

**REGENERATIVE DESIGN
PACKAGE**

November 22, 2021

Center for Peace + Justice

Cunningham

EXECUTIVE SUMMARY

Cunningham was hired by Gandhi Mahal Restaurant and Pangea World Theatre to provide regenerative design pre-development services for their new Center for Peace and Social Justice, which is pursuing Living Building Core Certification v4.0 (LBCv4.0). This document presents a synthesis of a 5-week regenerative design pre-development effort in partnership with Tikun Collective, Emanuelson-Podas Consulting Engineers, Rani Engineering, NEOO Partners Inc, and Mortenson Construction.

The purpose of this document is to outline the process, recommended strategies, next steps and potential cost | policy barriers for each of the petals as defined by the International Living Future Institute. It also supports the LCDA pre-development grant sustainability requirements. Throughout the process, the team collaborated on a virtual Miro platform.

Miro board link:
https://miro.com/app/board/o9J_lzop3go=?invite_link_id=102931390915

WHERE ARE WE

When the pandemic started, Gandhi Mahal began working with Tikun Collective to re-imagine how their restaurant would respond and adapt to a post-Covid world. Then, on May 25th, 2020, George Floyd was murdered by Minneapolis Police. The ensuing uprising resulted in the destruction of several businesses along Lake Street, including Gandhi Mahal.

HOW DO WE REBUILD

With the help of a land grant from the neighboring Holy Trinity Lutheran Church, Pangea World Theater is able to own the lot formerly owned by MIGIZI and partner in this new space that promotes community and healing through the intersection of food and arts. The Lake Street corridor is a thriving cultural corridor with many BIPOC-owned businesses disproportionately impacted by the uprising. This community is facing greater difficulty rebuilding than neighboring sites

owned by corporations. Equitable redevelopment that supports and represents the diverse communities is critical to restoring Lake Street's cultural value.

Together, Pangea World Theater and Gandhi Mahal envision a new community-driven space that promotes environmental justice and a regenerative future.



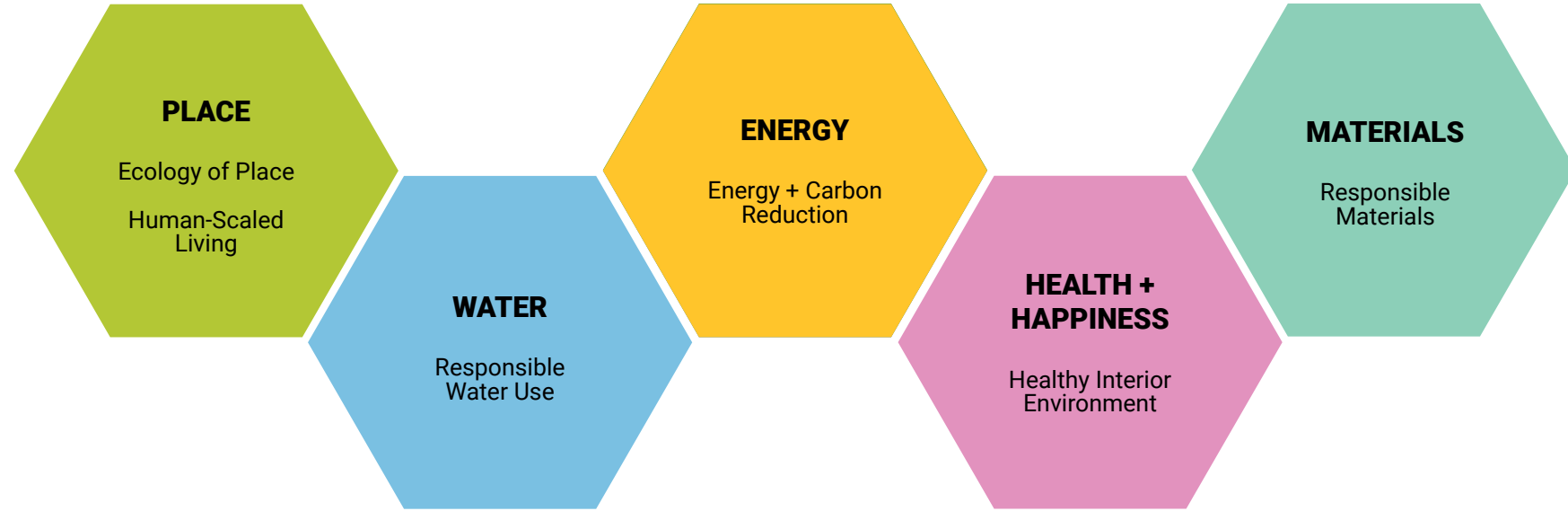
Source: Renee Jones Schneider, Star Tribune



PROJECT PHASING

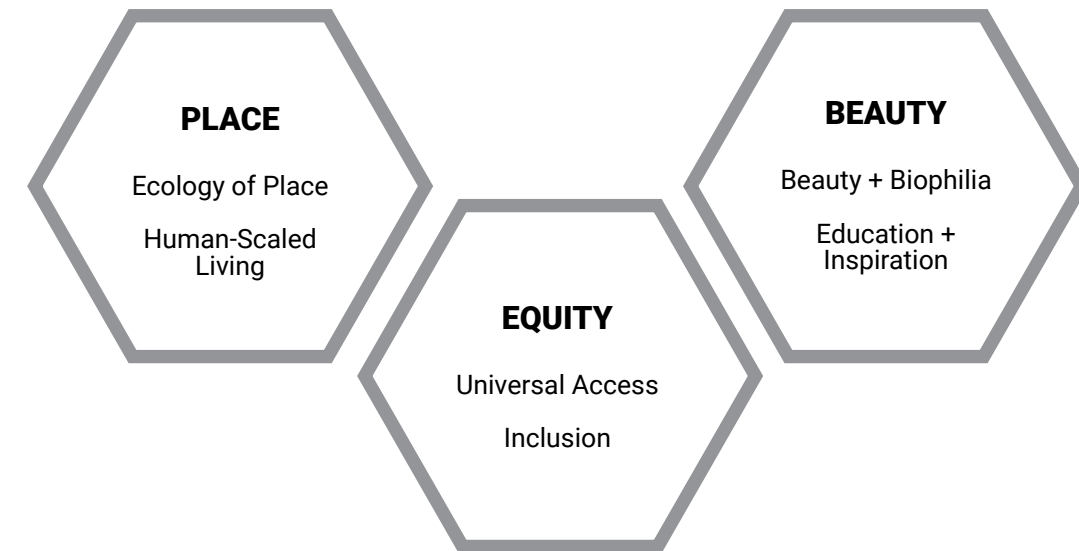
PHASE 1 (CURRENT)

PRICING | PERFORMANCE

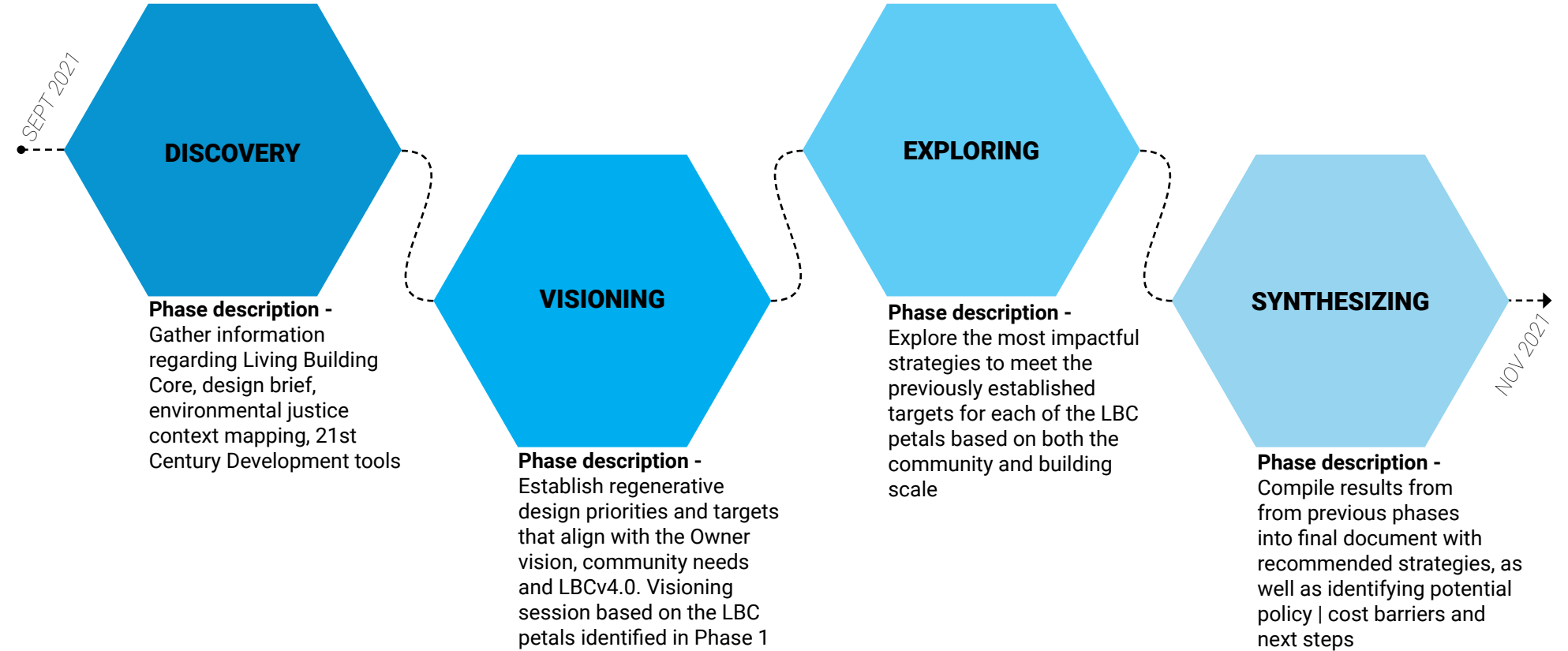


PHASE 2 (FUTURE)

COMMUNITY | EQUITY



CUNINGHAM PROCESS



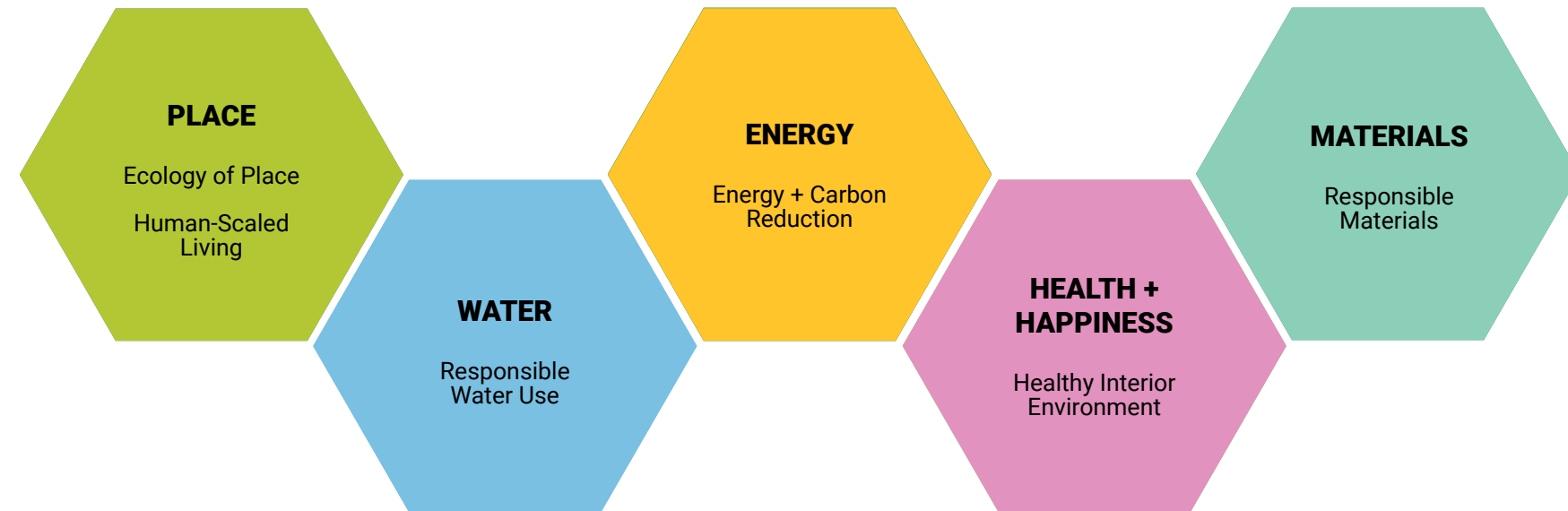
A *CONNECTED* COMMUNITY

As many businesses along Lake St re-imagine their properties after the uprising, there is a unique opportunity to work together. This area can become a pilot project within the City of Minneapolis to explore, test, and measure how to design a community that is centered on social and environmental justice.

