

# Methodologies and Emerging Findings from Project VITAL: Vacant lot Improvement to Transform Adolescent Lives

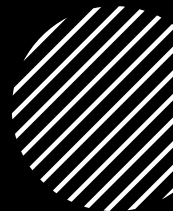
---

Kristin Mmari, Rebecca Skinner, Marina Jenkins, and Dustin Fry

July 19th, 2024



# Agenda



Brief description of Project VITAL



Site and street block observations



Adolescent survey and analysis



Demolition data analysis



Question and answer

# Background

---

- People living near vacant lots and abandoned buildings exhibit poor health...But, growing evidence suggests that when vacant lots are greened and restored, the health of nearby residents improves.
- While most research to date has focused on adult residents, far less is known about the impact that vacant lot restoration has on the health of adolescents.
  - Even though adolescents spend more time in the areas surrounding their homes than adults, AND
  - Neighborhood research shows that adolescents have much different experiences and perceptions of neighborhood compared to adults



# Situation in Baltimore

- Baltimore City has over 18,000 vacant lots and additional 17,000 abandoned buildings (Baltimore Green Network)
  - Approximately 900 vacant lots have been greened to date; but restoration is variable
    - Mowing and trash pick up
    - Community gardens
    - Raised flowerbeds and tree planting
    - Art murals
- The City and many other NGOs have a plan to 'clean and green' every vacant lot... and this provides us with a great opportunity to examine the impact of various restoration activities on the health of adolescent residents





SCIBAR Award  
(Support for  
Creative  
Integrated Basic  
and Applied  
Research)

- Overall study goal: To determine whether vacant lot restoration strategies reduce health disparities among young people, including what types of restoration works best, for whom, and why.
- Short-term objectives:
  1. Build a sharable database containing key characteristics of restored and unrestored vacant lots;
  2. Conduct a mixed-methods study on changes in adolescent health associated with exposure to vacant lot restoration
  3. Embed a cost-effectiveness study to determine the impact of different restoration programs on youth crime and violence; mental health; and food insecurity; and
  4. Develop and disseminate a blueprint for reducing adolescent health disparities through lot restoration strategies that can be adapted for different U.S. municipalities.

# Database to date

**Project VITAL Greening Lots**

### Filter Lots by Attribute

Select one or more of the below filters to update the map.

- Site Name:** None
- Organization Source:** No category selected
- Type of Lot:** No category selected

Filter...

- Clean and Green
- Forest
- Garden
- Pocket Park

**Current Database of Lot Locations (2022)**

Total Parcels on the Map **6.2k**

Total Sites on the Map **871**

to explore the impact of vacant lot restoration on the health of adolescents living in disadvantaged neighborhoods, with findings that can be used to develop long-term strategies for improving adolescent health equity.

**More information about Project VITAL (Vacant lot Improvement to Transform Adolescent Lives) can be found at [bniajfi.org/projectvital](https://bniajfi.org/projectvital)**

Data provided by Baltimore City Housing and Community Development, Baltimore City Environmental Control Board, Baltimore Green Space, and Johns Hopkins University Center for a Livable Future.

Data compiled by Baltimore Neighborhood Indicators Alliance - Jacob France Institute.

Details About

Baltimore County Government, VGIN, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA | BNIA-JFI (<https://www.bn...>) Powered by Esri

Zoom in to the block level to see Baltimore City vacant lots recognized by the Department of Housing and Community Development.

# Mixed-Methods study

## Adolescent Survey:

- 3 main health outcomes: violence; mental health, and food insecurity
- Data was collected among approximately 350 adolescents aged 14-19 years

## In-depth interviews:

- Approximately 25-30 adolescents aged 14-19 years who live next to restored vacant lots (with varying levels of quality) will be interviewed to gather perceptions of impact of restored vacant lots

## Observations :

- Restored lots within 2 blocks of survey sample will be observed to identify type of greening and quality
- Street blocks observed of every survey respondent



# For more information:

Chrome File Edit View History Bookmarks Profiles Tab Window Help Thu Dec 2 2:00 PM

ProjectVital | BNIA - Baltimore x

bniajfi.org/projectvital/

VITAL SIGNS RESOURCE LIBRARY LEARNING COMMUNITY NEWS & EVENTS ABOUT BNIA HELP CENTER

## Project VITAL

Vacant lot Improvement to Transform Adolescent Lives

**Can restoring vacant lots improve adolescent health disparities?**

People living near vacant lots and abandoned buildings exhibit poor health...But, growing evidence suggests that when vacant lots are greened and restored, the health of nearby residents improves.

**JOHNS HOPKINS**  
BLOOMBERG SCHOOL  
of PUBLIC HEALTH

Bloomberg American  
Health Initiative

[Learn more!](#)

[Go To Map!](#)

Project VITAL Our Mission Our Plan YAB Team A Vital Story Theory of Change Contact Us



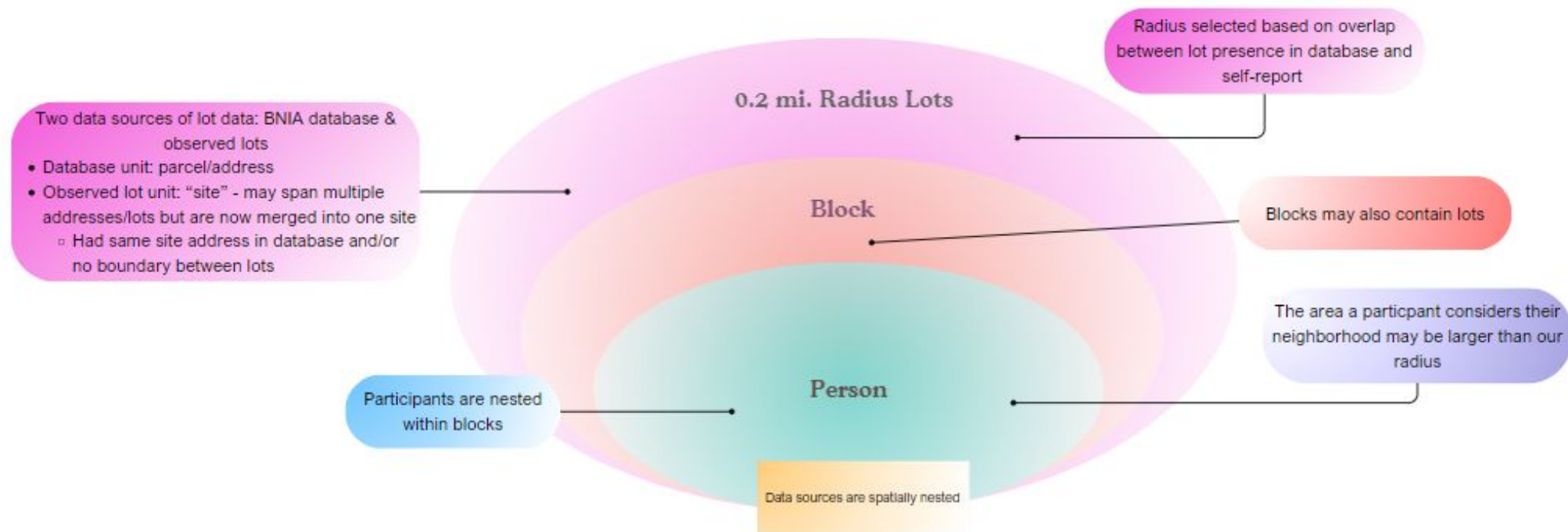
An aerial, high-angle photograph of a dense urban neighborhood. The image shows a grid of streets and a variety of multi-story buildings. Some buildings are older, with brick facades and fire escapes, while others are more modern. The lighting is warm, suggesting late afternoon or early morning. The text "Site and Street Block Observations" is overlaid in the center in a white, sans-serif font.

# Site and Street Block Observations

# Data Sources

## Project VITAL Exposures

### CONCEPTUAL MODEL





# Street Block Observations

For each survey participant, the block which their home address was on was observed by:

- JHU affiliate (Grad student or Staff)
  - Youth Community Member
- 
- Vacant Building count
  - Noise level
  - Cleanliness/Trash
  - Features
    - Lighting
    - Landscaping
    - Benches
  - People present

# Street observations

n=268	No	Yes and No	Yes
<b>Are there benches or creative seating visible?</b>	189 (70.5%)	29 (10.8%)	50 (18.7%)
<b>Are there grills present?</b>	231 (86.2%)	22 (8.2%)	15 (5.6%)
<b>Are there Police Lights/Emergency Blue Light Telephones?</b>	260 (97.4%)	5 (1.9%)	2 (0.7%)
<b>Street Lighting present?</b>	7 (2.6%)	15 (5.6%)	246 (91.8%)
<b>Outdoor community recreation outlets</b>	240 (89.6%)	15 (5.6%)	13 (4.9%)
<b>Organized game courts</b>	249 (92.9%)	10 (3.7%)	9 (3.4%)

# Street Observations

Variables	0	0.5	1	1.5	2	2.5	3
	<b>0 = None</b>	<b>0.5</b>	<b>1 = Half or less</b>	<b>1.5</b>	<b>2 = More than half</b>	<b>2.5</b>	<b>3 = All</b>
<b>Proportion of block with sidewalk that is unobstructed</b>	72 (26.9%)	35 (13.1%)	79 (29.5%)	27 (10.1%)	32 (11.9%)	3 (1.1%)	20 (7.5%)
	<b>0. No more than 1 or 2. pieces here or there</b>	<b>0.5</b>	<b>1. At least a grocery bags worth spread across the street or clustered in one location</b>	<b>1.5</b>	<b>2. More then a grocery bags worth spread across the block</b>	<b>2.5</b>	<b>3. Several grocery bags worth spread across the block or multiple piles in different locations</b>
<b>Trash in street</b>	165 (61.6%)	38 (14.2%)	47 (17.5%)	2 (0.7%)	10 (3.7%)	1 (0.4%)	5 (1.9%)
	<b>0 = 0</b>	<b>0.5</b>	<b>1 = 1-3</b>	<b>1.5</b>	<b>2 = 1-3</b>	<b>2.5</b>	<b>3 = 8 or more</b>
<b>Graffiti</b>	209 (78.0%)	13 (4.9%)	34 (12.7%)	2 (0.7%)	6 (2.2%)	0 (0.0%)	4 (1.5%)
<b>Murals</b>	245 (91.4%)	14 (5.2%)	8 (3.0%)	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<b>Police Presence</b>	261 (97.4%)	5 (1.9%)	2 (0.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<b>People exercising</b>	248 (92.5%)	7 (2.6%)	10 (3.7%)	1 (0.4%)	1 (0.4%)	0 (0.0%)	1 (0.4%)
<b># of youth</b>	200 (74.6%)	28 (10.4%)	28 (10.4%)	4 (1.5%)	6 (2.2%)	1 (0.4%)	1 (0.4%)
	<b>0 = None</b>	<b>0.5</b>	<b>1 = Less than half of structures</b>	<b>1.5</b>	<b>2 = About half of structures</b>	<b>2.5</b>	<b>3 = Almost all or all of structures</b>
<b>Evidence of Landscaping</b>	45 (16.8%)	10 (3.7%)	50 (18.7%)	28 (10.4%)	55 (20.5%)	25 (9.3%)	55 (20.5%)
	<b>0 = None (perfectly quiet)</b>	<b>0.5</b>	<b>1 = A little (indistinguishable voices and sounds)</b>	<b>1.5</b>	<b>2 = Some (music and/or distinguishable voices and sounds)</b>	<b>2.5</b>	<b>3 = A lot (music, voice, and/or sounds that can be distinguished and identified from a block away)</b>
<b>Noise</b>	61 (22.8%)	51 (19.0%)	107 (39.9%)	21 (7.8%)	26 (9.7%)	1 (0.4%)	1 (0.4%)



