



MINNEAPOLIS ROOT DISTRICT

Creating Net Zero Framework for a Climate Resilient Future



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Event sponsorship included NūLoop Partners, Cushing Terrell and JE Dunn.

ON THE COVER: The Root District boundaries. (Google Earth)



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About the Urban Land Institute

The Urban Land Institute is a global, member-driven organization comprising more than 45,000 real estate and urban development professionals dedicated to advancing the Institute's mission of shaping the future of the built environment for transformative impact in communities worldwide. ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific region, with members in 81 countries. ULI's extraordinary impact on land use decision-making is based on its members' sharing expertise on a variety of factors affecting the built environment, including urbanization, demographic and population changes, new economic drivers, technology advancements, and environmental concerns. Peer-to-peer learning is achieved through the knowledge shared by members at thousands of convenings each year that reinforce ULI's position as a global authority on land use and real estate. Drawing on its members' work, the Institute recognizes and shares best practices in urban design and development for the benefit of communities around the globe.

More information is available at uli.org. Follow ULI on [Twitter](#), [Facebook](#), [LinkedIn](#), and [Instagram](#).

About ULI Minnesota

ULI Minnesota was founded in 2001 to serve the Minneapolis-Saint Paul region and the state of Minnesota. Our members are involved in all aspects of the development and city planning process – private, public, and non-profit. Membership in ULI Minnesota includes the research and resources of the oldest and largest network of cross-disciplinary real estate and land use experts in the world.

We are led by our local membership and work to engage public and private sector leaders to foster collaboration, share knowledge, and influence meaningful strategic action in the responsible use of land to create and sustain thriving communities. The mission of ULI Minnesota is made possible by the generous contributions of time and talent made daily by our membership.

ULI District Council Leadership

Lynette Dumalag, Senior Vice President, JLL
District Council Chair

Stephanie Brown
Executive Director, ULI Minnesota

ULI Advisory Services: National and Global Programs

Since 1947, the ULI Advisory Services program has assembled well over 700 ULI-member teams to help sponsors find creative, practical solutions for complex land use challenges. A wide variety of public, private, and nonprofit organizations have contracted for ULI's advisory services. National and international panelists are specifically recruited to form a panel of independent and objective volunteer ULI member experts with the skills needed to address the identified land use challenge. The program is designed to help break through obstacles, jump-start conversations, and solve tough challenges that need an outside, independent perspective. Three- and five-day engagements are offered to ensure thorough consideration of relevant topics.

An additional national offering is the project analysis session (PAS) offered at ULI's Fall and Spring Meetings, through which specific land use challenges are evaluated by a panel of volunteer experts selected from ULI's membership. This is a conversational format that lends itself to an open exchange of ideas among diverse industry practitioners with distinct points of view. From the streamlined two-hour session to the "deeper dive" eight-hour session, this intimate conversational format encourages creative thinking and problem solving.

Learn more at americas.uli.org/programs/advisory-services.

ULI Advisory Services identify creative, practical solutions for complex land use and development challenges.

Technical Assistance Program (TAP)

Urban Land Institute harnesses its members' technical expertise to help communities solve complex land use, development, and redevelopment challenges. Technical Assistance Panels (TAPs) provide expert, multidisciplinary, unbiased advice to local governments, public agencies, and nonprofit organizations facing complex land use and real estate issues. Drawing from its professional membership base, ULI offers objective and responsible guidance on various land use and real estate issues ranging from site-specific projects to public policy questions.

The Net Zero Imperative

Thanks to a generous gift from Owen Thomas, ULI has launched the Net Zero Imperative – a multi-year initiative to accelerate decarbonization in the built environment. Additional gifts from Lynn Thurber, Joe Azrack, Franz Colloredo-Mansfeld, and Dan Cashdan further support and bolster the NZI program's scale and impact. Work to advance the initiative includes technical assistance panels in five global cities each year, designed to help developers, building owners, cities, and other relevant constituents reduce carbon emissions associated with buildings, communities, and cities. The fundamental goal of the effort is to provide concrete ideas and strategies to real estate owners, public sector leaders, and the general public to eliminate carbon emissions from the built environment to reach net zero. Through its work, the initiative will create global resources (research, toolkits, and other tools) to help all ULI members accelerate decarbonization in their real estate operations and in their cities.

Technical Assistance Panel and Project Staff

As organizer of the Root District Net Zero Imperative Technical Assistance Panel (TAP), ULI Minnesota convened a panel of volunteers representing disciplines including community development, architecture, urban and environmental planning, and renewable and district energy. Panel members were selected who possess professional expertise relevant to the objectives for this TAP, with a special focus on the Root District. The following individuals served as TAP panelists:

Panel Members

Keith Baker, TAP Co-Chair

Executive Director
ReConnect Rondo

Yolanda Cole, FAIA, TAP Co-Chair

Senior Principal
Hickok Cole

Beth Elliott

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AEON

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Timothy J Griffin, FAIA, LEED AP

University of Minnesota Design Center
Root District Tour Guide

Acknowledgements

ULI Minnesota is grateful to NūLoop Partners for their leadership, assistance, and support of the information gathering critical to the success of this intensive study and the role many other community members and organizations played in orienting the panel, both local and national members, to their respective city geographies, opportunities, and challenges.

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View of Green Line LRT construction through the Root District.

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The Root District TAP panel discussing their recommendations.

EXECUTIVE SUMMARY

The NūLoop Partners, a partnership focused on facilitating the transformation for a region of Minneapolis, has been working to formulate a plan for the development of the Root District in Minneapolis. Given the sustainable vision for the Root District's future, the district was selected to participate in the Urban Land Institute's (ULI) Net Zero Imperative, which is a global initiative to decarbonize the built environment. With the help of ULI and NūLoop working groups dedicated to this district, a group of local and national experts was gathered to participate in a ULI technical assistance panel (TAP) for the Minneapolis Root District.

This TAP panel focused on the 115-acre site that is the Root District near downtown Minneapolis. The goal was for the panel to provide guidance for the establishment of a flexible net zero framework that could be used by a variety of stakeholders in future decision-making for the development of the district. Experts and stakeholders met to discuss the complexities of the built environment, history, and community of the district in order to compose a plan for the implementation of an equitable net zero framework that meets the community's needs.

