

Online Appendix 1

Deliverables:

Grant Housing & Economic Development Corporation

Health overview of Watts

Health Indicator	Los Angeles County	Watts (90002)
Ever diagnosed with asthma (18+)	12.6%	12.6%
Ever diagnosed with asthma (1-17)	13.1%	11.3%
Ever diagnosed with diabetes (18+)	9.9%	10.4%
Fair or poor health (18-64)	21.1%	33.4%
Fair or poor health (0-17)	5.8%	9.5%
Low-income food insecurity (18+)	9.9%	23.6%
Obese (BMI > 30) (18+)	25.9%	39.7%
Overweight or obese (BMI >30; 85th percentile) (age 12-17)	37.9%	44.0%
Regular physical activity (5-17)	18.9%	16.7%
Walked at least 150 minutes (18+)	34.1%	35.7%
Current smoker (18+)	12.0%	10.9%
Sugar drink consumption 1+ times per day (18+)	17.7%	30.2%
Currently uninsured (18-64)	21.5%	31.0%
Currently uninsured (0-17)	4.3%	5.3%

(Source: California Health Interview Survey, 2014)

When compared with all of Los Angeles County, Watts' residents show significantly poor health outcomes in the following areas:

- Adult obesity
- Childhood obesity
- Adults self-reporting to be in fair or poor health
- Low-income food insecurity
- Sugar drink consumption
- Adults lacking health insurance

Health Action Plan Topic Areas:

1. Mobility, Accessibility, and Injury Prevention
2. Cardiovascular Disease, Diabetes Type 2 and Obesity
3. Asthma and Respiratory Health
4. Cancer and Health Outcomes Related to Toxins Exposure
5. Mental Health
6. Economic Development
7. Educational Opportunities

Health Action Plan

1. Mobility, Accessibility, and Injury Prevention

Topic	Design/ Programming	Standard	Source(s)
Physical accessibility of the site and building	Design	Establish a clear hierarchy of paths, stairways, pedestrian-oriented access points, and other ways of moving around and through the site	LEED-ND, R+A
Park access	Design	Maximize pedestrian access and project orientation toward Gateway Park.	R+A
Injury prevention	Design	Include fall prevention features such as stair gates, window guards, handrails, grab bars and improved lighting	R+A
Presence of traffic calming measures	Design	Work with the City to include traffic calming measures in streets adjacent to project such as: <ul style="list-style-type: none">• Bulbouts• Raised crosswalks• Speed bump• Neighborhood traffic circle• Landscaping	R+A

		<ul style="list-style-type: none"> Landscaped medians 	
Speed limits	Programming	Work with the City to set maximum speed limits of 25 mph on streets adjacent to project where possible.	LEED-ND
Access to public transportation	Design	Provide direct walking access to adjacent transit stops, ensuring sidewalks and protected crosswalks exist along walking paths to transit.	LEED-ND, R+A
Transit facility design	Design	Work with LA Metro to ensure that adjacent transit stops include real-time transit arrival and route information, seating, lighting, trash/recycling bins, and shelter.	LEED-ND
Proximity and access to public transportation	Design	Provide free or discount transit passes to building occupants.	LEED-ND

2. Cardiovascular Disease, Diabetes Type 2 and Obesity

Topic	Design/ Programming	Standard	Source
Access to essential goods and services	Programming	Neighborhood residents needs assessment. Conduct market survey and analysis of residents' needs and preferences for retail and commercial services and amenities and provide to local, existing businesses	R+A
Proximity to essential goods and services (e.g., grocery stores, retail, schools, medical care)	Design	Work with neighborhood partners to maintain and provide diverse uses are located within a half mile of the new development: <ul style="list-style-type: none"> Grocery store Health clinic A public elementary school Employment center Diverse retail uses 	LEED-ND, R+A
Active spaces	Programming	Create adaptable, multiuse spaces for community gatherings, play, dance and social activity for all ages.	R+A
Exercise equipment		Expand on existing outdoor exercise equipment offerings in the community, by incorporating new exercise equipment options for all ages, such as outdoor elliptical machines and circuit training equipment, play structures, and sport equipment.	R+A
Stairs	Design	Permit and encourage stair access to each building floor. Where stairs	ULI, WELL, NYC

		<p>must be locked for security reasons, provide tenants with key or card access</p> <ul style="list-style-type: none"> • Place stairs within 25 feet of an entrance and before any elevators • Provide stair prompt signage at elevator banks and at the base of entrance to staircases • Increase visibility of stairs by using glass on entry doors • Allow windows and skylights to increase appeal of stairwells • Allow stair doors to be held open by magnetic catches as is allowed in the International Building Code, but not routinely allowed in some local jurisdictions • Post signage for stairs wayfinding • Post signage that promotes health benefits of stair use • Install wayfinding signage to direct visitors to the nearest stairway • 	
Active Transportation-Walking Routes	Design	<ul style="list-style-type: none"> • Locate work functions (i.e., restroom, mail room, copy room, lunch rooms, meeting rooms, lounges, etc.) within walking distance from work space or on alternate floors • Ensure that walking routes are visually appealing and well lit • Provide supportive infrastructure along outdoor walking routes (i.e. benches, fountains) • Post active living signs at points of decisions, such as elevator waiting areas 	
Active Transportation-Walkability	Design	<p>Provide improvements to street and sidewalk infrastructure that enhance safety and accessibility for all users (including bicyclists, pedestrians, children, older adults, and disabled people) to access and/or by pass the project. Potential improvements may include:</p> <ul style="list-style-type: none"> • ADA compliant curb cuts • ADA compliant pedestrian crosswalk buttons • Marked crosswalks • Bicycle lanes 	

		<ul style="list-style-type: none"> • Bicycle racks • Pedestrian sidewalk benches • Shade trees/ shade structures • Landscaping • Trash containers 	
Active Transportation- Bicycles	Design	Provide long-term enclosed and short-term bicycle parking and shower and locker facilities. All bike racks should be secured to the ground and have two-point locking. (Refer to the Association of Bicycle and Pedestrian Professionals “Essentials of Bike Parking.”)	R+A
Access to affordable, healthy food	Design	<ul style="list-style-type: none"> • Dedicate space within the project for a grocery store, market, or food retailer that sells or distributes fresh produce. • Dedicate permanent and viable gardens and growing space or related facilities. • When creating new garden spaces, assess past uses and potential pollution sources. Test soils and take steps to manage risks as appropriate, for example, by using raised beds or container gardens. • Create a management and maintenance plan with clearly laid-out responsibilities for day-to-day gardening activities, as well as rules, security, and strategies for preventing vandalism 	LEED-ND, R+A

3. Asthma and Respiratory Health

Issue	Design/ Programming	Actions	Source
Air quality monitoring and feedback	Programming	<ul style="list-style-type: none"> • Use an accredited assessor to complete a performance test after occupancy as an independent means of verifying that the building, whether naturally or mechanically, is meeting critical air quality requirements. • Monitor airflow and quality to appropriately adapt ventilation systems. Well Standard recommends the following air quality standards: <ul style="list-style-type: none"> ○ Formaldehyde a. levels less than 27 ppb. 	WELL

		<ul style="list-style-type: none"> ○ Total volatile organic compounds less than 500 µg/m³ ○ Carbon monoxide less than 9 ppm. ○ M_{2.5} less than 15 µg/m³ ○ PM₁₀ less than 50 µg/m³ ○ Ozone less than 51 ppb ○ Nitrogen dioxide less than 53 ppb ○ Radon less than 4 pCi/L in the lowest occupied level of the project 	
Advanced Air Filtration	Design	<p>Consider ventilation systems that will exceed minimum American Society of Heating and Air-Conditioning Engineers (ASHRAE) standards (30% or more)</p> <ul style="list-style-type: none"> • Use minimum efficiency reporting value (MERV) 13 or higher media filters in the ventilation systems to filter outdoor air and MERV 8 (or higher) media filters in the ventilation system to filter recirculated air • Direct outdoor air-intake systems away from sources of pollution. 	
Indoor air quality- airborne contaminants	Design	Incorporate walk-off mats at building entrances to reduce the amount of dust, dirt, and moisture tracked indoors.	LEED for Homes, WELL
Pests	Programming	Adopt Integrated Pest Management Systems (IPMS) to minimize allergens from vectors.	WELL
Microbe and Mold Control	Design	Include ultraviolet light air disinfection system within the ventilation system to sterilize airborne bacteria, viruses, dust mites, and mold spores that may escape filtration.	Well
CO2 Sensors	Design	<ul style="list-style-type: none"> • Install CO2 sensors for buildings that may contain garages or sources of combustion. • Use sensors with demand control ventilation 	WELL
Smoking	Programming	<ul style="list-style-type: none"> • Prohibit smoking in all common areas of the building. The prohibition must be communicated in building rental or lease agreements or in condo or co-op association covenants and restrictions, and provisions for enforcement must be included. 	LEED for Homes, R+A

		<ul style="list-style-type: none"> Prohibit on-property smoking within 25 feet (7.5 meters) of entries, outdoor air intakes, and operable windows. Provide signage to allow smoking in designated areas, prohibit smoking in designated areas, or prohibit smoking on the entire property. 	
Smoking	Design	Locate any exterior designated smoking areas, including balconies where smoking is permitted, at least 25 feet (7.5 meters) from entries, outdoor air intakes, and operable windows opening to common areas.	R+A
Mold/Moisture Management	Design	<ul style="list-style-type: none"> Minimize occupant exposure to mold by using mold-resistant materials in bathrooms and other water-sensitive locations Use a ventilation system with the capability to maintain relative humidity between 30% to 50% for at least 95% of the time the building is occupied 	WELL

4. Cancer and Health Outcomes Related to Toxins Exposure

Topic	Design/ Programming	Standard	Source
Indoor and outdoor water quality	Design	<ul style="list-style-type: none"> Locate at least one water dispenser within 100 feet of all parts of regularly occupied floor space (minimum one per floor). Install drinking fountains or water coolers along commonly used corridors to make water more visible and accessible. Provide taps on drinking fountains or stand-alone filling stations to make filling reusable water bottles easier. Provide water filtration in residential spaces. 	WELL
Use of toxic/carcinogenic products (e.g., for cleaning)	Programming	Use nontoxic cleaning products within buildings, and provide occupants with information on green and healthy cleaning products and practices.	WELL
Low/No VOC Adhesives and Sealants	Programming	<ul style="list-style-type: none"> Adopt policies to discourage/ban the use of VOC containing products. 	WELL, LEED for Homes

		<ul style="list-style-type: none"> • Adopt a “Precautionary Principle” approach—taking reasonable steps to minimize risks and avoid a hazard—to avoiding such substances when possible (e.g. PFCs, Flame retardant limitation, Phthalate limitation, Urea-Formaldehyde, Isocyanate-based polyurethane limitation). • Prohibit levels no greater than 0.01% (100 ppm) for the following toxins: flame retardant, phthalate (plasticizers), urea-formaldehyde, and isocyanate-based polyurethane limitation in flooring, upholstered furniture and furnishings, sound, and thermal insulation, window and waterproofing membranes, plumbing pipes and moisture barriers. 	
Access to affordable health screening and treatment	Design/ Programming	Allow onsite space for pop-up health screenings and/or mobile health clinics	
Nontoxic pest control	Design	Install termite shields and separate all exterior wood-to-concrete connections by metal or plastic fasteners/dividers	Green Point Rated

5. Mental Health

Topic	Design/ Programming	Standard	Source
Views of nature (e.g., natural lighting, green spaces)	Design	Design buildings to maximize views of natural outdoor areas, including trees and landscaping.	LEED for Homes
Indoor plants/ biophilia	Design/ Programming	<ul style="list-style-type: none"> • Incorporate wall and potted plants into the design of interior space covering at least 1% of floor area per floor. • Include at least one plant wall per floor, covering a wall area equal or greater to 2% of the floor area, or covering the largest of the available walls, whichever is greater. 	WELL
Outdoor plants/ biophilia	Design	<ul style="list-style-type: none"> • Require tree canopies and plantings cover 70% of at least 25% of the project site. • Include at least one water feature that exposes occupants to the sight and sounds of still and moving water. • Features of the landscape ground or rooftop gardens accessible to building occupants. 	WELL

		<ul style="list-style-type: none"> • Include large canopy trees along pedestrian streets to promote comfortable walking year-round) 	
Noise levels	Design	<ul style="list-style-type: none"> • Designate areas/spaces for quiet work. • Incorporate acoustically designed walls, double glazed windows, and well-sealed doors. • Average sound pressure level from outside noise intrusion is less than or equal to 50 dBA. • Maximum noise criteria of 40 db. • Use green roofs, which can absorb noise and reduce outside sound levels by up to 40 to 50 decibels. 	WELL
Social cohesion	Design	Set aside affordable spaces for the creation of art, such as art studios, creative maker spaces or live/work units onsite, and prioritize local artists and community members as tenants and owners.	R+A
Social cohesion	Design	Dedicate outdoor or indoor community space appropriate for hosting community events and providing services and programs.	
Social spaces	Programming	Develop a calendar of regular programming to keep community spaces active and vibrant.	R+A
Social cohesion	Design	Promote public access throughout the site and use fences and barriers only if a safety risk is apparent. If fences are necessary, include gates for pedestrian connectivity and beautify with art such as murals.	R+A
Safety	Design	<p>Apply the principles of Crime Prevention Through Environmental Design (CPTED) when designing open space and recreational spaces for a project:</p> <ul style="list-style-type: none"> • Natural Surveillance: The design of space shall promote “eyes on the street” by strategically locating windows, entrances, lighting, and other activity generators near a potential crime area. • Natural Access Control: The design of walkways, fences, lighting, signage, and landscape should provide people with a sense of direction, while keeping unauthorized people out of a particular place. 	CPTED

		<ul style="list-style-type: none"> • Territorial Reinforcement: Development shall use physical designs, such as pavement treatments, landscaping, and signage, to help users create a sense of proprietorship. Clear boundaries between public and private areas shall be provided. • Maintenance: All development projects shall develop a maintenance plan to avoid neglected and poorly maintained properties, which can attract criminal activity. • 	
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6. Economic Development

Issue	Design/ Programming	Actions	Source
Business incubation		<p>Implement either of the following:</p> <ul style="list-style-type: none"> • dedicate hours, space or resources for incubation of emerging local business efforts, such as office space, pop-up market space, workrooms or kitchens <p>OR</p> <ul style="list-style-type: none"> • dedicate hours and/or space or make contributions to a shared space for use by local community organizations or community groups for skill building, education and training particularly for youth (between 16 and 24 years of age), boys and men of color, and re-entry populations. 	R+A
Local trade seminars and training	Programming	Provide onsite job and trade training	R+A
Childcare	Design/ Programming	<ul style="list-style-type: none"> • Include a childcare facility on-site, which complies with Head Start Design Guidelines; • Provide subsidized rent for a childcare facility on-site; • Subsidize a non-profit to provide childcare in a nearby facility; OR • Project is or includes a childcare facility that will ensure 	R+A

		10% of the maximum capacity of childcare facility be affordable to children of low-income households	
Housing for formerly incarcerated	Programming	Allow formerly incarcerated, non-violent offenders to be equally considered for access to affordable housing in project.	R+A

7. Educational Opportunities

Topic	Design/ Programming	Standard	Source
Adult literacy classes	Programming	Include adult literacy classes as part of onsite programming.	R+A
Citizenship classes	Programming	Include citizenship classes or relevant information as part of onsite programming	R+A
Health classes	Programming	Include health, fitness and nutrition classes or relevant information as part of onsite programming	R+A
Afterschool Programs		Include afterschool programming such as tutoring or homework assistance as part of onsite programming.	R+A
Free internet access to all residents	Programming	Ensure that free wireless internet is provided for all residents by the building owner or operator.	R+A

**Enterprise Green Communities
Health Action Plan Pilot
Watts Park Gateway**

Date: January 19, 2016
Project Name: Watts Park Gateway
Project Address: Central Avenue at 103rd St
Project City State, ZIP : Watts, Los Angeles, CA 90002
Contact Name: Chris Jordan
Contact Email: cjordan@granthousing.org
Contact Phone: 323-564-1151

Step 2: Project Implementation and Monitoring

Purpose

Integrate the list of selected interventions and a plan for monitoring and evaluating your progress into the plan for project development.

- Document and demonstrate how the analysis in Step 1 informed building and site design decisions, including modifications that were made in response to the findings and recommended actions that were identified in the information-gathering and health action plan phases.
- Develop a monitoring plan with performance metrics to evaluate the project's impact on resident health throughout the project life cycle (design, construction and operations).

The Plan Includes:

- A summary of which modifications were made in response to the findings and recommended actions identified in the earlier phases.
- The performance metrics to be monitored. Include design metrics (metrics to determine how well the design team integrated the selected strategies into the project in a manner that will promote positive health outcomes), operations metrics (metrics that can be measured on a routine basis while the building is in operation to determine whether or not the building is performing as intended), and health metrics (metrics regarding resident health factors and, where possible, incidence or prevalence of key health outcomes in the resident and/or community population).
- Specific information on indicators, data sources, frequency, and roles and responsibilities for monitoring different information identified as significant.
- Identify the individual or organization responsible for implementing and monitoring the selected strategy as well as the rate of how often the associated performance metrics will be monitored.

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Step 2: Project Implementation and Monitoring

A.1 How Did Step 1 Analysis Inform Building & Site Design.

Introduction.

The Enterprise Green Community Pilot Project in Watts, City of Los Angeles prepared a Step 1 data collection and health action plan. Our goal is to incorporate health benefit measures in the Watts Park Gateway affordable housing and mixed use development.

We also worked to generate useful information for Enterprise Green Communities via project specific lessons. Project update sessions with colleague Pilot Project members across the country also generated insights.

We focus here on the Watts-specific experience, discussing how Step 1 analysis will inform building and site design for Park Gateway. We also describe how Step 1 identified significant opportunity - and significant challenges - for health benefit action beyond the Park Gateway development site footprint.

Finally, we describe the monitoring plan anticipated to evaluate project health impacts, identify monitoring responsibility and discuss related and essential next steps for the Watts public health work program.

Where We Are Now.

Our key immediate next step is to coordinate community engagement at our upcoming health fair in early February 2017 with the Health Action Plan ie develop our survey instrument around the key health priorities identified in the plan.

Park Gateway has completed concept site design as of this date, with final design contingent on project financing currently under negotiation.

Through assessment of “Resident Health Campaigns and Associated Criteria Matrix” (2015 ENTERPRISE GREEN COMMUNITIES CRITERIA MANUAL p.22-23) the Pilot Project has identified a prioritized list of measures for inclusion in Park Gateway final construction plan.

We used the Criteria Matrix to differentiate between categories of actions to improve public health. As detailed below, the Criteria Matrix helped separate site specific elements - such as building filtration systems - from community and environmental elements - such as air pollution from nearby rail lines or street and freeway diesel exhaust.

Within site specific elements, we further differentiated between design features - eg. air filtration - with programming, which encompass resident and community-directed initiatives such as life choice and wellness classes.

We plan to use the Step 1 Health Action Plan and health fair feedback as the basis for further work on both in-building resident/community initiatives and community/environmental elements in Greater Watts.

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Background.

To understand how the Step 1 Analysis informed building and site design, brief discussion of project area background and project partner history is necessary.

Grant HEDC is a community development corporation based in Watts, City of Los Angeles. Grant is focused on building a healthy and sustainable community in Watts, through coordinated initiatives encompassing affordable housing, green infrastructure, public health and human service programs such as job training and family financial planning.

The Natural Resources Defense Council (NRDC) is an international nonprofit environmental organization with more than 2 million members and online activists.

NRDC's Santa Monica office has long experience working at the intersection of air pollution prevention- protection of public health and public policy / litigation.

Grant HEDC has completed two major affordable housing developments in Watts

In Watts, Grant HEDC and NRDC together with project partners such as Global Green, have directed efforts towards incorporating LEED-ND and equitable TOD elements into Grant Housing's housing and mixed use developments.

The work group has included public health among its priorities since its start in 2014. We hoped to help improve health of Watts residents by public realm improvements, carried forward within the Watts Greenstreets plan we developed.

Watts Greenstreets plan has advanced through a series of funding sources. For example, in December 2016 NRDC secured \$2.8 million dollars for work along 103rd St in Watts.

The Greenstreets improvements increase neighborhood walkability, eliminate blight and reduced air and water pollution.

Recognizing these steps alone do not substantially resolve all underlying factors harming health of Watts residents, we began in mid-2015 to engage with Kaiser Permanente, a major regional health care provider with a small Watts facility.

Kaiser recognized the value of our work, and stated they themselves were beginning to address "the social determinants of health" especially in urban core service areas such as Watts.

Working with Kaiser, we identified the need for better information and the necessity of a structured, funded process to assess current public health conditions in Watts. This process, we understood, would provide an data baseline and a list of priority actions.

