

tph on the move !

a social housing community moving forward with a purpose

May 2026

a student competition submission by: 41°commons

for:



context

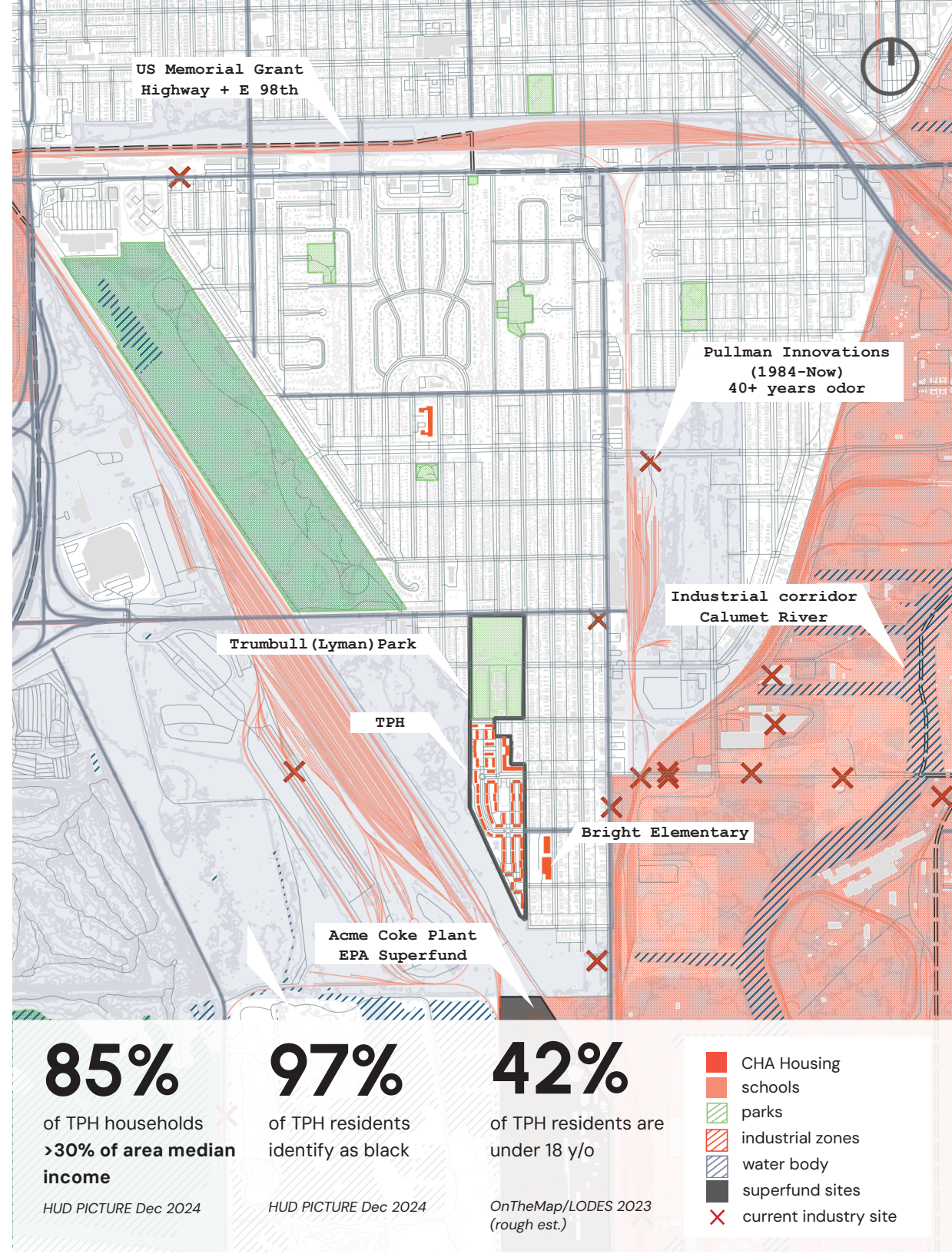
Trumbull Park Homes (TPH) sits on Chicago's far Southeast Side, situated in a peninsula bordered by freight infrastructure, heavy industry, and ecologically recovering land. The city designates it an **Environmental Justice Community, a recognition long overdue** for this working-class, majority-Black neighborhood. Of TPH residents, 42% are under 18—the majority of whom are K-8 age and likely attend Bright Elementary, situated on TPH's site.

Addressing the environmental and social cohesion issues named by CHA requires **centering those under-served by the site**. Four factors led us to identify tweens (ages 10–13) as our focus group: their demographic prominence at TPH, Bright Elementary's presence on site, a programming gap flagged by the Chicago Teachers Union in December 2025, and their unique capacity as a design bridge group.

Tweens sit between child and young adult, occupying a middle ground that, when designed for, serves the full spectrum of youth and the caretakers supporting them.

c40 principles

While our proposal look to engage all C40 principles, two are central to TPH's context. **A Place for Everyone** speaks to the need for inclusive, choice-driven spaces that foster belonging. **Green Spaces, Urban Nature and Climate Resilience** addresses a paradox specific to TPH: the site has abundant green space, but lacks the quality and programming its residents need.



social support analysis

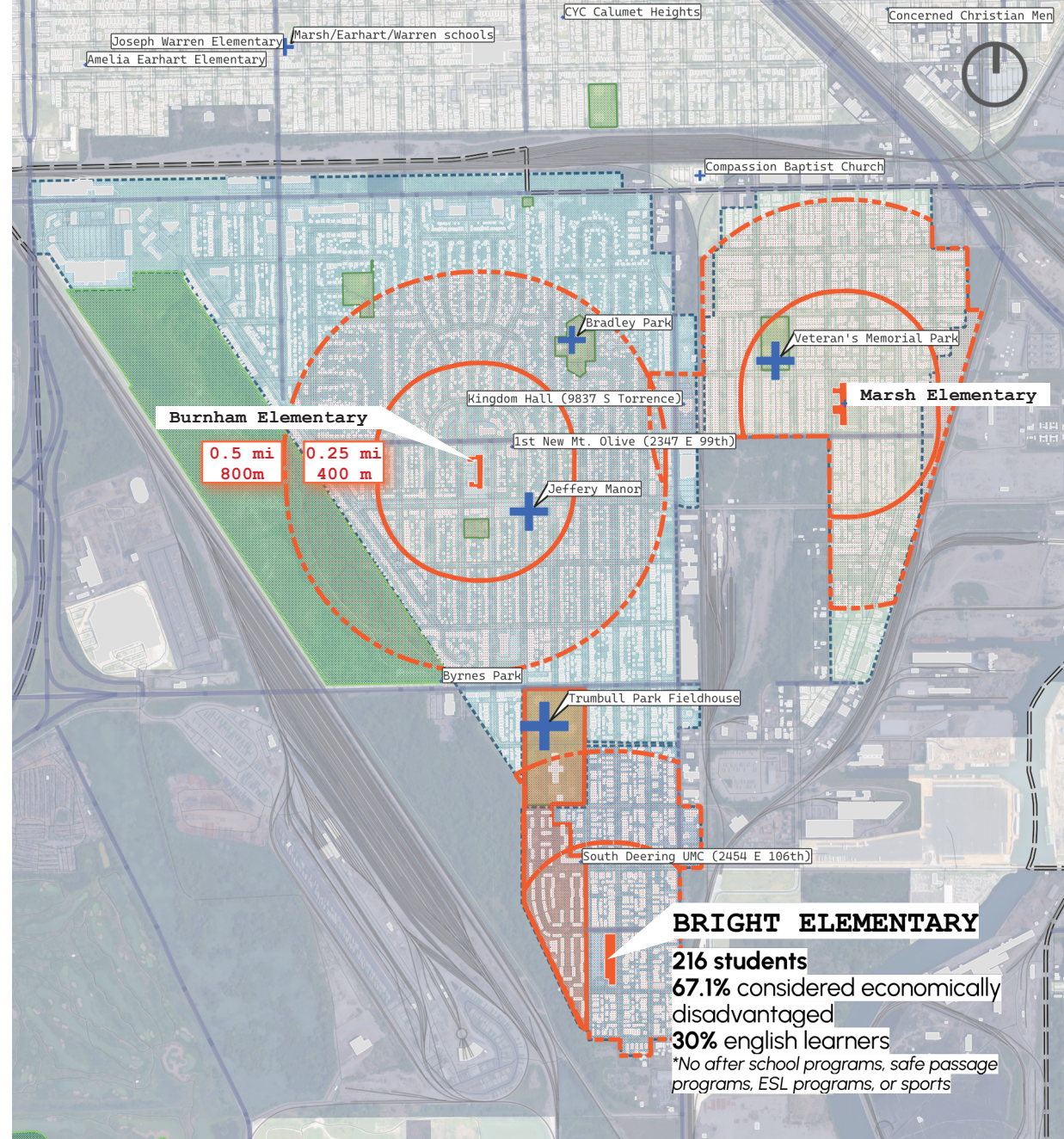
To understand tweens' lives beyond school, we researched available programming points of interest in the area. Community asset types including libraries, churches, sports facilities, and arts spaces were geo-located to understand their proximity within an approximate 15-minute walk of the site.