# Site (Lot) Observations

For each survey participant, database lots that were within .20 mi of their home address were observed by:

- JHU affiliate (Grad student or Staff)
- Youth Community Member

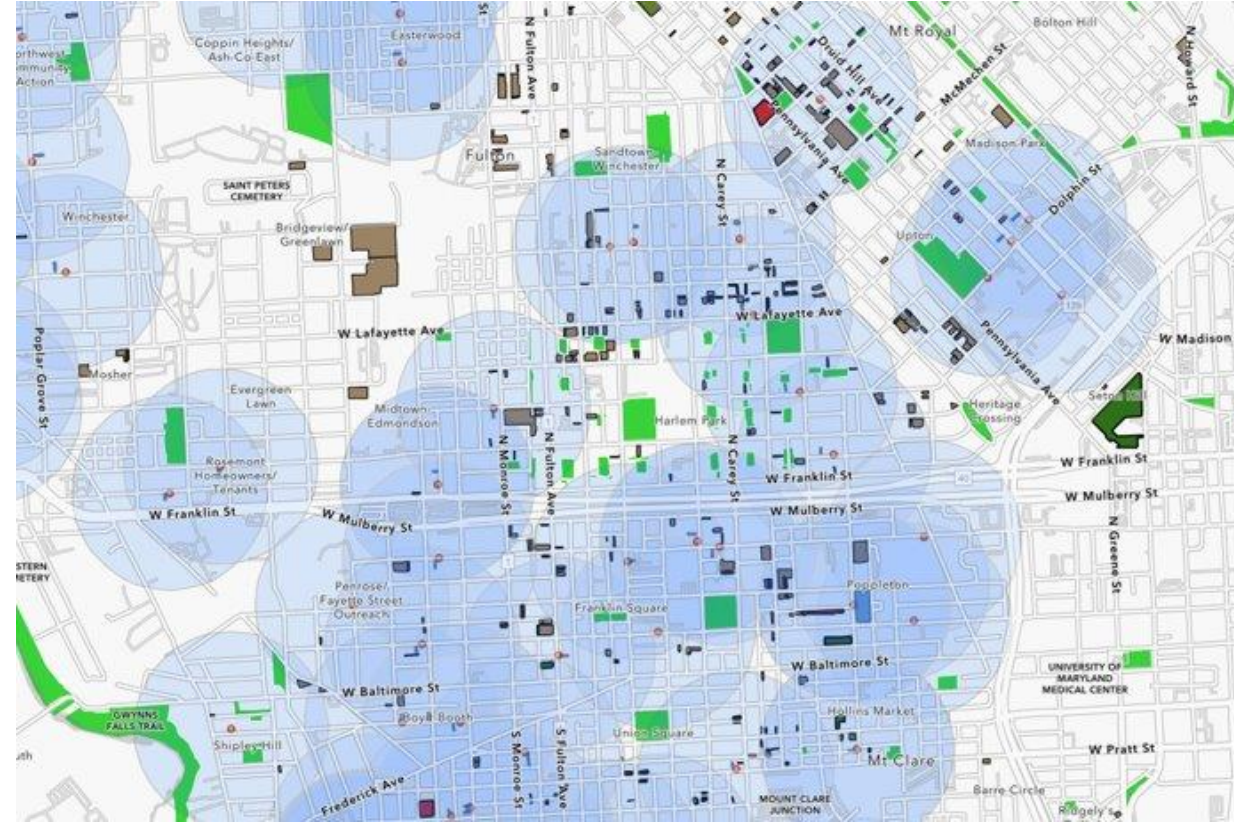
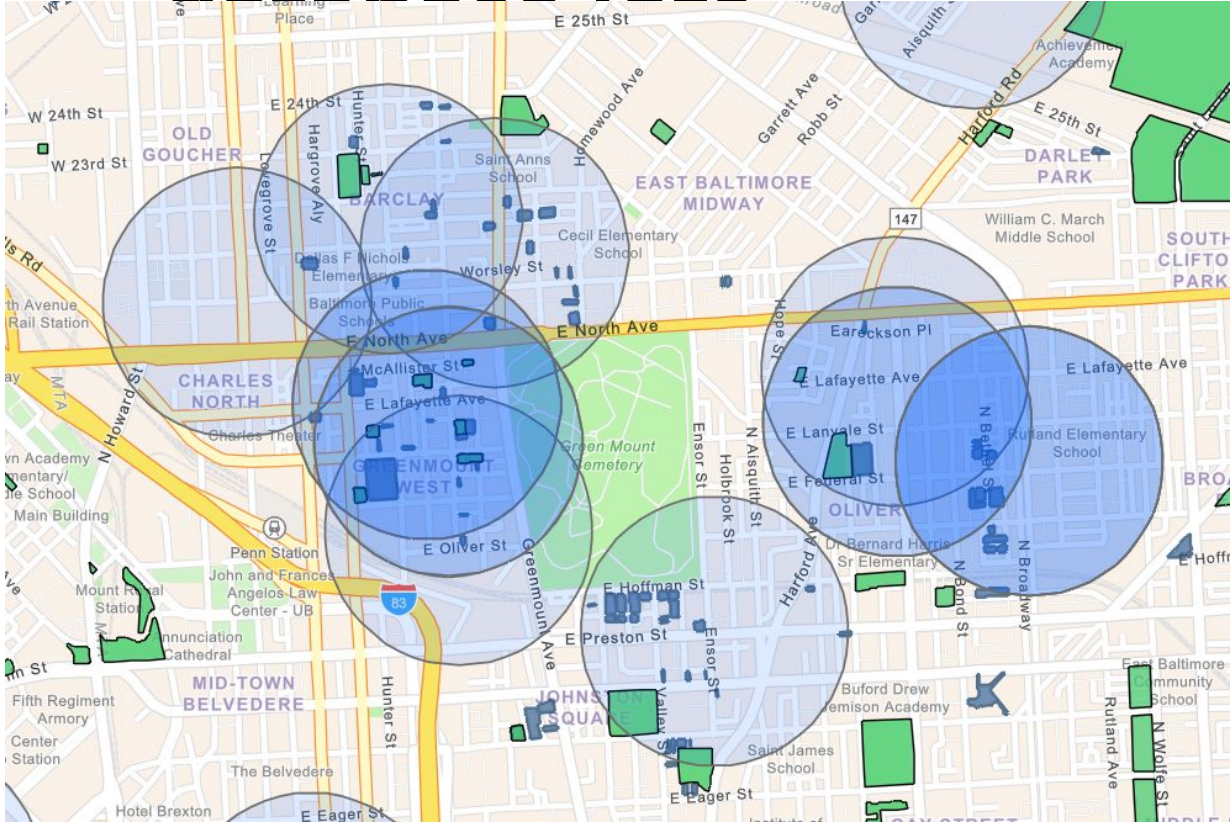
## Characteristics:

- Grass/Lawn
- Fencing
- Structured Garden area
- Seating
- Tree canopy
- Animals
- Trash/litter
- Streetlights within 1 block
- People outside

## Site/Lot Classification:

- Community Garden
- Cleaned Open Space
- Cleaned Open Space with fencing
- Playground/Play area
- Unkept Green Space

# Surveys addresses within 0.20 mile buffer matched with observed lots, parks, and



- Database sites: 870
- Observed sites (lots) within .20 mile radius: 486



# Observed Site data

## Site Classification (can be more than 1) and Overall Rating

Classification	Poor	Average	Excellent
Community garden	13 (7.07%)	74 (40.22%)	97 (52.72%)
Cleaned open space	15 (7.21%)	118 (56.73%)	75 (36.06%)
Cleaned open space with fencing	2 (1.85%)	48 (44.44%)	58 (53.70%)
Playground/play area	1 (1.56%)	28 (43.75%)	35 (54.69%)
Unkept green space	135 (65.85%)	66 (32.20%)	4 (1.95%)
Other	14 (51.85%)	8 (29.63%)	5 (18.52%)

## Visible Site Characteristics and Site Classification

Characteristics	Visible	Community garden	Cleaned open space	Cleaned open space with fencing	Playground/play area	Unkept green space
Animals Kept	Yes	13 (7.14%)	7 (3.38%)	6 (5.56%)	3 (4.69%)	1 (0.49%)
	No	169 (92.86%)	200 (96.62%)	102 (94.44%)	61 (95.31%)	204 (99.51%)
Fencing	Yes	111 (60.99%)	70 (33.82%)	97 (89.81%)	42 (66.67%)	54 (26.21%)
	No	71 (39.01%)	137 (66.18%)	11 (10.19%)	21 (33.33%)	152 (73.79%)
Structured garden area	Yes	147 (79.89%)	69 (33.33%)	58 (53.21%)	22 (34.38%)	35 (16.99%)
	No	37 (20.11%)	138 (66.67%)	51 (46.79%)	42 (65.62%)	171 (83.01%)
Grass/Lawn	Yes	170 (92.90%)	204 (98.08%)	98 (89.91%)	62 (96.88%)	184 (90.20%)
	No	13 (7.10%)	4 (1.92%)	11 (10.09%)	2 (3.12%)	20 (9.80%)
Streetlights w/ In 1 block	Yes	168 (91.30%)	195 (93.75%)	102 (93.58%)	60 (93.75%)	173 (84.39%)
	No	16 (8.70%)	13 (6.25%)	7 (6.42%)	4 (6.25%)	32 (15.61%)
People outside	Yes	100 (54.64%)	84 (40.58%)	52 (48.60%)	37 (58.73%)	67 (32.68%)
	No	83 (45.36%)	123 (59.42%)	55 (51.40%)	26 (41.27%)	138 (67.32%)
Seating	Yes	88 (47.83%)	71 (34.13%)	59 (54.13%)	47 (73.44%)	22 (10.68%)
	No	96 (52.17%)	137 (65.87%)	50 (45.87%)	17 (26.56%)	184 (89.32%)
Trash/Litter	Yes	74 (40.44%)	93 (44.93%)	39 (36.11%)	36 (56.25%)	166 (80.98%)
	No	109 (59.56%)	114 (55.07%)	69 (63.89%)	28 (43.75%)	39 (19.02%)
Tree Canopy	Yes	118 (64.48%)	133 (64.56%)	79 (73.15%)	46 (73.02%)	101 (49.27%)
	No	65 (35.52%)	73 (35.44%)	29 (26.85%)	17 (26.98%)	104 (50.73%)



An aerial, high-angle photograph of a city street grid. The buildings are multi-story, with various architectural styles and colors, including brick and light-colored facades. A prominent water tower is visible on the left side. The streets are lined with sidewalks and some trees. The overall scene is a dense urban environment.

