Space To Grow
Health & Wellness Evaluation
NPI Brown Bag
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Overview

- Provide brief explanation of **built environment inequities** & their association with health inequities
- Introduce **Space To Grow (STG)**
- Identify five **adapted RE-AIM dimensions** for built environment interventions
- Detail STG health & wellness **evaluation plan**
- Share project **timeline and products**

Background: Urbanicity

Inequities in built environment (identified as density, functional mix and public spaces & services) associated with Health Disparities/Social Injustice.

- Climate characteristics, soil and water pollution
- Food desserts
- Lack of traffic calming, sidewalks, bike lanes (less opportunities for active transport)
- Fewer parks (less opportunities for PA)

Specific Need in Chicago

- Residents of Chicago's low-income, urban neighborhoods face ***numerous stressors***
  - Flooding
  - High crime
  - Limited access to safe places for youth & community members to congregate & be physically active
  - Minimal exposure to green space

MANAGING PARTNERS
HEALTHY SCHOOLS CAMPAIGN + OPENLANDS

Donald Morrill Math & Science Elementary School

Pre-transformation

Donald Morrill Math & Science Elementary School

Post-transformation

Virgil Grissom Elementary School

Pre-transformation

Virgil Grissom Elementary School

Post-transformation

Willa Cather Elementary School

Pre-transformation

Post-transformation

STG Schoolyard Renovations

- Prioritize PA, Play, Learning, Exploration & Community Engagement.

- Incorporates landscape features that capture significant amount of rainfall – helping keep the city's water resources clean & resulting in less neighborhood flooding (Water Management).

STG Initiative

- Focused selection criteria to identify schools (sig neighborhood flooding & most urgent need for outdoor space)
- Engages community in design process with multiple events & marketing during planning phase
- Community events & workshops post-transformation

How might renovated schoolyard in an Urban area impact individuals & community?

- Improve Cognitive Function (Dadvand 2015)
- Improve Recovery from Stress (Van den Berg 2007)
- Improve Mental Wellbeing (e.g., Chawla 2014)
- Provide Community Benefits (e.g., collective efficacy, community connectedness) (Weinstein 2015)
- Provides Opportunity for PA (Cohen 2015; Tester 2009)
- Opportunity for Beneficial Play (Dyment & Bell 2008)
- Increase Social Emotional Skills (Chawla 2014)
- Provide Nutrition Education & Environmental Literacy

Assess the impact of the STG schoolyard transformations via examination of four aims:

1. Utilization and characteristics of person's using schoolyards
2. Students' physical activity, well-being, & academic outcomes
3. Community engagement and cohesion
4. School environment

RE-AIM Framework Adapted for Built Environment Intervention (King 2015)

Reach: Representativeness of those affected by environmental change

Effectiveness: Behavior change

Adoption: Characteristics of institution that adopt or decline intervention

Implementation: Aligned with community needs

Maintenance: Long-term usage (& integrity) of space & impact on health

Multi-method Assessment Strategy

- Using complementary methods **to improve accuracy** by collecting different kinds of data bearing on same phenomenon.

- Will allow us to **flesh out important info** that may not be captured solely by a single method.

Participating Schools

- Post-renovation outcomes evaluated at 3 transformed Chicago Public School (CPS) schoolyards: **May-June 2016**
  - 2 schools (Morrill & Grissom) transformed in summer 2014 (Round 1; R1 – 18mo post-transformation)
  - 1 school (Cather) transformed in summer 2015 (Round 2; R2 – 6mo post-transformation)