While TPH's recreation center offers programming, it is almost exclusively movement-based. Outside of it, there was no evidence of STEM, arts, civic, or academic programming regularly available within a 15-minute walk of Bright Elementary. The nearby library offers only occasional programming, and remaining options sit across heavy transit infrastructure — a significant barrier given CHA's note that most TPH residents do not own cars.

tween spaces

TPH tweens who do not engage in competitive sports or dance are left with few weekday options and stretches of unstructured free time. The outdoor spaces available to spend that time in are limited not just in number but in quality — lacking engaging, functional, or distinctive infrastructure. Surrounding buildings and landscapes are uniform and repetitive, with no public art, murals, or landmarks to orient users or signal that this is a space that belongs to them. South Deering has no recorded murals or public art of any kind.

As a remote team, our primary data gap remains direct interviews with local tween and K-8 users, which would be essential to any implementation of this project.



11 types of programmed activities available within a 15-minute walking distance. **Only 2 are not-movement/fitness based:**

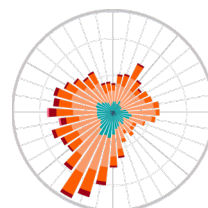
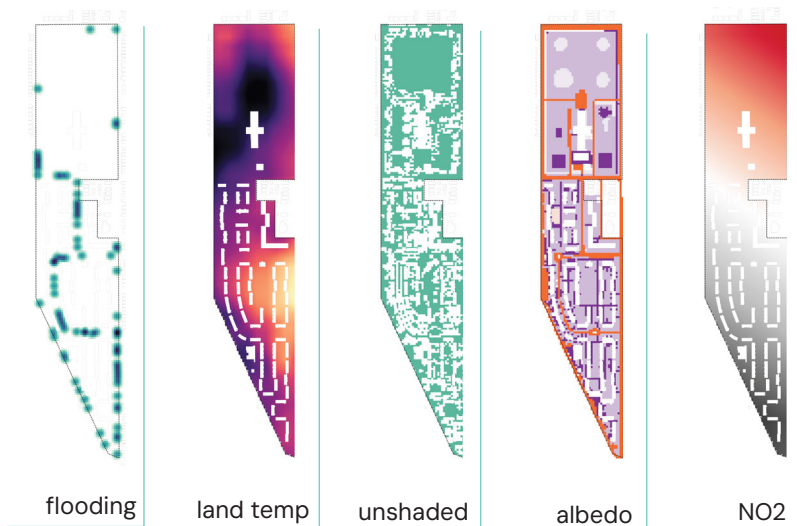
- Boxing
- Boys Basketball
- Seasonal Sports
- Weight Training
- Baseball
- Dance (Jazz)
- Dance (Hip-Hop)
- Dance (Spiritual)
- Dance Workshop
- Teen Leadership
- Youth Ministry

environmental analysis

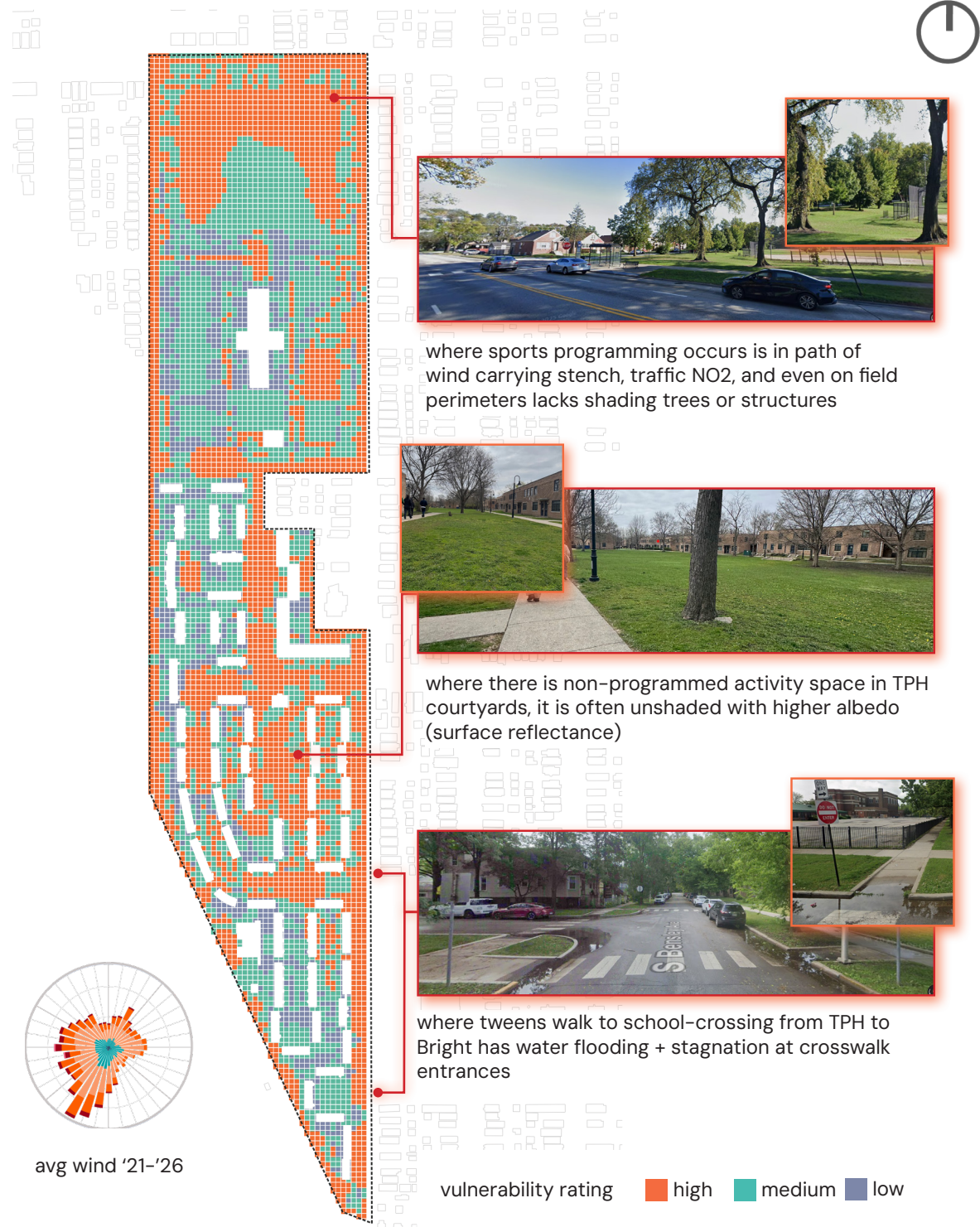
The RFP outlined three environmental challenges facing the site: flooding, urban heat island effect, and air pollution. To investigate further, we developed a Compound Environmental Vulnerability Index (CEVI) using remote sensing data.