# Adolescent Survey and Analysis

# Survey Results

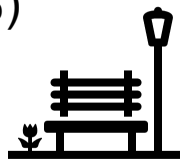
## Completion

- 364 Completed Surveys
  - 336 Geocoded



## Neighborhood

- Near uncleaned vacant lots: 153 (40.3%)
- Many green spaces in neighborhood: 222 agree (62.4%)
- Many safe places for kids to play in neighborhood: 199 agree (55.9%)
- Participated in neighborhood beautification: 144 (40.5%)



## Demographic Characteristics

- 175 (49.2%) Male
- Mean Age 15.6 (SD=1.7)
- 97 (27.3%) 8th Grade Education
- 305 (86.7%) African American



## Green Space

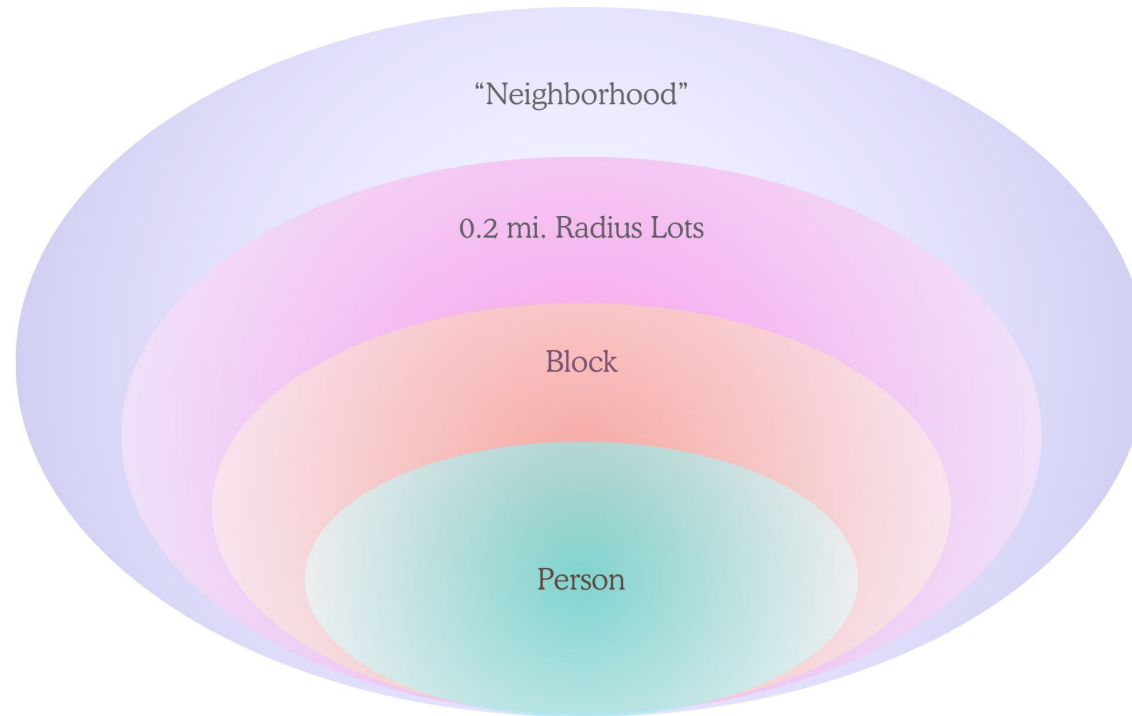
- Live within 5-min walk of green space: 279 (78.4%)
- Spend 2+ hrs outdoors per day: 126 (35.4%)





# Surveys

- Exposure data collected for survey participants



## EXPOSURE VARIABLES BY SOURCE

Person	Block	0.2 mi. Radii Lots	“Neighborhood” (Perceptions)
<ul style="list-style-type: none"> <li>• <u>Unkept Vacant Lots</u> <ul style="list-style-type: none"> <li>★ Presence (a lot)</li> <li>○ Change (past month)</li> </ul> </li> <li>• <u>Green Space</u> <ul style="list-style-type: none"> <li>★ Presence (a lot)</li> <li>○ Change (past month)</li> <li>○ Time/wk</li> <li>○ Time/visit</li> <li>○ 5-min walk</li> <li>○ Valued</li> <li>○ Outside home                             <ul style="list-style-type: none"> <li>▪ Do they use this space</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Quality/Maintenance                             <ul style="list-style-type: none"> <li>○ Vacant lot count</li> <li>○ Vacant building count</li> <li>○ Noise</li> </ul> </li> <li>• Cleanliness/Trash</li> <li>• Features                             <ul style="list-style-type: none"> <li>○ Lighting</li> <li>○ Landscaping</li> <li>○ Benches</li> </ul> </li> <li>• People</li> <li>• Vacant lots</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Any</u> <ul style="list-style-type: none"> <li>○ Count</li> <li>○ Quality</li> <li>○ Type (database)</li> </ul> </li> <li>• <u>Improved</u> <ul style="list-style-type: none"> <li>○ Any</li> <li>○ Count</li> <li>○ Area/other</li> </ul> </li> <li>• <u>Unkept</u> <ul style="list-style-type: none"> <li>○ Any</li> <li>○ Count</li> <li>○ Area/other</li> </ul> </li> <li>• <u>Parks</u> <ul style="list-style-type: none"> <li>○ Any</li> <li>○ Count</li> <li>○ Area/other</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Quality/Maintenance</li> <li>• Cleanliness</li> <li>• Features</li> <li>• People</li> <li>• Safety                             <ul style="list-style-type: none"> <li>○ Day</li> <li>○ Night</li> <li>○ Fear for own safety</li> <li>○ Perceived crime rate</li> </ul> </li> <li>• Changes in all of the above (past month)</li> </ul>



# Survey Results: Unkept Lot Exposure

***How much do you agree or disagree with this statement:***

*In my neighborhood, there are a lot of vacant lots that haven't been cleaned.*

- Among Baltimore adolescents, 38.2% reported living near unkept vacant lots
- Adolescents who reported living near unkept vacant lots were more likely than those who did not to perceive their neighborhood as:
  - Unclean (61.2% vs. 44.9%,  $p < .01$ )
  - Dangerous (59.0% vs. 41.3%,  $p < .01$ )
  - Having high rates of crime (55.4% vs. 21.3%,  $p < .01$ )

Outcome	Live Near Unkept Vacant Lots		$\chi^2$ p-value
	Yes (n=139)	No (n=216)	
<i>Binary Outcomes w/ chi-square tests for proportions</i>			
Food Insecurity	53.2%	40.4%	<b>0.02</b>
Witness Drug Use	58.3%	30.2%	<b>&lt;0.01</b>
PTSD	40.3%	30.7%	0.06
<i>Continuous Outcomes w/ equality-of-medians tests*</i>			
Weapon Violence	49.6%	37.5%	<b>0.03</b>
Non-weapon Violence	42.0%	33.7%	0.15
Hope	41.5%	53.3%	<b>0.04</b>

# Survey Results: Combined Lot Exposure

*"In my neighborhood, there are a lot of vacant lots that haven't been cleaned"*

*"There are a lot of green spaces and parks in my neighborhood"*

Combined Green Space-Vacant Lot Category	Freq.	Percent
Green Only	134	39.88
Vacant Only	53	15.77
Both	75	22.32
Neither	66	19.64
Missing	8	2.38

Combined Green Space-Vacant Lot Exposure						
PTSD (n, %)	Green Only	Vacant Only	Both	Neither	Total	$\chi^2$ p-value
No	92	34	43	43	212	0.45
	68.66	64.15	57.33	65.15	64.63	
Yes	42	19	32	23	116	
	31.34	35.85	42.67	34.85	35.37	
Food Insecurity (n, %)	Green Only	Vacant Only	Both	Neither	Total	$\chi^2$ p-value
No	88	30	32	33	183	0.01*
	65.67	56.60	42.67	50.00	55.79	
Yes	46	23	43	33	145	
	34.33	43.4	57.33	50.00	44.21	