The recommendations of the panel focused around three key themes; equity and community engagement, district strategy and renewable energy and public tools, policy and the business case for net zero. The panel understands that many of the recommendations will require capital resources that are not currently included within NūLoop Partners budget or that of the City of Minneapolis or Hennepin County. The report is intended to provide a roadmap of ideas for the organizational and governmental partners to prioritize as a team and agree upon next steps.

Equity & Community Engagement

The built and human geographies of the Root District provide a complex physical and social landscape to navigate. A history of inequities and displacement forms the narrative for the marginalized communities that have lived in this area and the surrounding neighborhoods. Bridging the gaps and finding ways to help build trust for members of this community will be important for the overall success of the community engagement process for the Root District.

The panel recommended that for a net zero strategy to be successful in the Root District, equity be at the forefront of decisions. Key steps should include:

- Defining what equity means in the Root District.
- Identify and engage key community and stakeholders within the Root District and the broader neighborhoods impacted by change in the area.
- Hire a qualified and respected community engagement consultant to focus on equity in the Root District.
- Establish an equity system framework and evaluate the value of community benefits agreements.

District Strategy & Renewable Energy

The path to net zero district energy will require several strategies beginning with establishing energy efficiencies whenever possible and then tapping into various renewable and efficient energy resources. The panel recommended that this can be accomplished with a combination of methods:

- Smaller onsite renewable energy production like solar arrays
- Partnership with utility companies whose energy production methods align with the district's net zero goals
- District-wide heating and cooling

A two-pipe district heating and cooling system was determined by the panel to provide an efficient, resilient, and sustainable district energy solution for the Root District initially. This system's value and flexibility benefits seem to indicate that this type of system would align well with the

district's goals and existing resources, however a formal study should be completed to assess the cost implications and feasibility of implementing this type of energy system in the Root District. There are many considerations to keep in mind for effective integration with sustainability goals, development plans, and existing infrastructure. In addition to commissioning a study, it is recommended that public/private partnership options be explored and a district decarbonization commission be established.

Public Tools, Policy Oversight & the Business Case for Net Zero

Many forms of resources are available to help support the type of net zero framework and development for which the Root District is striving. In order to effectively establish a net zero framework and utilize resources the district itself must be formalized, with boundaries recognized by the City of Minneapolis and Hennepin County.

It is recommended that the City follow an EcoDistrict framework as a first step to determine applicability of policies and regulations that currently exist within the City's Climate Action and 2040 Plans. Gaps between the existing regulation and the desired net zero outcome should be identified and mitigated. An Alternative Urban Areawide

Review (AUAR) can then serve as a powerful tool for assessing multiple models for development and the impact that each model has across various metrics.

The key to gaining momentum and maintaining it for this district's development will be the engagement of champions to support and further the district vision. A catalyst project supported by champions and key stakeholders will help to get development started in the area. It's important that the risks be reduced for the pioneering developer behind this initial project to make this development feasible, and there are various financial mechanisms to back this.

Next Steps

Moving the Root District forward on its goal to establish a net zero, equitable, and vibrant district will require action related to community engagement, district energy, and public tools and policy. Individuals must be engaged to fill the crucial roles of community engagement consultant and district champion. Several studies are recommended including a district energy feasibility study and an AUAR and ecosystem evaluation of the Root District. Finally, the opportunities presented by the Farmers Market and food culture already established in the area can be leveraged to facilitate growth and integration into the district's vision for the future.

INTRODUCTION AND BACKGROUND

Overview

In July 2021, ULI launched the global Net Zero Imperative to help accelerate market transformation toward a net zero built environment, defined as a building portfolio that is highly efficient and fully powered by on-site and off-site renewable energy sources. ULI's Net Zero Imperative (NZI), funded with generous support from ULI member Owen Thomas, supports the work of local communities seeking concrete ideas and strategies for real estate owners, public sector leaders, and the general public to eliminate carbon emissions from the built environment and reach a state of zero net carbon emissions.

Why is it important?

Over the past five years, nearly every country and more than 300 US cities made a commitment to achieve the Paris Climate targets. As of 2020, only a handful of cities have made meaningful progress in developing climate action plans that will accelerate decarbonization of the built environment. Yet cities, countries, investors, and tenants are still looking to the buildings sector to meet comparable greenhouse gas reduction goals.

Leading investors are including environmental, social, and governance (ESG) goals in their real estate debt and equity considerations, leading tenants are including it in their leasing decisions, and regulators are incorporating a path to net zero into building codes and regulations for new and existing buildings.

Net Zero Imperative Goals

Using ULI's trusted Technical Assistance Panel (TAP) program, eight cities across the globe are working to achieve the following NZI goals for their community:

- Accelerate the decarbonization of the built environment;
- Chart a cost-effective path to net zero for the real estate industry;
- Leverage the power of ULI's global network to drive development and investment that supports this path to decarbonization;

- Get the private sector working hand-in-hand with cities on policy and incentives that can help accelerate investment in decarbonization; and
- Develop case studies and tools based on global best practices highlighting cost-effective strategies across geographies, asset classes, and building types.

ULI's Role in Driving toward Net Zero

As a global organization focused on transformative impact in communities worldwide, ULI has an important role to play in action toward a net zero built environment.

- **Deep Network.** ULI has a deep network in cities across the globe and can bring leading experts on net zero together with the architects, builders, owners, investors, and policymakers who can make meaningful progress on decarbonization.
- **Private Sector Leadership.** ULI is a steadfast leader in these cities throughout changes in government leadership or sentiment on climate. ULI is building capacity, interest, and investment in the private sector, building momentum towards decarbonization that will be sustainable. Additionally, through ULI's local district council network, it can provide connections, convening power, and local awareness in ways other organizations cannot.
- **Cohort Engagement.** As a global organization, ULI builds cohorts that help local leaders get the resources they need to succeed in their decarbonization

efforts. ULI’s goal is to connect local leaders with technical experts to work through the mechanics of decarbonization and connect local leaders with a global network of architects, developers, investors, and land use planners who can help move the industry forward on their goals.