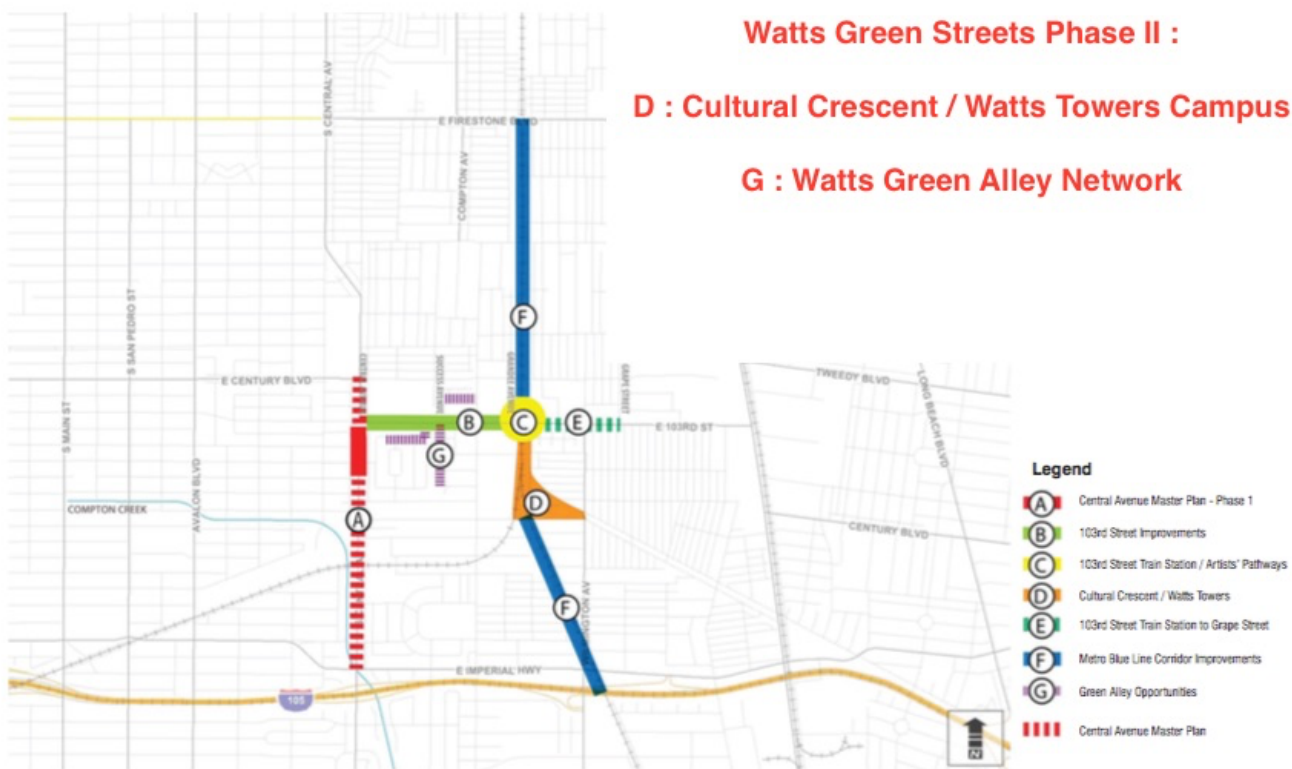
We did not consider that Grant HEDC's Park Gateway development had potential for incorporating elements beneficial to Watts public health. This possibility arose later - fortuitously - with the Enterprise Green Communities Health Action Plan Pilot Program.

Los Angeles Times

December 12, 2016

\$4-million settlement will fund stormwater projects and a 'green street' for Watts

the settlement will provide \$2.8 million to develop and create a “green street” along 103rd Street in Watts and \$1.2 million to fund small-scale stormwater capture, cleaning and reuse projects across unincorporated parts of L.A. County that are within the Los Angeles Flood Control District.



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WATTS GREEN STREETS

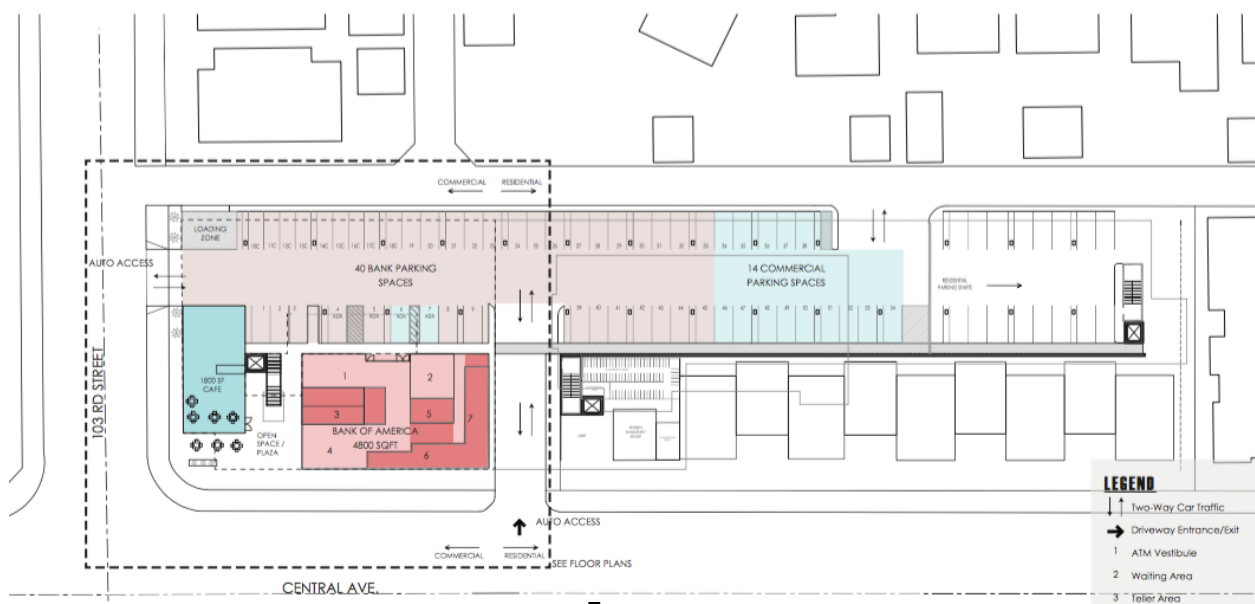
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Watts Park Gateway.

Watts Park Gateway is a 50,000 sq foot development project at a 103rd Street and Central Avenue in Watts. The project combines affordable housing (76 units), a new state of the art Bank of America branch, community serving retail, a restaurant and studio space for healthy living uses such as a dance studio.



Park Gateway will include supportive services, with a focus on anti-recidivism for Watts and South Los Angeles residents. The site consists of vacant land owned by Grant HEDC and an existing Bank of America facility. As originally conceived, the plan did not include intentional health benefit design elements.

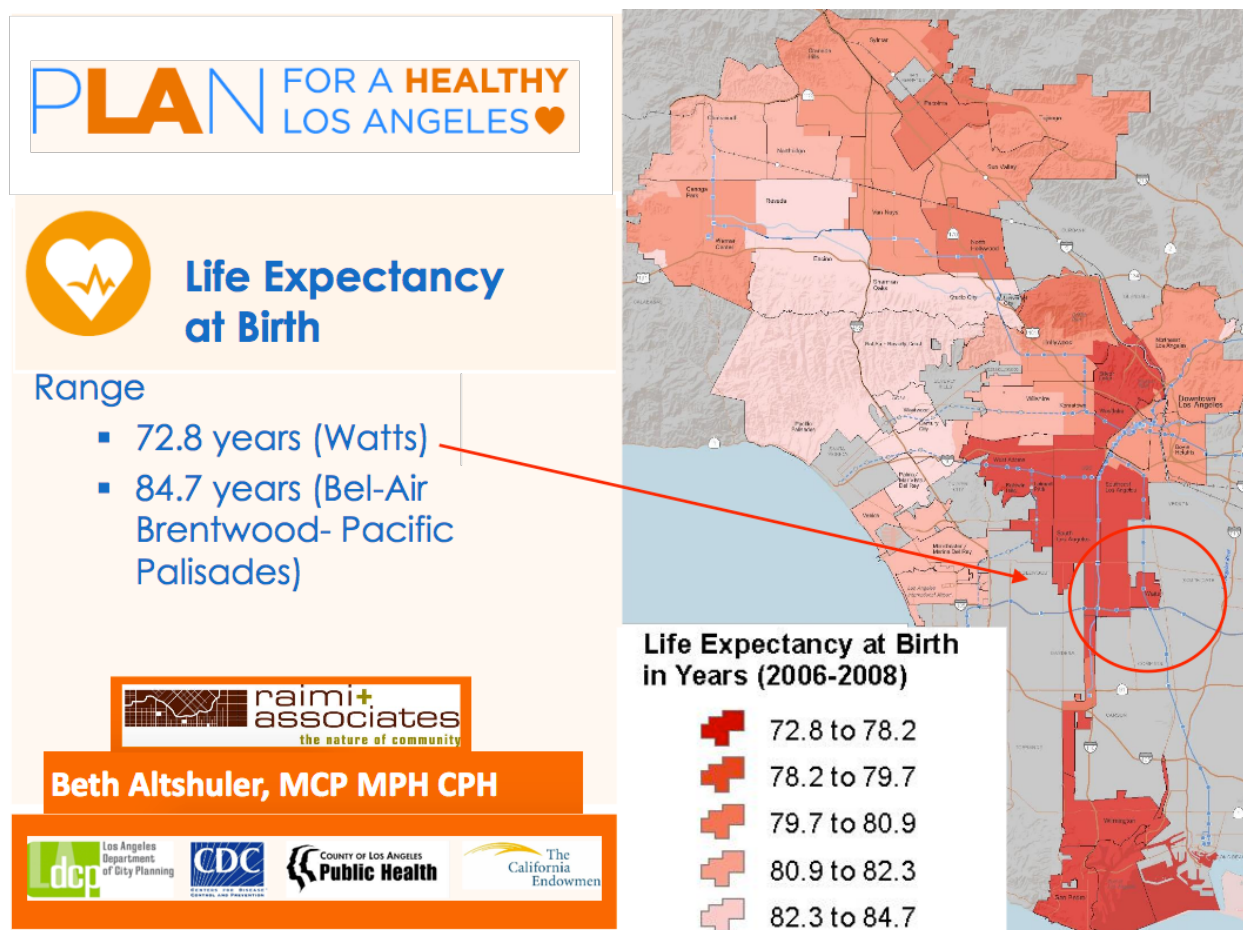


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Watts Public Health.

Watts public health needs were brought into sharp focus with completion of the *LA City Health Atlas* data survey (Raimi and Associates. June 2013) and the corresponding *Plan for A Healthy Los Angeles* (2014).

These documents quantified public health challenges in Watts, and helped validate resident knowledge, translating local awareness into independently-sourced, validated information.



The much-reported Life Expectancy at Birth ranking, together with the related metrics of equity, environmental burden, hardship index and household income, were sobering to Watts residents and organizations. The data deepened a sense of the significant regional disparities and strengthened resolve to address the issues.

<http://healthyplan.la/interactive/neighborhoods/#id=23>

<http://www.latimes.com/local/lanow/la-me-ln-health-plan-20150330-story.html>

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How Did Step 1 Analysis Inform Building & Site Design.

As of December 2016 the building and site final design has not been determined.

Step 1 Analysis has resulted in a list of building and site elements which may be incorporated into the final design.

All final design elements including the public health benefit features are contingent on the project financing plan.

Step 1 Analysis built on the LA Health Atlas and Plan for a Healthy Los Angeles work products and methodologies, shifting the assessment from a City-wide to a community-specific, Watts-focused frame.

We intentionally engaged Raimi and Associates as the designated public health professional for the Pilot Program Health Action Plan. Raimi and Associates completed the City-wide Health Atlas and been a principal within the large Health LA plan team.

We anticipate using the Watts Health Action Plan in multiple ways, a functionality which is strengthened by having a single author of both the City-wide and neighborhood level document.

For example, the Step 1 Analysis will allow us to more effectively engage with the City of Los Angeles to identify and implement measures over which the City has control, such as enforcing community plan and zoning regulations in Watts to relocate harmful and incompatible land uses.

The 2015 Enterprise Green Communities Criteria was a necessary complementary source document within the Step 1 fact gathering and Action Plan drafting process.

We relied on the “Resident Health Campaigns and Associated Criteria Matrix” (2015 ENTERPRISE GREEN COMMUNITIES CRITERIA MANUAL p.22-23) to organize the elements which might benefit public health. Exhibit A.1

First, we adopted the two Criteria Matrix categories: 1. Design and 2. Programming, to distinguish between architectural and engineering features - Design, and In-building activities - Programming.

For analytical consistency, we included public realm and policy measures - such as regional air quality rules - within the “Programming” category.

Next, we classified features targeted for a private development site as “Buildings & Grounds”; public improvements we designated as “Community & Environment”.

The Criteria Matrix lists a series of 5 “Health Campaigns” starting with “Injury and Accessibility”, with corresponding list of “building designs and programming that influence physical and mental health” and related mandatory and optional criteria.

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We designated each line item as “Design”, “Programming” or “Both” and also whether each was applicable to “Buildings & Grounds”, “Community & Environment”.

For example, within “Injury & Accessibility”, “Access to Health and Community Services and Support” is deemed to be a potential health benefit feature both in-building and in-community.

Thus, a housing development could provide residents a visiting physical therapy referral (in-building feature) or a city or town could offer all eligible residents a visiting physical therapy service (in-community feature).

This benefit is also deemed to be both a design element and a programming element.

A design element would be a physical space designated for on-site PT activity, while a referral service would be considered programming.

Exhibit A.1 lists the complete categorization of the Criteria Matrix.

We next created a 2 x 2 table to priority sort the individual line items. Exhibit A.2

Based on this sorting, we identified the following priorities to organize Step 1 Analysis results:

- Priority 1 : Design Elements for Building & Grounds
- Priority 2: Design Elements for Community & Environment
- Priority 3: Programming for Buildings & Grounds
- Priority 4: Programming for Community & Environment

Finally, we estimated each Design Element for Building & Grounds for cost / benefit and applicability of Step 1 Analysis results. Exhibit B.

Applying these guidelines results, for example, in “Safety of sidewalks” designated as a “High” priority for final building and site design, while “Safety of bicycle environment” as “Medium”.

For all “High” and “Medium” building and grounds items, we identified the specific mandatory and optional criteria - eg mandatory ventilation and optional use of salvaged wood products.

This process has resulted in a menu of pre-sorted public health benefit elements which will be evaluated during final building and site design.

A.2 What Modifications Have Been Made in Response to the Findings and Recommendation Developed in the Fact Gathering and Health Action Plan Phases.

As described above, as of December 2016 site design is not final and no modifications in have been made in site design as a result of the Step 1 Analysis.

The Step 1 Analysis has had 3 significant impacts however:

1. The Park Gateway project team is now aware of the potential health benefits possible though building and site design;

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2. A comprehensive menu of possible health benefit design elements has been prepared and will be included in final building and site design decisions;
3. The Step 1 Analysis has created a platform for continued public health work in Watts beyond the Park Gateway site.

For example, we plan to review our findings with Kaiser Permanente. With KP we seek to identify specific next steps on social determinants of health, especially with respect to systemic factors which fall far outside the scope of an individual housing development.

The Fact Gathering and Health Action Plan - and the future value accruing from this work product - would not have been accomplished had we not participated in the Pilot Program.

B.1 The Monitoring Plan with Performance Metrics to Evaluate the Project's Impact on Resident Health Throughout the Project Life Cycle. (design, construction and operations)

The primary goal of the Pilot Program is to include health benefit elements in the final design of Park Gateway building and grounds.

Secondarily, the Pilot Program introduces the possibility of programmatic elements in on-going activity at Park Gateway by residents and community members.

Finally, the Pilot Program Step 1 Analysis reveals systemic and community-wide factors with significant adverse impacts on health of Watts residents.

A monitoring plan is intended to evaluate the project's impact on resident's health due to final building and grounds design and from any programmatic elements that may be included.

This project impact monitoring plan has the following elements:

First, a simple checklist to indicate which of the design elements identified in the menu of elements are ultimately included in the final building and site design.

Second, a calculation of the individual and cumulative benefit of programmatic elements to individual residents and other community beneficiaries throughout the project life cycle.

Notably, calculation of health impacts on residents arising from variables outside the control of building and site design and apart from narrow programmatic effects is outside the scope of this monitoring effort.

Discussion :

The monitoring plan metrics are listed in order of increasing difficulty of likely accuracy.

A final design plan will be able to make reasonable assessment of the direct health benefit from each design element included.

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For example, use of Low/No VOC Paints, Coatings, Primers, Adhesives and Sealants will have a calculable benefit by applying current health statistics regarding incidents of toxic exposure.

The monitoring plan for such design features is to insure that the specified elements are included in the final construction documents and that contractors follow the documented specifications.

Monitoring benefit from programmatic elements is feasible, within limits. For example, should the housing development include a wellness program to reduce blood pressure, monitoring metrics would include number of participants, time and activity logged by each participant, and a record of blood pressure results over time.

Isolating the benefits of this program from the benefits and harm from the full range of other variables - whether genetics, lifestyle choices, external environmental factors, random events - seems unlikely.

In addition to the empirical challenge of isolating the health benefits to individual residents from building site design or participation in wellness programs, significant questions of statistically meaningful data sets, monitoring costs and medical history privacy arise.

Our conclusion is that for the purposes of the Pilot Program, monitoring will focus on :

1. An detailed evaluation of the menu of possible design elements and a plausible costing of individual elements before making a final include / not include decision.
2. An informed estimate of the individual and cumulative health benefit of the final design elements.
3. As part of standard construction management, specific checklists and steps to first insure inclusion of all health benefit elements in construction documents and then to insure contractors follow the required specifications.
4. As part of final building and site design and corresponding review of likely target tenants, discussion and decision on health benefit programs. Monitoring in this instance would consist of testing building use proposals against options for health benefit programs.

The above-listed monitoring steps are within the existing capacity of Watts organizations working to complete the Park Gateway project. Further or more extensive monitoring effort will require additional capacity and specialized expertise.

Finally, the Step 1 analysis reveals significant and likely in some cases determinative variables on individual health in Watts existing outside the control of individual housing development. A comprehensive Watts Wellness initiative is required and we plan continued action towards that end. This Pilot program is a useful step in the process.

**Enterprise Green Communities
Health Action Plan Pilot
Watts Park Gateway**

B.2 Specific information on indicators, data sources, frequency, and roles and responsibilities for monitoring different information identified as significant.

Monitoring of health-related final design elements will be accomplished by data gathering from a range of sources.

Suppliers and vendors will be asked for specifications of construction materials. The project construction manager, architect and engineers will be required to provide precise cost estimates of possible health elements.

Public health literature will be consulted, most readily by internet search and, as needed, via review with the public health professional.

The data collection and analysis process will be concentrated during the estimated 4-6 month final project financing period, then immediately thereafter as final design decisions are made.

The anticipated indicators are standard incidence statistics aligned with proposed health design features. For example, use of Low/No VOC Paints will result in avoidance of a known number of toxic exposure-related illnesses per thousand.

The individual and cumulative cost and benefits of proposed health elements will be calculated and the include - do not include decisions made on that basis.

The project lead Grant HEDC will be the final decider on Park Gateway site design.

B.3 Identify the individual or organization responsible for implementing and monitoring the selected strategy as well as the rate of how often the associated performance metrics will be monitored.

The Park Gateway project manager will be responsible for implementing and monitoring the selected strategy.

The project manager will review the menu of design elements identified with the project team, with focus on the incremental cost and anticipated benefit of the design features.

Once the final design elements are decided, the project manager will prepare the benefit assessment and calculate the individual and cumulative health benefit generated.

The project manager will be responsible for ensuring the design features are included on all necessary construction documents and that building contractors follow the indicated specifications.

The associated performance metrics will be monitored throughout the construction period up to and including final inspection and bond release

**Enterprise Green Communities
Health Action Plan Pilot
Watts Park Gateway**

With respect to possible programmatic health benefit elements, the project manager will be responsible for evaluating their inclusion in final site design, where relevant, and in discussion and decision on tenant mix with health program impacts.

An hypothetical example would be whether to accept a fast food franchise as a tenant (this is currently specifically excluded).

This monitoring would be ongoing and as needed during the project management phase, until final site design decisions are made and the tenant mix decided.

//

Deliverables:

Gulf Coast Housing Partnership Corporation

2015 ENTERPRISE GREEN COMMUNITIES CRITERIA

SUPPLEMENTAL DOCUMENTATION TEMPLATE

Criteria # 1.2b Resident Health and Well-Being: Health Action Plan
Mandatory for all projects

Instructions: Complete the fields marked below. This document is intended to assist project teams pursuing Enterprise Green Communities Certification that are using the 2015 Criteria. Once completed, this **Note:** To read Criteria 1.2b Resident Health and Well-being: Health Action Plan in its entirety, please review 2015 Enterprise Green Communities Criteria Manual, which can be found online at

Date	8/9/2016
Project Name	Phoenix Square
Project Address	1201 Phoenix Sq.
Project City State, ZIP	Hammond, Louisiana
Contact Name	Andrew Ryan
Contact Email	andrewseanryan@gmail.com
Contact Phone	316-518-2796

REQUIREMENTS

At pre-design and continuing throughout the project life cycle (design, construction, operations), collaborate with public health professionals and community stakeholders to assess, identify, implement and monitor

Step 1: Create a Health Action Plan

Purpose

Conduct additional research on resident health factors identified in 1.2a. Using public health data and community input, characterize how the project may impact — both positively and negatively — social, environmer

Participants

The primary participants are those on the project team, which will be guided by input from community stakeholders likely to be affected by the project, as well as technical assistance from public health professionals (

Process

Gather information and solicit feedback regarding critical health aspects affecting the community (including social, environmental and economic factors that impact health). Hold a series of meetings with key

- Conduct a scoping conversation with public health professionals and community stakeholders to identify the project’s potential connections to health. Prior to this scoping conversation, project teams could review
- Gather evidence (including existing data sources, new qualitative research and/or public hearings, meetings with public health professionals) about the project’s potential connections to health and the baseline
- Outline the distribution of health issues among impacted communities and describe how different groups may be disproportionately impacted by the project (positively and negatively).
- Identify actions that could be taken to enhance health-supportive features of the project and those that could minimize potential health risks. Identify actions that can be taken within the project’s design,
- Using the list of actions produced, prioritize actions to protect and promote health in consultation with public health professionals and community stakeholders. In identifying priority actions, project teams and

Products

- A description of key health issues (including social, environmental and economic factors) identified by stakeholders in the scoping conversation for assessing the project’s connections to health.
- A description of how engaging public health professionals and community stakeholders informed the list of key health issues to be addressed by this project. Submit separately from sample chart seen in
- List (or asset map) of public health and community stakeholders involved. Submit separately from sample chart seen in Recommendations.
- List of potential actions to protect and promote health. See Recommendations for a sample chart that captures this information.
- List of selected interventions; description of reasons for implementing selected actions and rationale for not selecting the other identified potential interventions for implementation; and summary of how the

Step 2: Project Implementation and Monitoring

Purpose

Integrate the list of selected interventions and a plan for monitoring and evaluating your progress into the plan for project development.