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LIVING BUILDING PETALS



Next Steps:
Regenerative Design
Consulting Phase 2 (Equity + Beauty)

CENTER FOR PEACE AND JUSTICE SHARED VALUES



The Circle over the Line
The line represents an industrial model - linear thinking - dig, refine, make, use, trash.
The circle and spiral represent a natural model - grow, harvest, implement, integrate or biodegrade.



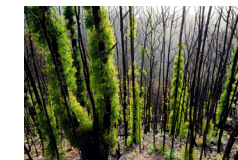
The Bridge over the Ladder
The Space (Building) - This place seeks to bridge nature and building, to be a connector for well-ness and the community. The Place (Culture) - Cooperation is valued over competition.



Sacred Rituals
Cooking / Sharing / Showing/ Teaching / Living / Growing / Feeding / Eating / Making/ Performing/ Mourning/ Celebrating - are just some of the rituals of life supported and shared in this place.



Community & Neighborhood
The Longfellow neighborhood has a rich and dynamic history. Partnerships among neighbors, businesses and organizations will bolster minority owned businesses to develop, design, build and honor this site.



Self Sufficiency & Resilience
The best way to build wealth and equity is with a community that is healthy and sustaining. Natural systems are by definition self sufficient and promote resilience while being in balance with their surroundings.

PLACE

Ecology of Place



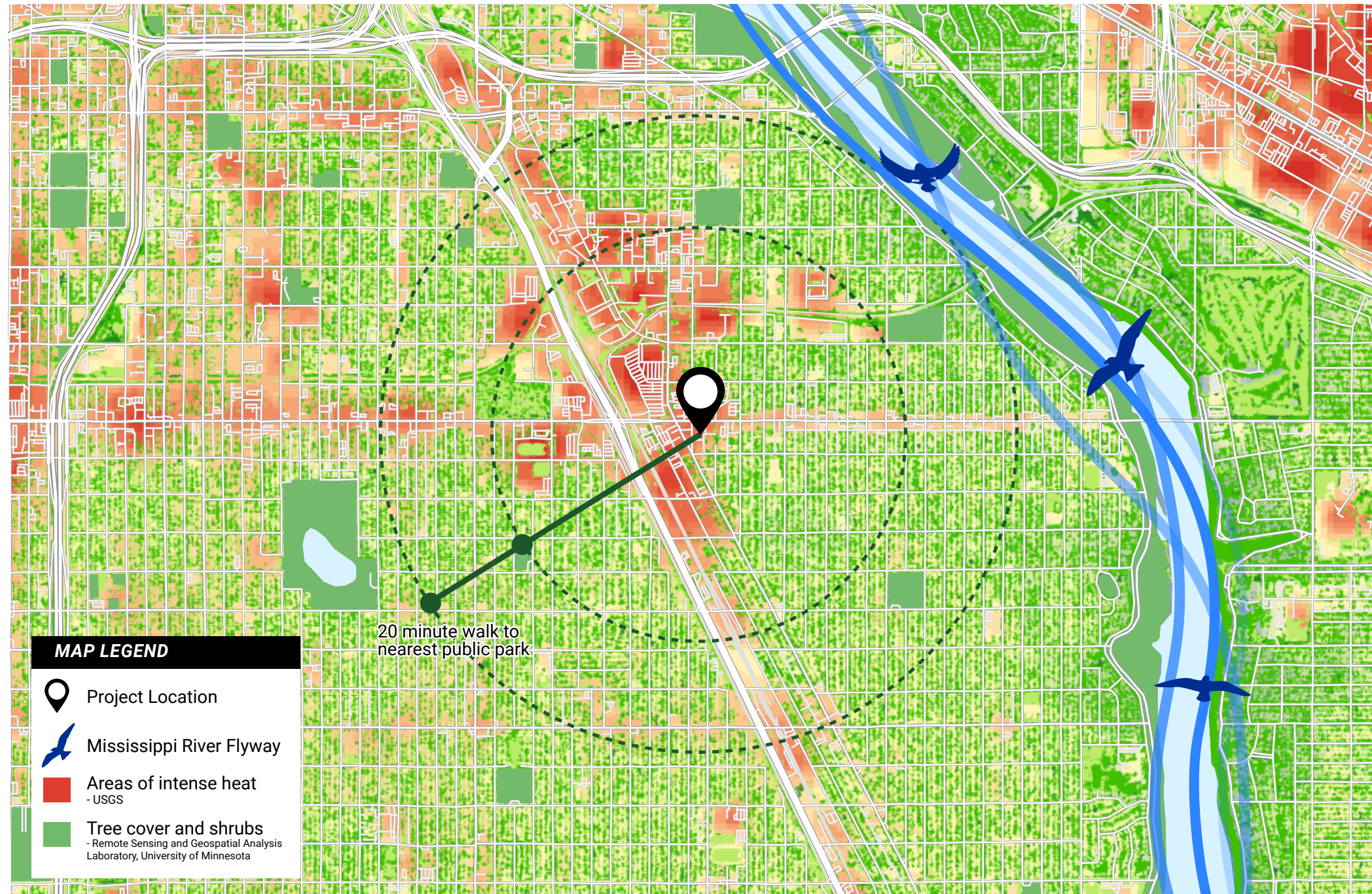
Recommended Strategies:

1. Reach outside of site boundaries to connect canopy and greenspace.
2. Coordinate with 27th Ave S businesses to create a cohesive ecological strategy.

CONNECTED NEIGHBORHOOD GREEN SPACE STRATEGY

With limited access to green space and tree canopy, this heavily paved, transit-focused location experiences heat island effect and associated environmental and social health impacts.

This project is adjacent to the Mississippi migratory bird flyway. It will be important to promote bird safety and habitat restoration throughout the design process.



MISSING CONNECTIONS

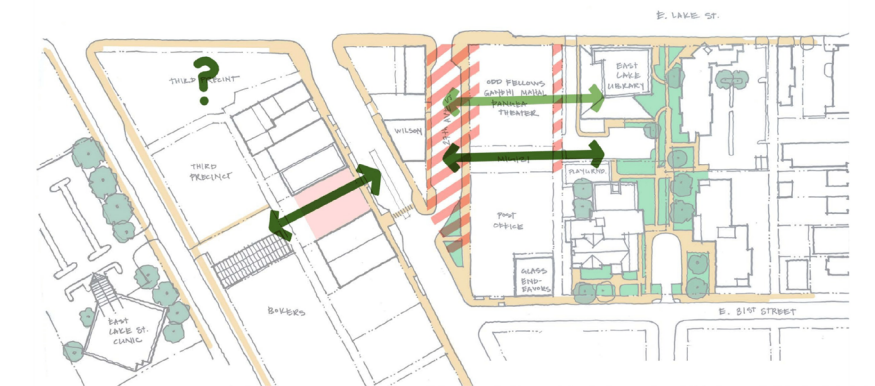


Image courtesy of Longfellow Raising, by Walser/UDA 2021

NEXT STEPS

Partner with neighbors to identify opportunities for greenspace and tree canopy to provide shade, habitat, areas for gathering, and reduced heat island.

Engage stakeholders on adjacent sites to explore shared edge conditions that might offer opportunities for greater shared public and greenspace. Sites include, but are not limited to, the former Oddfellows and post office site.

There are potential policy and zoning | land use barriers to be identified with this process.

PLACE

Human Scaled Living and Universal Access



Recommended Strategies:

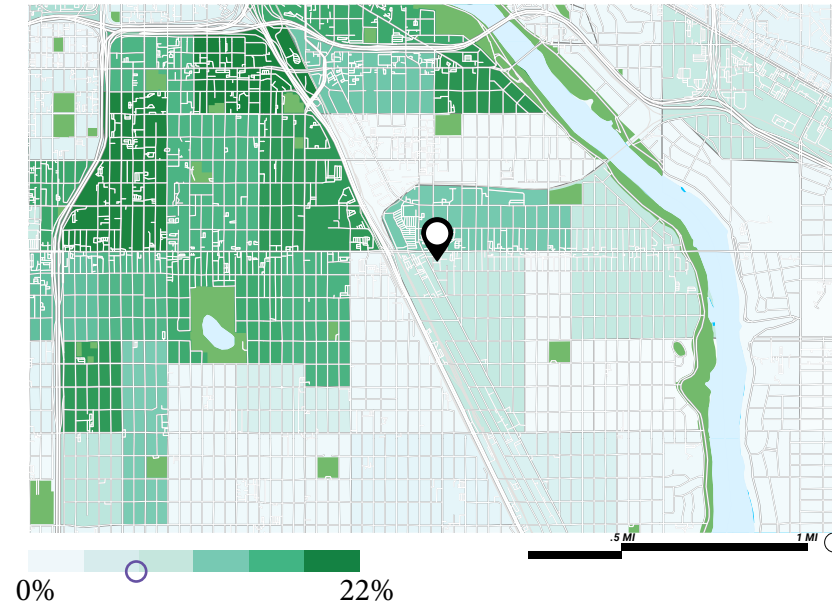
1. Re-imagine 27th as a community corridor
2. Design streetscape to easily transform for community gathering
3. Provide bike stations and electric vehicle stations along 27th for all neighbors

ENSURE THAT CURRENT BUSINESS OWNERS CAN REBUILD AND RESTORE COMMUNITY

In the wake of the pandemic and uprising, local BIPOC businesses and residents have been disproportionately impacted by environmental, economic and social factors.

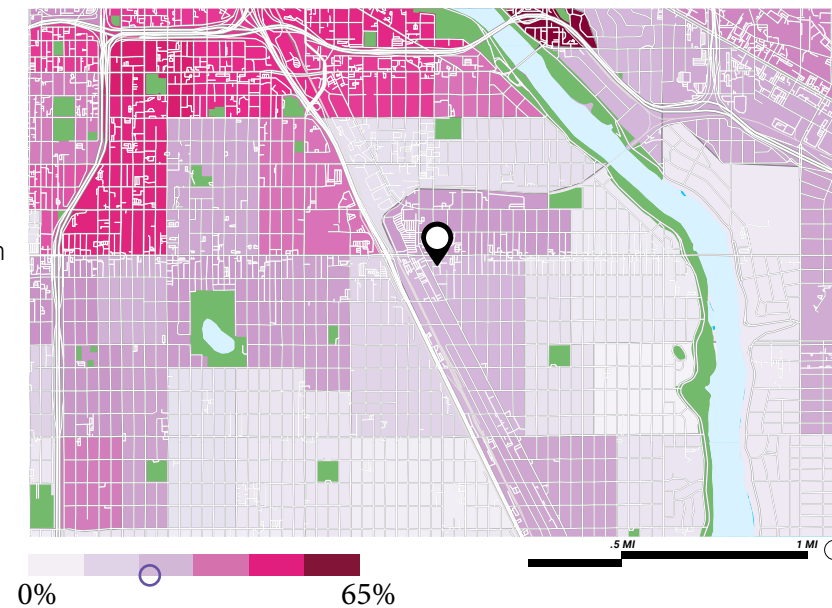
HOUSEHOLDS WITH LIMITED ENGLISH

Correlating directly with ESRI's diversity index data, this project neighbors a community with limited English speaking capabilities when compared to the city as a whole.