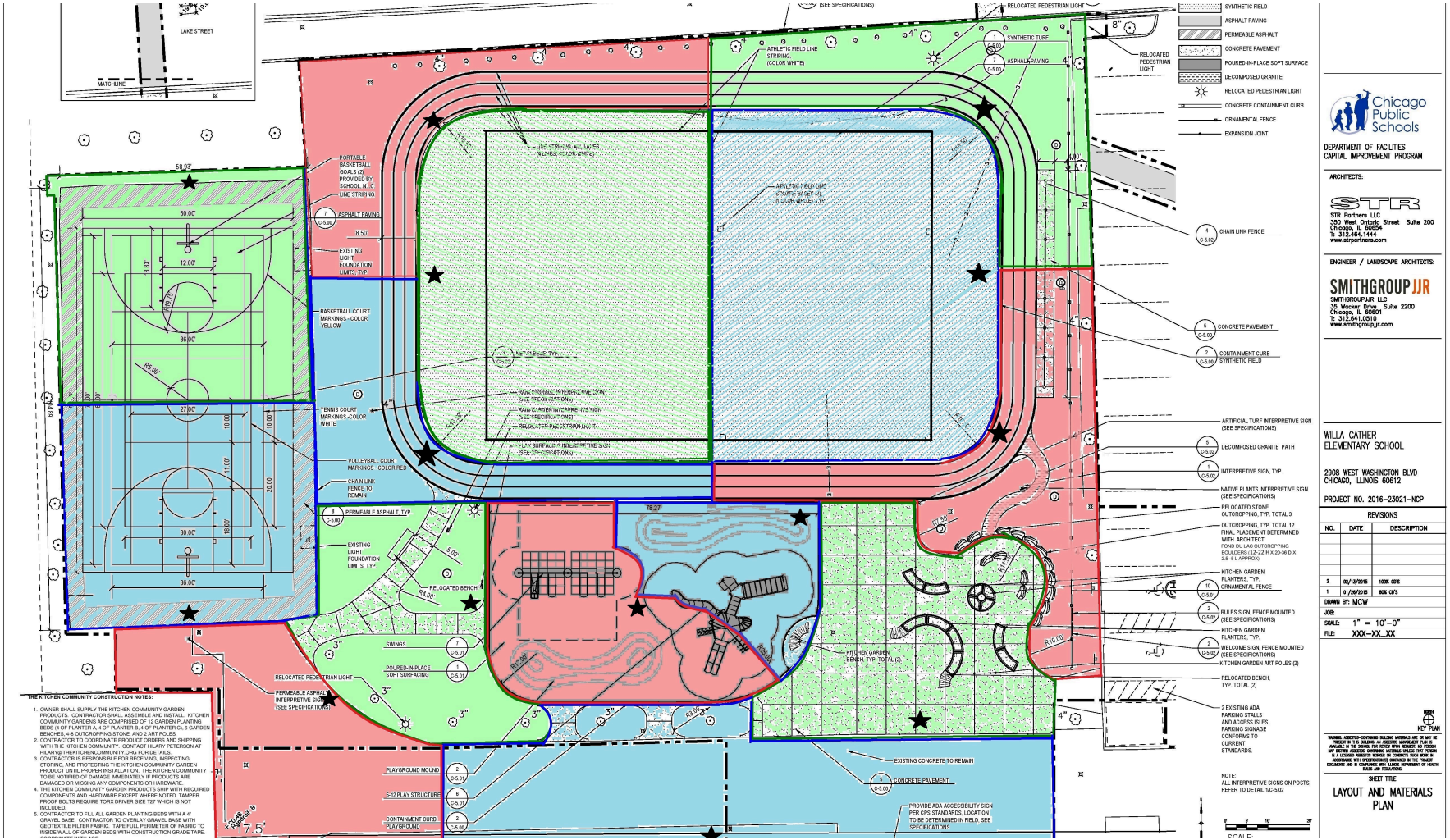
- Baseline data collection at 2 schools **May-June 2017;** *Follow-up data collection TBD*

Behavior Mapping (Cosco, Moore & Islam 2010)