Process

- Document and demonstrate how the analysis in Step 1 informed building and site design decisions, including modifications that were made in response to the findings and recommended actions that were
- Develop a monitoring plan with performance metrics to evaluate the project’s impact on resident health throughout the project life cycle (design, construction and operations).

The plan should include:

- A summary of which modifications were made in response to the findings and recommended actions identified in the earlier phases. See Recommendations for a sample chart that captures this information.
- The performance metrics to be monitored. Include design metrics (metrics to determine how well the design team integrated the selected strategies into the project in a manner that will promote positive health
- Specific information on indicators, data sources, frequency, and roles and responsibilities for monitoring different information as per the sample chart in Recommendations in this section.
- Identify the individual or organization responsible for implementing and monitoring the selected strategy as well as the rate of how often the associated performance metrics will be monitored.

HEALTH ACTION PLAN MATRIX - TEMPLATES

Use the template to help you complete the requirements of criterion 1.2b, Step 1:

Key Health Issue and Population Group	Potential Interventions	Examples of Strategies	Was this strategy elected? (Yes/No)	If selected, indicate how this strategy will be implemented	Rationale for selecting or rejecting the example strategy
High Prevalence of Adult Obesity/Physical Inactivity	Increase access to exercise equipment/outdoor activities	Install mile markers on sidewalk/walking path	Yes	Signage will be installed along the walking trail to measure distance walked	Walking trail is already part of the project and increased usage will encourage neighborhood interaction and lead to more positive health outcomes.
High Prevalence of Adult Obesity/Physical Inactivity	Increase access to exercise equipment/outdoor activities	Install outdoor workout equipment in green space	No	n/a	Resources already exist in community at Mixon-Clayton Wellness Center. We do not want to duplicate existing resources.
High Prevalence of Adult Obesity/Physical Inactivity	Increase access to exercise equipment/outdoor activities	Partner with local community fitness center to provide access for tenants.	Yes	Tenants will be informed of the programming available in very close proximity to the housing development.	Community partner (Mixon-Clayton Center) has been an active partner and is interested in supporting the project.

High Prevalence of Adult Obesity/Physical Inactivity	Increase access to exercise equipment/outdoor activities	Design pathways in green space to encourage physical activity	Yes	A path will be installed in green space. Size and scope will depend on remaining budget after preliminary construction.	We would like to utilize the unique resource of having a large and beautiful green space on the property. A walking path will encourage healthy behaviors and provide access to green space.
High Prevalence of Adult Obesity/Physical Inactivity	Increase access to exercise equipment/outdoor activities	Provide community bike rack.	Yes	A bike rack will be installed near the community center in the green space.	The area surrounding the Phoenix Square development is included in the city's master bicycle plan. We would like to encourage use of bikes in the community as a form of exercise and transportation.
High rate of diabetes/obesity	Increase access to healthy food	Community garden in partnership with Head Start and LSU Ag Center	No	n/a	Gulf Coast Housing Partnership has had limited success with community gardens in the past.
High Drowning Rate Amongst Children (nationwide) -> property includes two drainage canals	Create barrier to decrease access to drainage canals.	Build Fence along entire canal	No	n/a	There is no budget to include a fence of this length in the project
High Drowning Rate Amongst Children (nationwide) -> property includes two drainage canals	Create barrier to decrease access to drainage canals.	Utilize existing bamboo overgrowth to build a "green wall" as barrier to canal	Yes	The subcontractor who mows the green space will be given direction to keep a natural barrier of multiple feet thick between the drainage canal and the housing development.	The existing overgrowth on the site is very dense, and with time and additional growth could become nearly impassable. A green wall will serve as a free and unique way to bar access to the canals.
High Incidence of Violent Crime in Hammond, Louisiana.	Prioritize safety and security measures into the design of the development.	Partner with local police to strategically install cameras and lights in the development to prevent crime and make residents feels safe.	yes	We will partner with the police in order to plan the installation of the cameras and lights in the most useful locations.	The police have much experience in utilizing cameras and lighting to prevent crime and prosecute criminals when a crime takes place.
High incidence of Sexually Transmitted Diseases	Provide access to contraceptives	Provide information on how to access free prophylactics.	Yes	We will provide information to tenants about local resources that provide free access to prophylactics.	There is a very high rate of STDs in Tangipahoa Parish and Hammond. We will direct tenants to the resources in the community that currently provide free prophylactics.
High Prevalence of Single Parent Household	Partner with multiple local partners to provide services to children and single parents.	Utilize one of structures on the premises as a Head Start facility.	No	n/a	issues with funding guarantee building structures as housing
High Prevalence of Single Parent Household	Partner with multiple local partners to provide services to children and single parents.	Create a strong marketing plan and close partnerships with Head Start, Heritage Museum, and Clayton Mickson Center to provide child care, feeding, tutoring, etc...	Yes	Upon moving in, tenants will be provided with a list of resources and information on all the partners that we have cultivated.	There are many partners in close proximity to the housing development that offer many services that could be of use to our tenants. Local organizations are providing: child care, tutoring, access to fitness equipment, feeding programs for children, and many other services.

Use the template to help you complete the requirements of criterion 1.2b, Step 2:

Information identified in Step 1 (see above matrix)			New table cells in Step 2			
Population Need	Selected Intervention(s)	Selected Strategy	Potential Performance Metrics	Selected Performance Metrics	Responsible Individual(s) and/or organization(s)	Frequency
High Prevalence of Adult Obesity/Physical Inactivity	Increase access to exercise equipment/outdoor activities	Install mile markers on sidewalk/walking path	<u>Design Metrics</u> Mile markers are included in final drawings with accurate distances. <u>Operations Metrics</u> Maintain mile markers <u>Health Metrics</u> self-reported rates of physical activity among residents. Specifically walking/jogging	<u>Design Metrics</u> Design for small mile marker signs to be generated during construction. <u>Operations Metrics</u> Maintain mile markers regularly to make sure they are legible and viewable. <u>Health Metrics</u> Annual Survey at lease renewal. Questions covering whether tenant walks/jogs as intentional form of exercise or transportation.	<u>Design Metrics</u> Project Manager to oversee plan for installation of mile markers. <u>Operations Metrics</u> Property manager to maintain and fix any issues associated with mile markers <u>Health Metrics</u> Property manager to administer survey annually at lease renewal.	<u>Design Metrics</u> Once, at finish of construction <u>Operations Metrics</u> Mile markers checked semi-annually and maintenance addressed as needed. <u>Health Metrics</u> Annual
High Prevalence of Adult	Increase access to exercise	Partner with local community fitness	<u>Design Metrics</u>	<u>Design Metrics</u>	<u>Design Metrics</u>	<u>Design Metrics</u>

Information identified in Step 1 (see above matrix)			New table cells in Step 2			
Population Need	Selected Intervention(s)	Selected Strategy	Potential Performance Metrics	Selected Performance Metrics	Responsible Individual(s) and/or organization(s)	Frequency
Obesity/Physical Inactivity	equipment/outdoor activities	center to provide access for tenants.	<p>New tenant orientation material</p> <p><u>Operations Metrics</u> Tenants are aware of the opportunities</p> <p><u>Health Metrics</u> self-reported rates of physical activity among residents. Self-reported weight</p>	<p>Information about Mixon-Clayton Wellness Center is included in Health Marketing plan</p> <p><u>Operations Metrics</u> Health marketing plan has been provided to all new tenant.</p> <p><u>Health Metrics</u> Annual Survey at lease renewal. Question covering utilization of Mixon-Clayton Center</p>	<p>Health partner in partnership with Project Manager and Asset/Property Managers</p> <p><u>Operations Metrics</u> Property Manager will stay current on the offerings and have information available to tenants.</p> <p><u>Health Metrics</u> Property manager to administer survey annually at lease renewal.</p>	<p>At move-in of each tenant</p> <p><u>Operations Metrics</u> At lease signing</p> <p><u>Health Metrics</u> Annual</p>
High Prevalence of Adult Obesity/Physical Inactivity	Increase access to exercise equipment/outdoor activities	Provide community bike rack to encourage use of bikes.	<p><u>Design Metrics</u> Community bike rack is included in greenspace design</p> <p><u>Operations Metrics</u> Maintain bike rack</p> <p><u>Health Metrics</u> self-reported rates of physical activity among residents. Self-reported weight</p>	<p><u>Design Metrics</u> Bike rack to be integrated into design of Community Structure in green space.</p> <p><u>Operations Metrics</u> Ensure bike rack remains in good working order</p> <p><u>Health Metrics</u> Annual Survey at lease renewal. Question covering how often tenants ride bikes for exercise or transportation.</p>	<p><u>Design Metrics</u> Project Manager to ensure bike rack is in community structure design</p> <p><u>Operations Metrics</u> Property Manager to inspect and maintain</p> <p><u>Health Metrics</u> Property manager to administer survey annually at lease renewal.</p>	<p><u>Design Metrics</u> Once, upon completion of drawings of community structure</p> <p><u>Operations Metrics</u> semi-annual</p> <p><u>Health Metrics</u> Annual</p>
High Drowning Rate Amongst Children (nationwide) -> property includes two drainage canals	Create barrier to decrease access to drainage canals.	Utilize existing bamboo overgrowth to build a "green wall" as barrier to canal	<p><u>Design Metrics</u> Develop instructions for how green space is to be maintained</p> <p><u>Operations Metrics</u> measure percentage of canal perimeter that is accessible.</p> <p><u>Health Metrics</u> frequency of events in canal</p>	<p><u>Design Metrics</u> Develop instructions for how green space is to be maintained in order to minimize access to drainage canals</p> <p><u>Operations Metrics</u> Assess the success of the plan after each cut</p> <p><u>Health Metrics</u> Rate or reports by residents of children or others playing or gathering beyond the green wall.</p>	<p><u>Design Metrics</u> Property manager will have the instructions and be responsible for oversight.</p> <p><u>Operations Metrics</u> Property Manager to walk length of canal and note any areas where access can be gained to canal.</p> <p><u>Health Metrics</u> Property Manager</p>	<p><u>Design Metrics</u> Instructions can be reviewed after any unsuccessful cuts to reassess the adequacy of the instructions to meet the intentions of the plan.</p> <p><u>Operations Metrics</u> Green space will be underbrushed once or twice per year, and the adequacy will be assessed after each time.</p> <p><u>Health Metrics</u> Ongoing</p>

Information identified in Step 1 (see above matrix)			New table cells in Step 2			
Population Need	Selected Intervention(s)	Selected Strategy	Potential Performance Metrics	Selected Performance Metrics	Responsible Individual(s) and/or organization(s)	Frequency
High Incidence of Violent Crime in Hammond, Louisiana.	Prioritize safety and security measures into the design of the development.	Partner with local police to strategically install cameras and lights in the development to prevent crime and make residents feels safe.	<u>Design Metrics</u> Police are consulted to properly place cameras <u>Operations Metrics</u> Make sure cameras are working properly <u>Health Metrics</u> Self-reported rate of witnessing or being the victim of violent crime.	<u>Design Metrics</u> Police to consult on locations of cameras on the security plans <u>Operations Metrics</u> Ensure that the cameras are operational and capturing video of the areas intended. <u>Health Metrics</u> Annual Survey include questions about safety/crime at lease renewal.	<u>Design Metrics</u> Project Manager to confirm that installation complies with plans. <u>Operations Metrics</u> Company that is contracted to watch cameras will note if cameras are functioning properly. <u>Health Metrics</u> Property manager to administer survey annually at lease renewal.	<u>Design Metrics</u> Once at beginning of project <u>Operations Metrics</u> weekly <u>Health Metrics</u> Annual
High incidence of Sexually Transmitted Diseases	Provide access to prophylactics	Provide information on how to access free prophylactics	<u>Design Metrics</u> Prophylactics information is included in health marketing plan <u>Operations Metrics</u> Tenants are aware of the resources <u>Health Metrics</u> For privacy reasons we will not be gathering information on	<u>Design Metrics</u> Prophylactics information is included in health marketing plan <u>Operations Metrics</u> Health marketing plan is included in every tenant's welcome package <u>Health Metrics</u> STD prevalence or unintended pregnancy among our tenants.	<u>Design Metrics</u> Health partner in partnership with Project Manager and Asset/Property Managers <u>Operations Metrics</u> Property Manager will stay current on the offerings and have information available to tenants. <u>Health Metrics</u>	<u>Design Metrics</u> At move-in of each tenant <u>Operations Metrics</u> At lease signing <u>Health Metrics</u>
High Prevalence of Single Parent Household	Partner with multiple local partners to provide services to children and single parents.	Create a comprehensive health marketing plan and close partnerships with Head Start, Heritage Museum, and Clayton Mickson Center to provide child care, feeding, tutoring, etc...	<u>Design Metrics</u> Health marketing plan is completed <u>Operations Metrics</u> Tenants are aware of the resources <u>Health Metrics</u> Frequency of utilization of services provided by community partners	<u>Design Metrics</u> Health marketing plan is included in new tenant orientation material <u>Operations Metrics</u> Health marketing plan is included in every tenant's welcome package <u>Health Metrics</u> Self-reported rates of utilization by tenants of available services provided by community partners	<u>Design Metrics</u> Health partner in partnership with Project Manager and Asset/Property Managers <u>Operations Metrics</u> Property Manager will stay current on updated offerings from community partners and have information available to tenants. <u>Health Metrics</u> Property manager to administer survey annually at lease renewal.	<u>Design Metrics</u> At move-in of each tenant <u>Operations Metrics</u> At lease signing <u>Health Metrics</u> Annual
High Prevalence of Adult Obesity/Physical Inactivity	Increase access to exercise equipment/outdoor activities	Design green space so as to encourage physical activity	<u>Design Metrics</u> path in greenspace is designed. <u>Operations Metrics</u> make certain that green space is maintained <u>Health Metrics</u> Rates of use of greenspace	<u>Design Metrics</u> Green space is designed to be cleared and accessible to all <u>Operations Metrics</u> <u>Health Metrics</u> Self-reported rates of utilization of green space and community structure	<u>Design Metrics</u> Green space and accompanying community center is designed to be easily accessible to all tenants. <u>Operations Metrics</u> Property manager to ensure that green space is cleared of underbrush 2 times per year. <u>Health Metrics</u> Property manager to administer survey annually at lease renewal.	<u>Design Metrics</u> Once, upon completion of drawings <u>Operations Metrics</u> twice yearly <u>Health Metrics</u> Annual

Deliverables:

LUCHA

Latin United Community Housing Association



Health Action Plan Tierra Linda Affordable Housing Development

December 16, 2016

Prepared in Partnership with:



LANDON BONE BAKER ARCHITECTS

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* See **Strategy Matrix Spreadsheet** for:

Health Action Plan Strategies and Metrics

Enterprise Green Communities criteria

List of Community Assets

Description of Tierra Linda and the Health Action Plan

Tierra Linda, Spanish for “beautiful earth”, is a new scattered site development within the Humboldt Park and Logan Square community areas of Chicago focused on sustainable design and healthy living. Tierra Linda is a project of the Latin United Community Housing Association (LUCHA). LUCHA advances housing as a human right by empowering communities, particularly Latino and Spanish-speaking populations, through advocacy, education, affordable housing development, and comprehensive housing services. The Tierra Linda project began in 2014 with construction planned to begin in late spring 2017.

The scattered site Tierra Linda development will utilize 12 lots. A mix of newly constructed 3-flat and 6-flat buildings will provide 45 dwelling units. In addition, the buildings will contain one, two, and three bedroom options. The developments will be open to families making less than 50% of the median income for the area.

Social and economic conditions, such as housing, are the biggest predictors of health.¹ Addressing the social and economic determinants of health is a primary approach to achieving health equity.¹ There are three major inter-related aspects of housing that have been linked to health:

- Housing affordability;
- Neighborhood conditions; and
- Conditions within the home.²

By providing the extremely low-income and low income community in Humboldt Park with additional quality affordable housing options, the Tierra Linda project has the potential to significantly impact health for residents. This Health Action Plan was completed in order to characterize the potential impacts, both negative and positive, of the Tierra Linda project and to prioritize actions that will protect and promote health for Tierra Linda residents and the surrounding community.

Descriptions of the communities most likely to be impacted by Tierra Linda

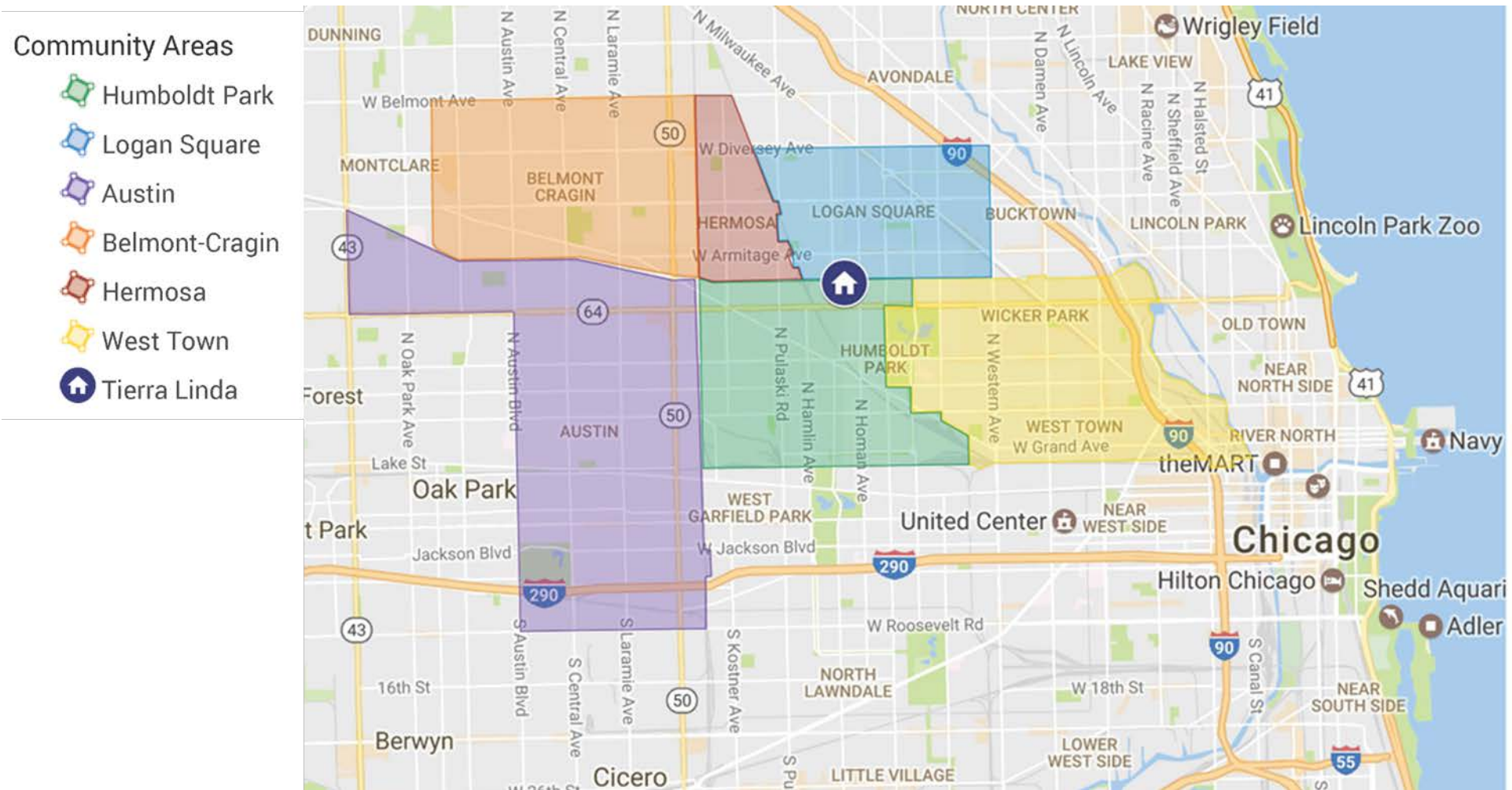
The Tierra Linda housing development will likely have the greatest impact on building residents and the communities nearest the building sites. As previously mentioned, Tierra Linda is a scattered site development within the Humboldt Park and Logan Square communities on the West Side of Chicago (Figure 2). The community areas surrounding the project sites in Humboldt Park include Austin, Belmont Cragin, Hermosa, Logan Square, and West Town (Figure 1).

Socioeconomic indicators for the communities that will be most impact by the Tierra Linda project (Figure 3) vary based on several factors such as race and ethnicity; gender; age; geography; and immigration status. The age, race, and ethnic makeup of communities most impact by the project is presented in Figure 4.