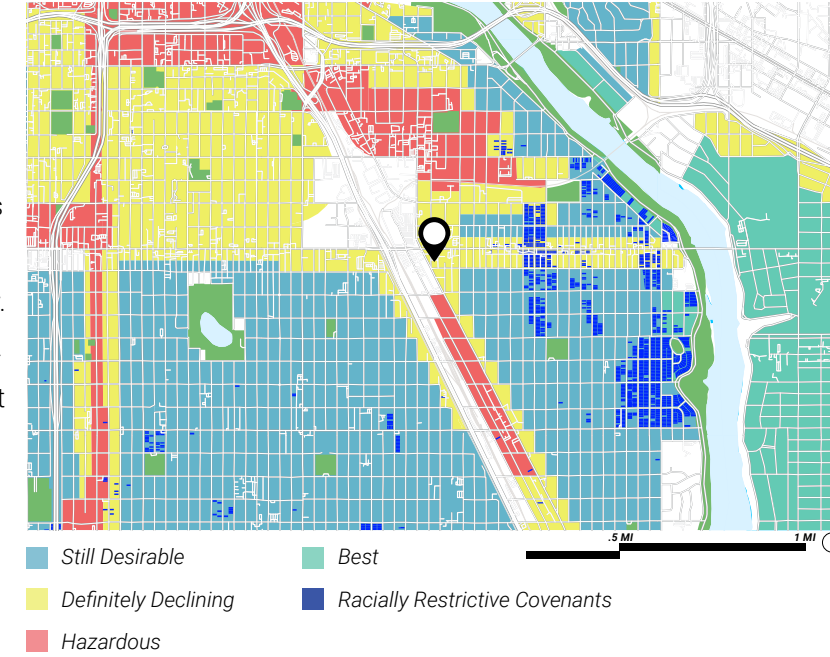
RESIDENTS LIVING BELOW THE POVERTY LINE

This project site will serve a larger population of people living below the poverty line.



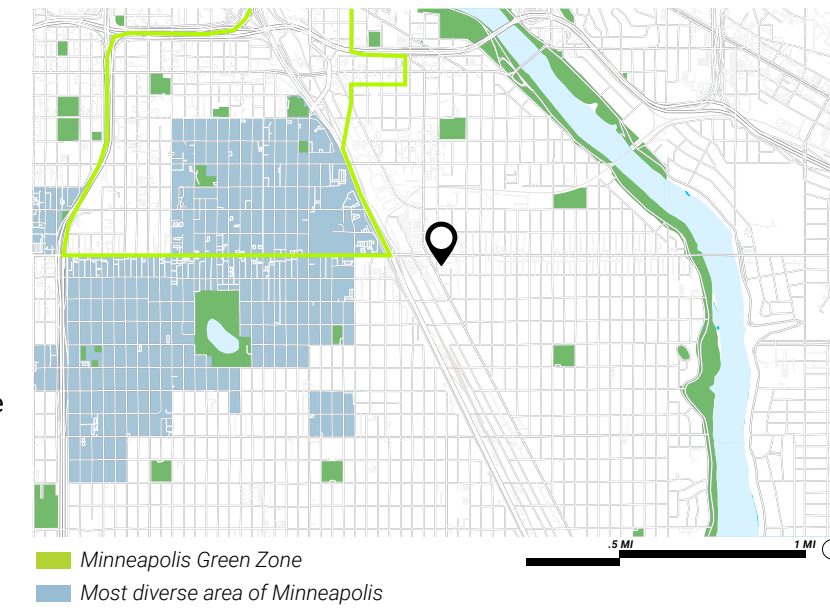
REDLINING + RACIALLY RESTRICTIVE COVENANTS

It is important to put this project into the context of Minneapolis development in the 20th century. Redlining wrote a racist narrative on top of the Minneapolis grid that we are still seeing and experiencing the effects of today.



MINNEAPOLIS GREEN ZONES

The Gandhi Mahal and Pangea World Theater site is just blocks away from the Southside Minneapolis Green Zone. This zone has been identified as communities that are disproportionately impacted by climate change. The city is prioritizing support for equitable development within this zone.



NEXT STEPS

Propose that Project Area be included into the Minneapolis Southside Green Zone for priority consideration:

- 1) equity,
- 2) displacement,
- 3) air quality,
- 4) brownfields and soil contamination,
- 5) housing,
- 6) green jobs,
- 7) food access
- 8) greening

Engage city planners to gather information and explore opportunities for re-imagining 27th Ave S streetscape as part of broader public realm and greenspace.



WATER

Community water use
Annual Rainfall: 28"

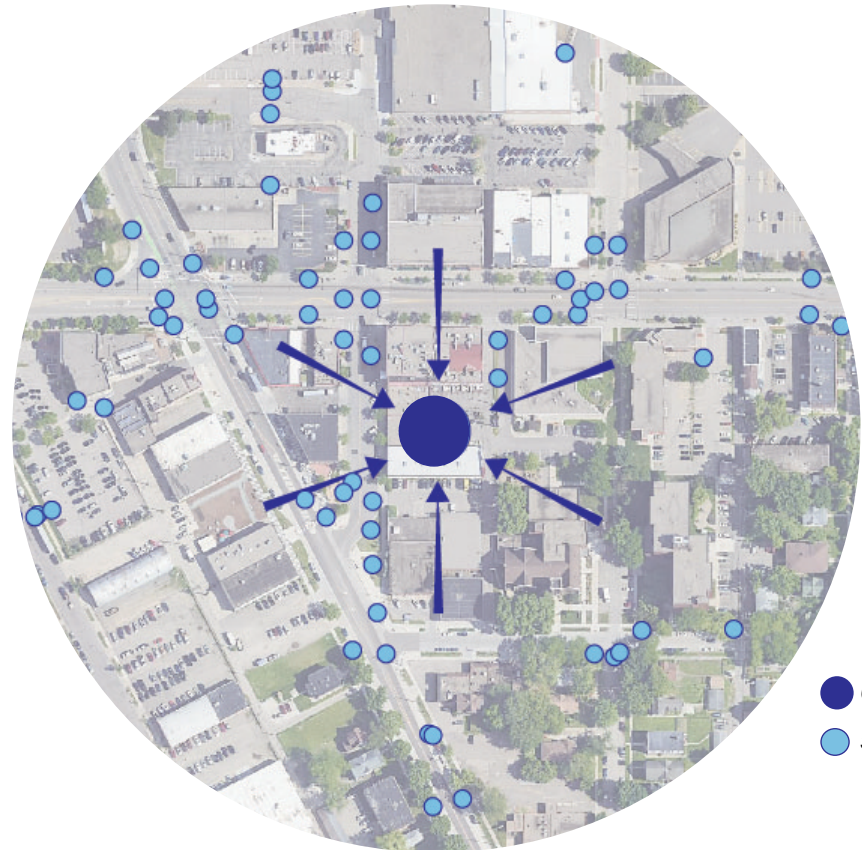
Recommended Strategies:

1. Water District: Rainwater for non-potable use

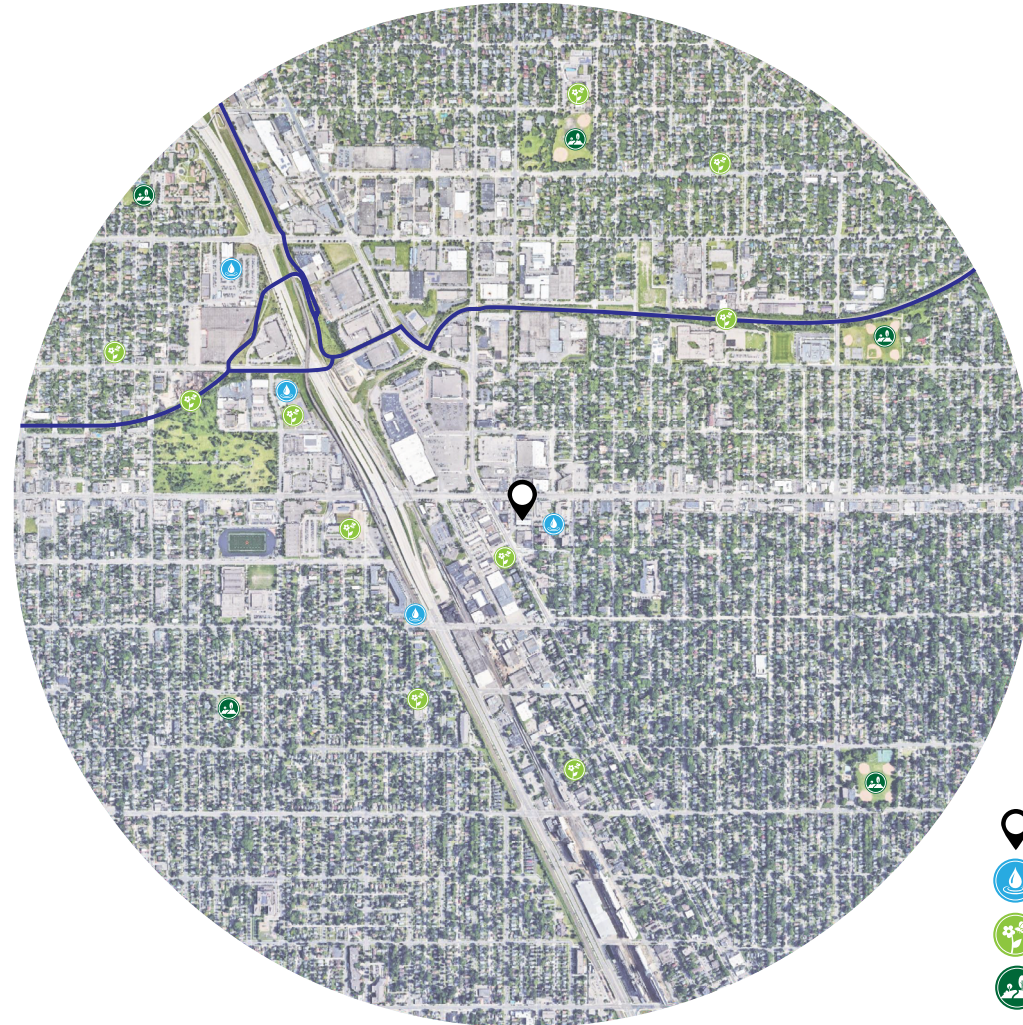
STORMWATER DISTRICT

By partnering with neighboring businesses and sites, there is a strong opportunity to intercept, capture and treat rain water on-site.

The diagram to the right depicts the possibility for a "water district." After conversations with the city of Minneapolis' green infrastructure director, there is a clear opportunity to divert water from the Mississippi River using the storm sewer network and re-route these storm sewers to the Gandhi Mahal site. This water would be treated on site and reused.



- On-site water treatment
- Stormsewers



- 📍 Project Location
- Water
- 🌱 Urban Ag/Habitat
- 🌳 Parks
- Greenway Bike Trail

NEXT STEPS

Calculate rain water intercept | capture potential from adjacent properties. Partner with Mississippi Watershed Management Organization (MWMO) right away for technical and policy assistance and support, as well as potential grant funding opportunities

There are policy barriers with treating and reusing stormwater, greywater and black water.