Minneapolis was selected as one of eight cities to advance the energy performance of buildings through the NZI. The other cities include Austin, Texas; Kansas City, Missouri; Los Angeles, California; San Jose, California; Shenzhen, China; Beijing, China; and Toronto, Canada. The multi-year cohort model will allow these cities the opportunity to collaborate and share best practices and collective resources. For Minneapolis, the NZI also supports the funding of this study, bringing national and local expertise to advise on the creation of a district guide. This district guide will act as a net zero framework to inform decision-making related to climate impacts for the Root District. The guide will take a multi-pronged approach to provide actionable solutions that respond to the four goals of the Root District’s mission and vision: racial justice, economic opportunity, innovation and creativity, and collaboration.

Supporting ULI in this Minneapolis study, the NūLoop Partners is a partnership that has been providing a private and public forum since 2006 to facilitate the transformation for the region of Minneapolis that includes the Root District and communities adjacent to it. As part of its more recent efforts to address development in the Root District, the NūLoop Partners organized three work groups: Equity, Creativity, and Climate. NūLoop Partners and these work groups have played a key role in supporting and informing the work of the ULI Minneapolis study.

About Minneapolis Root District

What is the Root District in Minneapolis? The Root District is an industrial area anchored by the Minneapolis Farmers Market and the forthcoming Green Line LRT extension Royalston Station currently under construction. The Root District is comprised of an area approximately 115 acres in size. This area adjacent to Target Field will provide for one of the best opportunities in Minneapolis over the next 25 years for innovative and equitable development at a district

scale that has the potential to harness the power of food, art, and culture. The forthcoming light rail station stop is expected to greatly increase land values and development pressures. It presents an opportunity to showcase a more equitable, affordable, and sustainable approach to urban development, with the city owning over 30% of the land and with no permanent residents.

The Root District long term vision is to be a destination in the Twin Cities that exemplifies a development and community building model inclusive of racial, economic, social, and climate equity. It is envisioned that the Root District will empower a diverse group of stakeholders to co-create the future of the district by using the following goals around racial justice, economic opportunity, innovation and creativity and collaboration to guide the design, planning, construction, and community life.

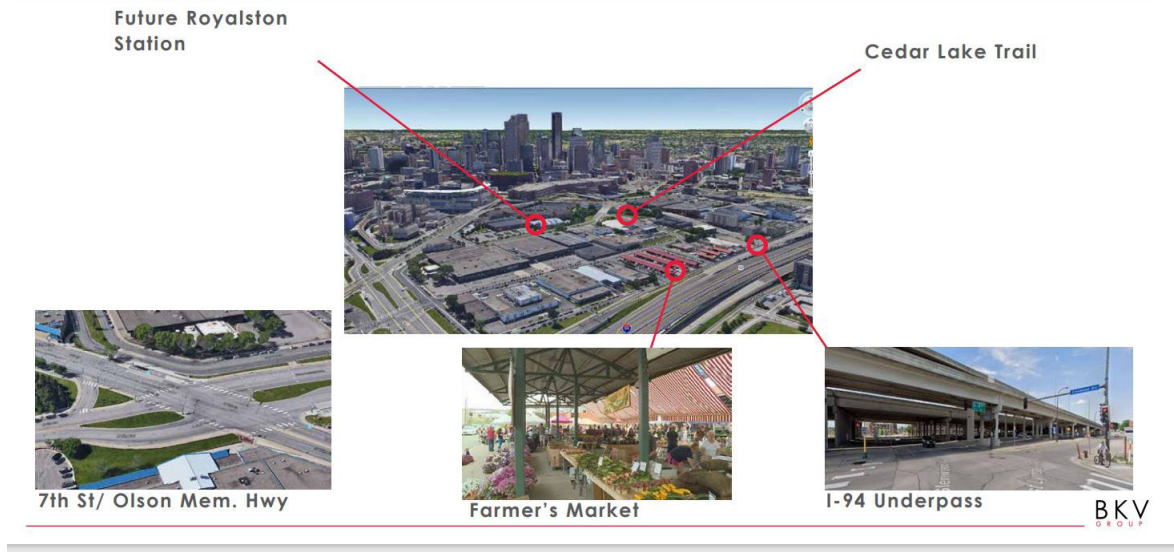
Minneapolis Root District NZI Study Scope

Though the insights gained through this study will hopefully be useful in guiding district-level net zero frameworks in other cities, the scope of this study concentrated on the geographic region identified as the Root District. The area is approximately 115 acres and is adjacent to the North Loop and Target Field in Minneapolis. This study sought to tackle the broad range of topics that must be addressed when creating a district-level net zero framework, including financing, regulation and incentives, and engagement and equity. The goal was to create a district guide that will



The Root District boundaries are Interstate 94 to the west, the Cedar Lake Trail and Twins Way to the south and east to 7th Street, and 6th Street and Floyd B. Olson Memorial Highway to the north.

SITE CONDITIONS



serve as a flexible net zero framework for community members, developers, and City of Minneapolis and Hennepin County partners and policymakers to utilize in decision-making related to climate impacts for the Root District. The TAP panel for the Minneapolis study consisted of local and national experts who contributed expertise in the areas of sustainability, architecture, engineering, energy infrastructure, urban planning, community advocacy and engagement, affordable housing, operations and maintenance, real estate, finance, and development.

Questions for the Panel

1. Community Engagement and Equity: What engagement strategies are necessary to ensure voices are heard and representation from the community is brought to the decision-making table? Who are the key partners and what are the best communication methods to highlight the district strategy goals to the community?
2. District Strategy and Renewable Energy Preparedness: What are the core elements and implementation considerations for a district-wide energy/water master plan and net zero framework? What are the optimum outputs and partnerships needed to capitalize on the renewable amenities to create a system approach for budgeting and financing? How and what is the phasing plan as development intensifies?