The CEVI maps compound environmental stress across every 5x5 meter cell of the site, combining land surface temperature, NO₂, flooding risk, albedo, canopy cover, and unshaded zones into a single score. 67% of the site falls within medium to high compound vulnerability, meaning environmental stress is not isolated to problem spots but is the condition of the site itself.

Individual layers reveal where specific stressors concentrate, while the compounded map identifies where intervention would deliver the most immediate relief. Further methodology is detailed in the appendix.



avg wind '21-'26



community engagement

The largest data gap in our analysis is the day-to-day lived experience of TPH tweens and the broader community. Stakeholder engagement is essential to address this. We developed conceptual stakeholder mapping to understand how key actors like residents, CHA, CPD, Bright Elementary, and others relate to and benefit from one another, informing potential engagement activities and how they should be structured during implementation.

To engage tweens in a way that reflects their age group, we developed “Scribbly Situations” — a drawing-based game that asks players to doodle spaces where they would do a selected activity. By embracing play as a method, the game reveals how tweens navigate, imagine, and claim space, generating insights that directly inform design decisions. See the appendix for more game details!



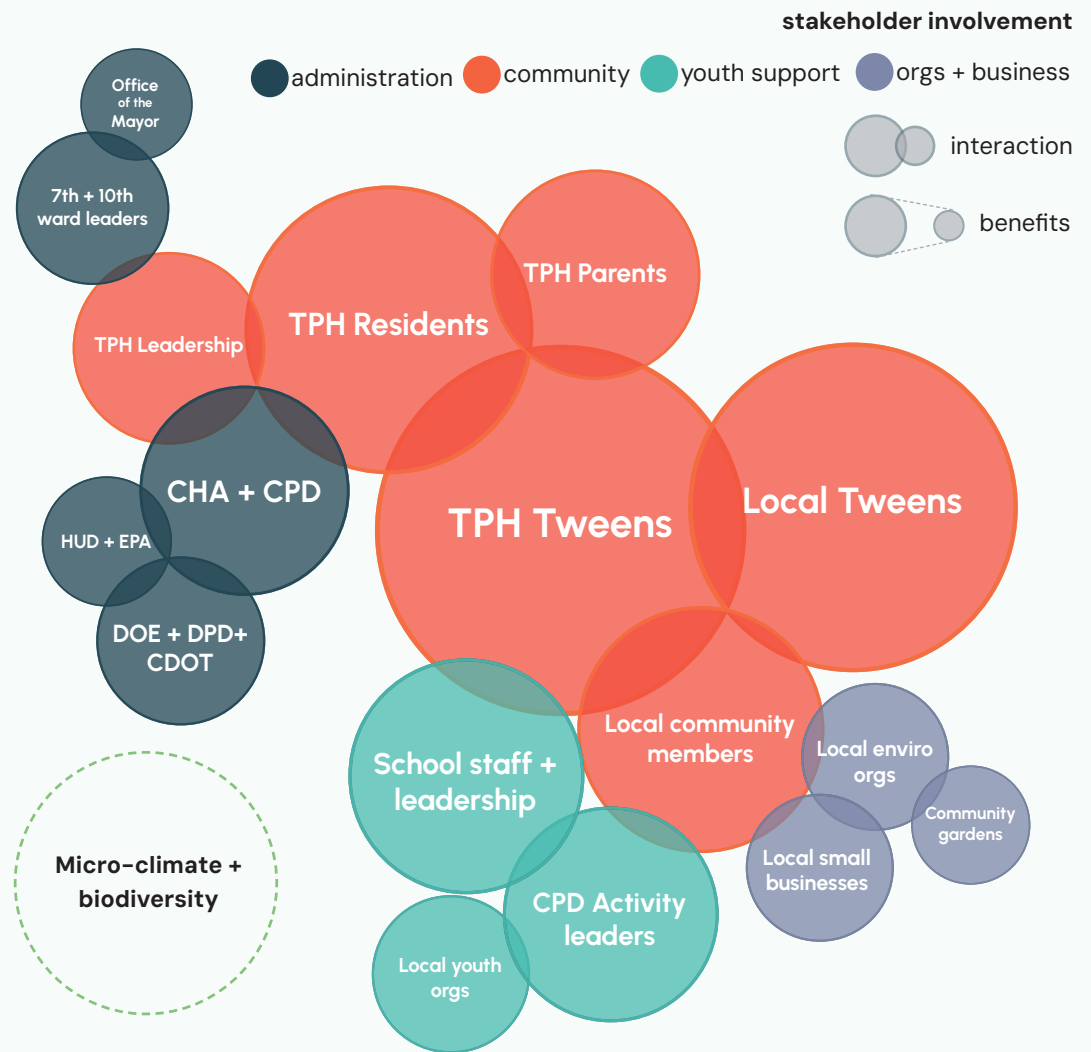
one rotating player
draws a location +
situation card and rolls
the vibe dice

“In ____ what would
you ____ play?”



players then have 60
seconds to doodle how
they see the prompt

players find similarities, differences,
and pick favorites for points!



stakeholder engagement ideas:

Serious Game

Scribbly Situation played at
meetings, school



Surveys + Questionnaires

Digital QR code activation in
outdoor spaces; paper alt.



Participatory mapping

In-person resident/user workshop



User-led walking tours

“Day in my life” tween-led tours



“Toxic Tours” Collab

People for Community Recovery
led tours of enviro-issues in area



findings

Our findings point to two compounding conditions: tweens may have significant unstructured free time, and the outdoor spaces available to them are limited in variety and interest. Environmental stressors are concentrated where tweens likely spend time—flooding on the streets and sidewalks they use to move around and the heat island effect and poor air quality in the open spaces they likely hang out.