Engage with the city to explore opportunities for pilot project for green infrastructure.



ENERGY

Community-generated power
Creative Energy

Recommended Strategies:

1. District Energy | Solar | Wind
2. Energy storage for resiliency

COMMUNITY - GENERATED POWER

Hi-performing energy solutions can be cost-prohibitive at an individual building scale. However, at a larger district or community scale, there are potential savings available. Systems such as geo-exchange ground-source heat pumps, solar and wind sources could provide these potential savings. Gandhi Mahal is currently a member of the Cooperative Energy Futures program, which provides community-powered energy.

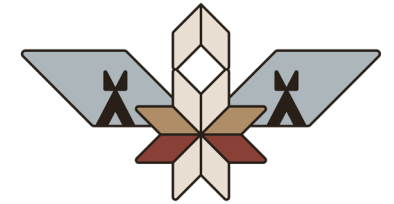
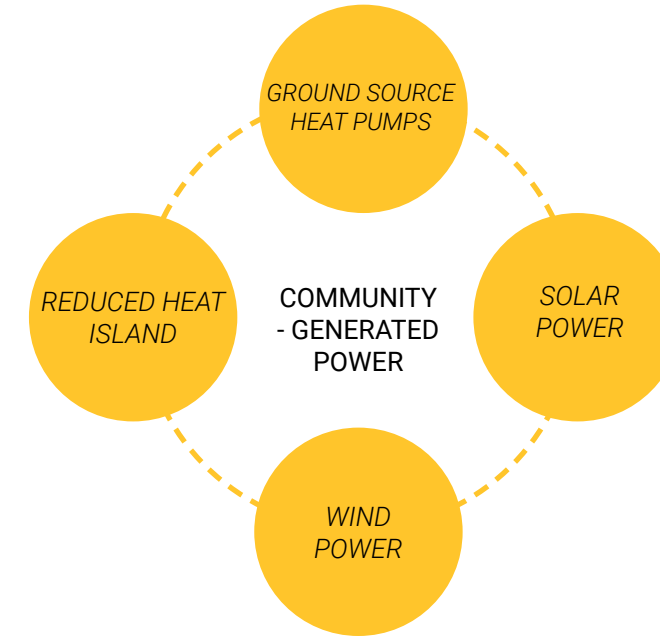


-  Project Location
-  Public Transit
-  Energy/Daylight
-  Greenway Bike Trail

REACHING BEYOND THE SITE

The spatial constraints on urban sites make on-site energy systems difficult to accommodate. By expanding the conversation to include the adjacent neighbors and infrastructure, this may allow the Center for Peace and Justice to more effectively meet the energy targets of the Living Building Core program.

The diagram to the left depicts a few neighbors who are already invested in solar powered energy. These range from commercial buildings to residential, single-family homes.



MIGIZI
MIGIZI GREEN JOBS PATHWAY

MIGIZI is an organization that serves Native youth through educational, social, economic and cultural opportunities. Their Green Jobs Pathway program provides hands-on training to teach and train Native youth in renewable energy technologies, including solar panels, mobile solar chargers, electric wiring and windmills.

This could be a strong community partnership opportunity to promote equitable access to green jobs. MIGIZI was Gandhi Mahal's neighbor prior to the uprising.

NEXT STEPS

Engage City Planners to discuss opportunities and barriers to community-based green energy infrastructure Pilot Program.

Explore creative opportunities for on-site energy production in addition to solar and wind.

Engage with MIGIZI Green Jobs Pathway.
Contact:
John Gwinn
Strategic Partner Director
jgwinn@migizi.org

HEALTH + HAPPINESS



Civilized Environment

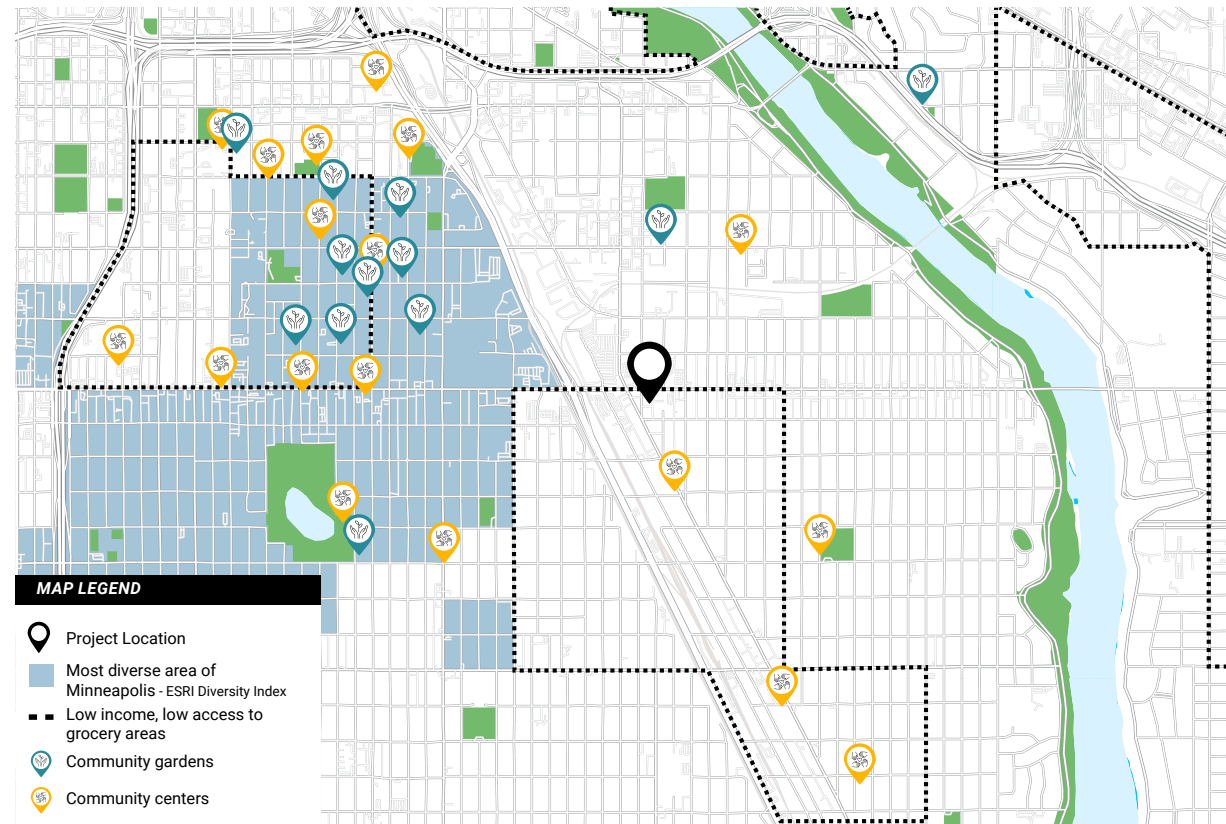
Recommended Strategies:

1. Provide local food program initiative
2. Be a community hub for information sharing and community meetings

LOCAL FOOD PROGRAM

Gandhi Mahal and Pangea World Theater provide a unique opportunity for a local food initiative by continuing to support and expand the network of community gardens, backyard gardens, farmers markets and fresh food suppliers in the community.

Throughout the design process, consider how the greenhouse can connect to the community at the street level to further tie food growth and harvesting to the neighborhood experience.



NEXT STEPS

Partner with local residents and businesses who have interest in the “backyard garden” program.

Partner with the local farmers market to promote fresh, locally grown, organic produce.

Identify opportunities for community compost of organic matter with on-site biodigester. Engage City Planners to discuss opportunities and barriers to community based urban agriculture and zero waste pilot program.



MATERIALS

Support local materials economy that is non-toxic, transparent and socially equitable

Recommended Strategies:

1. Support local salvage and re-use businesses
2. Urban mining partnerships

CONSIDER IMPACT ACROSS SCALES

Materials represent an opportunity to consider social and environmental impact across several scales:

- Local/regionally harvested, manufactured materials
- Salvage and reuse opportunities
- Impact of material/product manufacturing/waste on fence line communities.
- Healthy material support occupant health and well being and improve indoor air quality
- Natural materials provide connection to place and beauty
- Carbon sequestering materials



- Project Location
- Materials
- Markets
- Urban Ag/Habitat
- Greenway Bike Trail

ADVANTAGES OF AN INDUSTRIAL CORRIDOR

The Center for Peace and Justice is located within an industrial corridor of Minneapolis. This corridor contains a wide range of resources. Metal manufacturers, contractors, roofing specialists, electrical suppliers, and lighting stores just to name a few.

In order to keep materials local, while also supporting local businesses, this bank of resources should be considered during the design and construction phases of the project.

FSC Certified Heavy Timber / Cross Laminated Timber structure (except for theater) Mpls T3 building:



source: <https://structurecraft.com/projects/t3-minneapolis>



NEXT STEPS

Assess materials against occupancy and use type, expectations of maintenance and durability

Leverage existing transparency criteria - Declare, LPC, Cradle2Cradle, other

End of Community-Scale section.

The Center For Peace and Justice as a **LIVING ORGANISM**

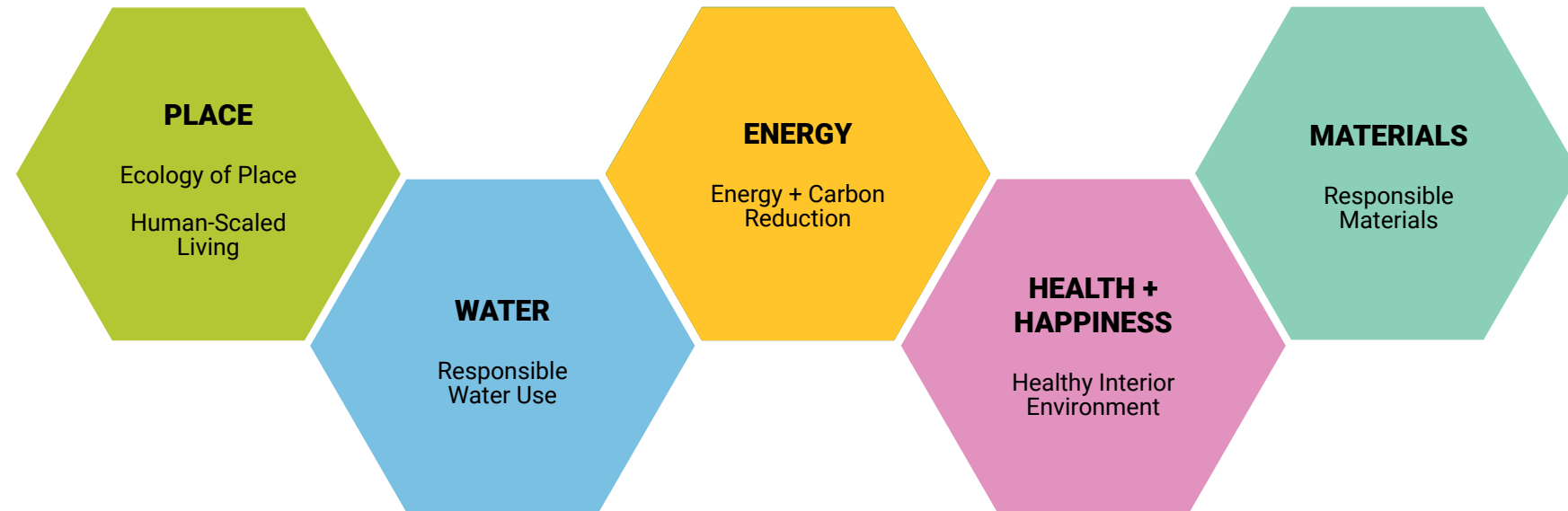
Bringing light and community to the core of the Center for Peace and Justice creates synergies in programs.

The garden and kitchen are the **roots** of the building.