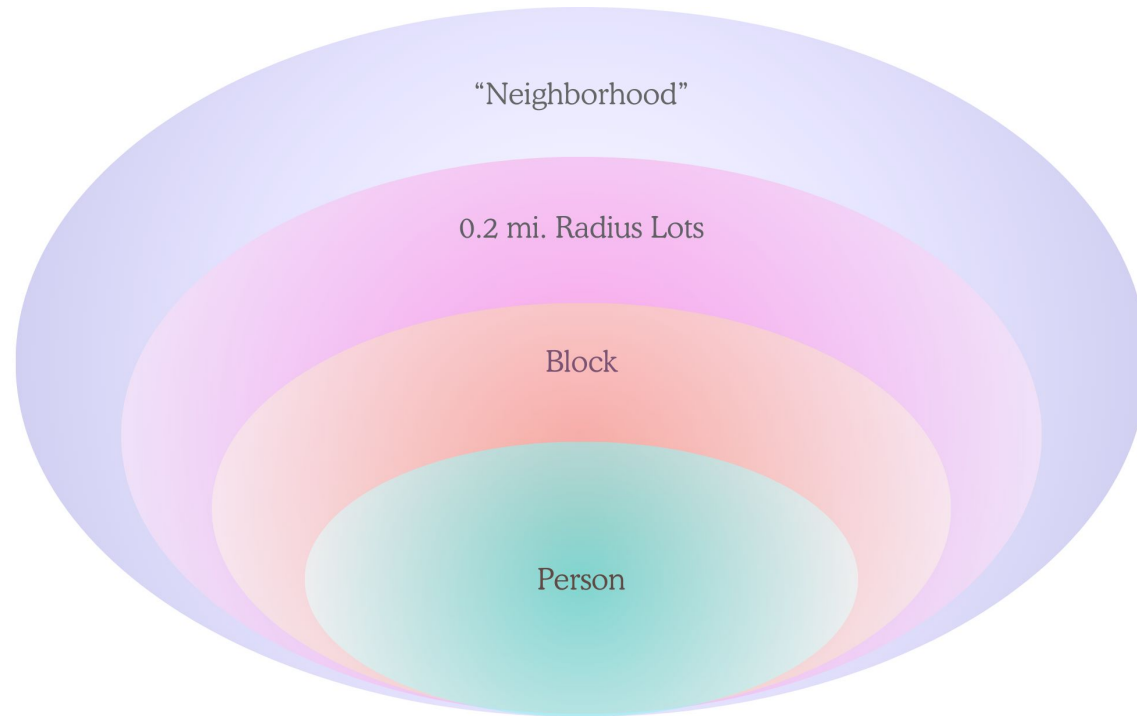
## Survey Results: Combined Lot Exposure

Before adjustment for other factors, Green Space-Vacant Lot exposure appears to be related to food insecurity and possibly PTSD and depression, but not anxiety or overall health



# Surveys

- Exposure data collected for survey participants



## EXPOSURE VARIABLES BY SOURCE

Person	Block	0.2 mi. Radii Lots	“Neighborhood” (Perceptions)
<ul style="list-style-type: none"> <li>• <u>Unkept Vacant Lots</u> <ul style="list-style-type: none"> <li>◦ Presence (a lot)</li> <li>◦ Change (past month)</li> </ul> </li> <li>• <u>Green Space</u> <ul style="list-style-type: none"> <li>◦ Presence (a lot)</li> <li>◦ Change (past month)</li> <li>◦ Time/wk</li> <li>◦ Time/visit</li> <li>◦ 5-min walk</li> <li>◦ Valued                             <ul style="list-style-type: none"> <li>▪ Do they use this space</li> </ul> </li> <li>◦ Outside home</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <u>Quality/Maintenance</u> <ul style="list-style-type: none"> <li>◦ Vacant lot count</li> <li>◦ Vacant building count</li> <li>◦ Noise</li> </ul> </li> <li>• <u>Cleanliness/Trash</u></li> <li>• <u>Features</u> <ul style="list-style-type: none"> <li>◦ Lighting</li> <li>◦ Landscaping</li> <li>◦ Benches</li> </ul> </li> <li>• <u>People</u></li> <li>• <u>Vacant lots</u></li> </ul>	<ul style="list-style-type: none"> <li>• <u>Any</u> <ul style="list-style-type: none"> <li>◦ Count</li> <li>◦ Quality</li> <li>◦ Type (database)</li> </ul> </li> <li>• <u>Improved</u> <ul style="list-style-type: none"> <li>◦ Any</li> <li>◦ Count</li> <li>◦ Area/other</li> </ul> </li> <li>• <u>Unkept</u> <ul style="list-style-type: none"> <li>◦ Any</li> <li>◦ Count</li> <li>◦ Area/other</li> </ul> </li> <li>• <u>Parks</u> <ul style="list-style-type: none"> <li>◦ Any</li> <li>◦ Count</li> <li>◦ Area/other</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <u>Quality/Maintenance</u></li> <li>• <u>Cleanliness</u></li> <li>• <u>Features</u></li> <li>• <u>People</u></li> <li>• <u>Safety</u> <ul style="list-style-type: none"> <li>◦ Day</li> <li>◦ Night</li> <li>◦ Fear for own safety</li> <li>◦ Perceived crime rate</li> </ul> </li> <li>• <u>Changes in all of the above (past month)</u></li> </ul>

# Survey Results: Observed Lot Quality Exposure

Of participants with exposure to at least one greened vacant lot within 0.2 miles of their home (n=156), those with exposure to lots identified as "well cared for" reported slightly lower rates of anxiety and depression than those without

- No difference for other outcomes

Cared-For Lot Exposure			
Depression (n, %)	Yes (n=117)	No (n=39)	X <sup>2</sup> p-value
No	56	14	0.19
	47.86	35.90	
Yes	61	25	
	52.14	64.10	
Anxiety (n, %)	Yes (n=117)	No (n=39)	X <sup>2</sup> p-value
No	86	24	0.16
	73.50	61.54	
Yes	31	15	
	26.50	38.46	



An aerial, high-angle photograph of a city street grid. The buildings are multi-story, with various architectural styles and colors, including brick and light-colored facades. A prominent water tower is visible on the left side. The streets are lined with trees, some of which are bare, suggesting a cooler season. The overall scene is a dense urban environment.

# Google Street View Longitudinal Observations

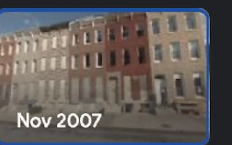
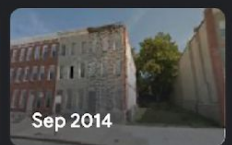
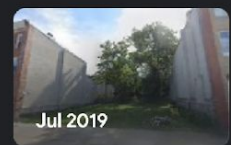
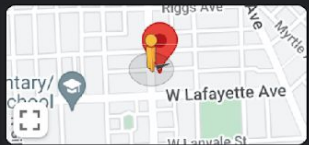


# Challenge: limited content/quality data

- In-person observations only provide one date
- What projects have been implemented on sites?
- When were these projects conducted?
- Were the projects maintained consistently over time?
- Solution: Google Street View provides imagery since 2007



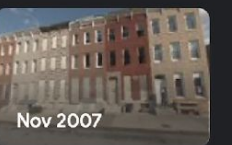
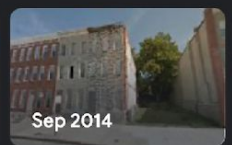
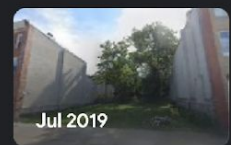
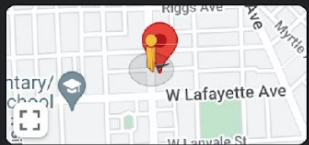
← 917 N Carey St  
 Baltimore, Maryland  
 Google Street View  
 Nov 2007 See latest date





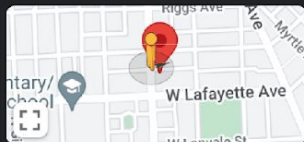


← 917 N Carey St  
 Baltimore, Maryland  
 Google Street View  
 Sep 2009 See latest date





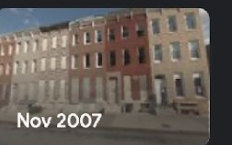
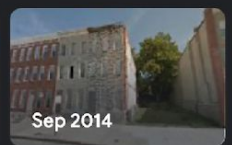
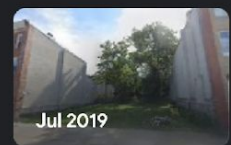
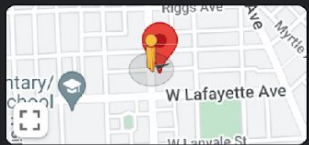
← 919 N Carey St  
 Baltimore, Maryland  
 Google Street View  
 Jun 2011 See latest date







← 917 N Carey St  
 Baltimore, Maryland  
 Google Street View  
 Aug 2012 See latest date

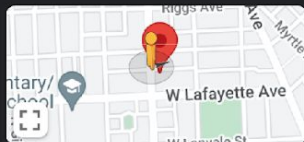




← 919 N Carey St  
 Baltimore, Maryland

Google Street View

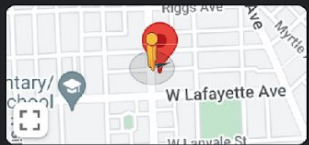
Sep 2014 [See latest date](#)







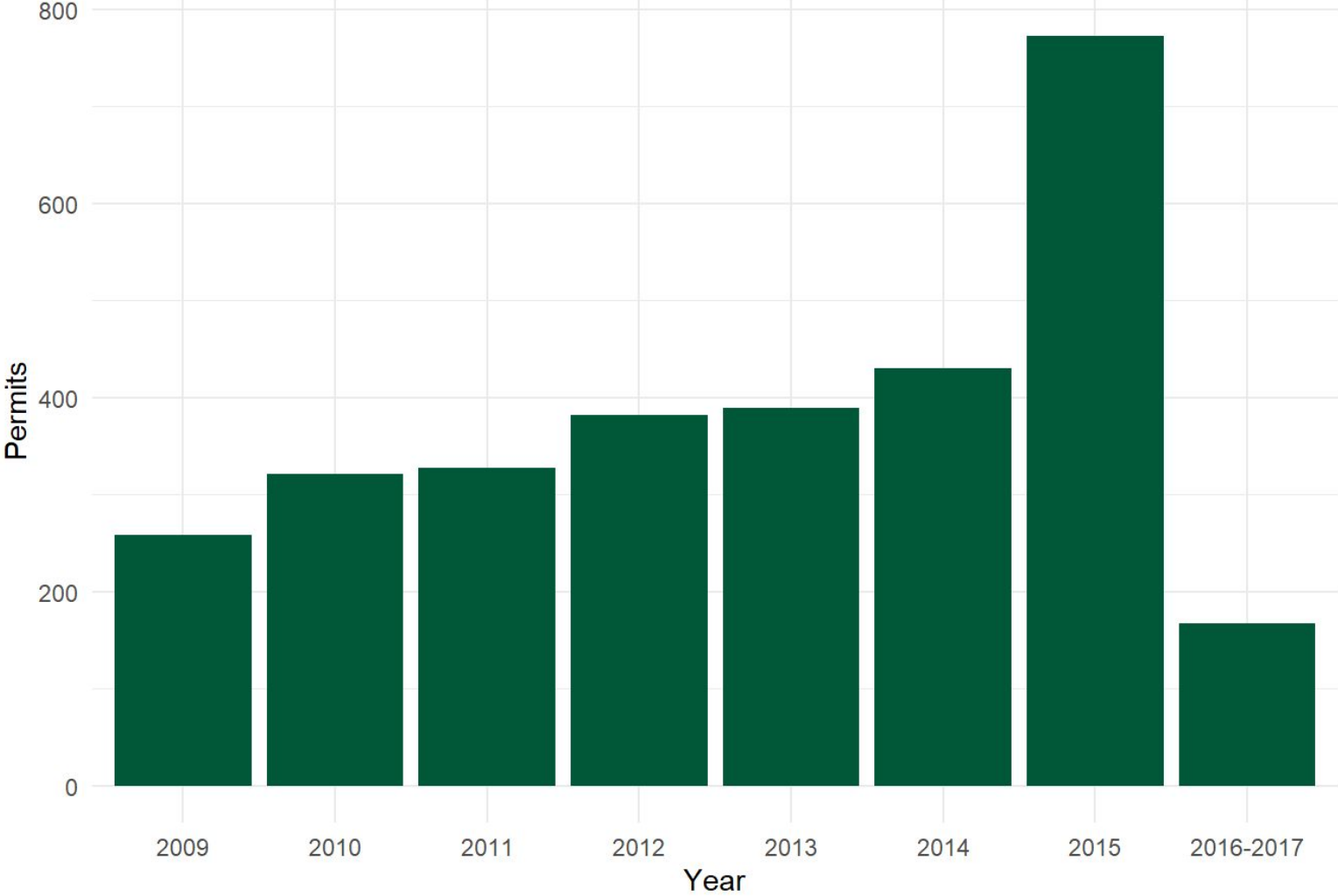
← 919 N Carey St  
 Baltimore, Maryland  
 Google Street View  
 Jul 2019 See latest date