3. Public Tools and Policy Oversight: Recognizing the District is not owned and controlled by any one single entity, what combination of regulation, incentives, and collaboration strategies is needed to move Net Zero development forward in the Root District? What are the city and county tools and strategies (financing, compliance, entitlements, etc.) necessary to ensure that a district strategy is aligned with the city and county climate goals?
4. Business Case for Net Zero: Identify key parameters for a cost-effective path to net zero for the real estate



Root District panel discussion.

industry and investment in the Root District. What are the incentives and financial models to improve the business case for a high-performance district? What are the metrics to guide independent agencies/owners to collaborate in a district strategy?

TAP Process

The TAP process, objective and instructive by design, equipped the panelists with briefing materials prior to the TAP work session, tours of related geographies and sites, and interviews with key stakeholders to help further inform the panel around the issues for this district. The panel went on a walking tour of the Root District guided by Tim Griffin from the Minnesota Design Center to gain a better understanding of the district’s character, form, opportunities, and challenges.

The stakeholder interviews provided the panel with input from over 20 city/county professional staff, area business owners, property owners, developers, utilities, community organizations, and architects. The insights from these interviews deepened the panelists’ knowledge of the area and the perspectives of its stakeholders. This feedback helped frame the context of the district and informed the approach that the panelists took when making their recommendations for establishing a district-level framework.

ULI



Root District walking tour.

Several themes began to emerge during the interview process that helped to inform the panel recommendations. Additional comments from stakeholders surrounding these themes can be found in the Appendix.

Bigger than Net Zero

Net zero is only one of the goals for the area that requires considering many other community and development factors; influencing future development and the Root District goals.

When it comes to developing a framework for sustainable development at a district level, net zero is not the only consideration stakeholders are interested in. A variety of topics were discussed as stakeholders spoke about their priorities and their vision for the future of the Root District. The broad scope of these topics can be summarized succinctly by the Minnesota Department of Transportation’s (MNDOT) Livability Framework. A representative from MNDOT participated in the stakeholder interviews and described this framework, which was developed through their extensive community engagement efforts in other locations.

The framework encompasses the seven key principles that MNDOT has found communities desire and expect for their spaces. The seven principles are health and environment, economics, sense of place, safety, connections, equity, and trust. These principles capture the essence of the conversations throughout the TAP process.

Though many of these ideas heard by the stakeholder were not directly related to net zero, there are certainly places where these interests overlap with sustainability goals. The benefits that accessibility, green space, and safe and healthy environments provide to residents and communities extend beyond impacts to just the individual. These characteristics can often be tied with the concept of 15-minute city where all the needs of the community can be met within a 15-minute walk, bike, or public transportation trip. By creating spaces that people can and want to stay in, people don’t feel the need to constantly leave that space to get those needs met elsewhere. This leads to reduced emissions for a healthier planet while also supporting the need for healthier communities that can be enjoyed



Root District TAP presentations.

by all, including vulnerable and marginalized groups. This emphasizes the intersectionality of all the goals and desires expressed above. One strategy can be multifaceted and, by leveraging this, areas like the Root District can achieve net zero goals without leaving these other important factors of community development behind.

Inclusivity and Representation

Given the Root District's history of industrial use and major roadways impacting BIPOC and low-income residents in the area, the conversation of inclusivity and equitable representation were a particular focal point for many of the stakeholders that were interviewed. Stakeholders stressed the importance of the Root District being equitably accessible regardless of race, age, socio-economic status, ability, or mobility. Community engagement will be imperative to achieving this goal, though it was also acknowledged that engagement efforts have been challenging so far due to the distrust and fatigue that many in the marginalized communities connected to this area seem to be experiencing.

Flexibility and Adaptability

The design of a net zero framework must consider short and long term adaptability of the system and must be flexible to future compatibility and improvements in

systems. In pursuing an endeavor that will require a substantial amount of time to become fully realized, flexibility and adaptability are crucial to the long-term success of the area. The key feedback that stakeholders provided in this regard is that one solution will not fit all and the potential for change over time should be accommodated and embraced.

Timelines and Order of Operations

Moving toward a net zero framework takes time. Phasing of development while considering existing uses will be important. According to stakeholders, the overall timeline and the order in which development occurs will have a major impact on the atmosphere of the area, the implementation of policy, and the minimization of perceived risk for investors and developers.

Value and Economic Stability

Considering risks and rewards related to how a large redevelopment evolves will be important to consider. Providing too little too soon or too much too late will have an impact on success and the economic future of the district. The economic viability of district-wide development serves as a metric of feasibility and success for both developers and community members. The key to creating a thriving district will be balancing the incentives

for investment and development in the short-term without compromising the long-term economic stability of the area. It's a conversation of risks: the risk of community members being forced out due to the gentrification cycle and the risk of investors and developers not seeing enough value or incentives to justify continued development, which is required to sustain the long-term vision for this district.

Importance of Partnerships

Establishing partnerships early and often is the best approach to ensure that the goals and outcomes are consistent and achievable. The Root District's location places it in a strong position to make use of various partnerships. Private and public partnerships can provide support in a way that neither group could offer on their own. Local education programs like Dunwoody, St. Thomas, and STEM programs offer opportunities for involvement and collaboration as well. Finally, established hubs like the Minneapolis Farmers Market and the Black Market – a marketplace that supports black businesses and entrepreneurs – provide partnership opportunities with the existing community of the Root District. Such partnerships can be mutually beneficial. With partnership, new development can become more seamlessly integrated with existing and established community assets and hubs like the Farmers Market and Black Market can be incorporated in the future vision for the district in a manner that aligns with their goals.

Energy Opportunities

The district is rich in energy opportunities which should be connected and capitalized on. Several key energy players in the area provided insight into the existing infrastructure and potential programs and pathways for the district to move towards a net-zero district-wide energy solution.

Panel Recommendations

The panelists' recommendations are focused around three specific areas.

- A. Ensuring equity in future development and effective community engagement.
- B. Establishing a district energy strategy that incorporates renewable energy.
- C. Examining public tools, policy oversight, and the business case for net zero.