Performance and educational spaces are the **soul** of the building.

Interaction with the community in and outside are the **heart** of the building.

LIVING BUILDING PETALS



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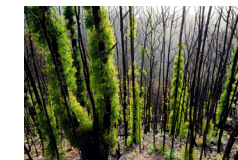
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PLACE

Restore Reference Habitat



Recommended Strategies:

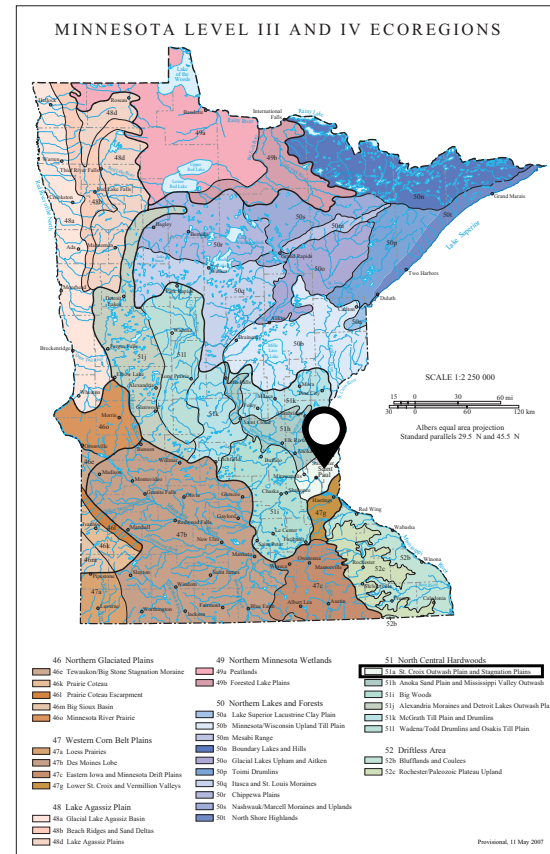
1. Support reference habitat through site design and plantings
2. Increase tree canopy to reduce heat island and support reference habitat
3. Restore pollinator population on site

RESTORE REFERENCE HABITAT

The intent of the Ecology of Place imperative is to 'protect wild and ecologically significant places and encourage ecological regeneration and enhanced function of the communities and places where projects are built' (LBCv4.0)

Reference Habitat: 51a - St Croix Outwash Plain and Stagnation Plains

This site has high potential for habitat restoration for protected pollinator species in rooftop gardens and landscape areas: Rusty Patched Bumblebee and Yellow Banded Bumblebee.



Rusty Patched Bumblebee



Yellow Banded Bumblebee



NATIVE PLANTING AND HABITAT

Planting key native species such as white indigo and milkweed would help bring these pollinators to the site. pussy willows, lupine, milkweed, asters, bee balm, and American black elderberry.

Provide nesting and overwintering sites. Yellow banded bumble bees build nests and hibernate in undisturbed soil, abandoned rodent burrows and along woodland edges. Keep unmowed, natural areas and reduce tilling soil. Support natural areas in your community, county and state.

Trees provide protection from wind and sun, while also providing habitat.

HUMAN HEALTH BENEFITS

Consider plants that support both pollinators and human health and opportunities to harvest and sell at the market:

- elderberry
- bee balm

NEXT STEPS

Assess existing baseline ecological conditions using SER 5-star method

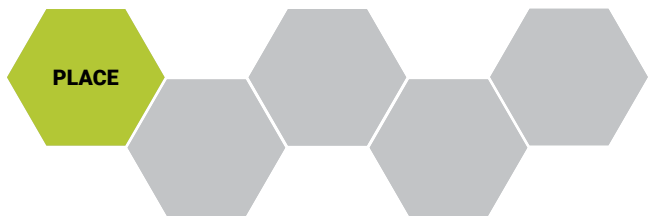
Generate an Adaptive Plan to restore reference habitat based on Living Building Core requirements

Partner with BeezKneez for rooftop apiary to support locally-produced honey and market

Local Partnership Opportunities?
Roof Depot / Tradition Roofing Systems site
Hiawatha City Campus Expansion?

EPNI
www.eastphillipsneighborhoodinstitute.org

Karen Clark/ Dean Dovolis/ Community Indoor Urban Farm?



PLACE

Human-Scaled Living

Recommended Strategies:

1. Public plaza, green space to provide E-W connection
2. Create welcoming entry and public spaces for community

HUMAN CONNECTIONS

The intent of the Human-Scaled Living Imperative is to 'contribute toward the creation of walkable, pedestrian-oriented communities...and support a human-powered lifestyle' (LBCv4.0)

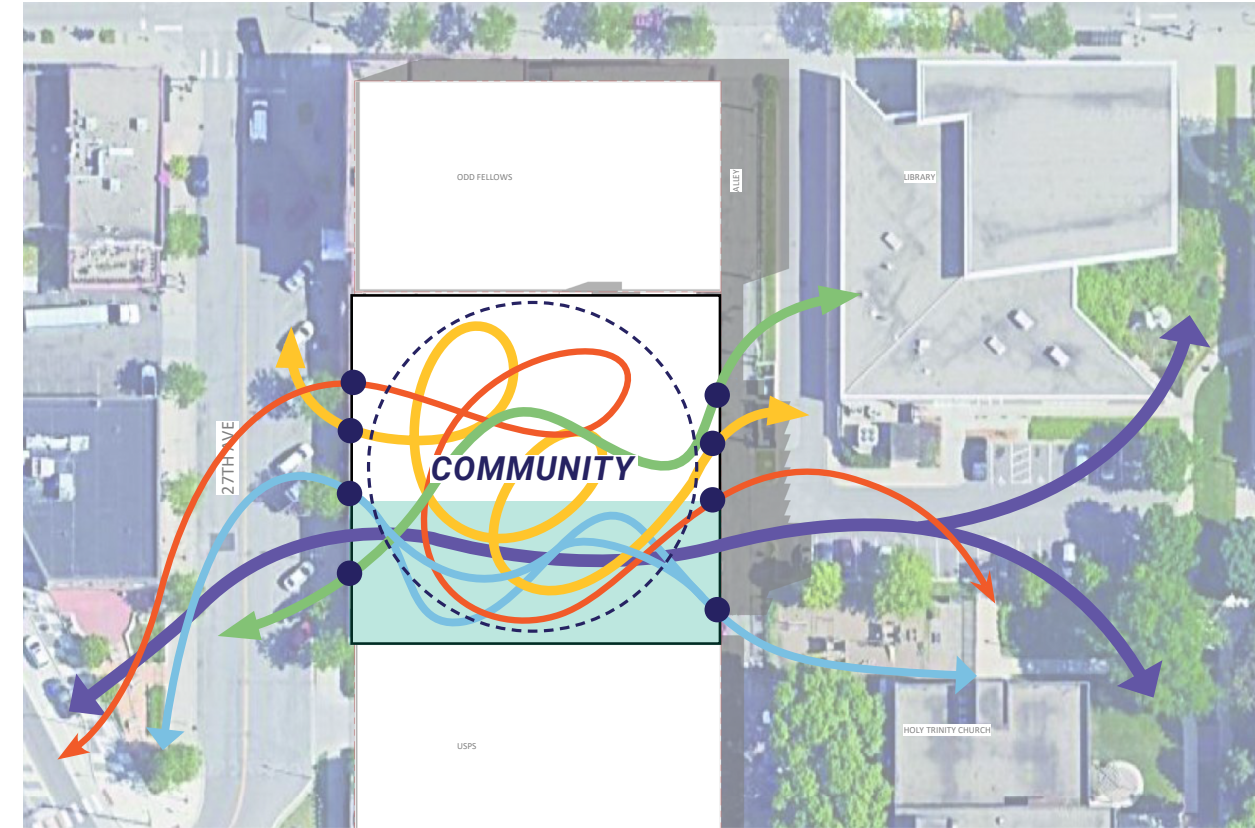
There is an opportunity to carry public space through the Gandhi Mahal | Pangea site from East to West. This connection would not only help the pedestrian gathering and walking experience, but it also creates a vision for connected green space, shade and habitat.



COMMUNITY AT THE CENTER

The diagrams shown on this page explore visions of Gandhi Mahal and Pangea as a hub that welcomes the community in by weaving food, community and daylight through the building to the street level for an inviting entry experience.

Gandhi Mahal has a unique opportunity to carve out a building that responds to water, habitat, food, energy and culture. The diagram below begs the questions - *what happens where these programs meet the community at the streetscape?*



NEXT STEPS

Create welcoming entry and public spaces that engage with the streetscape.

Scale building massing to pedestrian experience.

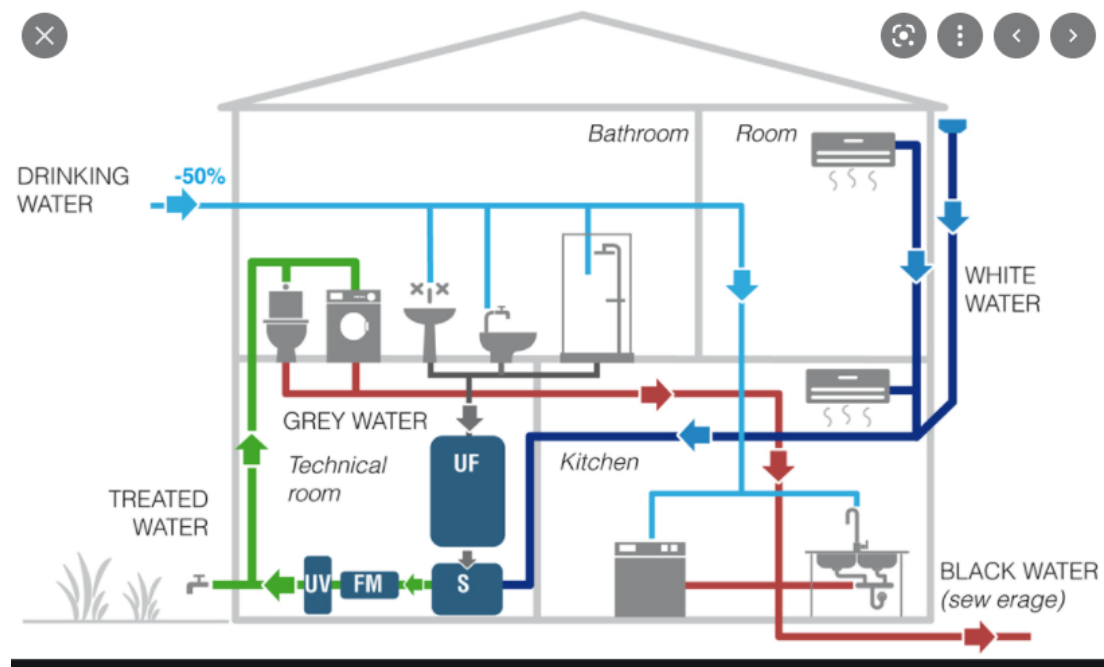
WATER

Baseline: 11,851 gal/day
50% Goal: 5,926 gal/day
 Annual Rainfall: 112 gal/day

Recommended Strategies:
 1. Greywater treatment and reuse

WATER APPROACH

The intent of the Water Petal is to 'treat water like a precious resource, minimizing waste and the use of potable water, while avoiding downstream impacts and pollution' (LBCv4.0)



STORMWATER CAPTURE

Since the project site is less than 0.5 acre, it does not trigger the latest stormwater requirements. For this reason, the goals for water use are 'Above and Beyond' non-regulatory. This means that they have greater chance of receiving additional funding.

Rain water will be collected from the rooftop, canopies and site, treated on-site and used to irrigate the green house, landscape and for other non-potable uses. This building has a high water demand, which will not be able to be met by the rainfall within the property lines.