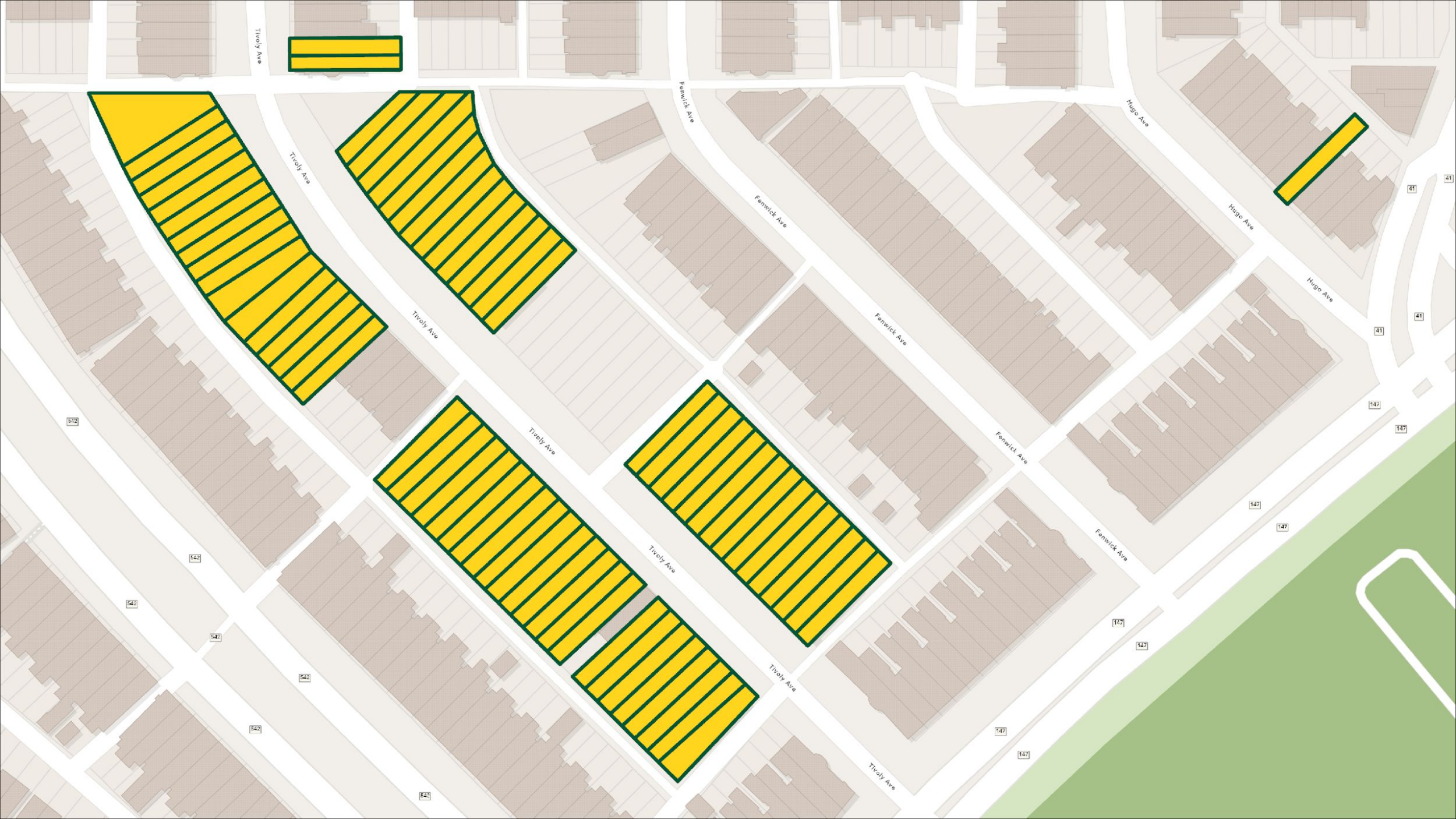
# Challenge: are these really vacant lots?

- Identifying vacant lots is difficult
- Greening projects can be conducted on lots that are not vacant, or that have not had a different use for decades
- Solution: records of building demolitions compiled by the Baltimore Neighborhood Indicators Alliance
- Previous studies have used these Baltimore demolition records (or similar) and demonstrated benefits, but have not measured the content of sites following demolitions
  - [Locke et al. 2023](#); [Kvik et al. 2022](#)

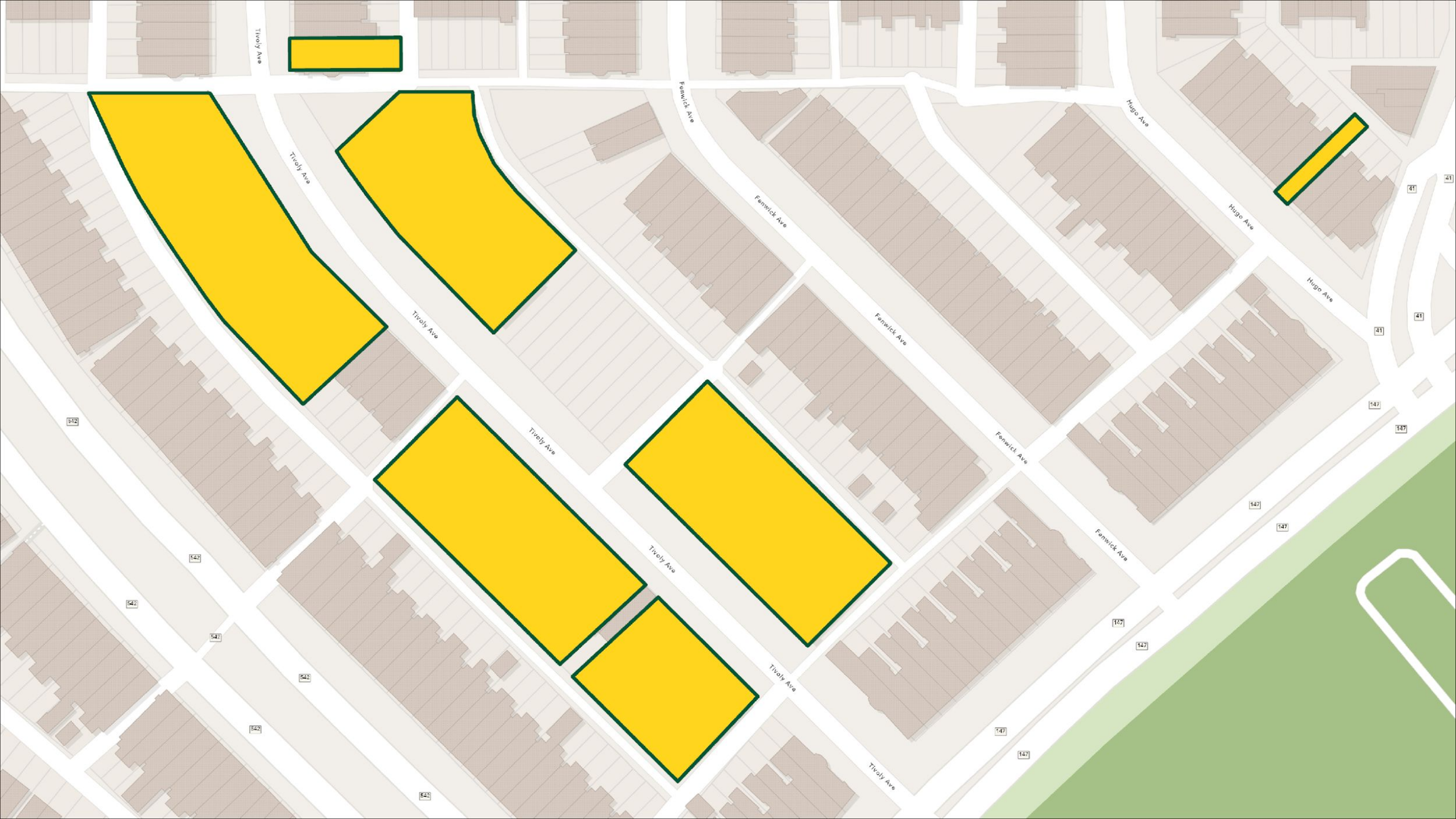
# Total of 3,047 demolition permits 2009-2017



