16: 275-80. Morland K, Wing S, Diez Roux A, Poole C. Neighborhood characteristics associated with the location of food stores and food service places. *American Journal of Preventative Medicine* 2002; 22; 23-9. Morland K, Filomena S. Disparities in the availability of fruits and vegetables between racially segregated urban neighbourhoods. *Public Health Nutrition* 2007; 10: 1481-89. Andrews, M., Kantor, L.,

- Lino, M., and Ripplinger, D. "Using USDA's Thrifty Food Plan to Assess Food Availability and Affordability." *Food Access* 24, no.2 (2001): 45-53.
45. Irwin, M., C. Tolbert, and T. Lyson. 1999. "There's No Place Like Home: Nonmigration and Civic Engagement." *Environment and Planning A* 31:2223-223
 46. WOW Congressional Testimony on WIA: Recommendations to Improve the Effectiveness of Job Training. Hearing on "Workforce Investment Act: Recommendations to Improve the Effectiveness of Job Training" July 26, 2007.
 47. National Housing Institute "When Your Bank Leaves Town: How Communities Can Fight Back" <http://www.nhi.org/online/issues/126/bankclosings.html>
 48. A. Lusardi, "Household Saving Behavior: The Role of Financial Literacy, Information, and Financial Education Programs," NBER Working Paper No. 13824, February 2008, and forthcoming in "Implications of Behavioral Economics for Economic Policy."
 49. CFED Assets and Opportunities Scorecard: Reviewing Individual Development Accounts Benefits and Costs. http://scorecard2009.cfed.org/financial.php?page=support_ida_programs
 50. Tolbert, Charles M., Thomas A. Lyson, and Michael D. Irwin. 1998. "Local Capitalism, Civic Engagement, and Socioeconomic Well-Being." *Social Forces* 77(2):401-428.
 51. Iton, A. Tackling the root causes of health disparities through community capacity building. In: Hofrichter R, ed. *Tackling Health Inequities Through Public Health Practice: A Handbook for Action*. Washington, DC: The National Association of County & City Health Officials and The Ingham County Health Department. 2006: 115-136.
 52. Bashir SA. Home is where the harm is: inadequate housing as a public health crisis. *Am J Public Health*. 2002; 92(5):733-738.
 53. Institute of Medicine. *Clearing the Air: Asthma and Indoor Air Exposures*. National Academy Press. Washington D.C. 2000.
 54. American Public Health Association. 2012. *Public Transportation: A link to better health and equity*. www.apha.org
 55. Bashir SA. Home is where the harm is: inadequate housing as a public health crisis. *Am J Public Health*. 2002; 92(5):733-738.
 56. Ewing R, Dumbaugh E. 2009. *The Built Environment and Traffic Safety : A Review of Empirical Evidence*. *Journal of Planning Literature* 23: 347-367.
 57. Vries S, de Verheij RA, Groenewegen PP, Spreeuwenberg P. Natural environments - healthy environments? An exploratory analysis of the relationship between green space and health. *Environment and Planning*. 2003;35:1717-1731.
 58. PolicyLink, Prevention Institute, the Convergence Partnership. *Healthy, Equitable Transportation Policy*. 2009. Ed. Shireen Malekafzali. Available at: http://www.convergencepartnership.org/atf/cf/%7B245a9b44-6ded-4abd-a392-ae583809e350%7D/HEALTHTRANS_FULLBOOK_FINAL.PDF.

59. Lourens PF, Vissers JA, Jessurun M. 1999. Annual mileage, driving violations, and accident involvement in relation to drivers' sex, age, and level of education. *Accident Analysis & Prevention*. 31(5):593-7.
60. Cohen S, Underwood LG, Gottlieb BH, eds. 2000. *Social Support Measurement and Intervention: A Guide for Health and Social Scientists*. New York: Oxford University Press.
61. Kerr J, Rosenberg D, Sallis JF, et al. Active commuting to school: Associations with environment and parental concerns. *Med Sci Sports Exerc*. 2006;38(4):787-79.
62. Kim D, Kawachi I. 2006. A multilevel analysis of key forms of community- and individual- level social capital as predictors of self-rated health in th e United States. *Journal of Urban Health* 83(5):813-826.
63. Foster S, Giles-Corti B. 2008. The built environment, neighborhood crime, and constrained physical activity: An exploration of inconsistent findings. *Preventive Medicine* [e-pub ahead of print]. Available at: http://www.ncbi.nlm.nih.gov/pubmed/18499242?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum.
64. Moore Iacofano Gostsman, Inc. Richmond general plan update, issues & opportunities, paper #8: community health and wellness (draft). 2007. <http://www.cityofrichmondgeneralplan.org/docManager/1000000640/Existing%20Conditions%20Report%20August%202007.pdf>
65. 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.
66. Regents of the University of California, PolicyLink, and the California Center for Public Health Advocacy. *Designed for Disease: The Link Between Local Food Environments and Obesity and Diabetes*. April 2008. <http://www.policylink.org/documents/DesignedforDisease.pdf>.
67. Beland F, Birch S, Stoddart G. Unemployment and health: contextual level influences on the production of health in populations. *Social Science and Medicine* 2002;2033-52.
68. Morris JN, Donkin AJ, Wonderling D, Wilkinson P, Dowler EA. A minimum income for healthy living. *J Epidemiol Community Health*. 2000;54(12):885-9.
69. *The Solid Facts: Social Determinants of Health*. World Health Organization. Europe 2004.



MARIPOSA



MITHUN

SEATTLE

Pier 56
1201 Alaskan Way, #200
Seattle, WA 98101

SAN FRANCISCO

660 Market Street, #300
San Francisco, CA 94104

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