Informed by Mimi Sheller's book, *Mobility Justice*, these affected spaces are what we consider "mobility infrastructure." Expanding beyond the conventional definition, we see these spaces of TPH through the following lenses:



Transit mobility: infrastructure that facilitates physical movement through a space—sidewalks, bikelanes, roads, etc.



Social mobility: infrastructure that fosters connection and opportunity through recreational, performative, economic, and intellectual spaces—engaging users with each other and the wider world.



Environmental mobility: infrastructure that supports the movement of non-human entities—water, air, plants, animals.

existing mobility conditions:

- Sidewalks and roads easily flood preventing easy movement through space
- Crosswalks at school are flooded on both sides
- Limited path choices, utilitarian in style only, park only has perimeter pathways near busy roads

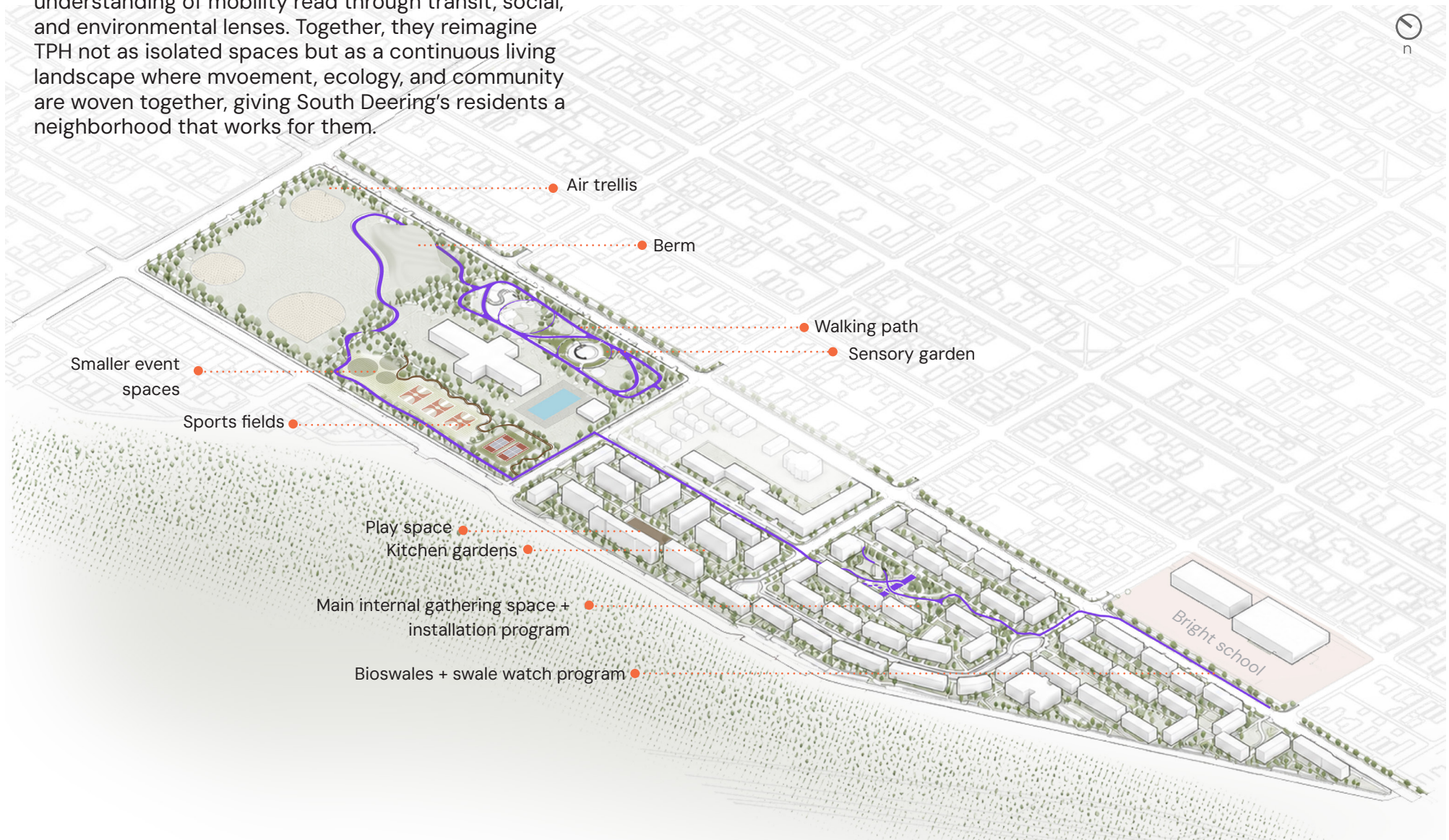
- Play spaces are designed for younger children, leaving out older youth and providing no other playful alternatives
- Only one type of social gathering furniture typology appears to exist, no agency or choice to select space for needs

- All spaces look similar there are no landmarks, visual interest, or identifying features in TPH

- Water is stagnating and pooling, drainage systems and high-water table overloaded when heavy rains occur
- Maintenance of lawn prevents establishment and movement of other species at ground level
- Play areas are in close proximity to busy roads + are not shielded from NE wind that can blow in stench from local industry