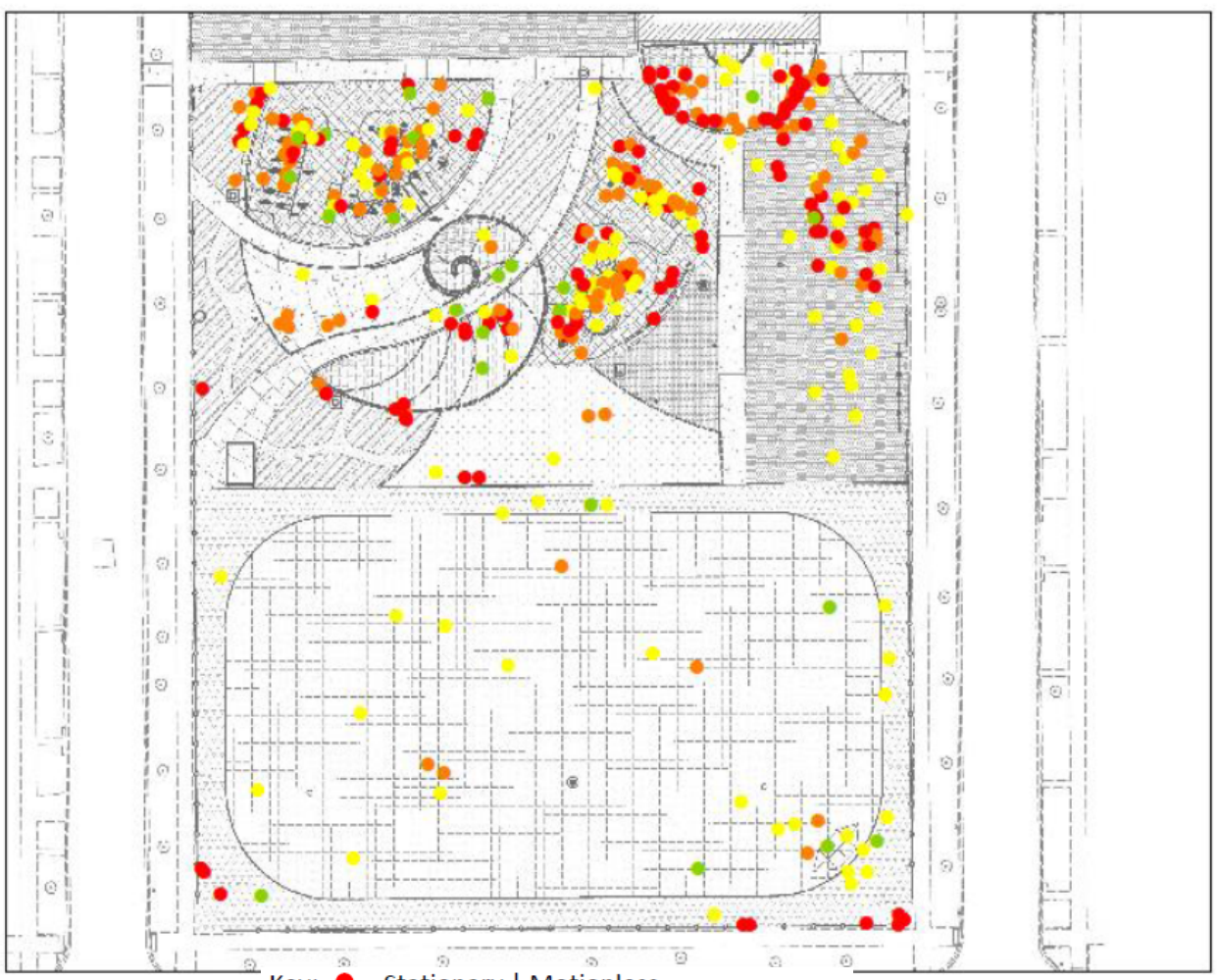
Observational methodology designed to capture:

- Schoolyard Utilization & characteristics of persons on schoolyard (gender, age range & race/ethnicity) - Reach
- Level of Physical Activity (e.g. Sedentary, Light, Moderate-to-Vigorous) - Effectiveness & Maintenance
- Type of Social Interactions – Effectiveness
- Interaction between built environment & individuals' behaviors (physical activity & social interactions) – Effectiveness

Aerial maps of transformed schoolyards (divided into zones for observational data collection)



Grissom, afterschool, Post-transformation



Schoolyard Checklist (adapted from BTG 2012)

Objective data capturing ***components/features*** of each schoolyard and ***their condition***, as well as ***presence/absence of incivilities*** – Implementation & Maintenance

C. SCHOOLYARD FEATURES AND AMENITIES					
FOR EACH FEATURE, COMPLETE C1 IF C1=1, CODE C2	**C1. Is Feature Present?**		**C2. Condition of Feature or Surface**		
	NO	YES	POOR	OK/GOOD	COULD NOT RATE
a. Green Space	☐	☐	☐	☐	☐
b. Shelters/Shade	☐	☐	☐	☐	☐
c. Picnic Tables	☐	☐	☐	☐	☐
d. Seating – Benches	☐	☐	☐	☐	☐
e. Seating – Natural	☐	☐	☐	☐	☐
f. Drinking Fountains	☐	☐	☐	☐	☐
g. Decorative Fountains	☐	☐	☐	☐	☐
h. Trash Containers	☐	☐	☐	☐	☐
i. Grills/Fire Pits	☐	☐	☐	☐	☐
j. Fruit/Vegetable Beds/Garden Area	☐	☐	☐	☐	☐
k. Educational Signage	☐	☐	☐	☐	☐
l. Art Feature	☐	☐	☐	☐	☐
If Yes to l. Art Feature, please describe:					

