

Perceptions of Public Green Stormwater Infrastructure

A quantitative study on factors of community preferences

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BACKGROUND

Definition

"...the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters."

Section 502 of Clean Water Act

Past Research

- Prescriptive studies have shown where infrastructure *should* be placed.¹
- Cross-scale analysis have identified the importance of spatial, social, and physical factors.²
- Has not been shown to have great impact in lessening crime.³
- Case study demonstrates need for greater community involvement in planning⁴
- The longer a person has lived in the area, the more likely they are to care for the local environment.⁵
- Survey respondents are more likely to prefer an option with high visual salience.⁶

Demographic Characteristics

Most advantaged

Majority white, household income above city average, percentage of households in poverty below city average, percentage of owned homes above city average

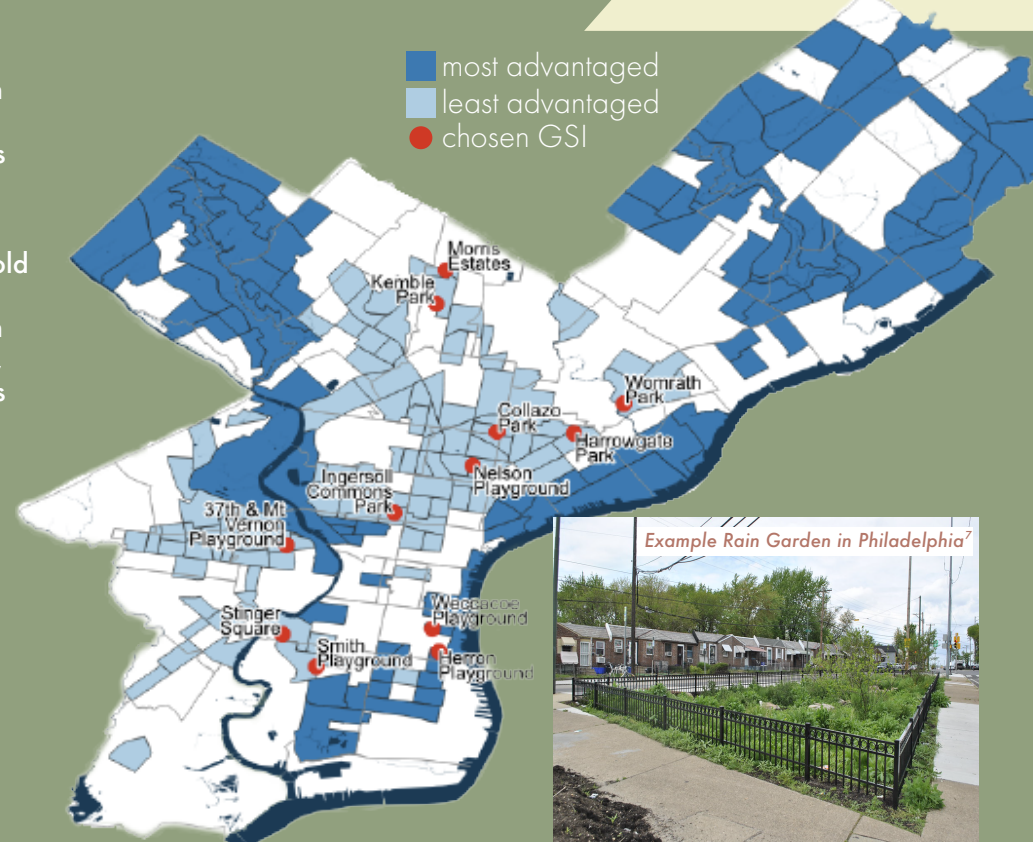
Least advantaged

Majority non-white, household income below city average, percentage of households in poverty above city average, percentage of owned homes below city average

GSI Characteristics

- Based on shape file of all Green Stormwater Infrastructure obtained from City of Philadelphia.
- Narrowed to include only public projects
- Focused on rain gardens because they are easily visible

SITE SELECTION



note: only two of the selected sites fall in high income areas. This is a byproduct of Philadelphia's emphasis on putting GSI in low income areas

SURVEY DESIGN

survey administered through qualtrics platform to people in identified zip codes

3 main sections



Demographic Questions
ie. race, income, zip code, age



Green Stormwater Questions
ie. feelings towards Green Stormwater Infrastructure in neighborhood, preference on GSI type, familiarity with GSI, maintenance of GSI in the area



Environmental Knowledge Questions
ie. opinion of environmental challenges in their area, acknowledgement of environmental challenges, ranking of which problems are most important

IN THE MEDIA

To the City, a Pollution Fighter. To Some Residents, an Eyesore⁸



5 Down, 20 to Go: Celebrating 5 Years of Cleaner Water and Greener Neighborhoods⁹



RESEARCH QUESTIONS

- 1 How do residents perceive GSI in public areas differently based on their racial and socioeconomic characteristics?
- 2 How do residents perceive GSI in public areas differently across neighborhoods?
- 3 Is there a relationship between general environmental knowledge (or concerns) and perception towards GSI? If any, are there any variations across the urban populations' racial and/or socioeconomic characteristics?

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- (8) <https://www.nytimes.com/2017/03/23/nyregion/bioswale-rain-gardens-new-york.html>
- (9) <http://archive.phillywatersheds.org/5Down>