EQUITY & COMMUNITY ENGAGEMENT

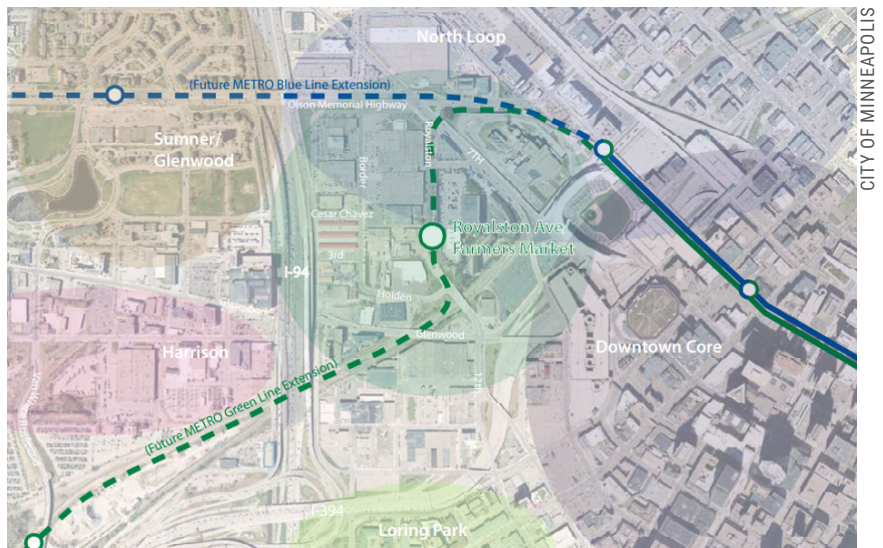
The Built and Human Geography of the Root District

The potential human impact of the Root District extends beyond the boundaries of the district itself. Various areas surround the Root District: North Loop, Downtown Core, Sumner-Glenwood, Harrison, and Loring Park. While all these areas have adjacencies to the Root District and could be impacted by its development, the Sumner-Glenwood and Harrison neighborhoods are likely to experience the greatest impact. In addition, the historical inequities in these neighborhoods should be considered part of the overall planning even though they are not within the Root District direct boundary. The demographics of the neighborhoods directly west of the Root District make them particularly vulnerable to the pressures of gentrification, but also provide great opportunity for positive impacts if the Root District development is done well.

NūLoop Partners express concern that their previous community outreach efforts to neighborhoods adjacent to the Root District has not been entirely successful and that their engagement has not resulted in a good overall input from a cross section of interests. The panel recommends that further community engagement efforts by NūLoop Partners to make sure the vision for the Root District is inclusive and benefits the variety of stakeholders it will impact. A strong understanding of who the beneficiaries are will be influential in developing the Root District in an equitable manner for all. Different parties may have divergent perceptions as to who the main beneficiaries of this development should be, which will be an important challenge to address if the district hopes to grow and thrive in an equitable way.

Equitable Process

Equitable process has been defined by this panel as a process that ensures communities are heard, needs are identified, and district benefits flow



Current and future LRT/BRT Lines through the Root District.



Expanded boundaries for community engagement that includes the Bryn Mawr and Harrison neighborhoods.

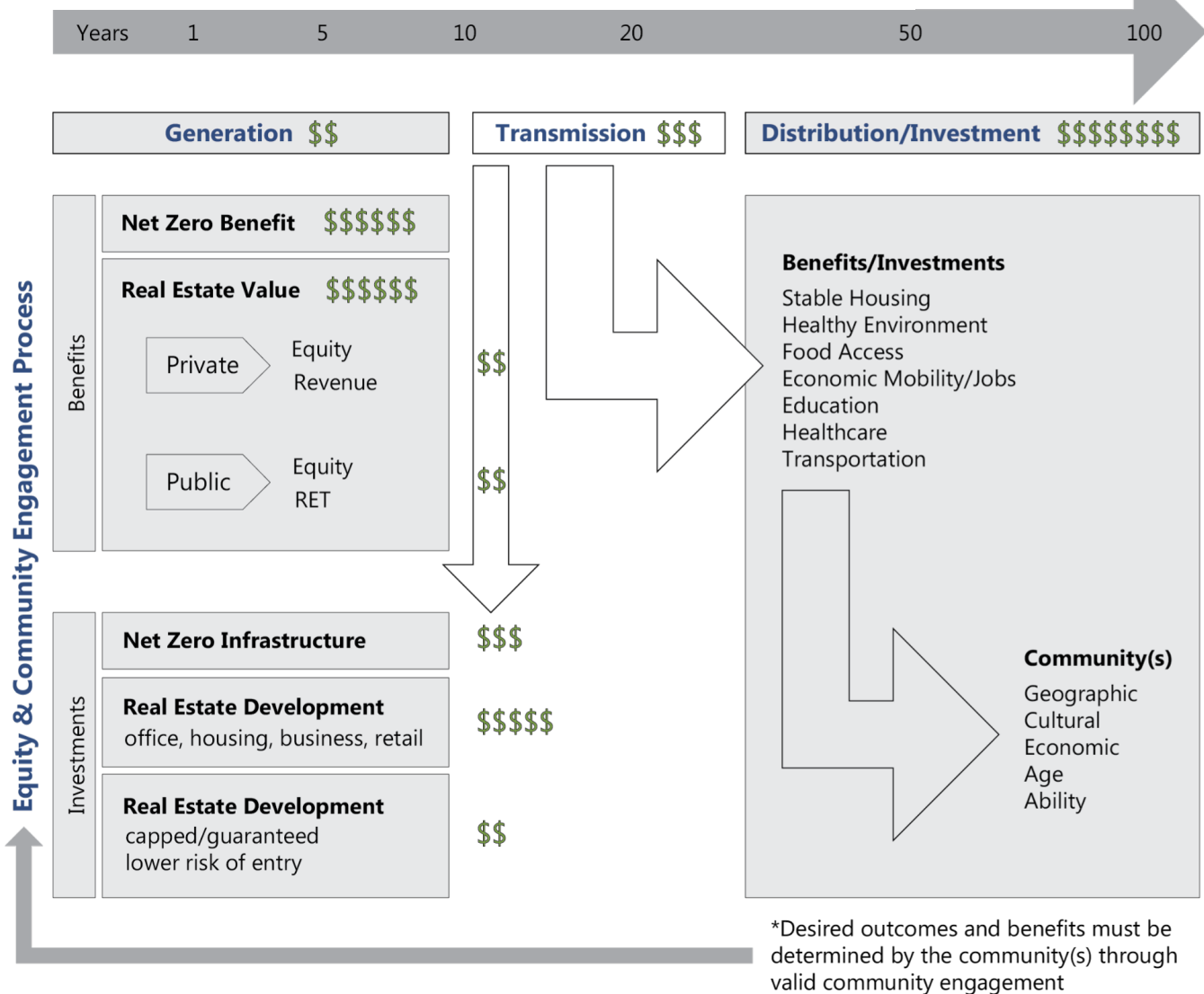
directly to the community so those needs are addressed over time. As part of this process, negative externalities and displacement must be actively and intentionally identified and prevented. Several key questions that need answers to facilitate this equitable process include:

- Who is the community and what is needed?
- Who are the stakeholders?
- What are the benefits and how do they translate directly to stakeholders and the broader community?



Panelist Keith Baker, Reconnect Rondo

Community Benefits System Diagram



Recommendations to ensure equitable development

The panel prepared a list of recommendations and a diagram of the conceptual framework they believe will support the Root District's goal of equitable development driven by strong community engagement.

1. Level-set by first defining what equity is and who the community and stakeholders are.
2. Onboard a credible consultant to help develop outreach and engagement strategies that overcome challenges, build connections, and identify needs.
3. Design an equity system framework that delivers direct benefits to stakeholders and the broader community over a multi-generational time horizon (see Community Benefits System Diagram for a conceptual mapping of this proposed framework).
4. Establish a Community Benefits Agreement that includes drivers/champions and an answerable mechanism/entity.

The Community Benefits System diagrammed above seeks to balance the initial risk taken by developers with enough return on investment to make development feasible, while still acknowledging that the majority of the value needs to flow directly to the community over time. Although the value-transferred timeline starts with the generation or development stage, it's important to note that the community engagement part of the process needs to lead the way toward equitable design.

The community must establish the long-term benefits and investments that they consider valuable prior to development, even though they do not see the direct value transmitted to them immediately. Only once those goals and priorities of the community have been determined through an equitable community engagement process should the development stage move forward.

Case Studies & Resources

[North Loop Root District Development Frameworks](#)

[Minnesota Department of Transportation's \(MNDOT\) Livability Framework](#)

[Case Studies in Transportation Equity in Philadelphia Region](#)

[A Just Public Realm for Pittsburgh](#)

[Urban Institute's Equitable Development and Urban Park Space](#)

[PolicyLink's Racial Equity Index](#)

The value transmitted to the community should be envisioned as a process over time that considers the multi-generational impacts that this development will have on the community. Rather than focusing only on the immediate and current beneficiaries, this model emphasizes the need for accumulated, multi-generational wealth that can support a healthy and stable community for decades beyond the initial development. One example of this could be the net zero aspect of this district design and how that inherently generates savings and value for decades to come. This conceptual framework intends to make sure the feedback and input provided by the community doesn't get lost or put aside as development begins in the Root District.

DISTRICT STRATEGY & RENEWABLE ENERGY

The goal of this project is to create a net zero district. The first step toward achieving this goal is focusing on energy efficiency. There are various programs and policies that support lowering the cost of operations for all-electric buildings such as Passive House or Minnesota’s B3 Sustainable Building 2030 (SB 2030).

Other factors on the path to net zero include onsite renewables, grid interactivity and electrification, and offsite renewables. One example of a local renewable energy source in the Root District is the solar panel array installed on the roof of the Glass House, which houses a glass blowing studio and event spaces for gatherings. As a one story building with a wide footprint and a large energy draw required to support the kilns in the glass blowing studio, the Glass House is a prime example of an effective onsite renewable energy solution that supplements its energy needs with solar and takes advantage of incentive programs to provide a short payback on the system.

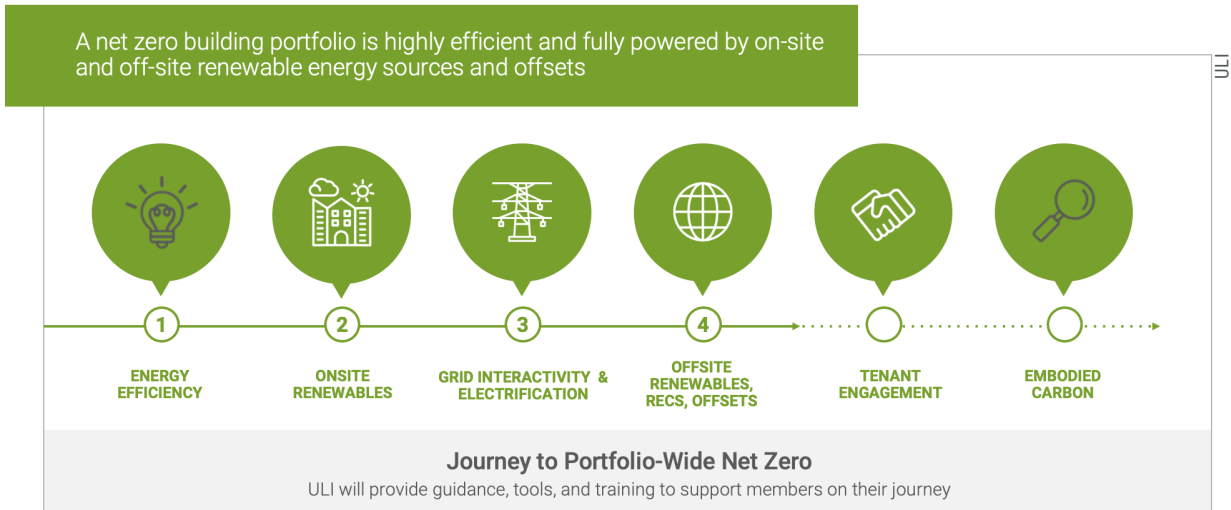
Both new and existing buildings can be an excellent match for renewable energy improvements since these improvements will always help offset the energy used. However, the significant factor in renewables impact is the buildings’ efficiency. Older buildings tend to be less efficient

than newer buildings unless they have gone through a major energy retrofit. So a system of the same size between the new or old building would likely have a more significant impact on offsetting energy usage in a new building.