D. INCIVILITIES				
D1. How much of… is on the schoolyard?	NONE	A LITTLE	SOME	A LOT
a. Garbage/Litter	☐	☐	☐	☐
b. Broken Glass	☐	☐	☐	☐
c. Graffiti/Tagging	☐	☐	☐	☐
d. Evidence of Alcohol Use	☐	☐	☐	☐
e. Evidence of Substance Abuse	☐	☐	☐	☐
f. Sex Paraphernalia	☐	☐	☐	☐
g. Other Evidence of Vandalism or Trespassing. Please describe:				

Surveys

- Three versions (caregiver, teacher, community)
- Assessed current perceptions and changes:
  - Schoolyard utilization
  - Neighborhood environment
    - Social Cohesion and Trust Subscale of Collective Efficacy (Sampson, Raudenbush, & Earls, 1997)
    - Neighborhood Cohesion Instrument (items assessing mobility; Buckner, 1988)
    - Perceptions of Neighborhood Safety (Janssen, 2014)
  - School environment
    - Delaware School Climate Survey (Bear 2014)
    - Morale Subscale of the School Organizational Health Questionnaire (Hart 2000)
  - Student health and wellbeing (e.g., bullying, injuries)
  - School-community relations

Baseline Stakeholder Interviews

- Identify community contextual variables (e.g., *community assets & priorities*) in which STG initiative was being implemented & utilization of the outdoor space as well as the *barriers and facilitators to its use* - **Reach & Adoption**

Process Evaluation: Planning Event Surveys

- Assess community engagement process the intervention team followed -- were school staff, families and community members appropriately involved in the planning, design and maintenance phase? (Conger, 1984; Melby & Conger, 2001; O'Malley et al., 2003; Ryu & Lombardi, 2015) – **Implementation**

Process Evaluation:
STG Process Checklist

- Assess *strengths & barriers of STG initiative implementation* at each phase of the schoolyard transformation, while collecting descriptive information about the process to inform the findings with more detail - **Implementation**

Neighborhood Park & Playground Audits

- ½ mile radius around school, using ArcGIS database to identify green spaces & verify with groundtruthing
- Research has demonstrated that playground structures are most used park features & areas where children are observed in MVPA compared to other park activity areas - **Effectiveness**

Secondary Data

- **Publicly available CPS school-level data**

  Compiled academic & behavioral outcomes for two school years surrounding the schoolyard transformation - **Effectiveness**

- **Aggregate community-level data**

  Compiled from the City of Chicago website for two years surrounding the schoolyard transformation - **Effectiveness**

  - Crime statistics
  - Real estate values

Findings from 3 schools post-transformation

- STG schoolyards were ***highly utilized post- transformation*** by students, teachers, and community members alike.
  - Reported to be highly utilized at all times & more than prior to transformation
  - Greater observed utilization on schooldays than weekends
- STG schoolyards were observed to be a ***safe place*** for children to ***play***, have ***positive social interactions*** and ***engage in physical activity***.
  - Supported by objective schoolyard observations & survey reports
- Schoolyards were ***well maintained*** with only minor incivilities (trash, graffiti)

Changes in students' health, well-being, and academic outcomes

- Based on survey data:
  - Caregivers & teachers reported ***fewer injuries, less teasing/bullying,*** and ***less gang activity*** on schoolyards post-transformation.
  - Teachers reported using the new schoolyard as an ***extension of the classroom*** for a wide variety of lessons and activities.

"I have brought my students outside more since the playground was renovated"

"I use the outdoor classroom for social-emotional learning"

"It is a tool for observation, a lab for experimentation and growth, and a space to feel connected to earth"

Changes in school-community engagement and cohesion

- All schools were reported to have a ***good relationship*** with neighbors in the community
  - 50% of caregivers, 65% of teachers & 37% of community members thought that relations between school & community ***changed*** following schoolyard transformation.
  - Respondents reporting change cited better ***communication,*** more ***community involvement,*** greater ***community use of the playground,*** & increased ***neighborhood pride*** as reasons for increased school-community relations.

"Better communication between teachers and parents!"