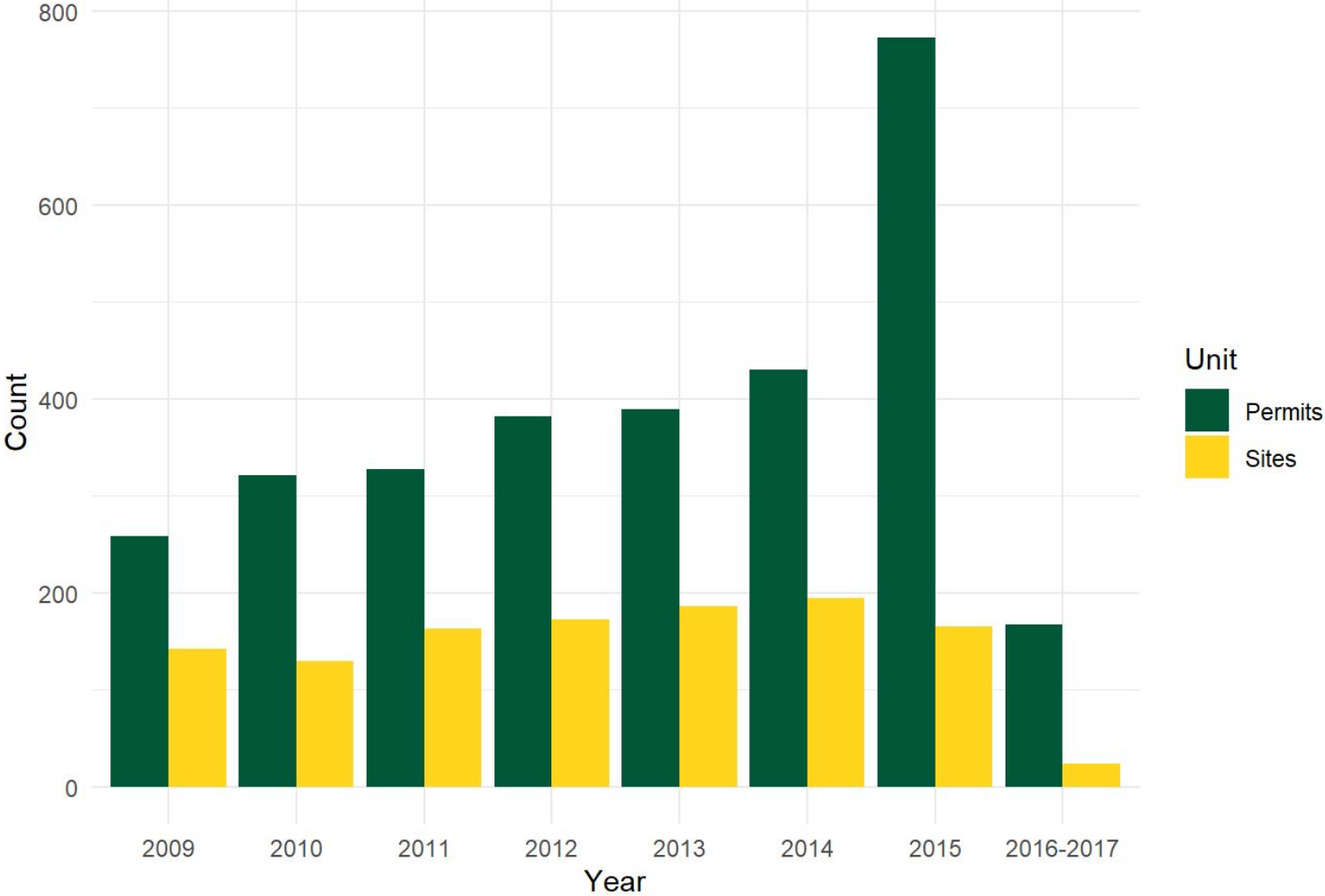




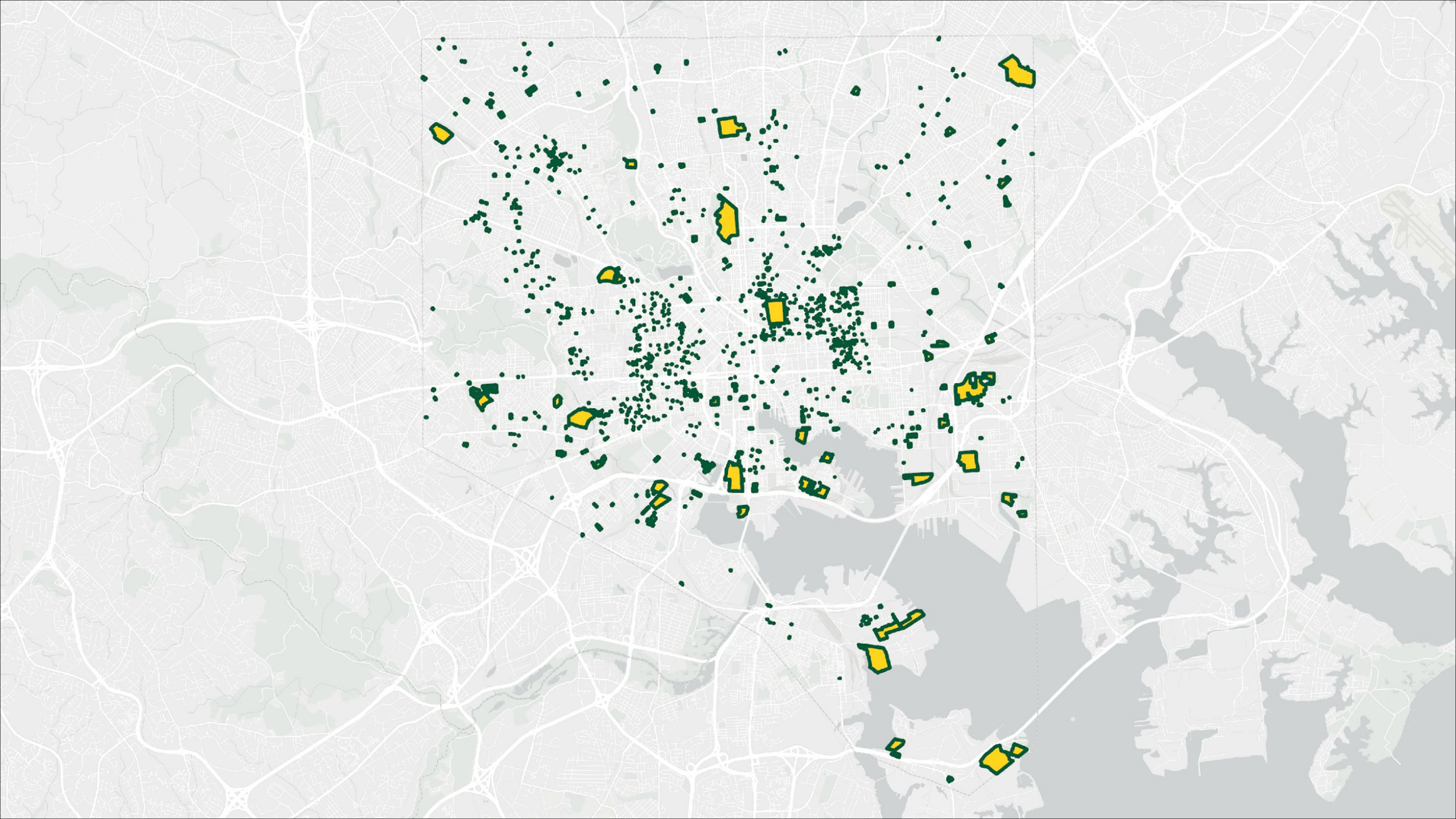




# Same-year adjacency: 1,143 sites







# Audit tool

- Type of site
  - Vacant lot, abandoned building, occupied building, parking lot, etc.
  - If building is present, is it a different building than was previously visible?
- Presence, quantity, and maintenance of:
  - Grass/lawn
  - Tree canopy
  - Garden plots
  - Playground equipment
  - Seating
  - Trash
  - Fencing
- Presence of:
  - Abandoned buildings visible from lot
  - Street trees
  - Sidewalk planters and shrubs
  - Murals
  - Trash cans
  - Signs
- Perceived indicators
  - Appears invested in (yes/no)
  - Appears well cared for (yes/no)
  - Appears neglected (yes/no)
  - Appears dangerous (yes/no)
  - Overall rating (bad, poor, fair, good, excellent)

# Audit Process

1

Identify site location, then “travel” to that site in Street View

2

Start with oldest available image

3

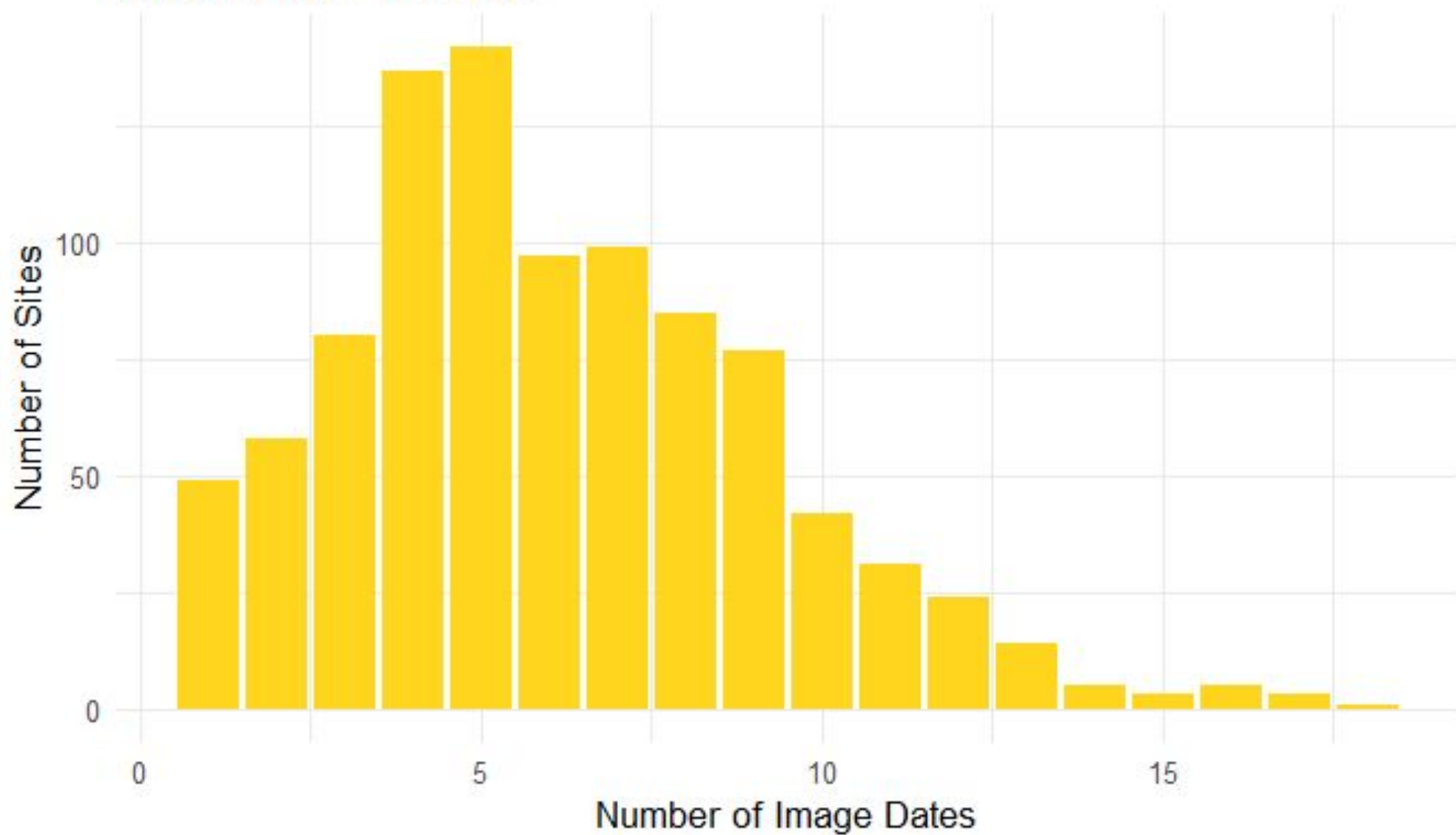
Use systematic audit tool to evaluate imagery