The percent of energy offset is just really one factor. Older buildings are extremely valuable from an embodied carbon standpoint since renovating an older building will result in a lower carbon footprint than new construction. When looking at using renewables to offset the carbon footprint of a building, it would offset it faster in a renovated old building than in new construction.

Large southern exposure is the number one factor when it comes to characteristics that are a good fit for renewables. However, it is not the primary concern being able to orientate south solar results in the highest energy production and, therefore faster paybacks. Another characteristic that is often overlooked is the load profile

Net Zero Community Impact





Glass House Building located in the Root District.



View of the Solar Installation on the roof of the Glass House Building in the Root District.

of the building. With solar peaking around 12pm-1pm it works excellent with facilities with a similar peak. This similarity allows more energy to be utilized as it's produced rather than needing to be stored or exported to the grid. Not having to store or export as much will result in a lower system cost and a faster payback.

Multi-tenant buildings with a single electrical utility meter are good candidates for applying large scale Solar PV behind the meter generation. Buildings that have an individual electrical utility meter for each tenant can be challenging to apply a large scale Solar PV system. These

types of buildings usually require negotiating special metering provisions or a community type system to allow each tenant to benefit from the Solar PV system.

These general principles of net zero planning and design serve as a strong foundation to support the following proposal for a district energy system strategy that could be implemented in the Root District.

Plug and Play District Energy

Given the scale, long-term planning, and diversity of public and private ownership of this district-level development, the panel concluded that the most effective immediate path toward district energy is a "Plug and Play" strategy. The intent of this strategy is to be flexible, scalable, and resilient over time as development occurs.

The panelists propose using a two-pipe design that utilizes the energy resources already available in the community to serve as the primary heating and cooling system for the district. The Hennepin Energy Recovery Center (HERC) is a waste-to-energy facility located in the Root District, which has a massive amount of energy that could be put into this two-pipe district system. The waste burned in the boilers at HERC generates steam that turns a turbine to generate electricity. HERC produces enough electricity to power 25,000 homes. The electricity is sold to Xcel Energy. A portion of the steam produced is extracted after going through the second stage of the turbine and sent to the steam line interconnected with Clearway's district energy system that provides heating and cooling to downtown Minneapolis. The steam used for power generation and district energy is then condensed back to water and circulated to the HERC boilers, completing a closed-loop system. Cooling towers are used to condense the steam into water by rejecting heat to the atmosphere. This waste heat is available as a renewable source of heat for the district if this low-grade heat is utilized in a two-pipe system like the one being proposed. The heat currently being rejected via cooling towers at HERC could be used to provide a significant component of the heating needs in the district in a two-pipe system like the one being proposed.

The heat from the cooling towers is currently not being utilized and must be rejected from the cooling towers, making it an ideal source to be captured and used for district heating and cooling. The two-pipe district system would integrate this waste heat with building water-source heat pumps to supply buildings and developments throughout the district.

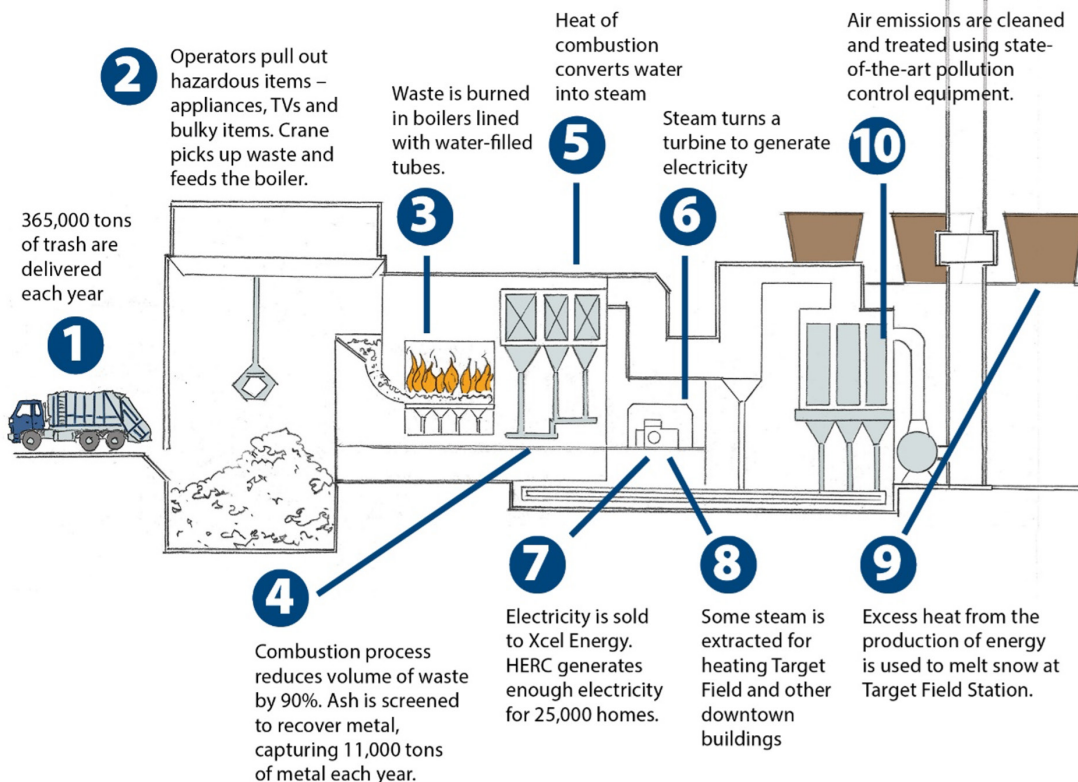
There are many benefits to this system that make it an attractive energy option for the Root District. The two-pipe system requires a lower up-front investment than a four-pipe district energy system would. Further savings can be gained by strategic coordination to reduce the cost of trenching, which is the main cost of such a system. These costs can also be shared across the whole district. As far as a cost-effective district solution goes, this system provides other money-saving benefits like providing large-scale snow melt opportunities for sidewalks, outdoor plazas, public

spaces, and roads. For a site located in a region as snowy as Minnesota, this can be especially beneficial.