¹ Centers for Disease Control and Prevention. 2014. NCHHSTP Social Determinants of Health. <http://www.cdc.gov/nchhstp/socialdeterminants/faq.html>

² Braveman, P, Dekker, M, Egerter, S, Sadegh-Nobari, T, and Pollack, C. 2011. Housing and Health Issue Brief #7 Exploring the Social Determinants of Health. Robert Wood Johnson Foundation.

Figure 1. Community Areas in Chicago that will likely be the most impacted by the Tierra Linda project.



Note: Tierra Linda is a scattered site development, as shown in Figure 2.

Figure 2. Proposed Tierra Linda sites in the Humboldt Park Community Area of Chicago.



Source: Landon, Bone, Baker Architects

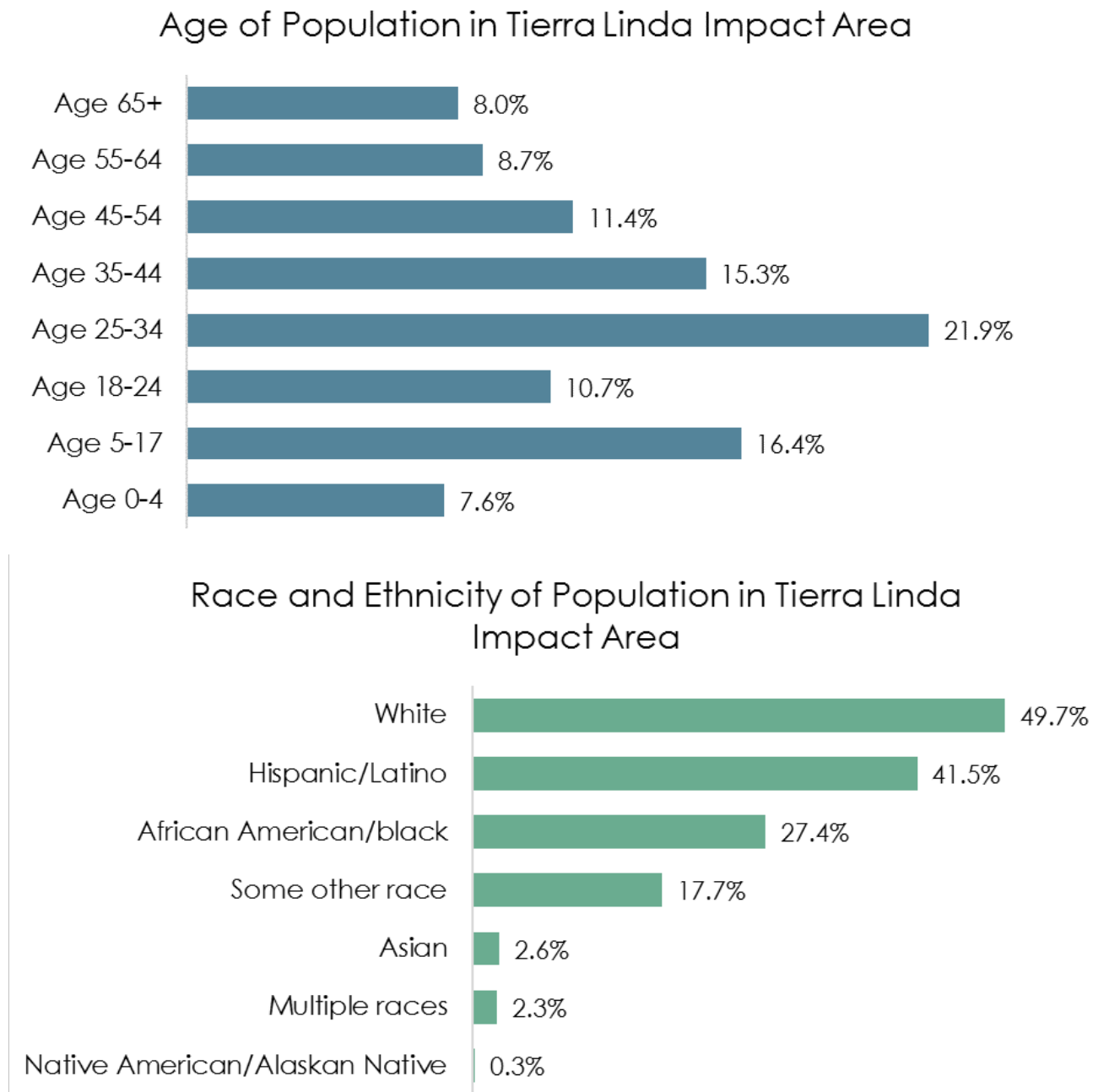
Figure 3. Socioeconomic characteristics of the six communities most impacted by the Tierra Linda project.

Indicator	Logan Square	Humboldt Park	Belmont Cragin	Hermosa	West Town	Austin	Chicago
Population (2010)	72,79 14% Decrease (2000-2010)	56,323 17% Decrease (2000-2010)	78,743 1% Increase (2000-2010)	25,010 8% Decrease (2000-2010)	82,236 6% Decrease (2000-2010)	98,514 19% Decrease (2000-2010)	2,695,587 7% Decrease (2000-2010)
Percentage of Population Living in Poverty (2009-2013)	20.4%	34.7%	20.6%	20.3%	16.0%	31.2%	22.6%
Percentage of Population without a High School Diploma (2009-2013)	12.7%	33.0%	38.3%	42.2%	12.6%	24.5%	18.9%
Per capita income (2007-2011)	\$29,026	\$13,391	\$15,246	\$15,411	\$39,596	\$15,920	\$27,940
Percentage of Population that is Unemployed (2009-2013)	7.7%	17.2%	15.8%	14.0%	7.1%	22.5%	13.6%
Percentage of Population living in Crowded Housing (2007-2011)	3.2%	11.2%	10.0%	8.4%	2.0%	5.7%	4.7%
Percentage of Households that are Cost-Burdened* (2009-2013)	44.6%	58.5%	55.5%	62.1%	38.4%	58.6%	45.4%

*Cost Burdened Households are households in which housing costs exceed 30% of total household income.

Data Sources: American Community Survey, 2009-2013; Chicago Department of Public Health, Chicago Health Atlas, 2007-2011; U.S. Census Bureau, 2000-2010 Census

Figure 4. Age and ethnicity of population in Tierra Linda impact area.



Data Sources: American Community Survey, 2009-2013; U.S. Census Bureau, 2010 Census

Health status

Most communities nearest the proposed building sites have disproportionately high rates of poverty, cost-burdened and crowded housing, low educational attainment, and unemployment. As a result, they also share a disproportionate burden of health inequities (Figure 5).

Within the city of Chicago, there are wide geographic variations in emergency department (ED) visits and hospitalizations for chronic conditions such as asthma, diabetes, and heart disease. Hospitalizations and ED visits vary geographically within the Tierra Linda impact area as well (Figure 5).

- In the city of Chicago overall, age-adjusted emergency department visits for asthma range from 7.6 visits per 10,000 population to 436.7 visits per 10,000 population.
- In the city of Chicago overall, age-adjusted emergency department visits for diabetes range from 2.2 visits per 10,000 population to 115.6 visits per 10,000 population.
- In the city of Chicago overall, age-adjusted hospitalizations for heart disease range from 0.7 hospitalizations per 10,000 population to 28.8 hospitalizations per 10,000 population.

Figure 5. Health status indicators for the Tierra Linda impact area.

Indicator	Logan Square (60647)	Humboldt Park (60651)	Belmont Cragin (60639)	Hermosa (60639)	West Town (60622)	Austin (60644)
Emergency Department Rates for Adult Asthma	83.6 (per 10,000)	271.8 (per 10,000)	105.9 (per 10,000)	105.9 (per 10,000)	101.1 (per 10,000)	369.7 (per 10,000)
Emergency Department Rates for Pediatric Asthma	119.8 (per 10,000)	234.9 (per 10,000)	144.0 (per 10,000)	144.0 (per 10,000)	165.7 (per 10,000)	344.4 (per 10,000)
Emergency Department Rates for Diabetes	33.0 (per 10,000)	66.4 (per 10,000)	38.8 (per 10,000)	38.8 (per 10,000)	35.4 (per 10,000)	74.1 (per 10,000)
Hospitalizations for Heart Failure	5.3 (per 10,000)	21.3 (per 10,000)	9.6 (per 10,000)	9.6 (per 10,000)	8.7 (per 10,000)	18.7 (per 10,000)

Data Sources: Healthy Communities Institute, Illinois Hospital Association COMPdata, 2012-2014

Distribution of health inequities

Socioeconomic inequities have profound effects on health outcomes, overall mortality, premature mortality, and life expectancy. For example:

- Studies have consistently shown that asthma and associated morbidity is highest in Chicago among non-Hispanic blacks and those living in federally-assisted housing. Children in disadvantaged communities of color are particularly burdened by asthma and issues such as dilapidated housing stock, poor air quality, and limited access to care compound the problem.³
- Food insecurity is high within areas of Chicago that have high rates of diabetes-related hospitalizations. African American/blacks and Hispanic/Latino(a)s in Chicago have higher diabetes-related mortality rates than non-Hispanic whites and Asians.⁴
- Heart disease mortality is higher in low-income communities of color in Chicago.⁵
- Homicide and firearm mortality is highest among African American/blacks and Hispanic Latino(a)s.⁵ The communities in the Tierra Linda impact area that have the highest violent crime rates are Austin, Humboldt Park, and West Town.

Overall in Chicago, life expectancy for people in areas of high economic hardship is five years lower than those living in communities with better economic conditions. Within the Tierra Linda impact area, life expectancy ranges from 73.7 years in Austin to 81.0 years in Belmont Cragin (Figure 6). Years of potential life lost (YPLL) is the average number of years a person might have lived if they had not died prematurely. It can also be used as an indicator of health disparities. The overall YPLL for the Austin and Humboldt Park community areas is more than twice the overall YPLL for Logan Square (Figure 6).

Figure 6. YPLL and life expectancy for communities within the Tierra Linda impact area.

Indicator	Logan Square	Humboldt Park	Belmont Cragin	Hermosa	West Town	Austin
Years of Potential Life Lost [Premature Mortality] (2013)	4,732 (Years)	9,930 (Years)	5,497 (Years)	5,748 (Years)	4,754 (Years)	13,131 (Years)
Life Expectancy in years (2012)	80.1	76.3	81.0	80.4	79.5	73.7

Data Sources: Chicago Department of Public Health, 2013; Illinois Department of Public Health, Mortality Files, 2012

³ Sinai Urban Health Institute and Respiratory Health Association of Metropolitan Chicago, 2011.

⁴ Greater Chicago Food Depository and Feeding America, Social Impact Research Center; Illinois Department of Public Health, 2012.

⁵ Illinois Department of Public Health, 2012.

Community engagement

Community input was a critical component of health action planning. Input was collected through focus groups and a meeting with representatives from community organizations and healthcare providers serving the communities near the Tierra Linda sites.

Focus groups

Two focus groups were conducted as part of the Tierra Linda Health Action Plan. A focus group was conducted in Spanish with community residents at the McCormick Tribune YMCA in the Logan Square community area of Chicago. A second focus group was conducted with residents of LUCHA's Humboldt Park Residence (HPR). HPR provides affordable housing for the extremely low-income population in the Humboldt Park community area of Chicago. Each of the focus groups were roughly 1.5 hours long, with approximately 15-20 participants in each group. Focus group participants mentioned a number of negative health outcomes affecting their community and identified health assets. When possible, participants identified the underlying root causes of health outcomes as well as contributing factors that affect those outcomes. In addition, participants made several recommendations for maximizing health and reducing negative health outcomes among Tierra Linda residents.

Health Advisory Group

Following the focus groups with community residents, LUCHA and IPHI held a meeting with a Health Advisory Group (advisory group) made up of ten health professionals from community-based organizations, healthcare institutions, and academic institutions. The advisory group members shared their insights about the biggest health issues facing the communities, reviewed draft health action plan strategies, provided input on opportunities to maximize health and wellness among Tierra Linda residents, and provided ideas for potential partnerships.

Summary of Key Input on Community Health Issues

Respiratory Illness

Respiratory illnesses, such as asthma, allergies, sinusitis, and coughing, were identified as major factors that could impact health for residents at Tierra Linda. Multiple residents at the HPR stated that their respiratory symptoms were aggravated by their neighbors smoking indoors. They recommended that outdoor designated smoking areas away from the entrance of the Tierra Linda buildings be created to reduce resident's exposure to secondhand smoke. Focus group participants from both groups recommended that Tierra Linda be designated as smoke-free housing.

In addition to secondhand smoke, participants in both groups identified wall-to-wall carpeting within housing as another factor contributing to respiratory symptoms. Participants recommended that Tierra Linda include hard flooring in high-moisture areas such as the kitchen and bathrooms and that some units be completely carpet-free.⁶ Pollution was identified as a contributing factor to poor respiratory health and participants stressed the importance of creating good indoor air quality. The advisory group recommended that LUCHA investigate user friendly ways to notify residents of outdoor air quality such as text alerts, phone applications, and website notifications. Portable low-

⁶ Both smoke-free housing and carpet-free housing are planned for the Tierra Linda development.

cost pollution sensors were also mentioned as a way for residents to be alerted to poor outdoor air quality conditions.

Other housing conditions such as mold, lead, rust, peeling paint, and bad heaters were identified as major contributing factors to respiratory health. The high cost of housing and gentrification were identified by YMCA participants as underlying root causes of poor respiratory health. Advisory group members agreed that high housing costs and gentrification were contributing to health issues in the community. Participants in the YMCA focus group recommended that Tierra Linda residents be educated on the use of HEPA equipment for improving indoor air quality. The advisory group recommended that LUCHA investigate and pilot the use of innovative building materials that could potentially reduce indoor air pollution. The advisory group also recommended that LUCHA partner with different existing asthma programs for recommendations on additional asthma-reducing design considerations, opportunities to educate families and individuals about asthma management, and community health worker programs.

Mobility-related Issues

Multiple focus group participants indicated that arthritis and other musculoskeletal issues significantly affect quality of life for community residents. Participants identified a lack of exercise and a lack of accessible housing as contributing factors to muscle aches and pains, arthritis symptoms, and a deterioration of muscle and bone health. Both focus groups indicated that a lack of safety in the Humboldt Park community area was one of the root causes for community residents not engaging in needed exercise. A lack of health insurance and healthcare resources were also identified as root causes for not engaging in healthy behaviors. As a solution, participants recommended that the Tierra Linda buildings include exercise rooms for residents. Participants explained that if exercise equipment was available within the Tierra Linda buildings, that the convenience and safety could encourage exercise among the residents. Participants also recommended that Tierra Linda units and public spaces be accessible for residents with physical disabilities and explained the need for assisted living services, such as assistance with household cleaning, for individuals with mobility issues.

Mental Health

Focus group participants indicated that depression and anxiety were major issues affecting individuals in their community. They identified a lack of community and fellowship with neighbors as a contributing factor to depression and anxiety among community residents. Some of the underlying root causes of the mental health outcomes of community members include isolation, a lack of engaging community events, and negative perceptions of safety. To prevent isolation of Tierra Linda residents, focus group participants recommended that buildings include a couple of public spaces such as community rooms, computer rooms, and gardens/outdoor areas. They also recommended that events such as English as a Second Language (ESL) classes, computer classes, music classes, bingo games, and adult peer discussion groups be held to further encourage residents to engage with their neighbors. Another aspect of isolation that was identified included negative perceptions of safety. Community residents at HPR stated that they generally felt safe, but that their friends and family did not visit them because of negative perceptions of safety about the Humboldt Park community area. They recommended that the Tierra Linda buildings include 24-hour onsite security staff, working security cameras, nighttime lighting, and window locks or guards to improve perceptions of safety and reduce potential isolation of residents. The advisory group suggested that

play streets and neighborhood block clubs for engaging community residents and preventing isolation.

Chronic Illness, Food Access, and Physical Activity

Focus group participants identified a number of chronic illnesses as having an impact on their community including high blood pressure, diabetes, and cancer. Individual health behaviors, poor nutrition, poverty, unemployment, lack of exercise, as well as exposure to cigarette smoke and pollution were identified as contributing factors to chronic illnesses. Participants indicated that a lack of stores that sell healthy foods, the high cost of healthy foods, cuts to SNAP benefits, food insecurity, lacking health insurance, and a lack of quality education are underlying root causes of the poor nutrition and unhealthy behaviors that often lead to chronic illnesses. Participants identified the availability of organic foods and community gardens, easy access to health clubs or exercise equipment, access to safe outdoor spaces, and smoke-free housing policies as potential opportunities to reduce chronic illness among Tierra Linda residents. Participants identified safety concerns as a major factor influencing outdoor activities.

The advisory group agreed that providing safe opportunities for physical activity for Tierra Linda residents, particularly children, is a critical health priority. They recommended that LUCHA create partnerships with organizations such as Divvy, West Town Bikes, nearby parks, and local neighborhood associations to provide programs for Tierra Linda residents. In addition, several specific activities or events were mentioned that could encourage physical activity among residents such as:

- Block parties or play streets (temporarily closing off neighborhood streets, so that neighbors, including children, can engage in games and sports while building community cohesion);
- Resident bike clubs and walking clubs;
- Programming to support use of the 606 Trail; and
- Local classes in martial arts and yoga.

The advisory group also recommended that community gardens include cultural foods so that residents are more engaged. Classes that teach residents how to shop for and prepare healthy foods, such as Cooking Matters, were another recommendation.

The advisory group highly recommended further coordination with local hospitals to address chronic illness among community members and Tierra Linda residents. They also recommended that local Federally Qualified Health Centers, parks, health clubs, schools, and community based organizations be engaged. The advisory group highlighted the need to find opportunities to share information about existing resources.

Housing costs and gentrification

Focus group participants and members of the Health Advisory Group emphasized that housing cost and quality are root cases of health inequities. Focus group participants linked high housing costs with physical and mental health conditions. The advisory group agreed and pointed out that gentrification and shifting community demographics have major health implications. The advisory group emphasized the need to help Tierra Linda residents fully integrate into the surrounding communities so that they are not isolated and feel comfortable utilizing community assets such as the nearby 606 Trail.

Community safety and community cohesion

Based on input from the focus groups and advisory group, LUCHA and IPHI have determined that community safety and community cohesion are cross-cutting issues that relate to a number of health outcomes that impact communities near the proposed project sites.

Community Safety

Among the focus group participants, perceptions of safety were highlighted as a key factor affecting community health and well-being. There was a range of perspectives on community safety that were raised across the two focus groups. Participants in the YMCA group mentioned that they don't let their children play outside or on the 606 Trail due to safety concerns while some HPR residents expressed that they generally feel safe but their friends and family did not visit them because of negative perceptions of safety about the Humboldt Park community area. As a result, some community residents felt isolated from friends and family. Community input also indicated that safety concerns limited outdoor physical activity for both children and adults and highlighted the need for Tierra Linda residents to have safe opportunities for outdoor physical activity.

Community Cohesion

Community input indicated that community cohesion has an impact on mental health and the management of chronic illness. According to community residents and community health experts, participation in engaging programs and events such as skill-building classes, community gardening, bike clubs, exercise classes, and block clubs/play streets may reduce feelings of isolation and increase physical activity and access to healthy foods for Tierra Linda residents.

Figure 7. Root causes and contributing factors to community health outcomes that were identified by focus group participants and the advisory group.

Health Outcomes	Contributing Factors	Root Causes
Respiratory Illness <ul style="list-style-type: none"> • Cigarette Smoke/Indoor smoking • Asthma (Children & Adults) • Allergies • Sinusitis • Coughing 	<ul style="list-style-type: none"> • Cigarette Smoke/Indoor smoking • Pollution • Indoor carpets • Cleaning supplies • Poor housing conditions <ul style="list-style-type: none"> ◦ Mold ◦ Lead ◦ Rust ◦ Peeling paint ◦ Bad heaters 	<ul style="list-style-type: none"> • High cost of housing and gentrification
Arthritis/Rheumatoid Diseases <ul style="list-style-type: none"> • Muscle aches and pains • Bone and muscle deterioration 	<ul style="list-style-type: none"> • Lack of exercise 	<ul style="list-style-type: none"> • Lack of safety • Lack of healthcare resources • No health insurance
Mental Health <ul style="list-style-type: none"> • Depression • Anxiety 	<ul style="list-style-type: none"> • Lack of community and fellowship with neighbors • Stress • Poverty • Unemployment 	<ul style="list-style-type: none"> • Lack of visitors/isolation of individuals • Lack of community events/Not joining in community events • Negative perceptions of safety
Chronic Illness <ul style="list-style-type: none"> • Hypertension • Diabetes • Cancer • Obesity 	<ul style="list-style-type: none"> • Health behaviors • Unhealthy foods*/Poor nutrition • Lack of exercise • Exposure to cigarette smoke • Pollution • Poverty • Unemployment • Poor housing conditions 	<ul style="list-style-type: none"> • High cost of healthy foods • Lack of stores with healthy foods • Cuts to SNAP benefits • Food insecurity • No health insurance • Lack of quality education • Lack of safety • High cost of housing
Skin Conditions <ul style="list-style-type: none"> • Eczema 	<ul style="list-style-type: none"> • Poor housing conditions 	

Community assets

Focus group participants and advisory group members identified a number of community assets in the areas near the proposed project site. Easy access to multiple hospitals, health centers, and other health resources was identified as a major asset to the location of the Tierra Linda project. Proximity to the recreation opportunities at Humboldt Park and the 606/Bloomingdale Trail was identified as an asset. A local food co-op located north of the project sites was identified as a potential asset, since it provides fresh fruits and vegetables. As previously mentioned, community residents indicated the need for easily accessible health clubs or exercise equipment and stores selling healthy foods including fresh fruits and vegetables near the project sites. As list of community assets mentioned by residents and stakeholders can be found in Tab C of the Strategy Matrix spreadsheet. Additional community needs that were identified include ways to share information about community resources, additional after-school programs, youth leadership development programs, adult peer discussion groups, and the development of abandoned properties.