WATER REUSE

Wastewater collection and treatment will be prioritized for non-potable water needs.

On-site treatment and reuse of grey and blackwater aligns with City goals, but has several hurdles for approval. Greywater reuse requires multiple plumbing systems.

AQUAPONICS

Gandhi Mahal will have a 1,000 gallon vertical aquaponics system. The aquaponics system does not have significant water demands once filled. As water evaporates, it will need to be replaced, but that is likely to be only a few gallons of demand.



Source: <https://www.khoicapital.co.za/start-aquaponic-farming-business/>

WATER EFFICIENT FIXTURES

All plumbing fixtures to low-flow, WaterSensed labeled. This includes toilets, urinals, sinks, showers, etc.

Stretch Goal: Composting toilets. Composting toilets have significant regulatory hurdles.

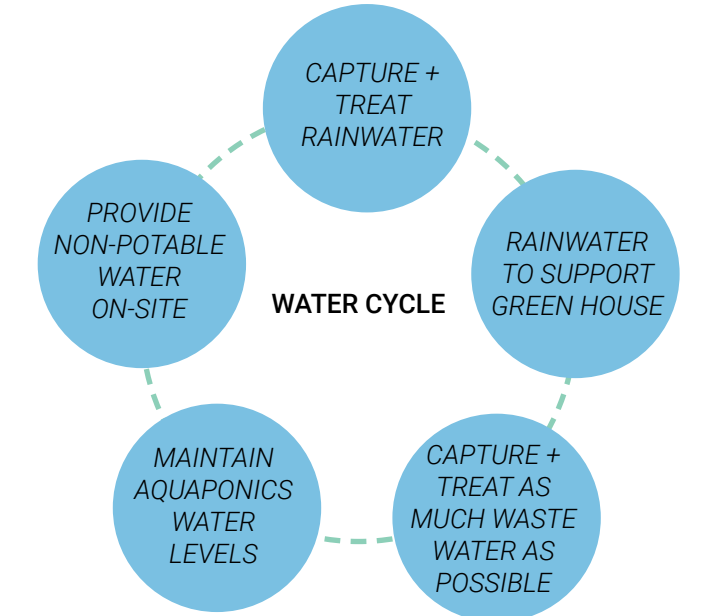


GREENHOUSE

A greenhouse will provide fresh produce for the Gandhi Mahal restaurant, market and other community needs. The size of the greenhouse may be 5,000 sf. This reflects a larger urban agriculture scale and a large water demand.



Source: <https://livezoku.com/zoku-loves-media/rooftop-ams/>




NEXT STEPS

Research MPCA Planning grants for stormwater, wastewater and community resilience <https://www.pca.state.mn.us/air/planning-grants-resilience>

Engage city planners about policy barriers, opportunities for Water Reuse Pilot Program

Identify specific greywater sources that can be captured for treatment and reuse (ie. dishwasher, kitchen, bathroom)
 Identify local precedents

Identify Water reclamation barriers
 Contact MetCouncil regarding blackwater treatment and possibly living machines

ENERGY 

All Electric (no combustion)

Baseline EUI: 172 kbtu/sf/yr
70% Goal: 52 kbtu/sf/yr

Recommended Strategies:

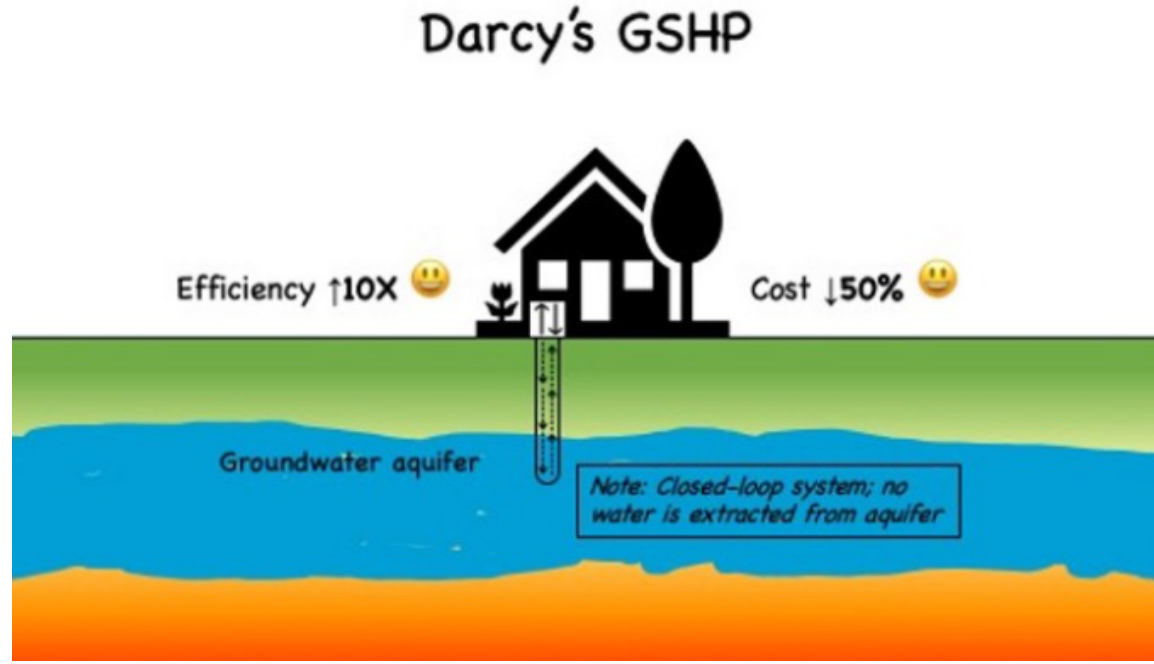
1. Geo-exchange system (2-4 deep wells)
2. Induction cooking (except Tandoori)
3. Rooftop solar

ENERGY STRATEGIES

The intent of the Energy Petal is to 'treat energy like a precious resource and minimize energy-related carbon emissions that contribute to climate change' (LBCv4.0)

Two key strategies for energy are a Darcy geo-exchange system and rooftop solar.

Additional opportunities include carbon sequestering. The Center for Peace and Social Justice could be used as generator of carbon credits for the City and State and even a regenerative energy stream.



This is likely the only possible geothermal exchange on this site. A traditional Darcy well provides up to 420,000 Btu's, but we can install a double well to get up to 720,000 Btu's per well.

PRIMARY STRATEGIES



ADDITIONAL OPPORTUNITIES




NEXT STEPS

Establish Embodied Carbon Baseline and 20% reduction Target using EC3 (Embodied Carbon in Construction Calculator)

Identify strategies for waste heat recovery and reuse for greenhouse and other program spaces

ENERGY + FOOD



Closed-loop Food Energy Cycle

Recommended Strategies:

1. Capture waste heat for green roof
2. Biodigester - food to compost



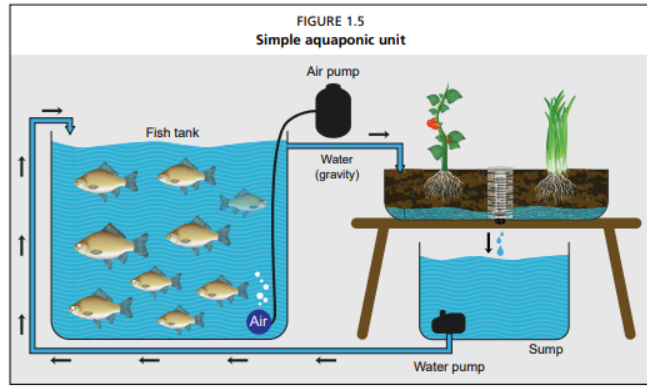
ENERGY + FOOD

In a closed loop food cycle, the nutrient rich biodigestate from the biodigester can be used as a soil additive. This additive can be sold as a potential nutrient-rich biodigestate product regenerative revenue stream to local organic farmers and the larger community.

This biodigestate can also be used as biomass fuel source in boiler (if approved by Living Building Challenge).



Source Images:
 Top left: <https://teshamchristensen.blogspot.com/2013/12/gandhi-mahal-owner-seeks-self.html>
 Top right: <https://www.thrillist.com/venues/eat/minneapolis/restaurants/gandhi-mahal>
 Bottom: Waste Water Panels



Food and Agricultural Organizations of the United States - Small Scale Aquaponic Food Production

NEXT STEPS

Visit North Park School for Innovation to see their biodigester

Research potential MPCA grants for Small Businesses
 651.282.6143
<https://www.pca.state.mn.us/regulations/beyond-compliance>

Waste Water Panels present to Gandhi Mahal | Pangea, possibly Longfellow Rising, about biodigester

If biodigester moves forward, research maintenance requirements for biomass boiler option. If recommended, contact Living Building Challenge as this is a combustion technology can be approved as an exception for non-combustion?

HEALTH + HAPPINESS



Daylight + Views to 75% of regularly occupied space

Recommended Strategies:

1. Bring daylight, public spaces and greenhouse into core to create an atrium
2. Share programming with partners

DAYLIGHT + PROGRAMMING

The intent of the Health + Happiness Petal is to 'promote good indoor air quality and a healthy interior environment for project occupants' (LBCv4.0)

When the sun is used to organize program for the Gandhi Mahal | Pangea site, we can start to understand synergies between shared goals and needs.



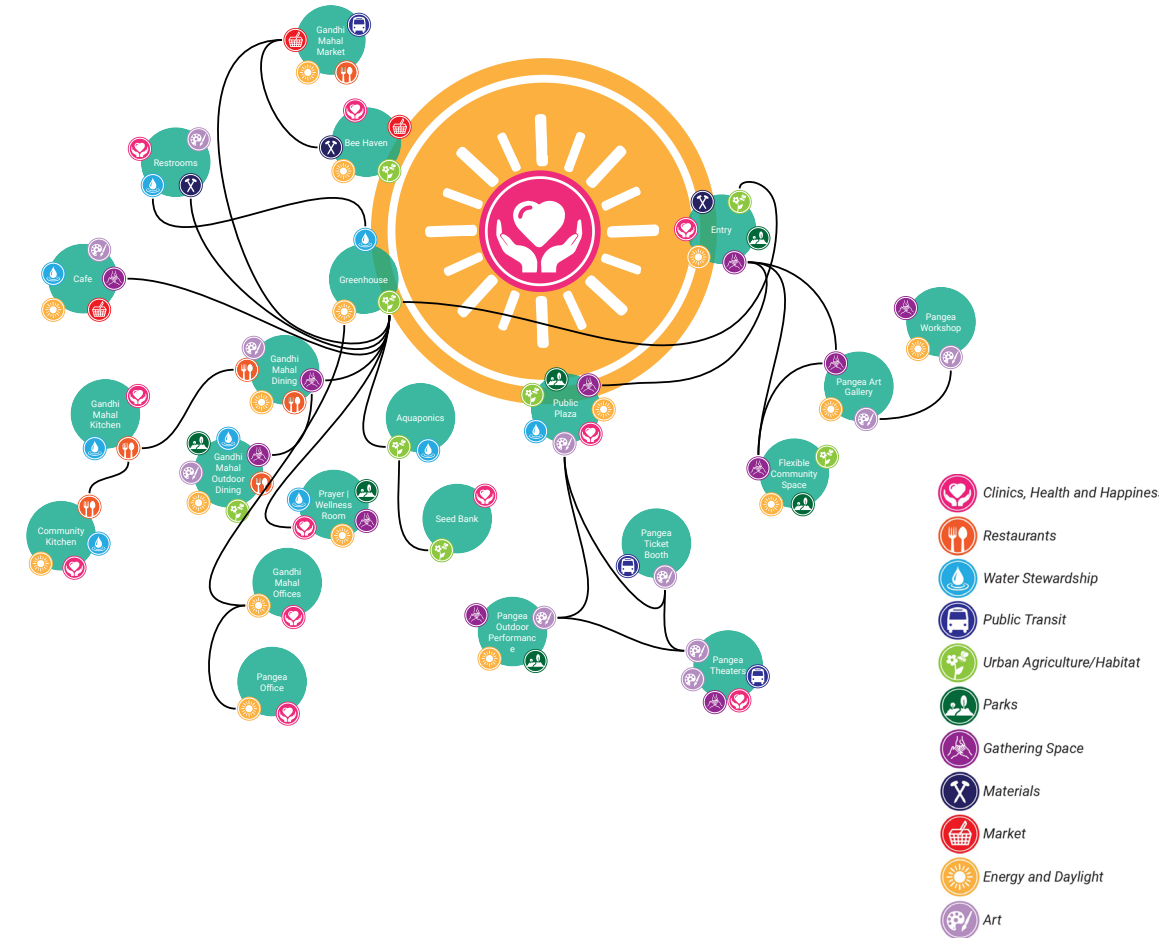
ACCESS TO DAYLIGHT



The garden and kitchen are the **roots** of the building.