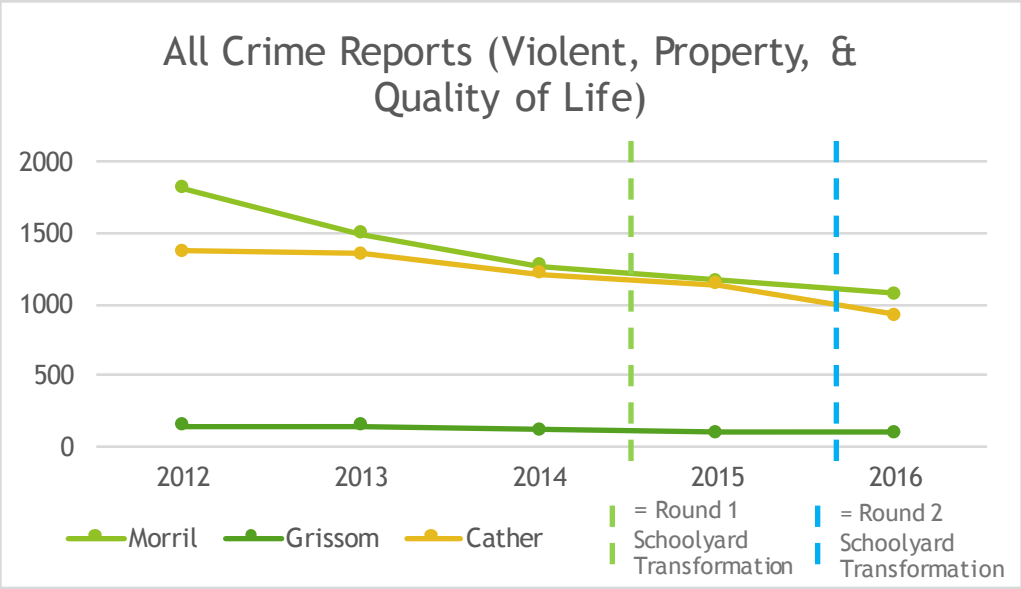
"School has become a place for the community"

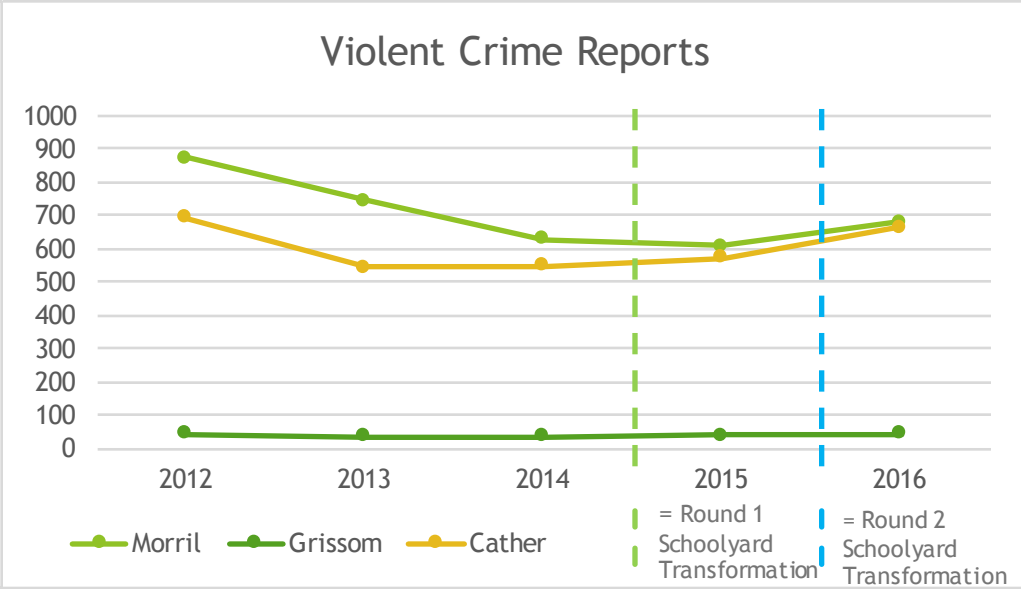
"People travel to the school because it is beautiful"

Changes in school-community engagement & cohesion

- Based on City of Chicago **secondary data**:

  While overall crime decreased, there was an uptick in violent crime at Morrill and Cather.





Future Directions

- ***Maintenance of effects*** at R1 & R2 schools
- Capture ***pre-transformation planning process***
  - Checklists & surveys at planning meetings
  - Interviews with key stakeholders
- ***Pre- and post-***transformation data
  - 2017-18: 2 schools
- ***Policy brief*** **to make the case for public investment in schoolyard transformations, particularly in low-income, urban communities**