Recommendations

As previously mentioned, focus group participants and the advisory group highlighted a number of recommendations for building design that could maximize the health benefits of the Tierra Linda project. The recommendations are separated into three categories: design recommendations, housing policies, and events/services for residents (Figure 8).

Figure 8. Summary of the focus group and advisory group recommendations for promoting the health of Tierra Linda residents.

Design Recommendations
Accessible units and public spaces for residents with mobility issues/Accessible bathrooms
Child safety features such as safety covers for power outlets
Inclusion of multiple public spaces <ul style="list-style-type: none"> Community rooms, Computer rooms, Exercise rooms, Gardens/Outdoor areas
Carpet-free units
Working windows that are easy to operate and do not leak
Large rooms with plenty of storage
Safety Promoting Design Features <ul style="list-style-type: none"> Nighttime lighting Window guards/locks
Colorful public spaces and natural lighting
Special room for bike storage
Carbon monoxide detectors
Safe and secure storage for cleaning products
Noise reducing/preventing design
Secure garbage areas to prevent rodents
Use of hypoallergenic/Mold reducing materials in bathrooms
Use of asthma trigger/allergen reducing building materials
Safe outdoor areas for children to play
Policies
Smoke-free buildings /Dedicated smoking areas that is at least 15 feet away from entrances to buildings
Pet-Free Buildings
Mandatory monthly resident meetings to encourage community participation
Opportunities to meet potential neighbors before moving in to reduce conflict among residents
Events/Services for residents
Classes within the buildings <ul style="list-style-type: none"> Computer classes, ESL/English classes, Music classes, Cooking classes, Physical activity programs Smoking cessation programs Peer discussion groups
24 Hour onsite security personnel and working video cameras to improve perceptions of safety
Assisted living services for residents who need them
Assistance with utility costs
Forums for sharing community information
Youth Leadership Development Programs
After-school programs
Availability of air purifiers
Easily accessible outdoor air quality alerts for residents

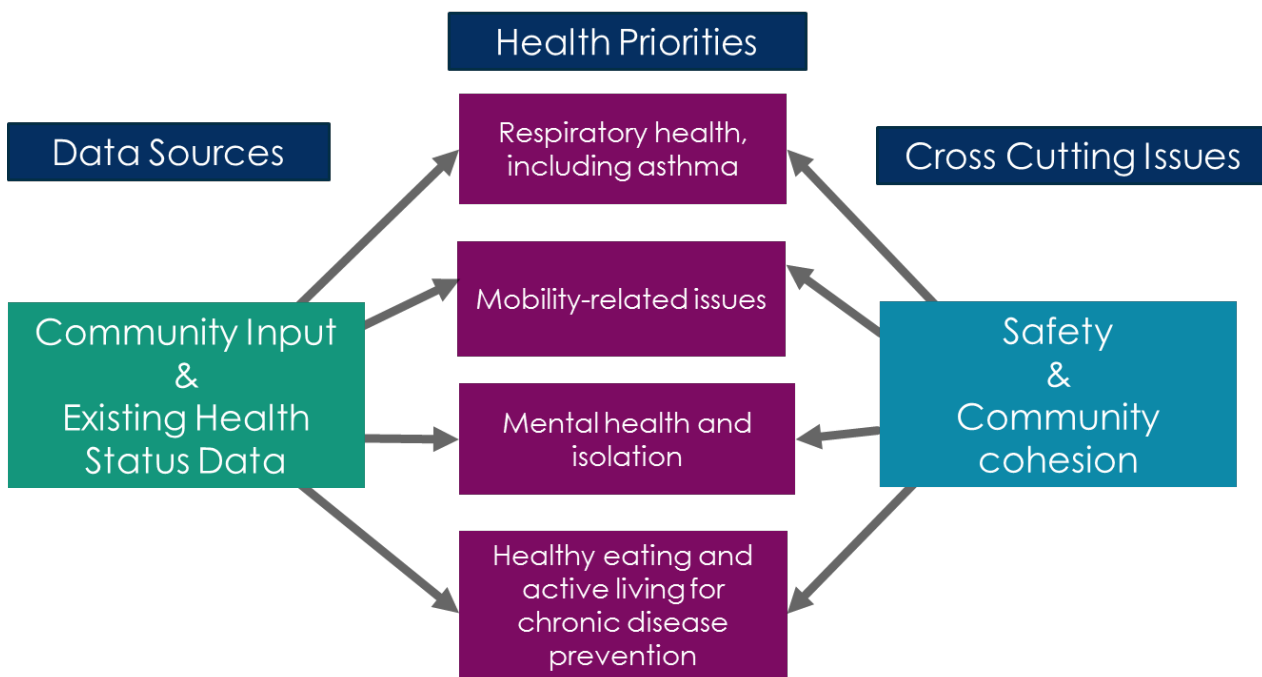
Priority health issues

As shown in Figure 9, community input from focus groups and the Health Advisory group was combined with existing community health status data to develop four health priorities and two cross-cutting areas of interest that are significantly impacting the health of communities near the proposed Tierra Linda sites:

- **Respiratory health, including asthma** (Asthma, allergies, sinusitis, and coughing);
- **Mobility-related issues** (Arthritis and other musculoskeletal issues);
- **Mental health** (Depression, anxiety, and isolation); and
- **Healthy eating and active living for chronic disease prevention** (Diabetes, hypertension, and cancer).

Safety and community cohesion were identified as cross-cutting issues that influence health in each of the four major areas.

Figure 9. Priority health issues for the Tierra Linda project.



Health Action Plan - Strategy matrix and metrics

See Strategy Matrix spreadsheet

LUCHA and IPHI combined input from community residents and the advisory group with existing health data to create and prioritize strategies for the health action plan. The Strategy Matrix spreadsheet includes a description of key health issues and interventions along with implementation strategies.⁷ The Strategy Matrix also includes metrics for monitoring and evaluation that are divided into three categories:

- Design Metrics: Metrics to determine how well the design team, at the design stage, integrated the selected strategies into the project in a manner that will promote positive health outcomes.
- Operations Metrics: Metrics that can be measured on a routine basis while the building is in operation to determine whether or not the building is performing as intended.
- Health Metrics: Metrics regarding resident health factors and where possible incidence or prevalence of key health outcomes in the resident and/or community population.

Tab B of the Strategy Matrix spreadsheet contains a list of the Enterprise Green Communities criteria the Tierra Linda housing development will achieve.

Implementation and monitoring plans

As an extension of LUCHA's efforts to integrate health and housing to positively impact the health of its residents, it has chosen to pursue various initiatives to achieve this. One of the initiatives is to create a position within LUCHA to expand beyond the built environment and health to include programming as a key strategy to engage residents and to educate and empower them to make lifestyle changes affecting their health.

The introduction of a qualified Health/Wellness Coordinator will allow the organization to establish and maintain a fruitful relationship with its new tenant population at Tierra Linda as well as LUCHA's existing tenants, and in this way, identify the needs and effectiveness of new and existing interventions. The Health/Wellness coordinator will be able to educate tenants on the green and healthy features within the units and the properties in order to emphasize the health and wellness goals of the community. Furthermore, the coordinator will serve as a reliable point of contact for tenants as well as local health organizations and community partners. The coordinator will also be the key staff member responsible for implementing and tracking the outcomes of the strategies and programming identified in this Health Action Plan.

LUCHA is pleased to have been awarded a grant by Enterprise Community Partners to add the Health/Wellness Coordinator position to expand on its capacity around health and housing. The position will be filled in early 2017. The coordinator will assist over two years in carrying out this plan and creating long-term healthy living programs at LUCHA. Through tracking and reporting, the Health/Wellness Coordinator will be able to share the outcomes of LUCHA's health and housing strategies which can then be referenced by other housing developers and health professionals focusing on the interface between health and housing, especially for low-income households.

⁷ Strategies for addressing mobility-related issues are included as a part of building design, but not listed as a separate priority in the matrix.

Key lessons learned from this pilot

There were several key lessons learned from piloting the Health Action Plan process:

- LUCHA and IPHI found high interest among staff, community residents, community-based partners, and health professionals in this Health Action Plan process.
- The guidance and materials for the Health Action Plan (including the examples and criteria provided) focused heavily on aspects of the building design and built environment. However, the input received from community residents and the Health Advisory Group throughout our process suggest that health programming, services within the building, and partnerships with other community-based service providers are important aspects of promoting health for residents. The Health Action Plan strategies for Tierra Linda are almost equally split between design/built environment strategies and programming strategies. LUCHA and IPHI would recommend including more programming and community partnership examples in future iterations of the manual and other materials.
- Staff at LUCHA found it difficult at first to connect with public health professionals that have experience and capacity related to the health action planning process (i.e. public health professionals with HIA experience and/or understanding of the connections between housing and health). Once the right partners were found, the entire action planning process moved much more quickly. LUCHA and IPHI would recommend providing additional guidance about connecting with appropriate public health professionals beyond what is currently listed in the manual, so that more time can be spent on the health action planning process.
- LUCHA expects that the findings from the Tierra Linda Health Action Plan will be applicable to other housing projects.
- Gathering community and stakeholder input was an extremely important part of the action planning process. Community input provided important insights into community health that the action planning team had not thought to consider. LUCHA and IPHI recommend that community and stakeholder engagement be a core component/criterion for the health action planning process.
- Implementation and monitoring will require staffing and resources. LUCHA is fortunate to have been awarded a grant by Enterprise Community Partners. The grant will be used to hire a Health and Wellness Coordinator that will implement and monitor the programming aspects of the Tierra Linda development. It would be challenging for a community-based affordable housing developer to implement the programming aspects of a Health Action Plan without additional staffing.

Strategy Matrix

	A	B	C	D	E	F	G	H	I	J	K
1	Key Health Issue and Population Group	Potential Interventions	Examples of Strategies	Was this Strategy Elected (Yes/No)	How Will This Strategy Be Implemented?	Key Partners for Implementing	Rationale for Selecting/Rejecting Strategy	Potential Performance Metrics	Selected Performance Metric	Responsible Individual(s) and/or Organization	Frequency
2	Healthy Eating and Active Living										
3	1. Prevalence of Diabetes in adults and youth 2. Prevalence of Obesity in adults and youth 3. Food insecurity 4. Access to affordable fresh produce and healthy food	Access and use of parks and trails	Provide programming around activities on the 606 trail	Yes	Post 606 organized events on LUCHA's community calendar. Hire staff to organize tenants to participate as a group	606 trail staff, Trust for Public Land	The 606 Trail is a recently developed asset that is close to all properties and its free to use	number of activities provided, number of community members/TL residents attending activities, number/frequency of community members/TL residents who report using the 606 trail	Design Metrics: NA Operations Metrics: Track number of events Health Metrics: Track the number of participants in 606 groups; track program activities (such as miles or steps walked/run, minutes spent bike riding, skills gained by participants etc.)	LUCHA	Track quarterly
4	4. Knowledge of and use of fruits and vegetables in cooking 5. Concerns about safety in outdoor physical activity.		Partnership with Simons Park for programming	Yes		Friends of the Parks, park district	Simons Park is a small community park near LUCHA's building w/ indoor facilities	number of activities provided, number of community members/TL residents attending activities, number/frequency of community members/TL residents who report using the Simons Park	Design Metrics: NA Operations Metrics: Track number of activities provided annually at park Health Metrics: Survey residents to determine program participation levels	LUCHA	Track annually
5	6. Access to affordable fitness programs.		Partnerships with Humboldt Park	Maybe - Residents are more likely to use Simmons Park due to its closer proximity		Friends of the Parks, park district, Humboldt Park Advisory Council		number of activities provided, number of community members/TL residents attending activities, number/frequency of community members/TL residents who report using Humboldt Park	Design Metrics: NA Operations Metrics: Track number of activities provided annually at park Health Metrics: Survey residents to determine program participation levels	LUCHA	Track annually
6		Promote physical activity through use of community assets and resources	Provide access to community-based gyms and physical activity programming	Maybe- need to negotiate what can be provided with MOU	Negotiate partnership to allow use of facilities for classes	McCormick YMCA (access to Y and/or classes); Simons Park,	The McCormick YMCA is within 0.5-1 mile from LUCHA's properties and provides multiple classes and types of facilities	number/frequency of residents accessing community based gyms, number/frequency of residents accessing community-based physical activity programming	Design Metrics: NA Operations Metrics: Track number and type of activities/classes each year Health Metrics: Number of program participants (use sign-in sheet); Track number of new YMCA memberships; self-reported prevalence of diabetes; self-reported prevalence of obesity	LUCHA	Operations Metric: Track annually Health Metric: Track quarterly and survey annually
7			Partnership with Diabetes Empowerment Center	Maybe- need to discuss further w/ partner		Humboldt Park Community Diabetes Empowerment Center	The Humboldt Park Diabetes Empowerment Center is 1.0-1.5 miles from LUCHA properties and offers indoor facilities for active activities and classes	Measure and track weight loss/gain on a voluntary basis. Offer programs to award positive weight loss	Design Metrics: NA Operations Metrics: Track number and type of activities/classes each year Health Metrics: Track number of program participants (use sign-in sheet)	LUCHA	Operations metric: Track annually Health Metric: Track at end of each session
8			Community calendar of physical activity programming and events	Yes	Hire staff to maintain and post on LUCHA's website and in tenant newsletter	LUCHA		Track visits to website. Survey participants at events at sign-in how they heard of event.	Design Metrics: NA Operations Metrics: Track number of visitors to website or information requests; Survey those at events to determine if they used calendar (question on sign-in sheet) Health Metrics: NA	LUCHA	Track monthly
9		Encourage physical activity and community cohesion through organized events focused on biking and walking; Promote positive perceptions of safety for physical activity	Organized bike rides, Resident bike days; Play streets; Ciclovía; Divvy cards for tenants/ Divvy for Everyone (public bike share system)	Yes	Organize 4-6 bike rides for LUCHA households in the community area; Schedule a spring and summer info day at HPR and LUCHA's office for C4CL to have a table and computer sign up.	West Town Bikes, Slow Roll, Bike Ambassadors, Divvy, Center for Changing Lives	West Town Bikes is a new LUCHA partner that offers organized rides for youth. Bike Ambassadors has assisted LUCHA in the past and can help organize rides. Slow Roll used to operate in H.P. but not recently; The Divvy for Everyone program provides affordable bike share memberships. C4CL's is a strong LUCHA partner and is the local program administrator	number of events executed, number of community members participating in events, number of Divvy cards distributed to residents, usage of community Divvy bike stations	Design Metrics: NA Operations Metrics: Track number of events each year; Track number of inquiries at C4CL; Track number of memberships per year Health Metrics: Number of minutes spent biking; Annual survey of residents to determine Divvy usage; Self-reported physical activity; Track number of biking event participants	LUCHA, West Town Bikes; Center for Changing Lives	Operations Metric: Track annually Health Metric: Track at the end of each session

Strategy Matrix

	A	B	C	D	E	F	G	H	I	J	K
1	Key Health Issue and Population Group	Potential Interventions	Examples of Strategies	Was this Strategy Elected (Yes/No)	How Will This Strategy Be Implemented?	Key Partners for Implementing	Rationale for Selecting/Rejecting Strategy	Potential Performance Metrics	Selected Performance Metric	Responsible Individual(s) and/or Organization	Frequency
10			Walking groups , walking to school groups, walking maps-create safe routes	Yes	Organize weekly walking routes with various local community groups and residents	hospitals or clinic, school parent groups (Stowe Elementary)	Residents are interested in getting out and being active, but feel unsafe alone. Organized dates and groups will make it safer and more interesting to participate	number of walking groups established, number of residents participating in walking groups	Design Metrics: NA Operations Metrics: Organize walking club and post schedule on community calendar/ HUB; Track number of events Health Metrics: Number of program participants (use sign-in sheet); Use fitness apps or activity trackers to record number of miles/minutes walked	LUCHA	Operations Metric: Track quarterly Health Metric: Track at the end of each session
11			Gamifying fitness - mobile apps, fit-bit	Maybe	Provide residents with access to an app or device that will track their physical activity and condition; utilize this resource to create opportunities to win or be awarded for achieving ones' goals		Making healthy living fun and more engaging would likely make more residents participate. This would require additional funding for the devices/apps and potential awards. Would also require a fair amount of staff capacity		Design Metrics: NA Operations Metrics: Provide device/app and monitor maintain application for residents Health Metrics: Gather and report on physical activity data from devices and apps	LUCHA	Track quarterly
12		Encourage physical activity and community cohesion through design	Wall-mounted bike racks in-unit	Yes	Install 1-2 wall mounted bike racks adjacent to rear door to unit	LUCHA, LBBA, Linn-Mathes (GC)	Various wall mounted bike racks are available for an affordable cost. BikeLab 2016 research (LBBA) identified that most residents preferred storing their bikes inside	number of bike racks planned and installed, number of residents utilizing bike racks	Design Metrics: Architect certify bike racks specified and located on drawings Operations Metrics: Inspect at unit turnover for repairs/replacement Health Metrics: Self-reported bike usage; self-reported physical activity	LBBA, LUCHA	Verify installed during construction; annual inspections; annual survey
13			Climbing wall or slide incorporated into design on external stairs	No, unless budget allows			The project was subject to value-engineering to meet cost limits so this item was cut	number of walls or slides planned and installed, number of people who report using these features			
14			Design building perimeters to allow for kids to run/ride bikes around the full perimeter of the building (groundcover)	Yes	Landscaping will include trample-proof groundcover on one side and concrete walks on the others to allow kids a way to run around the buildings	LUCHA, LBBA, Linn-Mathes (GC)	Kids were observed at LUCHA's summer events riding and running around its existing buildings which is considered safer since its within the yard	number of buildings with perimeter designed accordingly	Design Metrics: Landscape architect certify specified and located on drawings Operations Metrics: Monitor path and keep clear of debris and snow Health Metrics: Observe usage of perimeter for play activities; annual survey of residents about child safety concerns; self-reported (by parents) frequency of yard use for outdoor physical activity	McKay, LUCHA	Verify installed during construction; monitor weekly
15		Encourage healthy food decisions. Increase knowledge and skills for cooking and shopping for healthy food.	Provide culturally-responsive cooking classes.	Yes	Classes will be scheduled quarterly at each of LUCHA's developments	Cooking Matters, La Casa Norte	Many residents identified a need to be able to cook healthier. Cooking Matters offers mobile cooking classes. La Casa Norte is building a new facility next door that will have a kitchen for classes	number of classes provided, number of residents participating in classes, number of residents reporting changes in their cooking after attending cooking class	Design Metrics:NA Operations Metrics: Number of classes provided Health Metrics: Track number of program participants (use sign-in sheet); Self-reported changes to cooking following class; Self-reported skills gained	LUCHA, Cooking Matters	Track semi-annually
16			Organize trips and transportation to the farmers market	Maybe	A bus would be rented and shared with other affordable housing organizations to provide transportation to the H.P. farmers market twice a month	Hospitals that could share/rent their transportation buses or a rental company	Many residents do not have cars and buses can make it difficult to bring home heavy bags of food. If we can gather enough partners to make this cost effective then we will implement	number of trips organized, number of residents utilizing transportation	Design Metrics: NA Operations Metrics: Number of trips organized; Number of residents utilizing transportation Health Metrics:End of season survey of participants about increased access to fresh fruits and vegetables	LUCHA, Hospitals	Track at end of farmer's market season