Performance and educational spaces are the **soul** of the building.

Interaction with the community in and outside are the **heart** of the building.



CONNECTIONS TO THE SUN

The front entry, public plaza and greenhouse are three programs that stick out in their connection to the sun. These three programs can be used together to welcome guests into the building and create spaces that blur the lines between interior/exterior.

NEXT STEPS

Explore massing studies that are informed by access to daylight, views.

Identify program relationships based on proximity to daylight and views.

See Appendix for additional Living Building Health + Happiness



MATERIALS



50% of wood to be FSC, salvaged or on-site
 20% of materials budget must come from within 300 miles of site

Recommended Strategies:

1. Identify local salvage and urban mining partners

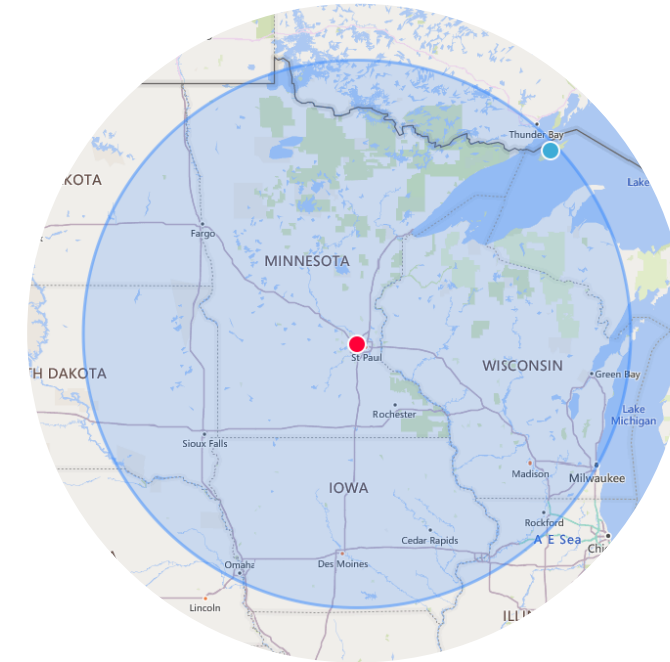
URBAN MINING

The intent of the Materials Petal is to 'set a baseline for transparency, sustainable extraction, support of local industry and waste diversion, to positively impact the building products market' (LBCv4.0)

The Gandhi Mahal | Pangea Theatre site is adjacent to an industrial corridor with access to building materials and contractors. Local sourcing of salvage and new materials would not only support Living Building goals, it would also support local businesses and community.



- Project Location
- Materials
- Markets
- Urban Ag/Habitat
- Greenway Bike Trail



MATERIAL SOURCING

The diagram above depicts a 300 mile radius wherein, based on the Living Building Challenge, materials must be sourced.

Throughout the design and construction process, lean on local resources. As discussed in the community-scale materials petal and the diagram to the left, the site is within an industrial corridor with access to building materials and construction experts.



NEXT STEPS

Join Minnesota Materials Exchange for locally available salvaged goods. Website: mnexchange.org



APPENDIX

CONTACTS

City of Minneapolis – Community Planning and Economic Development

Breyonne Golding
(City planner assigned)
612-283-6537
breyonne.golding@minneapolismn.gov
- Pilot Program Opportunities for Green
Infrastructure

City of Mpls Green Infrastructure Director
(and community resident)
Allison Bell
allison.bell@minneapolismn.gov

POTENTIAL GRANT OPPORTUNITIES

Mississippi Watershed Management Organization (MWMO)

Alicia Beattie
abeattie@mwmo.org
612-746-4989
- Capital Project Grants
- Stewardship Funds Grants
- Consulting Services

MN Pollution Control Agency (MPCA)

651.282.6143
[https://www.pca.state.mn.us/regulations/
beyond-compliance](https://www.pca.state.mn.us/regulations/beyond-compliance)
- Small business grants

POTENTIAL REVENUE STREAMS

Carbon Credits - work with local agencies to
buy/sell carbon credits:

[https://mn.gov/school-trust-lands/projects/
eco-services/carbon-credits.jsp](https://mn.gov/school-trust-lands/projects/eco-services/carbon-credits.jsp)

[https://www.mprnews.org/story/2019/10/10/
climate-change-carbon-sequestration-forests](https://www.mprnews.org/story/2019/10/10/climate-change-carbon-sequestration-forests)

[https://www.startribune.com/minneapolis-
explores-carbon-credits-to-help-reforest-the-
city/600054304/](https://www.startribune.com/minneapolis-explores-carbon-credits-to-help-reforest-the-city/600054304/)

Soil additive product from biodigester (sell
to local network of organic farmers, plant
nurseries, residents)

Honey from rooftop apiary

Potential to harvest some pollinator flowers
and berries to herbalists

End of Building-Scale section.

CPED Meeting Notes 15NOV2021

Amber Turnquest - CPED, Breyonne Golding - CPED, Meena Natarajan, Meneka Mohan, Heather Spencer, Josh Bergeron, Jennifer Garman, Olivia Lyster

General Comments

Future land use for this site (Community Mixed Use) makes sense for the goals of the project. CPED suggests to bring in public works – Cuningham will follow up in email for a contact. CPED suggests project has a one page document to answer: “what are we trying to do, when, and what do we need overall and what do we need from the city?” Seeing other Living Building projects in Minneapolis and Seattle would be helpful – Cuningham to send CPED precedents. This would help CPED reaching out to counterparts

Pilot Project:

Opportunities for pilot project need to be further discussed – Cuningham will follow up in email. Breyonne called this an “ambitious unique project”

Minneapolis Green Zones:

This is a community led group. Being within the green zone would be helpful and loop us into many opportunities. Breyonne will provide Kelly's contact

Stormwater:

CPED will provide contact for team

PLACE

LIVING BUILDING CORE REQ'S

ECOLOGY OF PLACE

- All projects must avoid building on pristine greenfield, wilderness, prime farmland or in a floodplain unless they meet an Exception. Projects must preserve thriving vibrant ecological environments and habitats.
- All project teams must document site and community conditions prior to the start of work, including but not limited to identification of the project's Reference Habitat.
- All projects must demonstrate that they contribute positively to the ecology of their place and restore or enhance the ecological performance of the site toward a healthy ecological baseline. On-site landscape must be designed to mature and evolve, and to emulate the functionality of the Reference Habitat, as appropriate to the project's Transect.
- No petrochemical fertilizers or pesticides can be used for the operation and maintenance of the on-site landscape, including urban agriculture.
- All project teams must assess cultural and social equity factors and needs in the community and consider those identified needs to inform design and process decisions.

TRANSECT
This site is considered Transect 5.

REFERENCE HABITAT
St Croix Outwash Plain and Stagnation Plains Rolling hills interspersed with depressions of small lakes and wetlands, extensively covered by urban and suburban development, but also pasture, and some crops and woodland.

INCREASE TREE CANOPY
Trees provide protection from wind and sun, while also providing habitat. Tree species such as Hackberry and Kentucky Coffeetree are suggested for Hennepin County. For a full list, visit this resource: <https://www.hennepin.us/residents/conservation/trees-forestry>

POLLINATOR HABITAT
Gandhi Mahal | Pangea is located in a high potential for protection zone for the endangered Rusty Patched Bumblebee. Planting key native species such as white indigo and milkweed would help bring these pollinators to the site.

BIRD-SAFE GLAZING RECOMMENDATION
Viracon V901 bird-safe frit for all glazing
Dark gray silkscreen #2853 on #2 surface
1/8" horizontal line, 1 inch o.c.

LIVING BUILDING CORE REQ'S

HUMAN-SCALED LIVING

- Be built to a human scale that is appropriate for the neighborhood.
 - Provide places for occupants to gather and connect with the community.
 - Provide sufficient secure, weather-protected storage for human-powered vehicles and facilities, such as showers and lockers, to encourage biking.
 - Provide at least two electric vehicle (EV) charging stations or one per thirty spaces, whichever is greater.
 - Minimize impervious surface parking to no more than 5% (Transect 5) of the Project Area and ensure that any surface parking area larger than 20m x 30m is separated with planted areas.
- Provide 1 of the following:
- Either reduce single-occupancy vehicle (SOV) trips and trips by fossil fuel-based vehicles by 30% over an established baseline relevant to the project's region and occupancy type; --- OR ---
 - Implement at least four of the following best practices:
 1. Consideration and enhancement of pedestrian routes, including weather protection on street frontages.
 2. Advocacy in the community to facilitate the uptake of human-powered and public transportation.
 3. A transit subsidy for all occupants of the building (if owner-occupied) or a requirement for tenant employers to provide such a subsidy.
 4. Carpool coordination assistance.
 5. Access either to subsidized car sharing and/or to hybrid or EV fleet vehicles.
 6. Regular survey of occupants to determine current fossil fuel-based SOV trips.

SOUTHSIDE GREEN ZONE
The City of Mpls has identified areas within the city that are disproportionately impacted by climate change. Since then, the pandemic and the uprising have further impacted these communities. There is a possibility that the site for the Center for Peace and Social Justice (and greater Lake Street corridor) might be able to apply to be included within the boundary of the Southside Green Zone.

Link to initiative: <https://www2.minneapolismn.gov/government/departments/coordinator/sustainability/policies/green-zones-initiative/>

Achieving Climate and Environmental Justice in the Southside Green Zone

Recommendations for City of Minneapolis Work Plan Action (2020-2025)



Developed by City Appointed Southside Green Zone Council Voted and Approved December 16th, 2019

Workplan drafted on behalf of the Southside Green Zone Council by:
Shalini Gupta, Co-Facilitator
Alejandra Tober Alariz, Co-Facilitator
City Staff: Kelly Muelman, City of Minneapolis, Office of Sustainability



WATER

LIVING BUILDING CORE REQ'S

RESPONSIBLE WATER USE

- Water use to be 50% below Baseline

Baseline Water Use: 11,851 gal/day

Goal @ 50%: 5,926 gal/day

Rainfall on Site: 112 gal/day
(40,960 gal/yr)

- All projects must treat all rainwater on site naturally, without chemicals.

RAINWATER CAPTURE

Multiple plumbing systems will be required
Nonpotable uses: flushing, irrigation, cooling, washing, industrial processes
Potable uses: drinking, culinary and bathing
Water from the tank needs to be delivered to the end non-potable uses via a separate piping system from the potable water piping system. Unless we are using water from additional sources in addition to roof run-off, the supply may not be adequate year-round. Therefore, the system should either allow the tank to be topped off with potable water or for a secondary potable water system to supply all non-potable end uses.

Slope the roof to drain to sumps or gutters. Pipe roof runoff to a tank. Strainers, grates, and/or a sediment trap should be included to prevent sediment and litter from entering the tank, because these could build up and block the distribution pipes. The grates and traps will need to be cleaned regularly to prevent sediment build-up.