design proposal

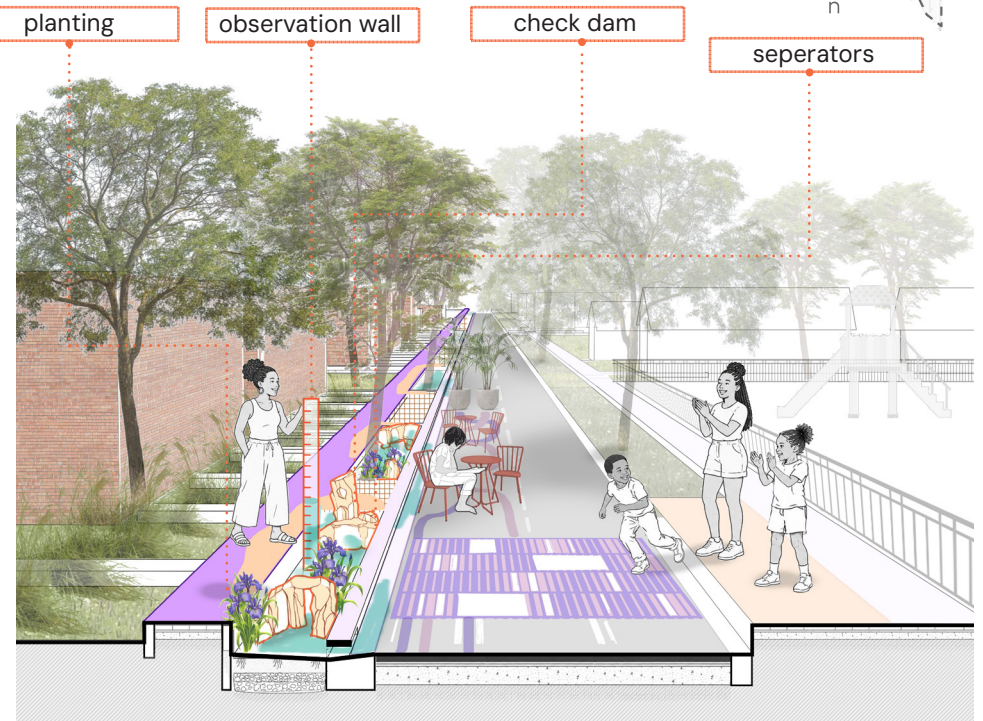
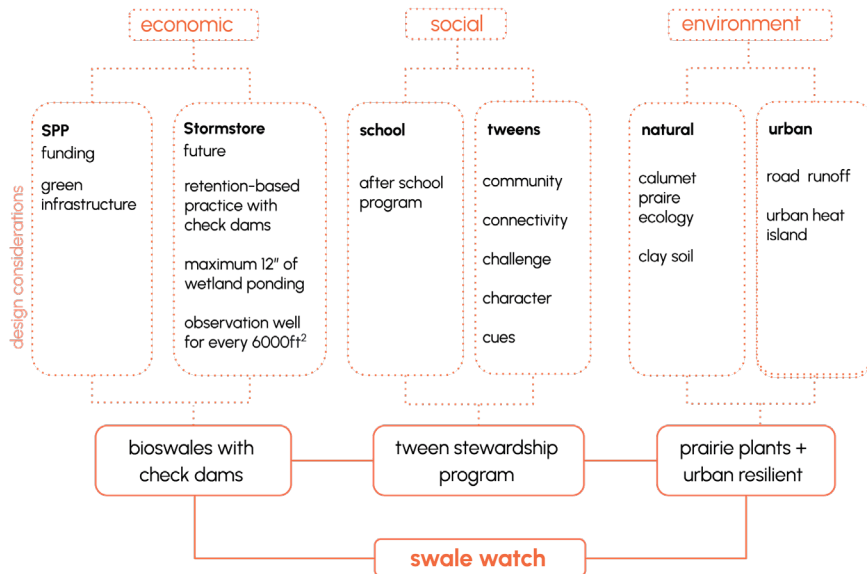
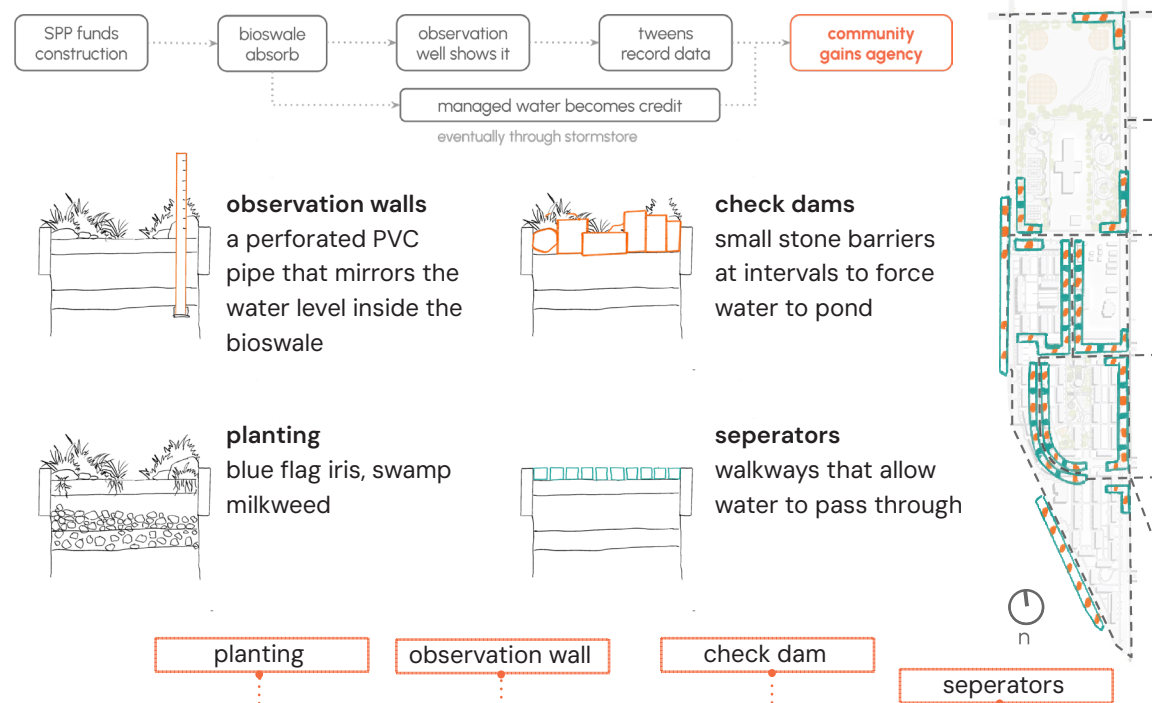
TPH on the move introduces design proposals in TPH resident spaces, community spaces, and pathways and roads, all grounded in an expanded understanding of mobility read through transit, social, and environmental lenses. Together, they reimagine TPH not as isolated spaces but as a continuous living landscape where movement, ecology, and community are woven together, giving South Deering's residents a neighborhood that works for them.



design proposal - pathways+roads

The pathways and roads running through TPH are treated as active environmental infrastructure. In flood-prone areas, bioswales are integrated along the edges to absorb and filter stormwater, reducing surface runoff at the source. Native species are planted throughout, selected in part for their capacity to counter the persistent industrial odour that reaches the site, turning everyday circulation routes into a quiet but continuous buffer between residents and the environmental conditions they navigate daily.

Along the pathways, a youth stewardship program run in collaboration with the local school invites tweens to take ownership of their street. Through monitoring and hands-on interaction with the blue-green infrastructure, they become active participants in the slow ecological recovery of their neighborhood, learning from it while contributing to it.



design proposal - TPH Resident Spaces

The TPH Resident Spaces span internal courtyards and the central open space, organized through three lenses of mobility. Transit mobility shapes the pathways and stride stones structuring everyday movement. Social mobility activates programmed spaces hosting the rotating installation cycle, bringing residents together through shared making and stewardship. Environmental mobility weaves a pollinator corridors and native species across TPH's fragmented landscape into a continuous living system, responding to long accumulated heat island conditions and ecological neglect.

Throughout, the design offers tweens a genuine range of spatial choices such as active, social, quiet and independent spaces, recognizing that having agency over where and how they spend time matters at this age.