Strategy Matrix

	A	B	C	D	E	F	G	H	I	J	K
1	Key Health Issue and Population Group	Potential Interventions	Examples of Strategies	Was this Strategy Elected (Yes/No)	How Will This Strategy Be Implemented?	Key Partners for Implementing	Rationale for Selecting/Rejecting Strategy	Potential Performance Metrics	Selected Performance Metric	Responsible Individual(s) and/or Organization	Frequency
17		Support residents and community members in growing food and learning about gardening and healthy foods.	Continue community gardening efforts, and partner with tenants	Yes	Utilize green space at Drake/Wabansia to create a community garden. Let residents select which items to grow	LUCHA, La Casa Norte	In early community discussions about wellness and Tierra Linda, a community garden was one of the most common items participants identified as an amenity for the development. There is a 25'x25' plot connected to a TL lot that is not buildable for housing so it is a good site for the garden and has southern exposure	number of residents who participate in community gardening, size/utilization of community gardens	<u>Design Metrics:</u> Landscape architect certify specified and located on drawings <u>Operations Metrics:</u> Host planning meetings with residents; schedule regular gardening activities on-site and on HUB; End-of-season review of how resident input was incorporated into the gardening program <u>Health Metrics:</u> Track garden use by residents and community members (with sign-in sheet); Annual survey to assess resident's access to fresh fruits and vegetables during the growing season; Pre and Post season evaluations of residents to determine changes in access to fresh fruits and vegetables	LUCHA, Adam Pollack	Track monthly during planting season; Pre and Post season surveys of participants
18			Define and design backyards in partnership with residents	Maybe	Work with a partner who will engage residents of each building to design and plant their own backyard landscaping	Rashmi Ramaswamy/SHED	Will need to raise funds to purchase plants and pay consultant fee		<u>Design Metrics:</u> Prep back yard with proper soil/space. <u>Operations Metrics:</u> Coordinate and manage design and installation <u>Health Metrics:</u> NA	LUCHA, SHED	Verify during construction
19			Indoor gardens	No			Funding would need to be raised from individual donations/foundations and would require extra maintenance staff with little financial return; Zoning laws prohibit indoor gardens				
20		Provide information and referrals for residents to link up with existing community programs	LUCHA resource HUB for info on healthy eating and living programs/options- like Medicaid, Diabetes Empowerment Center, Chicago Asthma Consortium, park memberships, YMCA memberships, Divvy for Everyone, health studies, CSA options, healthy recipes, etc.	Yes	Provide a space within LUCHA's office and on its website, to post and share health living/eating info	LUCHA	Residents expressed an interest in having information on various classes and resources. Requires staff to keep current, but not much cost otherwise	Track usage/visits to office and website. Ask users to provide success stories	<u>Design Metrics:</u> Designate a desk with a computer at LUCHA's office to be available to residents, include space to store pamphlets, flyers, and other resources. <u>Operations Metrics:</u> Maintain current information; Track the number of events posted <u>Health Metrics:</u> NA	LUCHA	Track monthly
21			Health fellow connecting tenants to resources and public benefits - diabetes empowerment center, YMCA, SNAP, Chicago Asthma Consortium	Yes	Hire staff to track outcomes of health action plan, implement partnerships and programs identified, and create new opportunities around healthy living	LUCHA Health Fellow, Enterprise, local universities with public health programs	LUCHA requires increased staffing capacity to implement and track healthy living measures. Requires funding and qualified staff		<u>Design Metrics:</u> NA <u>Operations Metrics:</u> NA <u>Health metric:</u> Track Number of referrals	LUCHA - Health Fellow	Report monthly
22	Stress, Depression, and Mental Health										
23	1. Community members report high levels of stress 2. Prevalence of depression and mental health conditions among adults and youth 3. Stigma associated with acknowledging / seeking	Addressing isolation	Buddy system among residents	Yes	Engage residents and organize system of identifying buddies and organizing events to promote the system	LUCHA's supportive services counselor	This can be implemented rather easily with committed staff and residents	establishment of buddy system, number of participants assigned a buddy, number of times that participants interacted with their buddy, number of residents who report that having a buddy makes them feel less isolated	<u>Design Metrics:</u> NA <u>Operations Metrics:</u> Establishment of buddy system, number of participants assigned a buddy, number of times that participants interacted with their buddy, <u>Health Metrics:</u> Number of residents who report that having a buddy makes them feel less isolated	LUCHA	Monitor monthly; survey annually

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24	care for mental health conditions 4. Lack of knowledge about resources for mental health and well being in the community 5. Isolation and disconnection 6. Safety and trauma in the community		LUCHA resource HUB for info on healthy eating and living programs/options- like Medicaid, Diabetes Empowerment Center, Chicago Asthma Consortium, park memberships, YMCA memberships, Divvy for Everyone, health studies, CSA options, healthy recipes, etc.	Yes	See above						
25			Health fellow connecting tenants to resources and public benefits - diabetes empowerment center, YMCA, SNAP, Asthma consortium	Yes	See above						
26			Bulletin board in buildings to advertise events and foster community	Yes	Not all buildings have a common space (3-flats), but at others a bulletin board can be installed in the entry. This can also be created on LUCHA's website as part of the resource HUB	LUCHA	There is little cost, but staff will need to keep the information posted up-to date	number of bulletin boards installed, utilization of bulletin boards, number of residents who report that they post or read items on bulletin boards	<u>Design Metrics:</u> Architect to certify specified and shown on drawings <u>Operations Metrics:</u> Keep information current <u>Health Metrics:</u> NA	LUCHA, LBBA	Verify during construction
27			Community newsletter to advertise events and foster community	Yes	This will be posted online and sent via email.	LUCHA	This is currently in place, but needs to be improved and include more healthy living info	creation of a community newsletter, number of people who read the newsletter	<u>Design Metrics:</u> NA <u>Operations Metrics:</u> Keep information current; <u>Health Metrics:</u> In annual survey ask residents if they find the newsletter helpful	LUCHA	Monitor monthly; survey annually
28			Design green space to encourage safe congregation	Maybe	This could be integrated in the design of the rear yards or within the lot to be used for the community garden		This will require additional funding and consultant fees		<u>Design Metrics:</u> architects certify on plans <u>Operations Metrics:</u> NA <u>Health Metrics:</u> Annual survey of usage; Self-reported feelings of isolation	LUCHA	Verify during construction; Survey annually
29			Installing benches in yards- a place to meet with neighbors	Maybe	A space for benches was identified in the design for residents in front of the front stair	LBBA, Linn Mathes, LUCHA	The cost at to have a bench at all sites was \$13,475 and needed to be VE'd. If funding comes available these can be added.	number of benches incorporated into building design,	<u>Design Metrics:</u> architects certify that benches are specified and shown on drawings <u>Operations Metrics:</u> NA <u>Health Metrics:</u> Annual survey of bench usage	LUCHA, LBBA	Verify during construction; Survey annually
30			Provide community space for gathering, exercise, and classes.	No	Space could be added at the Kedzie lot in the side yard		project design, but the cost put the project over funding cost limits. However, community partnerships with organizations that provide exercise classes and				
31		Access and use of parks and trails	Provide programming around activities on the 606 trail and nearby parks	Yes	See above						

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32			Provide access to community-based gyms and physical activity programming	Yes	See above						
33			Organized Bike Rides, Play Streets, Ciclovía	Yes	See above						
34			Design building perimeters to allow for kids to run/ride bikes around the full perimeter of the building (groundcover)	Yes	See above						
35		Access and use gardening and cooking resources	Provide culturally-responsive cooking classes.	Yes	See above						
36			Continue community gardening efforts, and partner with tenants	Yes	See above						
37	Respiratory Health, including Asthma										
38	1. Prevalence of Asthma, with a particular focus on children 2. Prevalence of other respiratory health conditions including allergies	Reduce triggers in the built environment	No carpet	Yes	All floors at Tierra Linda will be hard surface flooring	LBBA, Linn Mathes, LUCHA	Research has demonstrated the health benefits of carpet-free housing, but it is also a maintenance/ operations savings, which is being used to validate the extra cost up-front	establishment of no carpet policy	<u>Design Metrics:</u> Architect to certify specified and shown on drawings <u>Operations Metrics:</u> Maintain per manufacturer specifications- train residents and janitorial staff; measure IAQ winter and summer <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week	LUCHA, LBBA, Chicago Asthma Consortium, St. Mary's and Elizabeth-Presence Hospital, Norwegian Hospital	Monitor quarterly; survey annually
39			No smoking policy in the Tierra Linda buildings	Yes	Residents will be informed at leasing and will sign a rider accepting this rule. Signs will be posted in and around the buildings	LUCHA	This has an obvious health impact. There is little cost other than monitoring and compliance management.	establishment of no smoking policy, number of residents who adhere/report that others adhere to the policy	<u>Design Metrics:</u> LUCHA to confirm signs posted in or on buildings where visible <u>Operations Metrics:</u> Maintain and manage non-smoking policy; measure IAQ winter and summer <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week; Survey question to determine if residents have quit smoking in the past year	LUCHA	Monitor quarterly; survey annually
40			No pet policy	Yes	Residents will be informed at leasing and will sign a rider accepting this rule. Signs will be posted in and around the buildings	LUCHA	This will prevent the introduction of allergens that can impact others. LUCHA already has this policy in place except that service animals are allowed.	establishment of no pet policy, number of residents who adhere/report that others adhere to the policy	<u>Design Metrics:</u> LUCHA to confirm signs posted in or on buildings where visible <u>Operations Metrics:</u> Maintain and manage no pet policy; measure IAQ winter and summer <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week	LUCHA	Monitor quarterly; survey annually

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41			Higher particulate filter (higher MERV rating) on furnaces; annual duct cleanings	Yes	LBBA will confirm that ventilation equipment will have high MERV rated filters. Maintenance will schedule regular replacement of the filters.	LBBA, Linn Mathes, LUCHA	These filters trap more particulates than those typically used. There is some additional cost, but this is in the current pricing	number of furnaces with higher MERV rating	<u>Design Metrics:</u> Architect to certify specified and shown in drawings; provide Owner with product info for future purchasing <u>Operations Metrics:</u> Change filters and replace with proper filter; measure IAQ winter and summer <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week	LUCHA, LBBA	Verify during construction; Monitor quarterly; survey annually
42			Low VOC materials for materials	Yes	The flooring, paint, adhesives, and wood products selected will be required to meet the low VOC requirements for EGC	LBBA, Linn Mathes, LUCHA	VOC's can aggravate respiratory conditions. There is little upcharge for these materials, if any.	number of cabinets and other products that are made with low VOC materials	<u>Design Metrics:</u> Architect to certify specified and shown in drawings; provide Owner with product info for future purchasing <u>Operations Metrics:</u> Measure IAQ winter and summer <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week	LUCHA, LBBA, Linn Mathes	Verify during construction; Monitor quarterly; survey annually
43			Using cellulose insulation to avoid fiberglass	Yes	Use cellulose insulation in exterior walls	LBBA, Linn Mathes, LUCHA	The Building Green Alliance identifies cellulose insulation as one of the best for health air quality. Meets R-value requirement and cost is reasonable.	number of buildings that are insulated with cellulose	<u>Design Metrics:</u> Architect to certify specified and shown in drawings <u>Operations Metrics:</u> Measure IAQ winter and summer <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week	LUCHA, LBBA, Linn Mathes	Verify during construction; Monitor quarterly; survey annually
44			Air quality measurement plans, partner with architect	Maybe	Schedule monthly air testing inside and out of Tierra Linda units utilizing a digital monitor for VOC's and particulates.	LBBA LUCHA	LBBA may have air quality testing monitors from its air lab that it would allow LUCHA to use. Or funding would be needed to purchase one for LUCHA and staff to do testing	establishment of air quality management plan	<u>Design Metrics:</u> NA <u>Operations Metrics:</u> Measure IAQ winter and summer <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week	LUCHA, LBBA?	Monitor quarterly; survey annually
45			Provide information on VOC and chemical absorbing plants	Yes	There are a number of indoor plants that are known to absorb VOC's and other chemicals. LUCHA can provide this list to residents.	LUCHA	Information on which plants and ideal growing requirements can be provided to residents and lease-up and on the HUB	number of households that have plants	<u>Design Metrics:</u> NA <u>Operations Metrics:</u> Measure IAQ winter and summer; Observe use of chemical absorbing plants during IAQ measurements <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week	LUCHA	Monitor quarterly; survey annually
46			No allergen plants/trees for outside garden	Yes	Plant selection will follow the allergen free garden guide.	LBBA, McKay Landscape Architect, Linn Mathes, LUCHA	Many native and affordable plants are also known to be allergen free. Trees may be more difficult due to typical availability at nurseries.	number of gardens that do not contain allergenic plants	<u>Design Metrics:</u> Landscape architect to specify and certify on drawings. Also review final plant selection from nursery for no-allergen plants. <u>Operations Metrics:</u> Measure IAQ winter and summer <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week because of allergies	LUCHA, McKay	Verify during construction; Monitor quarterly; survey annually

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47			Partner with Chicago Asthma Consortium - workshops on management of asthma.	Yes	Host two workshops a year with CAC for residents on management of asthma	LUCHA; Chicago Asthma Consortium	Often poor management and knowledge lead to ER visits, which lead to time off from work or school. In person training will allow residents more individual assistance.	number of workshops conducted, number of residents participating in workshops	<u>Design Metrics:</u> NA <u>Operations Metrics:</u> Coordinate workshop and notify residents and post on community calendar <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week; pre and post event surveys of program participants to assess skills and knowledge gained during workshop	LUCHA, Chicago Asthma Consortium	Update calendar monthly; survey about inhaler use annually; pre-post evaluations of workshops
48			Incorporate integrated pest management	Yes	Seal all penetrations and use rodent-proof screens at larger penetrations. Maintain penetrations throughout operations.	LBBA, Linn Mathes, LUCHA	Preventing pests is more cost effective and healthier than treating for pests. Pests introduce many allergens and carry disease.		<u>Design Metrics:</u> Architect to certify in specifications and shown on drawings. Monitor during construction. <u>Operations Metrics:</u> Track pest control visits and complaints; inspect/apply preventative measures quarterly <u>Health Metrics:</u> Survey question asking residents about the number of times that they or their child have used their emergency inhaler in the past week	LUCHA, LBBA, Linn Mathes	Verify during construction; Monitor quarterly; survey annually
49			Resident engagement around healthy living and green design. Workshop about green cleaning practices.	Yes	Provide an orientation just after lease-up for new residents and provide a resident manual per ECG. Host an annual community event to re-orient residents and to address any new items.	LUCHA	Resident awareness and participation in the green and healthy features and programming at Tierra Linda will lead to better energy savings and positive health outcomes.		<u>Design Metrics:</u> NA <u>Operations Metrics:</u> Verify that certificate of participation is current in resident files; Number of educational events provided <u>Health Metrics:</u> Evaluation of skills and knowledge gained before and after workshop	LUCHA	Track annually; Evaluate skills and knowledge before and after completion of workshop

Enterprise Green Communities Criteria

Green Communities Criteria that the Health Action Plan Addresses

Selected Health Issue	Number	Applicable Enterprise Green Communities Criteria
Health Eating & Active Living	2.2	Connections to Existing Developments and Infrastructure
Health Eating & Active Living	2.12	Access to Fresh, Local Foods
Respiratory Health	6.1	Low/ No VOC Paints, Coatings and Primers
Respiratory Health	6.2	Low/ No VOC Adhesives and Sealants
Respiratory Health	6.6	Composite Wood Prodcuts that Emit Low/ No Formaldehyde
Respiratory Health	6.7a	Environmentally Friendly Flooring
Respiratory Health	6.8	Mold Prevention: Surfaces
Respiratory Health	6.9	Mold Prevention: Tub and Shower Enclosures
Respiratory Health	6.10	Asthmagen-Free Materials
Respiratory Health	7.1	Ventilation
Respiratory Health	7.2	Clothes Dryer Exhaust
Respiratory Health	7.3	Combustion Equipment
Respiratory Health	7.5	Vapor Retarder Strategies
Respiratory Health	7.6	Water Drainage
Respiratory Health	7.7	Mold Prevention: Water Heaters
Respiratory Health	7.10	Integrated Pest Management
Respiratory Health	7.16	Smoke-Free Building
Health Eating & Active Living	8.3	Resident Manual
Health Eating & Active Living	8.4	Resident and Property Staff Orientation

Community Assets Identified by Focus Group Participants and Health Advisory Group

Asset	Location
606/Bloomingdale Nature Trail	Humboldt Access Point: 3000 W Bloomingdale Ave Chicago, IL 60647
Center for Changing Lives	1955 N St Louis Ave #101, Chicago, IL 60647
Chicago Tutoring	Goethe Elementary School, 2236 N Rockwell St.
Diabetes Empowerment Center	2753 W Division St, Chicago, IL 60622
Dill Pickle Food Co-op	3039 W Fullerton, Chicago, IL 60647
Erie Humboldt Park Health Center	2750 W North Ave, Chicago, IL 60647
Erie West Town Health Center	1701 W Superior St, Chicago, IL 60622
Humboldt Park	1400 N. Sacramento Ave Chicago, Illinois 60622
Infant Welfare Society of Chicago	3600 W Fullerton Ave, Chicago, IL 60647
Inner City Impact	3327 W Fullerton Ave, Chicago, IL 60647
La Casa Norte	3533 W North Ave, Chicago, IL 60647
Logan Square Neighborhood Association	2840 N Milwaukee Ave, Chicago, IL 60618
McCormick Tribune YMCA	1834 N Lawndale Ave, Chicago, IL 60647
Norwegian American Hospital and Clinics	1044 N Francisco Ave, Chicago, IL 60622
Presence Saints Mary and Elizabeth Medical Center and Clinics	2233 W Division St, Chicago, IL 60622
Saint John Bosco Church and Youth Center	2250 N McVicker Ave, Chicago, IL 60639
Sinai Urban Health Institute	2653 W Ogden Ave, Chicago, IL 60608

Deliverables:

SKA Marin



SKA Marin
Enterprise Green Communities
Health Action Plan Pilot Grant Program

December 2016

THE GILBERT
1918 1st Av New York, NY

**HEALTH ACTION PLAN / PROJECT
IMPLEMENTATION AND MONITORING**

SKA Marin

Enterprise Green Communities Health Action Plan Pilot Grant Program
December 2016

Building: The Gilbert, 1918 1st Av New York, NY

Mixed-income family project

Units: 152 + 1

Built square feet: 145,000

Affordability tiers:

- 39 units for 47% AMI or less
- 37 units for 57% AMI
- 16 units for 80% AMI
- 30 units for 100% AMI
- 30 units for 130% AMI

Findings and Modifications

Three major concerns guided the modifications presented in this Health Action Plan: the prevalence of asthma in the East Harlem community; the concern with the lack of physical activity in the area; and the set objective of having our building contribute to our residents' psychological wellbeing.

In our conversations with health experts, asthma clearly stood out as the community's most pressing health concern. According to the East Harlem Health Profile, published by the NYC Department of Health and Mental Hygiene in 2015, both child asthma hospitalization rates and avoidable adult asthma hospitalization rates in the project's area more than double the citywide rates. Therefore, the Gilbert aims to provide a space that reduces the presence of asthma triggers. A non-smoking policy and a non-pet policy have been established. To prevent the presence of pests and vermin, bimonthly pest control will be provided. From the building's design standpoint, various measures are being taken to avoid mold: cleanable materials will be installed in all bathrooms, kitchens, and laundry areas; moisture resistant backing materials will be installed at all tub/shower enclosures; water drains will be kept away from walls, windows, and roof; and all apartments will have continuously exhausted kitchens and bathrooms.

Regarding the asthma-preventing measures, the design metrics followed were those provided to meet the Enterprise Green Communities criteria. The building's management will keep track of indoor air quality complaints, vermin complaints, smoking complaints, and presence of mold detected in the routine unit inspections. The New York Academy of Medicine, our health partner in charge of monitoring the usefulness of our implemented measures, will inquire about asthma symptoms relative to past living environments.

The rates of obesity and diabetes in East Harlem are also higher than in the rest of the city, but less alarmingly so than with asthma. However, a building's features can play a significant role in making a person's lifestyle more active and SKA Marin decided to make this an area of strength at the Gilbert. Our most important contribution is providing spaces where physical activity can take place throughout the year: an ample front yard, an open playground, an indoor playroom and an exercise room. Since everyday routines play a crucial role in an active lifestyle, the main staircase will be open for residents' use (grip tape will be adhered to the steps to prevent injuries) and bicycle storage will be provided. We learned from our health partners at H+H that it's important for the senior populations to remain active even if they cannot use the stairs; to meet this need, all hallways are naturally illuminated and provide views on either end as to

become agreeable to stroll on. While the design team was crucial in providing these spaces, there was no design metric to follow. The operation metrics, on the other hand, are crucial to make the most out of these spaces: the programming, the equipment, and the hours of use will be perfected on the management side with constant input from the residents.

The health report published by the NYC Department of Health and Mental Hygiene measured mental health illnesses with psychiatric hospitalizations, and recorded figures three times larger for the project's area than for the entire city. Health measures were taken on several aspects of our project to ensure the mental health of the residents: spaces to exercise, spaces to socialize, open spaces, sound attenuating windows, a 24-hour security system, nice views, and music programming for the community space. Some of these measures, like the sound attenuating windows, followed design metrics set in regulations and guidelines. Others, like the music programming, involve no design metrics. The operation metrics also differ widely: from days of the security system not working or not working appropriately, to noise complaints, to usage of spaces. Our health partner decided to survey for more frequent and less dire symptoms than psychiatric hospitalization; for example, disturbed sleep.

Stakeholder Engagement

The Gilbert is the fourth project that SKA Marin has developed in partnership with NYC Health + Hospitals (H+H), and the third one developed right next to the Metropolitan Hospital, so the link between both entities is by now very strong. SKA attends the Hospital's Community Advisory Board on regular basis and has gathered countless advice and opinions throughout the years. The last completed project that SKA Marin developed with H+H is Metro East 99th: a project that was to provide permanent independent housing to seniors and non-seniors with long term chronic illness and/or physical challenges, but who could live independently with services available. Metro East 99th was developed in response to the need to relocate patients from Goldwater Hospital, which housed many paraplegic and quadriplegic individuals who were unable to find any housing that was one hundred percent accessible. Metro East 99th Street residential base was later expanded to include persons with chronic health conditions from H+H's city-wide acute care emergency and ancillary care centers. Thus, the entire facility is designed to accommodate the particular needs of this population: public corridors throughout the building have wood handrails at both sides, all units have a roll-in showers, windows heights were adjusted to facilitate views for residents in wheel chairs, and pull-cord alarms are located in all bedrooms, private bathrooms and along the corridors. H+H stewarded both the design and rent-up process.

The Gilbert is a mixed-income family building, so it will house a considerably less challenging population. The goal of implementing health-enhancing modifications to The Gilbert and then measuring their impact was presented at the Metropolitan Hospital's Community Advisory Board (CAB) on November 3rd. SKA Marin then sent the Health Action Plan –back then a work in progress- to Edward Shaw, chair of the CAB, to which he responded optimistically and with no change orders.

In October, SKA Marin engaged Steven Winter Associates, Inc. (SWA) to provide research support and recommendations for the Monitoring and Evaluation Plan. SWA reached out to the following industry contacts for advice on evaluating health impacts in green affordable housing: the Center for Active Design; the National Center for Healthy Housing; NeighborWorks America; the Health Impact Project; Enterprise Green Communities; the Green and Healthy Homes Initiative; and researchers from the Icahn School of Medicine at Mt. Sinai. The individuals who provided SWA with valuable insights were Dr. Elizabeth Garland, Director, Division of

Preventive Medicine and Community Health and Associate Professor at Icahn School of Medicine at Mount Sinai; Sarah Norman, Director of Healthy Homes & Communities at NeighborWorks America; and Jonathan Wilson, Director of Research at National Center for Healthy Housing. Specifically, these health professionals provided feedback on how to engage residents through third-party managed, anonymous surveys; structure an O&M tool for building manager personnel to utilize for monitoring and reporting; and pursue programmatic interventions based on resident feedback that adapt over time in order to stay beneficial to the building population.