Tank water should be tested weekly at the start and then monthly. Additional treatment may be required if water cannot meet minimal standards for turbidity and e. coli.

Tank must have overflow to a stormwater system. Gravity overflow is strongly recommended which means the top of the tank should be at least 2-3' higher than the stormwater collection pipes outside the building.

Tank could use potable water for top-off. This would require a backflow preventer on the

potable water inflow pipe and a system (or a person) to control when the top-off valve is opened/ closed.

Pump and piping from the tank to non-potable usage areas will be necessary. Greenhouses and toilets should be considered as a start. Cooling water, aquaponics, washing machines, and wash sinks could also be considered, but additional treatment may be required given greater likelihood of human exposure. Signage is required at non-potable outlets to inform users that the water is not for drinking. Non-potable water cannot mix with potable water, so all piping to usage areas from the tank need to be independent from the potable water piping system. If we propose to use "dirtier" stormwater from the ground level (streets, parking lots, etc.) or greywater from sink drains etc. more testing and treatment will be required to meet the minimum non-potable standards for turbidity and e. coli.

GREYWATER REUSE

Greywater reuse requires a variance from the Plumbing Board. We would need to propose something that makes sense to them from a health and maintenance perspective.

If we choose to reuse greywater from sinks and washing machines, we need to add additional piping from those drains to the tank and additional treatment of the water to remove debris, soap, contaminants etc. along the way.

BLACKWATER TREATMENT

There are many policy and code barriers to providing composting toilets and other blackwater solutions, unless the project wants to incorporate a fully licensed and permitted wastewater treatment plant. Health department spacing requirements do not allow for composting or septic type of systems outside of rural areas.

PRECEDENTS

Seattle Pilot Project / Case Study to work with AHJ to experiment outside the current code.

CITY OF SEATTLE PILOT PROJECT
<https://www.seattle.gov/sdci/permits/green-building/living-building-pilot>

<https://www.bdcnetwork.com/seattles-bullitt-center-influencing-codes-and-public-policy-sustainability>

<https://trimtab.living-future.org/blog/city-of-seattle-was-the-first-city-in-the-u-s-to-incentivize-living-buildings-further-continues-the-living-building-pilot-program/>



ENERGY

LIVING BUILDING CORE REQ'S

ENERGY + CARBON REDUCTION

- No Combustion Allowed (Including Generator, battery backup is encouraged)
- All projects must meter energy used by the project
- All projects must be designed to be NET-ZERO READY for future installation of electric vehicle charging and renewable energy systems
- Energy Reduction: 70% below Baseline

Baseline:	172 kbtu/sf/yr
Goal:	52 kbtu/sf/yr
Current:	61 kbtu/sf/yr
- Renewable energy must be on-site in order to count toward reduction
- New projects must demonstrate a 20% reduction in the embodied carbon of primary materials compared to an equivalent baseline.



NO COMBUSTION

All systems to be electric, including kitchen equipment. The team will be seeking an exception for gas-fired cooking for cultural cooking for the Tandoori grill.

GROUND-SOURCE HEAT PUMP (GSHP)

most cost-effective and efficient approach to meet the Living Building Energy targets Traditional GSHP would require 150 shallow, horizontal wells to meet the programmatic energy needs of this project whereas a deep-well Darcy GSHP system would require 2-3 wells, and require significantly less space.

A standard Darcy well provides up to 420,000 Btu's, but we can install a double well to get up to 720,000 Btu's per well.

Darcy Well Information:

Water only
 Each well has a well pump on a VFD
 Each well will be separately brought back into the building an connect to a building header
 Typical loop delta T is 8°F, can get up to 15°F.
 Average ground loop temp: 52°F
 Min return water temperature: 34°F

Criteria:
 50' setback from sanitary and storm sewers
 20' setback from natural gas
 3' setback from building
 10' setback from overhead power lines (no overhead obstructions)
 No vertical tunneling through building. (Must be surrounded by dirt)
 Service truck is 1/2 ton pickup with a boom, 9' wide
 Distance between wells is 35-50'
 We can do double wells to get up to 60 tons of cooling from one well
 System requires header within building. I.e. piping along wall approx. 10' long.

BIODIGESTER

Waste Water Panel C5 Aerobic Digester w/ hopper
Cost Estimate: \$200,000 (equipment, shipping, some install cost)
 Size: 148" long x 67" wide x 60" tall (91" when door open)
 Continuous operation, fully-insulated shell
 Max Input capacity: 5,000 liters / week
 Motor Power Ratings: 0.75kW
 Heater Thermal Power: 12 kW total
 Electrical Usage: Approx 40,000 Kwh / year
 Required Power Supply Options
 3 Phase | 480 V | 25 A
 3 Phase | 240 V | 63 A
 3 Phase | 208 V | 63 A

Contact

Kim Shelquist
 Waste Water Panels
 shelquist@wwpllc.com
 (612) 300-2910
 (844) 997-5520

SEE ALSO ATTACHED EXHIBITS

- Emanuelson-Podas MEP Narrative
- Schuler Shook

HEALTH + HAPPINESS

LIVING BUILDING CORE REQ'S

HEALTHY INTERIOR ENVIRONMENT

- Comply with current version of ASHRAE 62
- Daylight and views for 75% of occupants
- Create Healthy Indoor Environment Plan framework
- Provide direct exhaust for kitchens, bathrooms, custodial spaces
- Building to be Smoke-free

Solar Carve - LEED Gold

Arch: Studio Gang

Solar Carve



Location
New York, NY

Status
Built 2019

Client
Aurora Capital Associates and William Gottlieb Real Estate

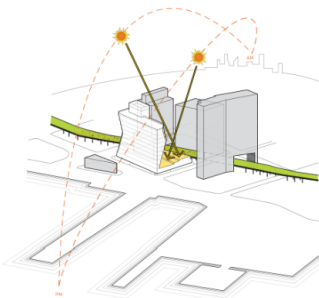
Type
Office

Size
145,500 sf

Sustainability
LEED Gold Certified

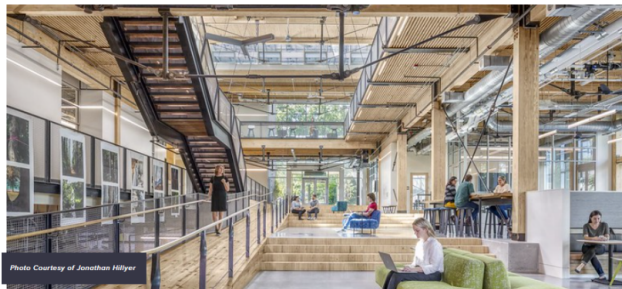
Tags
Beyond Transparent
Solar Carving

Sculpted by the angles of the sun, Solar Carve (40 Tenth Ave) explores how shaping architecture in response to solar access and other site-specific criteria can expand its potential to have a positive impact on its environment. Located at the edge of Manhattan between the High Line park and the Hudson River, the building takes its unique form from the geometric relationships between the allowable envelope and the sun's path.



Kendeda Building - Living Building Certified

Arch: Miller Hull



MATERIALS

LIVING BUILDING CORE REQ'S

RESPONSIBLE MATERIALS

- 50% of wood to be FSC, salvaged or on-site
- 20% of materials budget must come from within 300 miles of site
Divert at least 80% construction waste
- 1 Declare label product per 2,150 sq ft (up to 20 distinct products from at least 5 different manufacturers)
<https://declare.living-future.org/>
- Specify at least 1 Living Product



Declare.

Product Name
Manufacturer

Final Assembly: First City, State, Country; Second City, State, Country; Third City, State, Country
Life Expectancy: 50 Years
Embodied Carbon: # kg CO₂-eq =
Declared Unit: # m²
End of Life Options: Recyclable (95%), Landfill (5%), Take Back Program (Program Name/Location)

Ingredients:
Your First Component: Sustainably Sourced Ingredient;
LBC Red List Ingredient; **Your Second Component:**
LBC Watch List Priority for Inclusion; Non-Toxic Ingredient;
Undisclosed (<0.1%)²

Living Building Challenge Criteria: Compliant

I-13 Red List:
 LBC Red List Free % Disclosed: 99.9% at 100ppm
 LBC Red List Approved **VOC Content:** # g/L
 Declared

I-10 Interior Performance: CDPH Standard Method v1.2-2017
I-14 Responsible Sourcing: Product Available with FSC Chain of Custody

XXX-XXXX
EXP. 01.OCT 2021
Original Issue Date: 20XX

Third Party Verified

MANUFACTURER CLAIMS VERIFIED BY THIRD PARTY VERIFIED ASSESSOR
INTERNATIONAL LIVING FUTURE INSTITUTE™ living-future.org/declare

LBC Criteria Compliance demonstrates compliance with all Imperatives applicable to the selection of building products within the Living Building Challenge. If a product meets the requirements for all applicable Imperatives, the product is considered fully compliant with the Living Building Challenge, and will be noted as such on the Declare label graphic itself.

I-13 Red List requires that manufacturers disclose the ingredients and VOC content (if applicable) in their products to ensure that they are free of Red List chemicals.

I-10 Interior Performance requires compliance with the California Department of Public Health (CDPH) Standard Method v1.1-2010 (or international equivalent) for all interior building products that have the potential to emit Volatile Organic Compounds (VOCs). The Declare label confirms a product's compliance with CDPH or an equivalent emissions standard.

I-14 Responsible Sourcing requires that manufacturers of wood products demonstrate sustainable extraction through certification with the Forest Stewardship Council, by meeting ILFI's definition of low risk or salvaged wood, or through the use of a formal LBC Exception.

Third Party Verification indicates assessment by a professional third-party assessor to ensure the accuracy of the manufacturer's supply chain, purchasing, ingredient claims, LBC compliance, and embodied carbon if reported.

Final Assembly Locations are collectively represented on a single label.

Embodied Carbon (optional) discloses the cradle-to-gate impacts of manufacturing the product as reported by manufacturer-specific Type III Environmental Product Declarations.

End-of-life options: take back programs; salvageable or reusable in its entirety; biodegradable/compostable (%); recyclable (%); landfill (%); hazardous waste.

Ingredients are reported by component. Ingredients without restriction appear in grey; **Red List chemicals appear in dark orange; Watch List Priority for Inclusion chemicals appear in light orange.**

LBC Temporary Exceptions recognize specific market limitations and provide a compliance pathway for products to obtain LBC Compliance recognition.

Declare Identifier for company and product, valid for 12 months. **Original Issue Date** indicates how long a product has been a registered product in the program.



Living Product

PETAL	IMPERATIVE
PLACE	01. RESPONSIBLE PLACE
	02. HABITAT EXCHANGE
	03. LIVING ECONOMY SOURCING
WATER	04. WATER FOOTPRINT
	05. NET POSITIVE WATER
ENERGY	06. ENERGY FOOTPRINT
	07. NET POSITIVE ENERGY
HEALTH + HAPPINESS	08. RED LIST
	09. TRANSPARENT MATERIAL HEALTH
	10. HUMAN THRIVING
MATERIALS	11. RESPONSIBLE INDUSTRY
	12. REGENERATIVE MATERIALS
	13. NET POSITIVE WASTE
	14. NET POSITIVE CARBON
EQUITY	15. ETHICAL SUPPLY CHAIN
	16. EQUITABLE INVESTMENT
	17. JUST ORGANIZATIONS
BEAUTY	18. SOCIAL CO-BENEFITS
	19. INSPIRATION + EDUCATION
	20. BEAUTY + SPIRIT

CERTIFICATION SUMMARY MATRIX



- HANDPRINTING IMPERATIVE
- CORE IMPERATIVE
- REQUIRED FOR PETAL CERTIFICATION