4

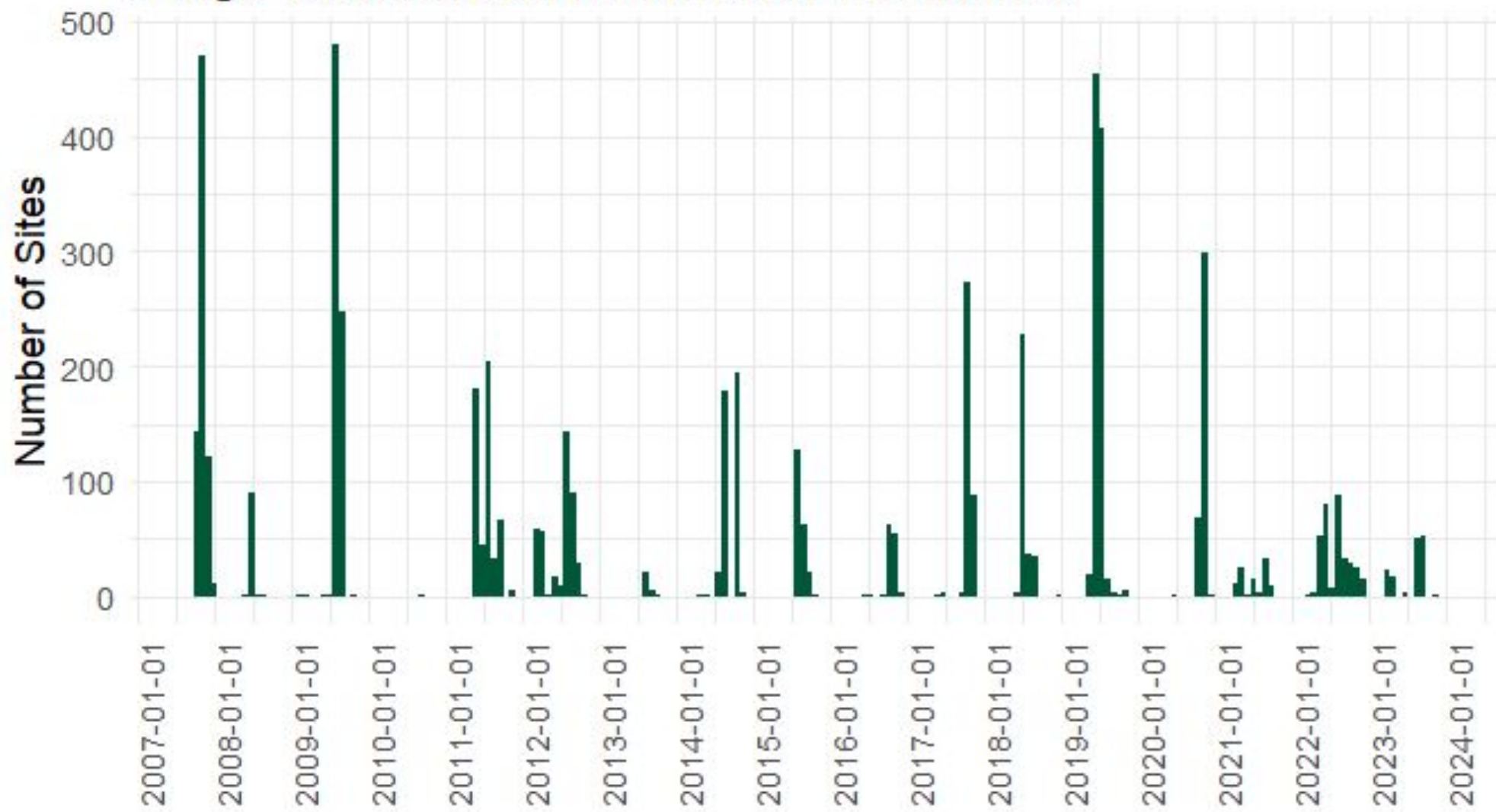
Audit remaining dates in order



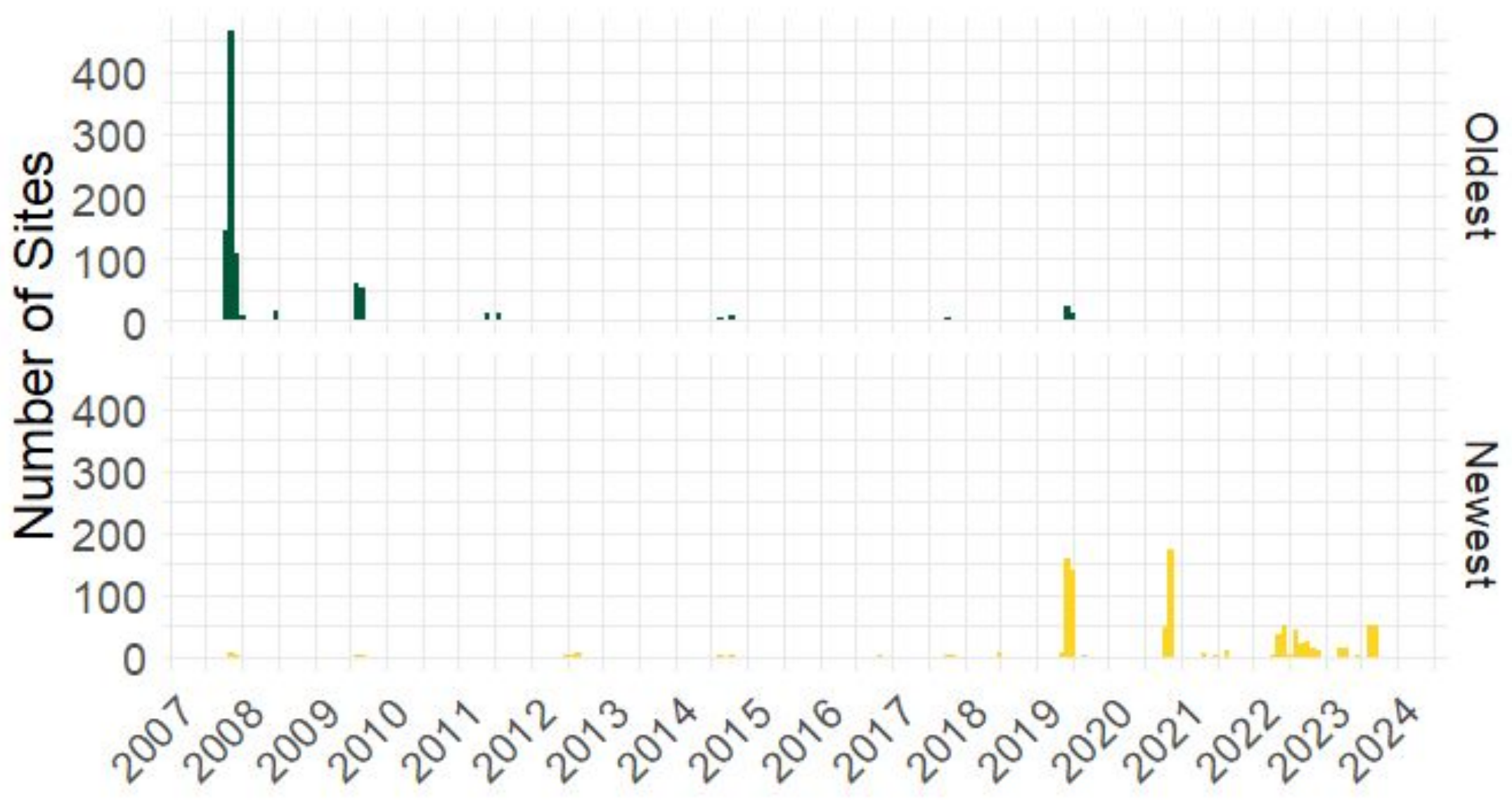
### Image Dates per Site



## Image dates at demolition sites in Baltimore







# What is a greened vacant lot? Two relevant dimensions from data:

## Quality scale

- Trash (negatively coded)
- Abandoned buildings (negatively coded)
- Street trees
- Sidewalk planters
- Signs
- Perceived investment
- Perceived care
- Perceived neglect (negatively coded)
- Perceived danger (negatively coded)
- Average content quality
- Overall rating