In addition, supplemental research was conducted to review health resources focused on the East Harlem neighborhood in order to assess the prominent health issues.

Early in November, SKA Marin engaged the New York Academy of Medicine (the Academy) to conduct the Implementation and Monitoring Plan. The Academy published the East Harlem Neighborhood Plan Health Impact Assessment earlier this year; their knowledge of the community's health condition is an invaluable asset. SKA Marin had several calls with different members of the Academy, explaining what our interests in the Monitoring Plan were, and defining what an adequate team and an adequate scope of work would look like. The report that SWA delivered to SKA Marin was shared with the Academy to help define the tasks ahead.

Health experts that assisted The Gilbert's Health Action Plan				
Organization	Contact Name(s)	Position(s)	Connection to The Gilbert	Input
New York City Health and Hospitals	Edward Shaw	Chair of NYC H+H Metropolitan Hospital Community Advisory Board	Dr. Shaw has stewarded the relationship between H+H and SKA Marin.	SKA leases land from H+H, and has taken referrals from H+H for residents for projects in the same neighborhood. SKA attends the Hospital's Community Advisory Board on regular basis and has gathered advice and opinions throughout the years.
New York Academy of Medicine	Dr. Linda Weiss	Director, Center for Evaluation and Applied Research	Dr. Weiss stewards the relationship between SKA Marin and the New York Academy of Medicine, our health partner in charge of monitoring the Health Action Plan.	The New York Academy of Medicine explained how prevalent asthma is in East Harlem and how important it is to make it a central topic in this work. It has also help to define the metrics with which the HAP will be monitored.
New York Academy of Medicine	Dr. Kumbie Madondo, Elisa Fischer		Principal Investigators of the Implementation and Monitoring Plan	Conduct research that shows which of the building's features lead to improved resident health and well-being
Mount Sinai	Dr. Elizabeth Garland	Director, Division of Preventive Medicine and Community Health and Associate Professor at Icahn School of Medicine at	Subject matter expert with a specialty in public health and general preventive medicine.	Dr. Garland provided insight into evaluating active design, asthma impacts, and green features of affordable housing in NYC. She also provided guidance on how a third-party is best to structure and implement a voluntary survey of tenant populations.

NeighborWorks America	Sarah Norman	Director Healthy Homes & Communities	Subject matter expert with a specialty in developing programs and policies that promote health through community development.	Ms. Norman provided feedback regarding the importance of identifying the scope of targeted measure. Ex. built environment interventions versus resident services programming.
National Center for Healthy Housing	Jonathan Wilson	Director of Research	Subject matter expert with a specialty in research, technical assistance, and policy work in the healthy housing sector.	Mr. Wilson provided guidance regarding actively engaging with community stakeholders and tenant populations, as well as the importance of not making presumptions regarding a population's concerns/needs prior to their feedback. He also emphasized the importance of having a neutral, third party conduct any tenant surveys.

Implementation and Monitoring Plan

SWA delivered a report with interesting findings regarding why and how to conduct the evaluation process of the building's modifications (complete report attached). SWA recommended focusing on how much residents use, appreciate, and value the added features that cost space and money. The goal is to learn what would make residents more inclined to utilize these features, and incorporate findings in the next project –or eliminate features that don't add value.

The report stated that the preferred tools to evaluate building-specific interventions are voluntary qualitative resident surveys and focus groups. The best timing for conducting a voluntary survey should contemplate the residents being settled into the building but still able to recall and compare against their prior living environments. A 6-8 month timeframe from move-in was deemed ideal. As a mode of conducting the surveys, a suggested strategy is to have third-party surveyors available in the lobby over the course of a couple of days and during different times. The report suggested the lobby surveys to be 20-30 questions and 10-15 minutes long, if possible in exchange for a freebie. A good survey response might be 50-60% of building occupants. The focus group are the next step: they are typically conducted using 6-10 people and provide much more detail about resident experiences in the building.

The New York Academy of Medicine worked with SKA Marin and with SWA's report to craft a proposal for the Monitoring Plan (complete proposal attached), which will start to be executed two months prior to The Gilbert's completion. The goal is for the Monitoring Plan to address the following questions:

1. Which health-oriented building design features have led to improved resident health and well-being post-occupancy?
 - a. Do residents use/value the health-oriented design features of the building (e.g., bicycle storage, staircases, exercise area, play area, outdoor garden place and the non-smoking policy?
 - b. What programming would facilitate increases in resident activity levels?
2. What are the health benefits of affordable housing?
 - a. Can well-constructed and well-maintained affordable housing reduce physical health problems associated with poor-quality housing and promote healthy lifestyles?
 - b. Can stable and affordable housing support mental health by limiting stressors related to financial burden and maintenance issues?
3. From the perspective of residents, which building features should be incorporated into future buildings that serve similar populations?

The study and the focus group will center on usage of facilities, general health status, health-related opportunity cost of a higher rent, social cohesion, and the possible adoption of a healthier lifestyle. The relationship between use of building features and self-reported health status will be examined using regression analysis.

Health Action Plan & Implementation and Monitoring Plan						
	Intervention	Health Concern	Info Source	Pursued? WHY?	Design metrics/ Operation metrics/ Health metrics	Responsible Parties, Status
1	The building will feature 8 accessible units for the mobility impaired and 4 accessible units for the visual/hearing impaired.	Lack of accessibility (1)	32% of the seniors in East Harlem have difficulties with their mobility (EH Neighborhood Plan)	Yes 5% of units required for mobility impaired. 2% of units required for hearing/vision impaired.	<u>Design Metrics</u> Percent of accessible* units in the building= 8% *that comply with all requirements for accessibility as per BC Chapter 11, BC Appendix P, Local Law 58/87, and FHA Design Manual	Architect (complete)
					<u>Operational Metrics</u> Number of repairs required to maintain accessibility in units (annually) Cost of repairs required to maintain accessibility in units (annually)	O&M (Annual inspection to confirm no modifications have compromised accessibility; or inspection upon new arrival; or inspection upon tenant's request. Repairs as needed)
					<u>Health Metrics</u> N/A	
2	The remaining 140 units will be adaptable (can be converted to accessible with minimum changes).	Lack of accessibility (1). Mental health (5)		Yes 100% of units required to be adaptable	<u>Design Metrics</u> Percent of adaptable* units in the building= 92% Compliant with UFAS & section 504 of FHA	Architect (complete)
					<u>Operational Metrics</u> Number of modifications required to increase accessibility (annually)	O&M (Annual inspection to ensure units count with the

					Cost of modifications required to increase accessibility (annually).	accessibility required; or inspection upon new arrivals; or inspection upon tenant's request. Modifications as needed)
					<u>Health Metrics</u> N/A	
3	For security reasons, a 24 hour, building-wide, video monitoring system will be installed.	Outdoor crime (1, 5)	The injury assault rate in East Harlem is more than twice the citywide rate: 143 vs 51 per 100,000 non-fatal assault hospitalizations (NYC Health).	Yes	<u>Design Metrics</u> N/A	N/A
					<u>Operational Metrics</u> Number of days of system not operating; number of days of system not operating appropriately (annually)	O&M (Constant supervision to confirm functionality. Repairs as needed)
					Cost of repairs (annually)	
					<u>Health Metrics</u> Resident survey: Perception of safety in home	Health Partner (annual survey)
4	The building will feature best practices air-sealing and flashing details will be installed to allow the building to be virtually airtight. Apartments and common areas will be continuously exhausted via rooftop and through wall fans with electronically-commutated motors.	Low indoor air quality (2)	In NYC, asthma is a leading cause of school absences and the most common cause of hospitalization for children under 14 years old. (NYC Asthma). Child asthma hospitalizations in CD 11 double the NYC rate: 75 vs 36 per 100,000 (NYC Health)	Yes Required by Enterprise Green Communities	<u>Design Metrics</u> Air sealing details and specs. Ventilation system designed per ASHRAE 62.	Architect (complete)
					<u>Operational Metrics</u> Blower Door and exhaust fan flow rates testing.	SWA (ongoing)
					Number of IAQ complaints; number of ventilation system failures; cost of repairs (annually)	O&M (ongoing)
					<u>Health Metrics</u> Resident survey: asthma symptoms* relative to past living environments.	Health Partner (annual survey)
5	A garden facing 1 st Av is available to residents.	Lack of exercise, lack	Only 76% of the East Harlem population state	Yes	<u>Design Metrics</u>	Architect (complete)

		of open/ public space, lack of social cohesion (3, 5)	having any physical activity in the last 30 days, vs 84% in Manhattan (NYC Health). Also, 40% of the seniors in East Harlem are living alone (EH Neighborhood Plan).		Square feet of open green space: 12,360 sq ft	
					<u>Operational Metrics</u> Yearly report on usage patterns: average number of people using the space on morning vs evening/ weekdays vs weekends/ per month	O&M (general maintenance of the garden)
					<u>Health Metrics</u> Resident survey: Do you use the garden? Do you use it as a gathering space?	Health Partner (annual survey)
6	Sound-attenuating window/wall design is provided for all units.	Unhealthy noise levels, sleep deprivation, lack of privacy (5)	The rate of psychiatric hospitalizations in CD 11 is the highest in the city: 2,016 per 100,000. (NYC Health)	Yes	<u>Design Metrics</u> Noise testing was conducted by Houghton Associates as per recommendation of the Environmental Assessment prepared in April 2014. The highest measured L10 noise level was 74.5dBA. Readings between 73 and 76 require a window wall attenuation of at least 31 dBA. The proposed glazing system achieved an STC (dB) of 33.	Architect (complete)
					<u>Operational Metrics</u> Number of outside noise complaints; number of neighbor noise complaints (annually).	O&M (ongoing log keeping)
					<u>Health Metrics</u> Resident survey: Disturbed sleep (and lack thereof).	Health Partner (annual survey)
7	The management office counts with a policy for neighbor noise complaint resolution.	Unhealthy noise levels, sleep deprivation	The rate of psychiatric hospitalizations in CD 11 is the highest in the city: 2,016 per 100,000. (NYC Health)	Yes	<u>Design Metrics</u> N/A	N/A
					<u>Operational Metrics</u> Number of complaints; number of times mediation was needed (annually)	O&M (Provide mediation)
					<u>Health Metrics</u>	Health Partner

					Resident survey: Disturbed sleep (and lack thereof).	(annual survey)
8	A bicycle storage room is available for residents	Lack of exercise, lack of access to jobs and services (3, 6)	The obesity rate in CD 11 doubles that of Manhattan: 33% vs 16% (NYC Health)	Yes Regulation requests to have one bicycle storage space per every two apartments	<u>Design Metrics</u> Number of bicycle storage spaces: 77	Architect (complete)
					<u>Operational Metrics</u> Number of residents who park a bicycle in the building (annually)	O&M (yearly log)
					<u>Health Metrics</u> Resident survey: Do you use a bicycle for transportation/ recreation? How often, what distance?	Health Partner (annual survey)
9	An exercise room is available for residents	Lack of exercise, lack of social cohesion, and Lack of leisure activities (2, 3, 5, 6)	Only 76% of the East Harlem population state having any physical activity in the last 30 days, vs 84% in Manhattan (NYC Health). The diabetes rate in East Harlem is 13% and the obesity rate doubles that of Manhattan: 33% vs 16% (NYC Health).	Yes	<u>Design Metrics</u> Square feet of exercise room provided: 730 sq ft.	Architect (complete)
					<u>Operational metrics</u> Yearly report on usage patterns: average number of people using the space on morning vs evening/ weekdays vs weekends/ per month	O&M (general maintenance of exercise room)
					<u>Health Metrics</u> Resident survey: Do you use the exercise room? How often? For what activities?	Health Partner (annual survey)
10	An indoor playroom and an outdoor playground are available for residents	Lack of leisure activities, lack of social cohesion (5)	The diabetes rate in East Harlem is 13% and the obesity rate doubles that of Manhattan: 33% vs 16% (NYC Health).	Yes	<u>Design Metrics</u> Square feet of indoor playroom provided: 640 sq ft. Square feet of outdoor playground provided: 3,700 sq ft	Architect (complete)
					<u>Operational metrics</u> Yearly report on usage patterns: average number of people using the space on morning vs evening/ weekdays vs weekends/ per month	O&M (general maintenance of indoor playroom and playground)
					<u>Health Metrics</u>	Health Partner

					Resident survey: Do you use the playground/ indoor playroom? How often? For what activities? Have you met other people/made friends at the playground? (– how connected people in the building are to one another and what has facilitated that, such as playground, exercise room, garden)	(annual survey)
11	The principal staircase is open for residents' daily use.	Lack of exercise (2, 3)	The obesity rate in CD 11 doubles that of Manhattan: 33% vs 16% (NYC Health)	Yes	<u>Design Metrics</u> N/A	Architect (complete)
					<u>Operational metrics</u> Number of falls and injuries in staircase (annually)	O&M (general maintenance of staircase)
					<u>Health Metrics</u> Resident survey: Do you use the stairs to get to your apartment or to visit neighbors, etc? How often?	Health Partner (annual survey)
12	80 units (more than 50%) have views of the East River. All units have ample windows and views.	(5)		Yes	<u>Design Metrics</u> Percent of rooms with view = 100%; Percent of rooms with views of the East River= 53%	Architect (complete)
					<u>Operational metrics</u> N/A	N/A
					<u>Health Metrics</u> N/A	N/A
13	The building holds a non-smoking policy	(2, 3)	Secondhand smoke is an asthma trigger (NYC Health), the single largest contributor to indoor air pollution, and studies suggest that exposure to secondhand smoke can accelerate the progression of	Yes	<u>Design Metrics</u> Spaces signaled, leases with clear caveats, and resident manuals timely handed and properly explained.	Owner (ongoing)
					<u>Operational metrics</u> Any observed smoking, number of smoking complaints; number of admonitions by management (annually)	O&M (policy enforcement and log keeping)

			atherosclerosis (NYC Heart Attack). Child asthma hospitalizations in CD 11 double the NYC rate: 75 vs 36 per 100,000 (NYC Health). The leading causes of death in East Harlem are heart disease and cancer (NYC Health).		<u>Health Metrics</u> Resident survey: Asthma symptoms* relative to past living environments.	Health Partner (annual survey)
14	Pest Management	Presence of pests/ inadequate pest control (4, 6)		Yes	<u>Design Metrics</u> N/A	N/A
					<u>Operational Metrics</u> Number of pest or vermin complaints (annually)	O&M Bimonthly pest control service to apartments, interiors, and exteriors.
					<u>Health Metrics</u> Asthma symptoms* relative to past living environments	Health Partner (annual survey)
15	The building was constructed using mold-resistant materials and installations	Presence of mold (2)	In NYC, asthma is a leading cause of school absences and the most common cause of hospitalization for children under 14 years old (NYC Asthma). Child asthma hospitalizations in CD 11 double the NYC rate: 75 vs 36 per 100,000 (NYC Health).	Yes Required by Enterprise Green Communities	<u>Design Metrics</u> Materials specified to meet EGC criteria 6.8, 6.9, 7.5, 7.6, and 7.7* *The project will install durable, cleanable materials in all bathroom, kitchens and laundry areas. Moisture resistant backing materials are required at all tub/shower enclosures. The building design will include measures so that water drains away from walls, windows and roof. All apartments will have continuously exhausted kitchens and bathrooms.	Architect (Complete)

					<u>Operational Metrics</u> Number of apartments with mold (annually)	O&M (Annual inspection includes checking for mold)
					<u>Health Metrics</u> Resident survey: asthma symptoms* relative to past living environments.	Health Partner (annual survey)
16	The building was constructed using no-added-formaldehyde composite wood	Use of toxic/carcinogenic products (2, 4)	The leading causes of death in East Harlem are heart disease and cancer (NYC Health).	Yes Required by Enterprise Green Communities	<u>Design Metrics</u> Percent of composite wood products that meet EGC criterion 6.6* = 100% * all composite wood products must specifically be CARB II compliant	Architect (complete)
					<u>Operational metrics</u> N/A	O&M (Continued use/purchasing of only CARB II compliant composite wood products)
					<u>Health Metrics</u> N/A	
17	The building uses only Low/No VOC Paints, Coatings, Primers, Adhesives and Sealants	Use of toxic/carcinogenic products (2, 4)		Yes Required by Enterprise Green Communities	<u>Design Metrics</u> Percent of materials that meet EGC criteria 6.1 and 6.2 = 100%	Architect (complete)
					<u>Operational Metrics</u> N/A	O&M Continued use/purchasing of only no/low VOC products per the limits in the O&M manual
					<u>Health Metrics</u>	Health Partner

18	Metropolitan Hospital located across the street.	Lack of physical access to health services (1, 2, 3, 4, 5, 6)		Yes	<u>Design Metrics</u> N/A	External factors
					<u>Operational metrics</u> N/A	External factors
					<u>Health Metrics</u> Resident survey: Do you use Metropolitan Hospital's facilities? How often? What services?	Health Partner (annual survey)
19	Bus stops (M15, M15SBS) within a block of the building. A subway stop of the 2 nd Av. Line planned within a block of the building as well.	Lack of access to affordable transportation (1)		Yes	<u>Design Metrics</u> N/A	External factors
					<u>Operational metrics</u> N/A	External factors
					<u>Health Metrics</u> Resident survey: Do you use the bus/subway? How often?	Health Partner (annual survey)
20	Grip tape will be placed on the steps of all staircases.	Prevention of fall and injury (1)		TBD	<u>Design Metrics</u> N/A	Architect (Install the grip tape upon construction completion)
					<u>Operational Metrics</u> Number of falls on staircase (annually)	O&M General maintenance of grip tape on steps
					<u>Health Metrics</u>	Health Partner
21	There will be music programming, featuring input from the residents, in the community room.	Mental Health (5), lack of social cohesion	40% of the seniors in East Harlem are living alone (EH Neighborhood Plan).	Yes	<u>Design Metrics</u> N/A	O&M (Install speakers upon construction completion)
					<u>Operational Metrics</u> Number of residents that participate in music programming (monthly)	O&M (establish and keep ground rules for music

						system, provide music programming if necessary)
					<u>Health Metrics</u>	Health Partner
22	The building will host ShapeUp NYC classes (link).	Lack of exercise (2, 3)	The obesity rate in CD 11 doubles that of Manhattan: 33% vs 16% (NYC Health)	No ShapeUp requires all classes to be open to the public and this presents a challenge for security reasons.		
23	Hallways agreeable for senior residents to stroll on: naturally illuminated and with views from the outside.	Lack of exercise (2, 3)	32% of the seniors in East Harlem have difficulties with their mobility (EH Neighborhood Plan). Only 76% of the East Harlem population state having any physical activity in the last 30 days, vs 84% in Manhattan (NYC Health).	Yes	<u>Design Metrics</u> N/A	Architect (complete)
					<u>Operational Metrics</u>	O&M (general maintenance of hallways)
					<u>Health Metrics</u> Number of times intentionally engaged in exercise	Health Partner (annual survey)
24	No-pets policy	Low indoor air quality (2)	Household pets are a common asthma trigger (NYC Asthma)		<u>Design Metrics</u> N/A	
					<u>Operational Metrics</u>	O&M (make explicit the no-pets policy to applicants and residents)

					<u>Health Metrics</u> Resident survey: asthma symptoms* relative to past living environments.	Health Partner (annual survey)
25	There are two greenmarkets close to The Gilbert, at 92th street and at 99th street.	Lack of healthy food	34% of East Harlem's population consumes 1 or more 12 oz. sugary drink per day, compared to 27% in NYC (NYC Health). 83% of East Harlem's population reports having at least one serving of fruits or vegetables per day, compared to 88% in NYC (NYC Health).	Yes	<u>Design Metrics</u> N/A	External factors
					<u>Operational Metrics</u> Percent of residents that report getting groceries from greenmarket (annually)	O&M Inform residents of the greenmarkets' operating hours
					<u>Health Metrics</u> N/A	

Enterprise's Resident Health Campaigns

1 = Injury and accessibility; 2= Asthma and respiratory health; 3= Cardiovascular disease, obesity, and diabetes; 4= Cancer and health outcomes related to toxic exposure; 5= Mental health; and 6= others.

*Asthma symptoms: recent experience of shortness of breath, recent experience of wheezing, recent experience of nighttime asthma symptoms, days of school/work missed due to asthma symptoms, number of emergency room visits due to asthma symptoms, and number of hospitalizations due to asthma symptoms.

Sources

NYC Health = East Harlem Health Profile. NYC Department of Health and Mental Hygiene, 2015.

EH Neighborhood Plan = East Harlem Neighborhood Plan. Office of City Council Speaker Melissa Mark-Viverito; Manhattan Community Board 11; Community Voices Heard; Manhattan Borough President Gale A. Brewer. February 2016.

NYC Asthma = Asthma: Health, Behavior, and Population. NYC Department of Health and Mental Hygiene.

NYC Heart Attacks = Heart Attacks: Health, Behavior, and Population. NYC Department of Health and Mental Hygiene.

Abbreviations:

CD = Community District

**The New York Academy of Medicine
Center for Evaluation and Applied Research
The Gilbert Health Action Plan
Implementation and Monitoring Evaluation Proposal**

December, 2016

Goal of Project

The goal of this project is to study the impact of health-promoting, affordable housing on physical and mental health.