Kitchen Garden program

LEGEND

- Transit mobility
- Social mobility
- Environmental mobility

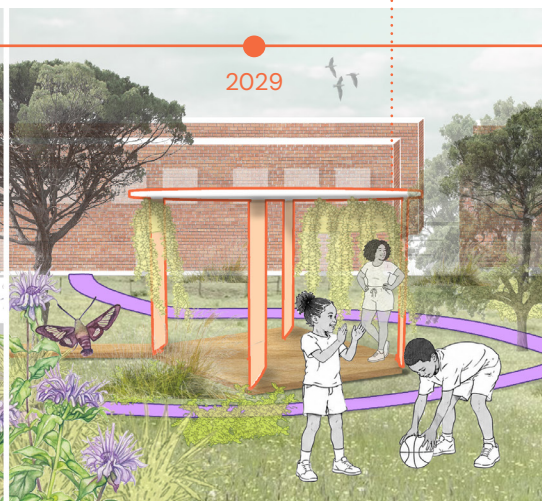
canopy and space for monthly installation program

stride stones

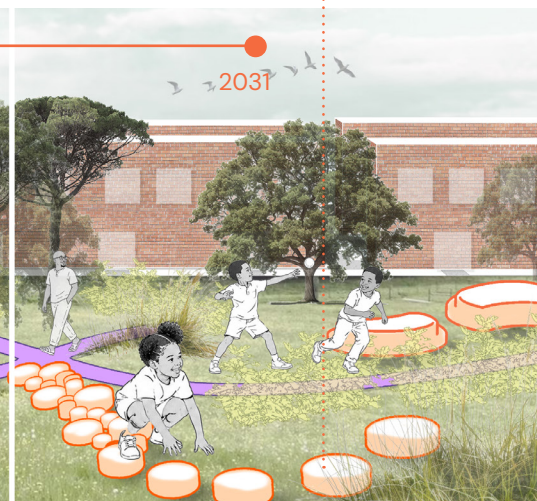
public seating + planters



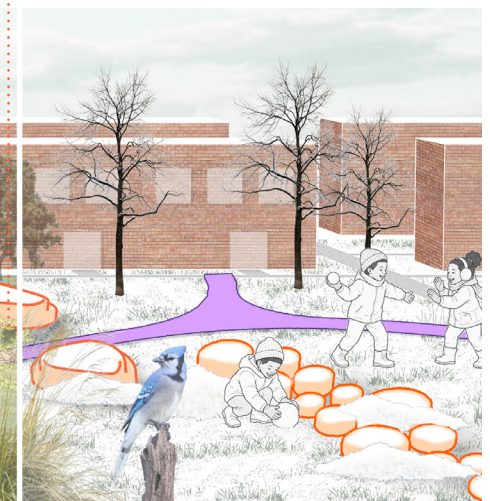
preparation



construction of built structures



summer



winter

design proposal - Community Spaces

The community spaces are designed around the reality that TPH residents live close to industrial odour sources that make outdoor time genuinely uncomfortable. A sensory garden of Chicago-native species, chosen for their textures and scents, works to reclaim that experience, offering something that belongs to the landscape rather than the industry surrounding it. At the northeast park edge, an air trellis pilot is installed with native leafy vines, educational plaques, and air-quality sensors to monitor odour stagnation and gather community feedback over time. A walking route near the senior housing connects older residents to this area, passing a children's play space along the way.

Basketball and tennis courts sit within the same zone, with continuous seating and flexible smaller spaces for gatherings, events, and food stalls.



LEGEND

- Transit mobility
- Social mobility
- Environmental mobility

Air trellises

sensory gardens with Chicago native species

stride stones

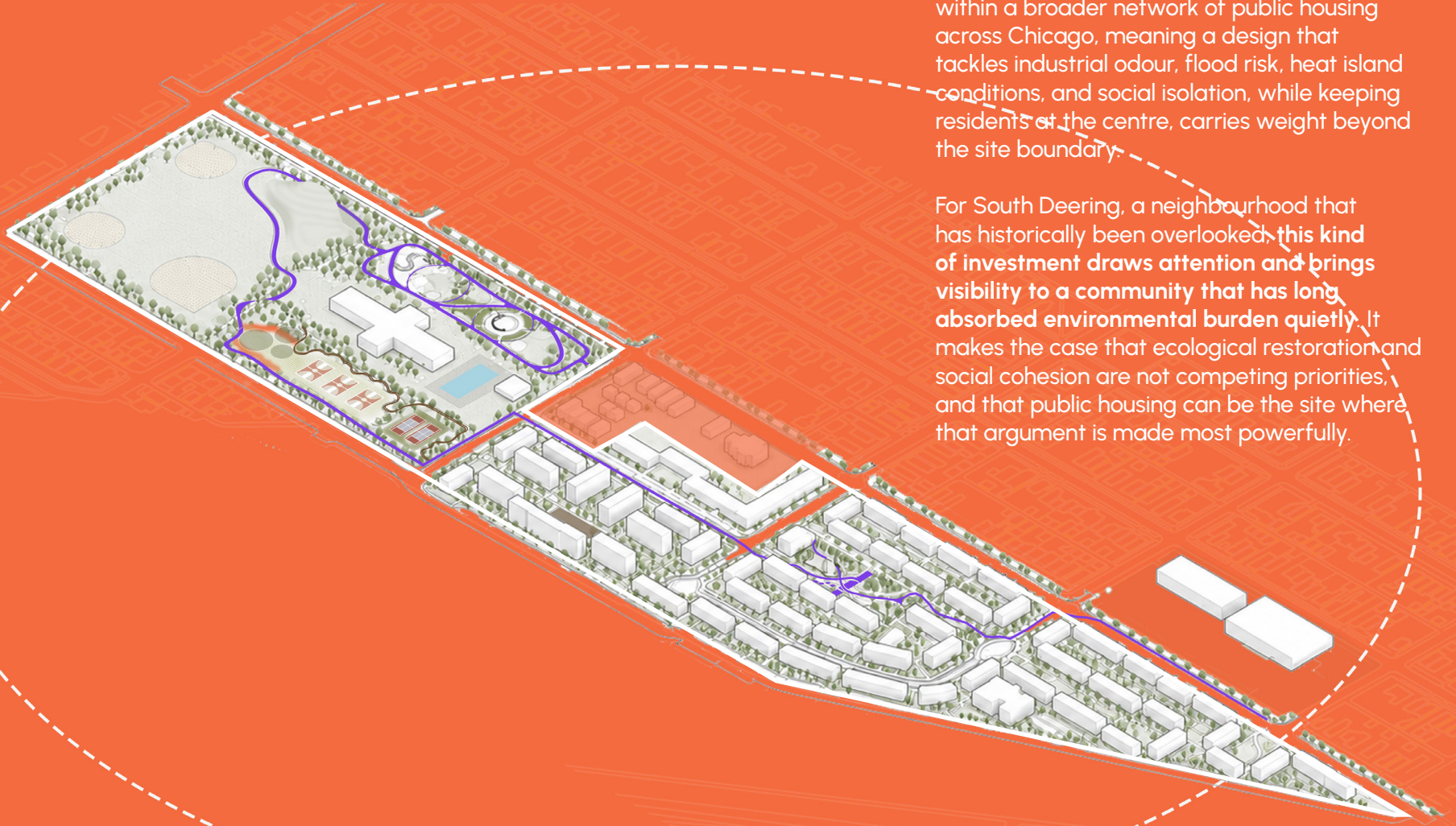
play area that promotes community gathering



project benefits

At the neighbourhood scale, TPH has the potential to become a reference point for how public housing can respond to environmental injustice without displacing the community it serves. As a CHA development, it sits within a broader network of public housing across Chicago, meaning a design that tackles industrial odour, flood risk, heat island conditions, and social isolation, while keeping residents at the centre, carries weight beyond the site boundary.