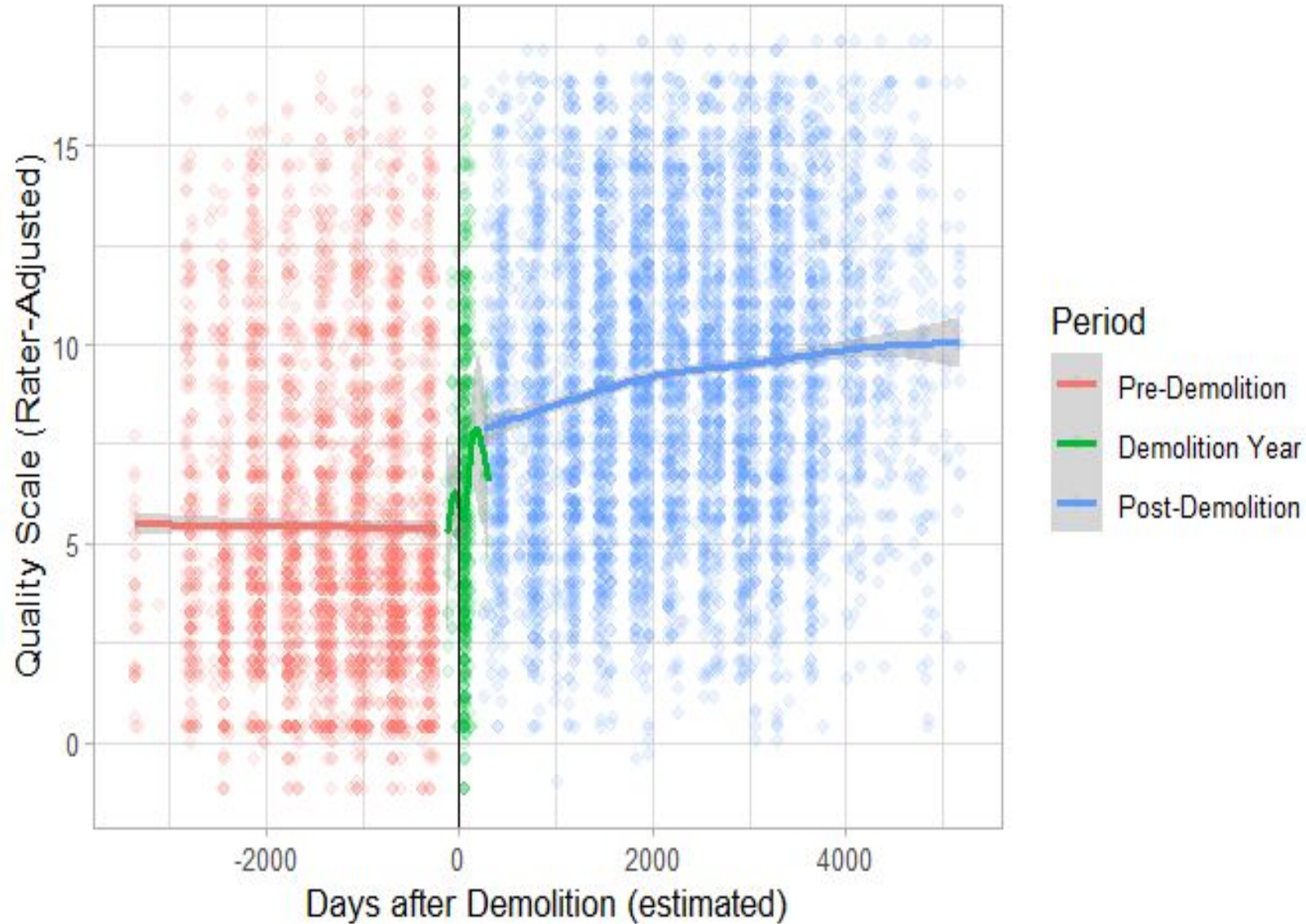
## Greening scale

- Quantity of grass
- Quantity of garden plots
- Quantity of tree canopy
- Presence of murals

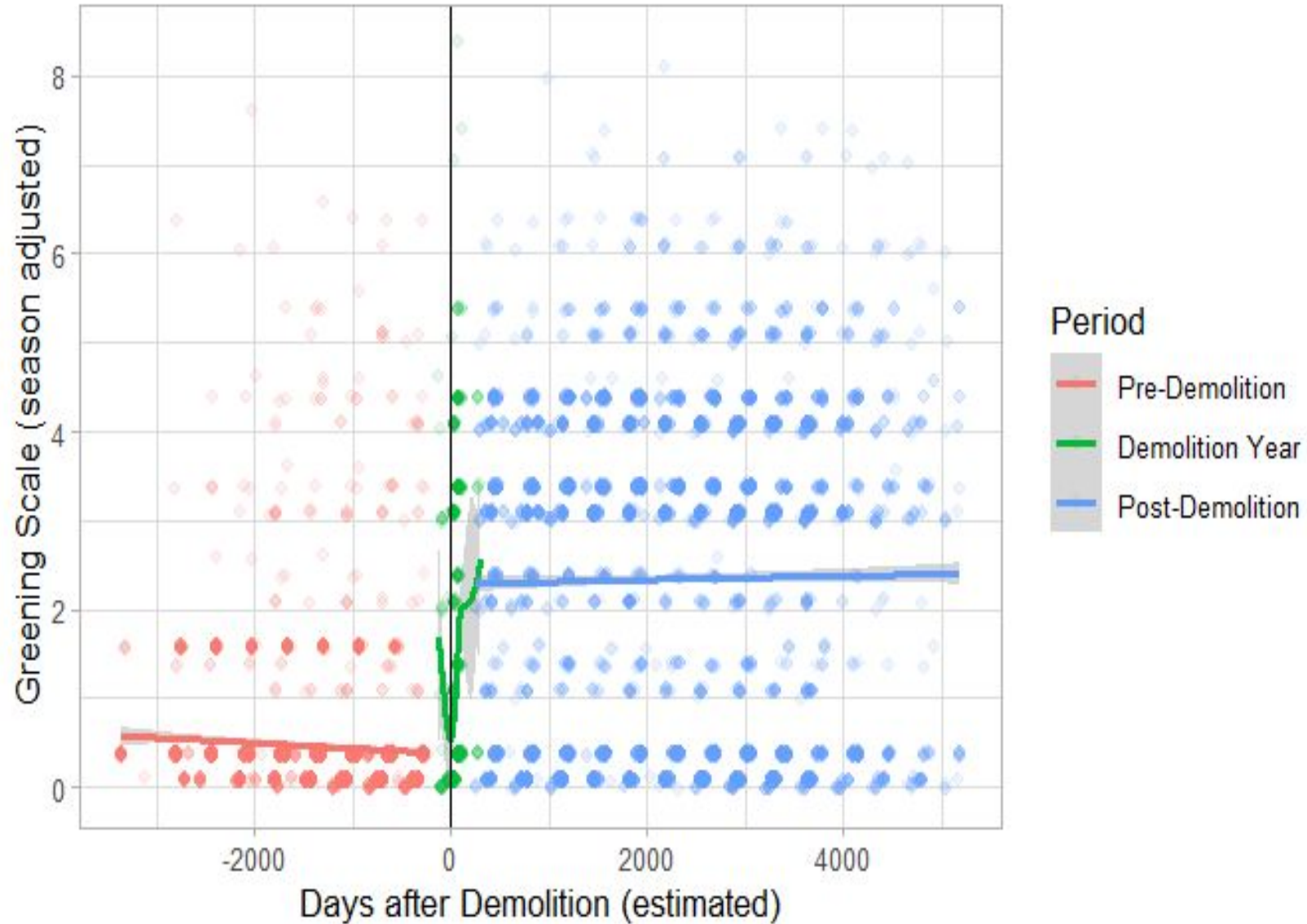


# Effect of Demolition on Perceived

Quality

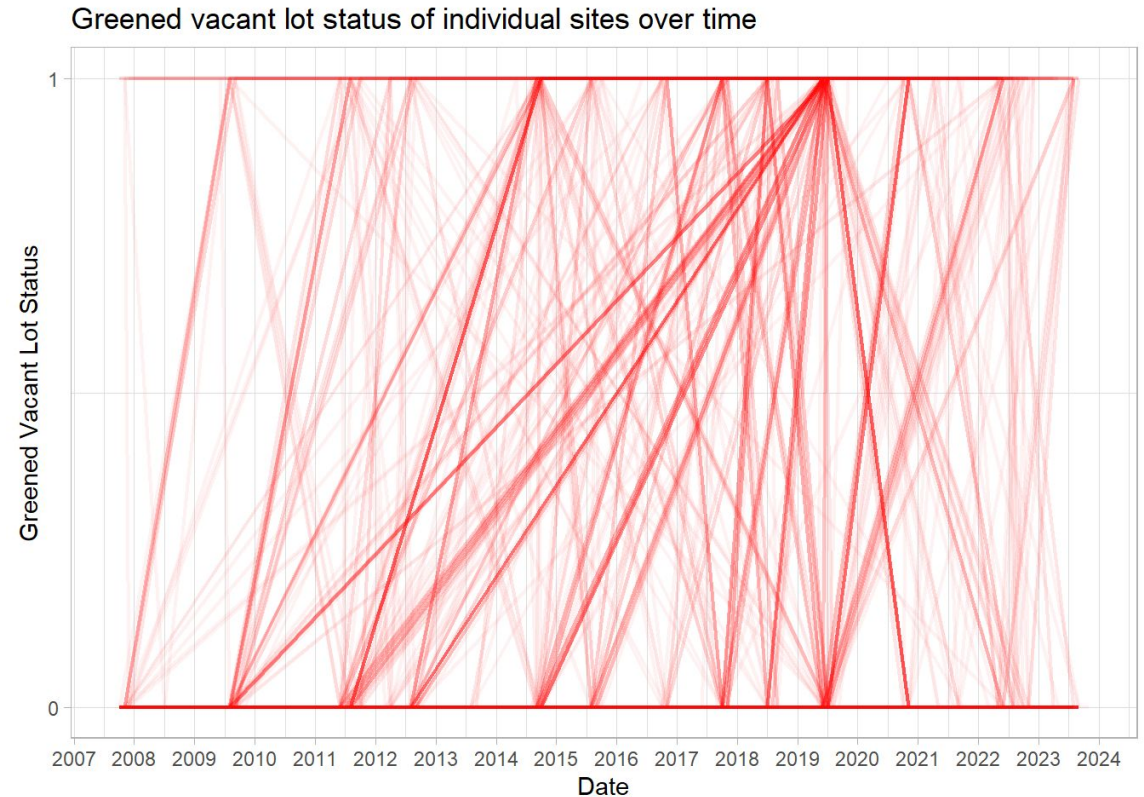


# Effect of Demolition on Greening



# Identifying greened vacant lots

- Defined as quality scale above the mean, and greening scale at or above 3
- 421 sites (44.2%) coded as greened vacant lots on at least one date
- 231 sites coded as greened vacant lots on more than one date
- 170 sites coded as NOT greened vacant lots, AFTER having been previously been coded as greened vacant lots
- Greened vacant lots first identified in imagery
  - 5 years after demolition permit
  - 3 years after observed demolition\*





An aerial, high-angle photograph of a city street intersection. The street is paved and has a white 'SCHOOL' sign painted on it. Several buildings of varying heights and colors (brown, tan, white) line the street. A white van is visible on the street. The overall scene is captured in a warm, golden-hour light. The text 'Q & A' is overlaid in the center of the image.

Q & A