SKA Marin will engage the services of The New York Academy of Medicine (the Academy) to collect and analyze data from residents of the Gilbert Building. The study will address the following questions:

1. Which health-oriented building design features have led to improved resident health and well-being post-occupancy?
 - a. Do residents use/value the health-oriented design features of the building (e.g., bicycle storage, staircases, exercise area, play area, outdoor garden place and the non-smoking area?
 - b. What programming would facilitate increases in resident activity levels?
2. What are the health benefits of affordable housing?
 - a. Can well-constructed and well-maintained affordable housing reduce physical health problems associated with poor-quality housing and promote healthy lifestyles?
 - b. Can stable and affordable housing support mental health by limiting stressors related to financial burden and maintenance issues?
3. From the perspective of residents, which building features should be incorporated into future buildings that serve similar populations?

See Appendix A for a list of potential indicators and focus group questions (note: all are preliminary and may be adapted following consultation with SKA Marin and other stakeholders).

Task 1: Planning and Protocol Development

Two months prior to completion of the Gilbert building, SKA Marin and the Academy will conduct a kickoff meeting to discuss the project design, timeline, team roles and responsibilities, procedures for communication, and strategies for overcoming anticipated barriers. After the initial meeting, we will have bi-weekly phone calls with SKA Marin.

Task 2: Data Collection

The data collection process will consist of the following steps:

1. Select sample for survey. In collaboration with SKA Marin, we will select demographic variables that can capture the full diversity of residents at Gilbert. At a minimum, we recommend the selection of a sample that is diverse in terms of race and ethnicity, gender, age and income levels.
2. Design survey questionnaire. We will review literature on affordable housing and health in order to identify existing, psychometrically tested questionnaires. Next, a draft of the questionnaire will be prepared for SKA Marin's review. For each respondent, the questionnaire will collect information on:
 - a. Demographic background
 - b. Chronic health conditions
 - c. Utilization of health-enhancing building design features (to be identified in collaboration with SKA Marin, including but not limited to: outdoor space, indoor exercise space and playroom, and bicycle storage used by residents).
 - d. Self-reported changes in health after moving into the building.
 - e. Challenges/barriers faced by residents in accessing health-enhancing amenities.
 - f. Recommendations for improving current or future building features.
3. Design Focus Group Protocol. Results from the survey will be used to inform the design of the focus group instruments (e.g., we will examine responses and findings that require further study).

Task 3. Implementation

We will work closely with SKA Marin to develop a data collection plan that best meets the needs of the study while respecting the privacy and time of residents. This may include conducting surveys in-person, on the phone, or via an electronic survey system. It will also include advertising the study via flyers on announcement boards or in high-traffic areas throughout the building, or via email through a list-serve. We will aim to survey 50% of households in the building; achieving this response rate will be dependent on our ability to conduct outreach to residents.

Each survey is expected to take 10-15 minutes to complete. The first (baseline) survey will be administered shortly before or soon after residents move in (exact timing will be determined as part of the data collection plan, described above). To account for seasonal changes in health and health related behaviors, the second survey will be administered approximately 12 months after the baseline survey. We will provide a \$10 incentive to residents who participate in the baseline survey, as well a \$10 incentive for participation in the follow-up survey.

In addition, we will schedule two in-person participant focus groups, with an estimated 8-10 participants in each group. For each focus group participant, we will obtain informed consent and provide a \$20 incentive for participation.

Task 4: Data Analysis

Analyses of quantitative data will begin with descriptive statistics (i.e., means and proportions). Changes from baseline will be assessed with paired t-tests and Stewart-Maxwell and McNemars test for categorical variables. The proportion of participants reporting improved health through utilizing building amenities (e.g., the gym) will be calculated and analyzed by participant demographic characteristics. The relationship between use of building features and self-reported health status will be examined using regression analysis.

Focus groups will be audio-recorded and detailed notes will be taken. Focus group notes will be maintained, coded, and analyzed using NVivo, a program for the management of

qualitative data. We will code the data using pre-identified themes consistent with study questions, as well as themes emerging from the data themselves. Analyses will utilize an iterative process involving all members of the study team to reduce bias in the analysis.

Task 5: Reporting

Information on study processes and findings will be regularly shared on an ad hoc basis. Preliminary findings will be shared with SKA Marin for discussion and improvement of implementation processes. A final report will be provided three months after the end of the data collection.

Protection of Human Subjects

The Academy has an Institutional Review Board (IRB), which will review the protocol to ensure appropriate protection of participants prior to data collection. Although signed consent is unlikely to be required for all activities, participants will receive (at a minimum) written documentation informing them that participation in the study is voluntary and that information collected for the study will remain confidential. Any hard copy data stored at the Academy will be kept in locked file cabinets. Electronic data will be gathered and stored on password protected drives. All Academy research staff have completed a training and certification from the National Institutes of Health on the protection of human subjects for research purposes.

Institutional Capacity

The research study will be conducted by staff from The Academy's Center for Evaluation and Applied Research and the Center for Health Policy and Programs.

The Academy is an independent, non-profit East Harlem-based organization that seeks to address health challenges through interdisciplinary and innovative approaches to policy leadership, research, evaluation, education, and community engagement. With funding from local, state, and federal agencies, as well as a number of philanthropic institutions, the Academy works in partnership with government, community based organizations, health care systems, academic medical centers, and schools of public health.

The Academy's Center for Evaluation and Applied Research (CEAR) works collaboratively to assess and plan for initiatives that seek to improve the health and well-being of populations in New York City, New York State, and across the country. With expertise in both qualitative and quantitative research methods, CEAR works with large and small programs focused on a wide range of topics, including diabetes, asthma, access to and use of care among diverse populations, assessment of community health needs and priorities, training of the health care and public health workforce, and relationships between policy and practice. CEAR staff members develop and implement basic and complex research and evaluations, inclusive of planning, protocol development and instrument design; survey administration; in-depth interviews and focus group facilitation; observation of program activities; management and analysis of quantitative and qualitative data; and preparation of presentations, reports, and peer reviewed publications. CEAR's approach to its work is a collaborative one, which seeks to incorporate the expertise and priorities of stakeholders—which may include community residents, community organizations, policymakers, and/or funders—throughout the process.

Project Staff:

Kumbie Madondo, PhD will serve as Principle Investigator of the study. Dr. Madondo has expertise in the research, measurement, and evaluation of health and community engagement initiatives. She is also skilled in the use of qualitative and quantitative methods to conduct formative and summative evaluations. At the Academy, Dr. Madondo collaborates with interdisciplinary teams on topics related to physical and mental health, community engagement, health insurance coverage and access among minorities. Prior to joining the Academy, Dr. Madondo worked at Community Science, where she helped the Regional Health Equity Councils (RHECs) that are part of the National Partnership for Action to End Health Disparities (NPA) use secondary data to develop their regional plans. She also worked as an evaluator on an Affordable Care Act outreach and enrollment project, where her main responsibilities included managing the data collection, analysis and reporting on more than 30,000 completed questionnaires collected by partner organizations during each enrollment period. In the past, Dr.

Madondo has also worked as a program evaluator and technical assistance provider for a CDC-funded project that focused on HIV/AIDS prevention among African American and Latino populations. She led a large-scale impact evaluation for this program, where she developed the methodology for analyzing and reporting longitudinal data, and helped present the findings from this project to various stakeholders. Dr. Madondo has presented and published on the subjects mentioned above.

Elisa Fisher, MPH, MSW, will serve as the Manager of the study. She has expertise in program evaluation and mixed methods research, as well as a background in social work and public health programming. Her work at the Academy focuses on research and evaluation related to community-based interventions that address broader determinants of health and their potential integration into NYS health care reform efforts. Prior to joining the Academy, she was engaged in research and evaluation related to early childhood and youth development programs, food justice initiatives, and supportive services for victims of violence and abuse in community and academic settings. Ms. Fisher has presented and published on the subjects mentioned above.

Linda Weiss, PhD, will provide in-kind support to the project team. Dr. Weiss is the Director of the Center for Evaluation and Applied Research at the Academy. She is a researcher and evaluator with more than 20 years of experience. Her work includes formative, process, and outcome evaluations, community based participatory research (CBPR), and research and evaluations using other participatory processes. Topics have included practice change and service integration; community health needs; prevention and management of asthma, diabetes, and HIV; healthy housing; barriers to care; and medication adherence. Dr. Weiss has a PhD in anthropology from Columbia University.

Appendix A: Potential Metrics for The Gilbert Health Action Plan

	Potential Indicator (via Survey)	Potential focus groups follow-up questions
Usage of facilities		
	Use of exercise room	Which components of the exercise room are most/least valued? What are the barriers to using the room?
	Use the outdoor playground	Which components of the playground are most/least valued?
	Use of garden (consider seasonality)	What kinds of activities do you do in the garden?
	Use of the indoor playroom	Which components of the playroom are most/least valued? What are barriers/facilitators to use of the playroom?
	Use of stairs	What are the barriers to using the stairs more frequently? Are there particular aspects of the stairwells you think make them more or less inviting?
	Use of nearby health care facilities (e.g. the metropolitan hospital)	Which nearby medical services are most important/beneficial? How has living in The Gilbert influenced your ability to access medical care when you need it?
	Use of bicycle storage	If not, then is lack of use due to lack of access to bicycles (e.g., ability to afford), or lack of interest in cycling?
		What are your favorite features of living in The Gilbert? What do you like least about living here?
General Health Status		
	Self-reported health status	Which features of The Gilbert do you feel have made a difference to your health? How is this different from where you used to live? What would you change about the building design or location to improve your health, if anything?

Mental health		
	Perception of safety in home	What aspects of living in The Gilbert impact your emotional wellbeing? How is this different from where you used to live?
	Number of times awoken in the middle of the night due to loud noise	
	Either: depressive screening (PHQ-2) or psychological distress scale from NYC Community Health Survey	
Health-related opportunity cost of high rent		
	Experience of about being able to afford: <ul style="list-style-type: none"> - Rent - Sufficient food - Needed health care - Transportation to/from work 	How has living at The Gilbert influenced your ability to afford other necessities? How, if at all, has this influenced your health or your ability to engage in healthy behaviors?
Social cohesion		
	From CHS: Do you have at least one person in the neighborhood you could call for help in an emergency?	How, if at all, has access to building features and open spaces impacted the way you interact with neighbors?
Asthma symptoms (assess for all members of the household who has been diagnosed with asthma)		
	Existence of mold in apartment	Compared to your last apartment, what do you think about the apartment quality (presence of mold, pests, noise)?
	Existence of pests in apartment	
	Recent experience of shortness of breath	How has living at The Gilbert changed the impact that asthma has on your life?

		Which, if any, building design features or policies reduced the frequency or severity of your (or your child's) asthma symptoms?
	Recent experience of wheezing	
	Recent experience nighttime asthma symptoms (e.g., wheezing, chest tightness, cough, shortness of breath)	
	Days of missed [work/school] due to asthma symptoms	
	Number of emergency room visits due to asthma symptoms	
	Number of hospitalizations due to asthma symptoms	
Lifestyle/fitness		
	Stair use (average # of flights per day)	Barriers/challenges to using stairs?
	Number of times intentionally engaged in exercise	What other programs or building features would make it easier to engage in exercise?
		What other programs or building features would make it easier to eat more fruits and/or vegetables?
	Height	
	Weight	

THE GILBERT – HEALTH ACTION PLAN IMPLEMENTATION & MONITORING RESEARCH FINDINGS

November 15, 2016

SCOPE OF WORK

SKA Marin engaged Steven Winter Associates, Inc. to provide support for the 2015 Enterprise Green Communities Criteria (EGC) Health Action Plan and Monitoring and Evaluation plan, including research and plan writing. This document contains our research findings and recommendations as well as the DRAFT Monitoring and Evaluation Plan that can be used to satisfy the EGC criterion, as well as to provide useful design feedback to SKA Marin's future projects.

RESEARCH

Steven Winter Associates, Inc. reached out to the following industry contacts for advice on evaluating health impacts in green affordable housing: the Center for Active Design; the National Center for Healthy Housing; NeighborWorks America; the Health Impact Project; Enterprise Green Communities; the Green and Healthy Homes Initiative; and researchers from the Icahn School of Medicine at Mt. Sinai.

The individuals who provided valuable insights and recommendations were Dr. Elizabeth Garland, Director, Division of Preventive Medicine and Community Health and Associate Professor at Icahn School of Medicine at Mount Sinai; Sarah Norman, Director, Healthy Homes & Communities at NeighborWorks America; and Jonathan Wilson, Director of Research at National Center for Healthy Housing.

FINDINGS

Health Impact Assessments

Conventional Health Impact Assessments focus heavily on existing building stock and evaluating issues related to ventilation systems, cleaning practices, and environmental hazards like lead, radon, and mold. While there are numerous resources available related to Health Impact Assessments, they bear little relationship to the type of information SKA Marin may wish to collect at The Gilbert to evaluate its planned health interventions. Many of the selected interventions focus on Active Design, a relatively new aspect of green building where evaluation methods are still new. To date, many active design interventions have been measured in commercial spaces utilizing 'counters' – data collectors that can be installed for a period of time to measure number of stair users, for instance, or number of occupants in an outdoor recreation space – and workplace surveys.

Affordable Housing Research

Dr. Garland had the most insight into evaluating active design, asthma impacts, and green features of affordable housing in NYC. She recommended defining very specific research objectives at the outset. Preferred tools to evaluate building-specific interventions are qualitative resident surveys and focus groups. Surveys are a first effort, with focus groups second for more detailed analysis.

Regarding the timing of conducting a voluntary survey, residents should be settled into the building, but still be able to recall and compare against their prior living environments. A 6-8 month timeframe from move-in would be ideal for new construction. Following up with specific residents for a year + with staged surveys yields better scientific results, but increases difficulty exponentially (residents are difficult to track down) and is likely not recommended for this type of first effort. As a mode of conducting the surveys, a simple and effective strategy is to have third-party surveyors available in the lobby over the course of a couple of days and during different times in order to capture as many tenants as possible. With lobby surveys, a respondent can answer 20-30 well-crafted questions in 10-15 minutes in exchange for a fun freebie, if desired to help incentivize participation. Longer paid surveys were actually less successful, because respondents who didn't quality reacted negatively when money (\$30 for instance) was at stake. A really good survey response might be 50-60% of building occupants. Dr. Garland's team is currently partnering with LISC to evaluate 10 buildings for active design interventions using lobby surveys for \$20k.

Privacy Issues

Research involving human subjects requires Institutional Review Board (IRB) approval; however the review process is waived for voluntary survey questionnaires where information is kept anonymous. Each research institution will have its own IRB process. This should not prove any type of obstacle to collecting voluntarily supplied information from The Gilbert's residents. No actual medical information is likely to be sought from medical professionals, therefore the healthcare information privacy issues will not apply to The Gilbert's Monitoring plan. Dr. Garland's team reports that building residents are typically more than happy to participate, and offer no concerns whatsoever regarding privacy for the short, anonymous surveys. Researchers gather apartment numbers to confirm participation, but do not record any identifying information on the surveys themselves to protect anonymity.

Research Questions

Researchers have access to validated questions from prior studies, that have been vetted for clarity and to remove bias or 'leading' questions. For instance, there are four standard questions to evaluate asthma symptoms (starting with 'do you have doctor-diagnosed asthma') that appear in numerous studies of this type. Using validated questions eliminates the guesswork and is more likely to yield valuable and consistent results. Questions that use a point scale (5pt or 9 pt) are typically much more valuable than yes-no questions. 5-pt is favored by some researchers because it is perceived as being easier. "Feelings" questions are also valuable, particularly as they relate to mental health issues and perceptions of safety and security.

Focus Groups

Focus groups represent the next step beyond the lobby surveys. Focus groups on other green affordable housing have yielded valuable insights: for instance, residents weren't using the adult-sized exercise "play" equipment because there were no also child-sized options available, and their time spent outside was also spent with their children. As a result, management installed child-sized options in addition to the adult-sized. Focus groups are typically conducted using just 6-10 people, and provide much more detail about resident experiences in a building. Software is typically used to analyze the transcript of a focus group and distill the most significant words and outcomes.

RECOMMENDATIONS

1. **Satisfy EGC requirements.** This includes creating an implementation and monitoring plan of some kind. A DRAFT plan with Design Metrics, Operational Metrics, and Health Metrics has been added to the 11/7 version of the Health Action Plan. Responsible parties are also listed. The Plan further needs the addition of the rationale – which features were added voluntarily in response to findings from the health action planning effort.

2. **Define what you genuinely want to learn.** Be specific. SWA recommends focusing on how much residents use, appreciate, and value the added features that cost space and money: i.e. *bicycle storage, exercise room, play room, garden, and staircases*. Try to learn what would make residents more inclined to utilize these features, and incorporate findings in the next project – or eliminate features that don't add value.
3. **Seek Help for the Resident Health Metrics.** The list of O&M Metrics can be reduced to a 20-topic annual reporting effort, which should not be too intrusive. But to get reliable information about the Health Metrics, use a research team for a one-time survey. These teams have vetted questions that have been evaluated for bias, and third party medical teams are regarded more favorably by participants than management-run questionnaires. Leverage NYC resources for help funding. Anticipated effort might be \$2k-\$4k. Dr. Elizabeth Garland with LISC funding would be an excellent start.
4. **Use lobby surveys** for the resident health metric gathering. Run them on a few dates 6-8 months after occupancy. Ask 20-30 questions, taking 10-15 minutes, in exchange for some kind of small giveaway. Consider focus groups for more in-depth findings, if funding allows.
5. **Consider focus groups.** For more in-depth findings, complement lobby surveys with focus groups if funding allows. Significant insights can be gained from 6-8 building residents given the right questions and environment to voice their opinions. Similar to the lobby surveys, a third-party is highly recommended to facilitate the focus groups.
6. **React to findings.** In current projects, use programming and maintenance practices to modify the building to better serve health needs of residents. In future projects, focus time, space, and resources on the interventions viewed most favorably by O&M staff and residents alike.
7. **Pursue programmatic interventions.** Programmatic interventions may be most effective after resident Health Metrics are collected via lobby surveys. Smoking cessation classes, exercise classes, etc. may be an excellent use of the Exercise Room, but only if residents value those programs. Programmatic interventions are likely to change over time.

THE GILBERT IMPLEMENTATION AND MONITORING PLAN - DRAFT

Interventions

In addition to the many health-related mandates in 2015 Enterprise Green Communities Criteria, the following targeted interventions were integrated into the project design as a result of the Health Action Planning and information-gathering exercise:

- 24-hour building security and monitoring system
- Outdoor garden
- Indoor exercise room
- Indoor playroom
- Outdoor play equipment
- Bicycle storage
- Stairwell upgrades
- Views
- Non-smoking policy

Monitoring Plan Objectives

SKA Marin wishes to monitor effectiveness of the selected interventions post-occupancy to achieve two primary purposes:

1. To inform future building designs; and
2. To inform programming interventions for The Gilbert that will most effectively support resident health and well-being.

EGC requires that the plan include Design Metrics, Operation Metrics, and Health Metrics for each Intervention. These Metrics are included in Table 1 – Step 2: Implement and Monitor.

- The Design Metrics
 - As defined by Enterprise: Metrics to determine how well the design team, at the design stage, integrated the selected strategies into the project in a manner that will promote positive health outcomes.
 - Will be completed prior to EGC certification.
- The Operation Metrics
 - As defined by Enterprise: Metrics that can be measured on a routine basis while the building is in operation to determine whether or not the building is performing as intended.
 - Will be collected once/year, with approximately 20 items to address, and instructions for follow-up will be included in the O&M Manual.
- The Health Metrics
 - As defined by Enterprise: Metrics regarding resident health factors and, where possible, incidence or prevalence of key health outcomes in the resident and/or community population
 - Are likely to prove the most challenging to collect. The Gilbert team proposes to collect Health Metrics 6-8 months after occupancy as described below.

Collecting Data on Health Metrics

The project team completed the table outlining the Design Metrics, Operations Metrics, and Health Metrics for each intervention. The Health Metrics are expected to be the most challenging to collect. Toward that end, SKA Marin intends to leverage resources and expertise from experts (such as the Icahn School of Medicine at Mount Sinai research team, supported by LISC funding) to answer the following specific questions:

- *Do residents use/value bicycle storage, staircases, exercise area, play area, and outdoor garden space?*
- *What programming would facilitate increases in resident activity levels?*

Based on feedback from experts in the field, community health research is most successful when it is targeted and specific. For researchers conducting similar studies, lobby surveys have been effective. The Gilbert intends to utilize lobby surveys to collect the Health Metrics information:

- Surveys will take place at least 6 months but no more than 8 months after building is fully occupied
- Advertising via flyers will happen 2 weeks in advance
- Surveys will be conducted by researchers on at least 3 different days/times within a 7 day period
- Participants will be offered a small token giveaway in exchange for participation
- Surveys will consist of 20-30 questions and are expected to take 10-15 minutes to complete
- The researchers hope to receive participation from at least 50% of building occupants
- Keep information completely anonymous; researchers will note apartment numbers for participation purposes only, but that information will not be included on questionnaires

Example Research and Publications

- *Impact of LEED-Certified Affordable Housing on Asthma in the South Bronx*
https://www.press.jhu.edu/journals/progress_in_community_health_partnerships/7.1.garland.pdf
- *A Systematic Review of Health Impact Assessments on Housing Decisions and Guidance for Future Practice*
<http://nchh.org/Portals/0/Contents/Guidance-for-Conducting-HIAs-on-Housing-Decisions.pdf>
- Research Review: Active Design in Affordable Housing
<https://centerforactivedesign.org/researchreview-affordablehousing>