For South Deering, a neighbourhood that has historically been overlooked, this kind of investment draws attention and brings visibility to a community that has long absorbed environmental burden quietly. It makes the case that ecological restoration and social cohesion are not competing priorities, and that public housing can be the site where that argument is made most powerfully.



appendix - community engagement

Scribbly situations was developed as a “serious game,” that can be used to get participants to embrace play, with outcomes reveal how tweens/players navigate, imagine, and claim space — generating insights to inform realistic planning and design interventions. The game aims to understand how participants:

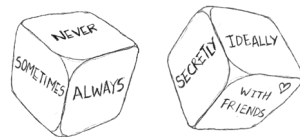
- *Navigate and claim local spaces*
- *Perceive and interact with place*
- *Envision futures for their environment*
- *Generate ideas for real design implementation*

Ideally, the game is facilitated by planners, designers, or leadership involved in the project– we propose the game would be proposed and sent to the CHA team. The facilitators would reach out to local elementary schools about running short workshops to play. The game is affordable–easy to print and cut out by hand, and all in black and white ink! The dice is replaceable by cards or facilitator.

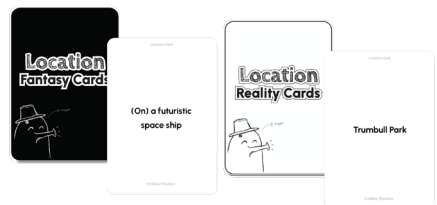
One player picks a “location” and “situation” card, everyone has 60 seconds to scribble what they would be doing in that space. Once time ends, everyone quickly explains their drawing and compares to find what is unique or similar in each other’s scribble–getting a point for each...players decide what counts. The card picker selects their favorite for an extra 3 points. Most points wins!



1) Pick a situation card with a prompt



3) Roll the “vibe” dice for adverb



2) Pick a location card with a space

“In the park what kind of game would you never play for fun?”

4) Doodle the combined prompt!

appendix - social analysis

To complete remote community asset mapping for tweens we began by doing manual searches into google maps with key words like “youth services”, “schools”, “parks”, “recreation centers”, “performance art centers”, “churches/temples/mosques”, “libraries”, and other terms that could provide context where youth may be spending time in programmed activities. Using Octoparse software, we were able to gather all locations that appeared under the search and then apply coordinates to the location.

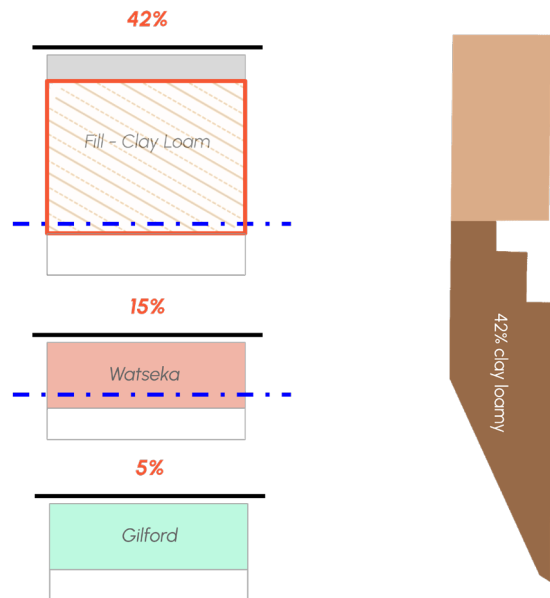
From there, each website was manually inspected to understand potential youth programming or support spaces–if evidence of activities was found, then Octoparse was used again to gather information on activities being offered (January–April 2026th). This information was cross referenced with the location points on QGIS to see within an approximate walking buffer of 15–minutes (1200m or 0.75 miles) to understand what was easily accessible by tweens on their own. We found 11 types of programmed activities available within the buffer, but only 2 were not–movement based. The calendar shows weekly, the number of walkable activities available:

mon	tue	wed	thr	fri	sat	sun		
	1	3	2	3	2	4	1	sports + fitness
		1	1	1	1	2		dance
								visual arts + crafts
								STEM Activities
								academic + literacy
								recreation + games
	1	1	1	1	1			social + civic
			1		1			faith
			1				1	

This analysis is a snapshot in time for winter/spring of 2026, and it is understood that this finding would need to be verified with youth and youth/school/community leadership.

appendix - flood analysis

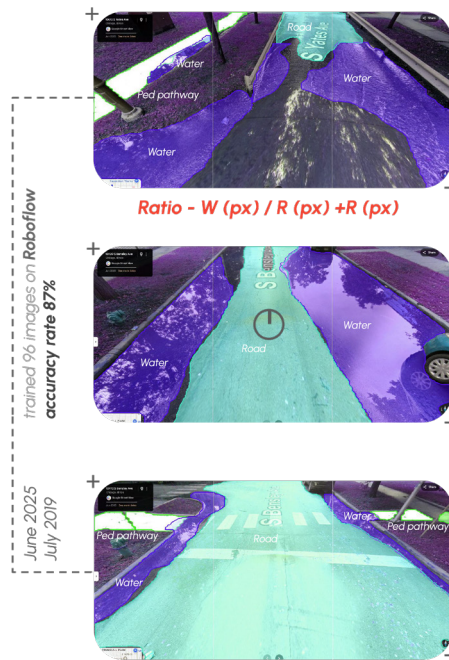
The RFP explicitly noted flooding as a key environmental stressor to TPH residents and the surrounding neighbors. As we explored the site through online searches, we noticed that flooding seemed to be occurring in more areas than mentioned. To understand the issue on site, we started with understanding the soil composition of the area through the USDA soil survey soil conditions, especially the high proportion of clay loam, indicate a natural tendency to retain water.



Soil composition diagrams created to understand TPH site.

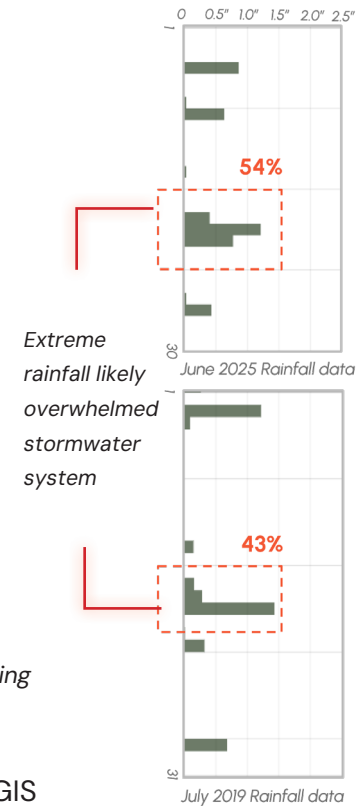
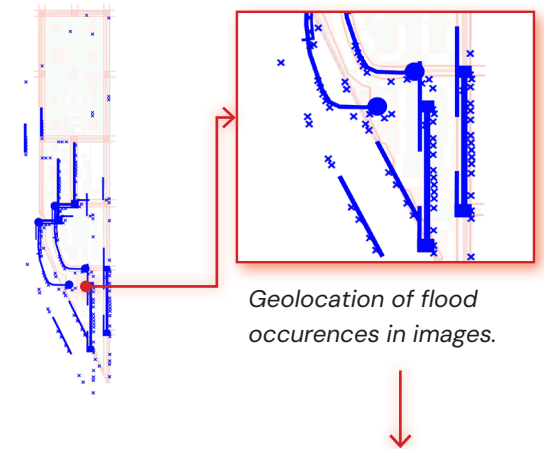
We then used Google Maps API through python coding to call streetview 95 images walking around the surveyed street views at TPH (July 2019–June 2025).

We then took the images to the online platform roboflow, to create an ai computer vision model that would process the images to show exactly what areas the flooding and stagnation was occurring. To do this, 45 of the Google streetview images were manually annotated to train the model on what was flooding vs. road vs. sidewalk, etc. From there the remaining images were fed to the model which visually segmented them. Taking the original locations of the Google streetviews,



Computer vision flood segmentation model showing areas of flooding on TPH sidewalks + roads.

these identified flooding areas were geolocated on a map in open-source, QGIS mapping software. The size of the flooding was indicated on the map, giving us larger picture of how present flooding is on site.



Rainfall data was studied to see frequency + quantity used in CEVI.

appendix - environmental analysis

Step 1- For CEVI, we used the Land Surface Temperature from Landsat 8/9 collected using Google Earth Engine – we used the summer median composite as it was the most relevant for Chicago's weather. The next layer was the NO2 layer which was sourced from Google earth engine from the Sentinel 5P collection. The next major environmental stressor were the floods – which were observed and plotted from Google street views using Roboflow to then bring it as flood points in QGIS. Albedo and Unshaded zones were manually plotted on to QGIS as polygons traced from Google Satellite imagery.

Step 2- The raster layers (LST and NO2) were reprojected to ESPG: 32616 and clipped at a 5m resolution while the vector layers (flood points, unshaded zones and albedo) needed to be processed and converted into raster layers at a 5m resolution for the calculation.

It's important to have all the layers in the same resolution for our next calculation: all 5 layers have 43x226 pixels and are at 5m resolution and all fall in the same CRS.

Step 3- We then used a normalized difference formula for all the 5 layers so that we can map them between 0-1:

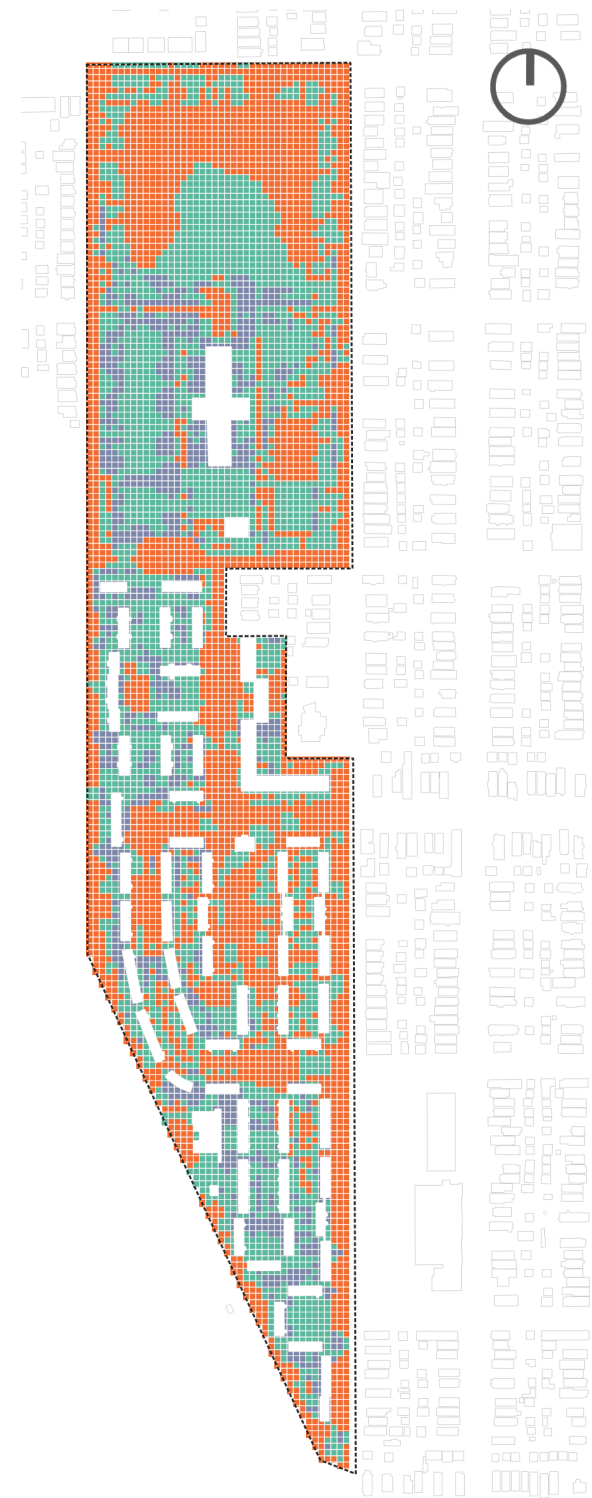
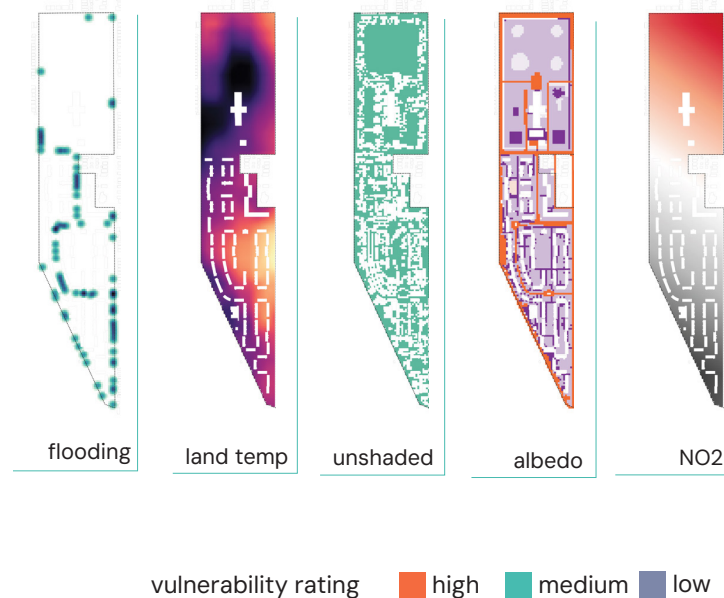
- LST: $(x - 18.53) / 5.69$
- NO2: $(x - 47.19) / 3.58$
- Flood: KDE min-max
- Albedo: $1 - \text{norm}(x)$
- Uncooled: binary 0/1

Step 4 – Since all stressors weren't affecting the people the same way, we decided to weigh them according to what we thought was affecting people's mobility and the way the residents use the space, so we decided to assign weights such as follows–

- LST – 0.25 – will affect the people the most
- no2 – 0.15
- flood – 0.25 – will affect the people the most
- albedo – 0.15
- unshaded zones – 0.20

From here we then used this formula
$$\text{CEVI} = (\text{lst} \times 0.25) + (\text{no2} \times 0.15) + (\text{flood} \times 0.25) + (\text{albedo_inv} \times 0.15) + (\text{uncooled} \times 0.20)$$

We then classified the result into low, mid and high.



appendix - sources

sources - site context+ social analysis

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sources - interviews

Community interviews conducted with residents, stakeholders, and local officials across Chicago's Southeast Side, March–May 2026. Names withheld due to C40 contest rules.

sources - flood analysis

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