Flexibility over time is another key factor to consider when assessing the value of implementing a strategy like this. Although the HERC provides a large-scale source of waste heat that can be utilized right away, the panelists acknowledged that this doesn't need to be the only solution. Whether it's determined that the HERC is not an ideal option for the district or if the facility gets retired years down the line, this system can be adapted to utilize a variety of different heat sources, making it more adaptable and resilient in the long run. Examples of other options that would work with this system include electric boilers, wastewater within the community, or renewable natural gas or hydrogen.

Just as system-wide flexibility is important to consider, so too is the design flexibility of its integration with buildings in

How HERC works



[HTTPS://WWW.HENNEPIN.US/-/MEDIA/HENNEPIN/US-YOUR-GOVERNMENT/FACILITIES/DOCUMENTS/HERC-FACT-SHEET.PDF](https://www.hennepin.us/-/media/hennepin/us-your-government/facilities/documents/herc-fact-sheet.pdf)

the district. The two-pipe system provides a relatively stable temperature source that buildings and developments within the community can use for heating or cooling by using a

Additional context on the HERC

The panelist acknowledges that the City of Minneapolis and state of Minnesota do not consider the electricity generated from the HERC to be a renewable energy source. The intent behind the panel recommending utilization of the HERC as a pathway to Net Zero is as follows:

1. As long as HERC is operating, waste heat will be made. This existing waste heat from HERC can be considered a free heat source for as long as it is available, with the intent of switching it over to more ground wells or other sources of renewable or waste heat as HERC is retired. This heat waste is currently being put into the environment via the cooling towers at HERC rather than being utilized to provide and capture a heat source for the Root District. Using waste heat for the district ground source heat pump loop would also reduce winter cooling tower plumes from HERC.
2. HERC's reliability is not district energy grade. And, any systems installed to utilize waste heat from HERC would need fully redundant back-ups in whatever form is ultimately utilized.

There is transitional and contextual opportunity with the HERC. While the electricity or steam from HERC is not considered renewable energy and is not currently being used in the Root District, the waste heat could be utilized as a pathway to Net Zero.

water-source heat pump. This can be applied to mixed-use development and integrates well with housing, office, and industrial buildings. It supplies low-cost renewable heating and cooling for individual developments, which is necessary for areas like the Root District with a variety of parcels falling under different public and private ownership. Other architectural benefits of this system are design flexibility, reduction of equipment space needs in a building, and easier operations and maintenance. When a building doesn't require its own equipment to be installed, that space can be returned to the building as additional revenue-generating space. It also frees up rooftops for things like rooftop spaces, a green roof, or a solar panel array since the building doesn't require space for rooftop heating and cooling equipment. These cost and flexibility benefits help to demonstrate the value that such a system could provide if implemented as the district-wide energy solution for the Root District.

With this proposal serving as a basis for inquiry, the panel recommends a formal study be commissioned. This study should look at:

- the costs of the system;
- the different energy players involved;
- the potential for public/private partnerships; and
- the strategy for how it can be scaled over time.

Phasing Strategy

As a long-term, large-scale planning effort, the design of the district-wide energy system needs to account for changes that may occur over many decades. Because the two-pipe district heating and cooling system is a low-temperature heating system, it can source heat from a variety of different processes if/when the main heat source for the system goes away and must be replaced with an alternative. The concept of this system is to be flexible and scalable over a drawn-out period of development phasing. The diagram below demonstrates what this looks like on a conceptual level. It should be evaluated and developed further as part of the energy system study, framework, and master planning for the Root District.

Implementation Considerations for a Net Zero District

When taking on the task of implementing a district-wide energy/water master plan within a net zero framework, there are several considerations to keep in mind. Specifically, a master plan should be integrated with the following:

- **Sustainability Goals**
 - » The framework should ensure the district energy system can provide sustainable, efficient, affordable, and resilient heating and cooling to a wide range of building types.
 - » The framework should be aligned with the City of Minneapolis and Hennepin County climate action plans.
- **Development**
 - » The master plan should include the two-pipe, low-temperature district energy network as a core element to allow for the utilization of local waste heat within the community and the incorporation and scaling of renewable energy resources over time as development intensifies.
 - » Mechanisms should be put in place to incentivize or compel development to connect to the district heating and cooling network to achieve community net zero goals.
- **Existing Infrastructure**
 - » Mechanisms should be provided for developers to easily interconnect existing buildings in the district with the district energy system.
 - » The HERC steam interconnect should be viewed as both a waste-to-energy source of heat and a backup/heating system resiliency.

Recommended Actions for a Net Zero District:

The panelists recommend the following actions be taken to move forward on a net zero district-wide energy plan for the Root District:

1. Commission a study to be completed for the district to evaluate the feasibility and conceptual costs for

a two-pipe district heating and cooling system that incorporates local and renewable energy sources.

2. Explore public/private partnership options and benchmark these partnerships against other district heating and cooling networks in the U.S. and Europe.
3. Establish a district decarbonization commission to manage further energy planning studies, policy making, and procurement processes.

Case Studies & Resources

[ULI Report: Decarbonizing the Built Environment](#)

A key resource to start the process is the ULI Greenprint Center Report: Decarbonizing the Built Environment providing 10 principles for climate mitigation policies. The report serves as a starting point for cities interested in engaging real estate leaders during the shaping of climate mitigation policies, and for real estate organizations to increase their understanding of the potential impact of these policies—providing useful tools to help city officials and those in the real estate industry engage with each other in a meaningful and ongoing way.

[Integrating Low Temperature Renewables in District Energy Systems](#)

[21st Century Development Matrix](#)

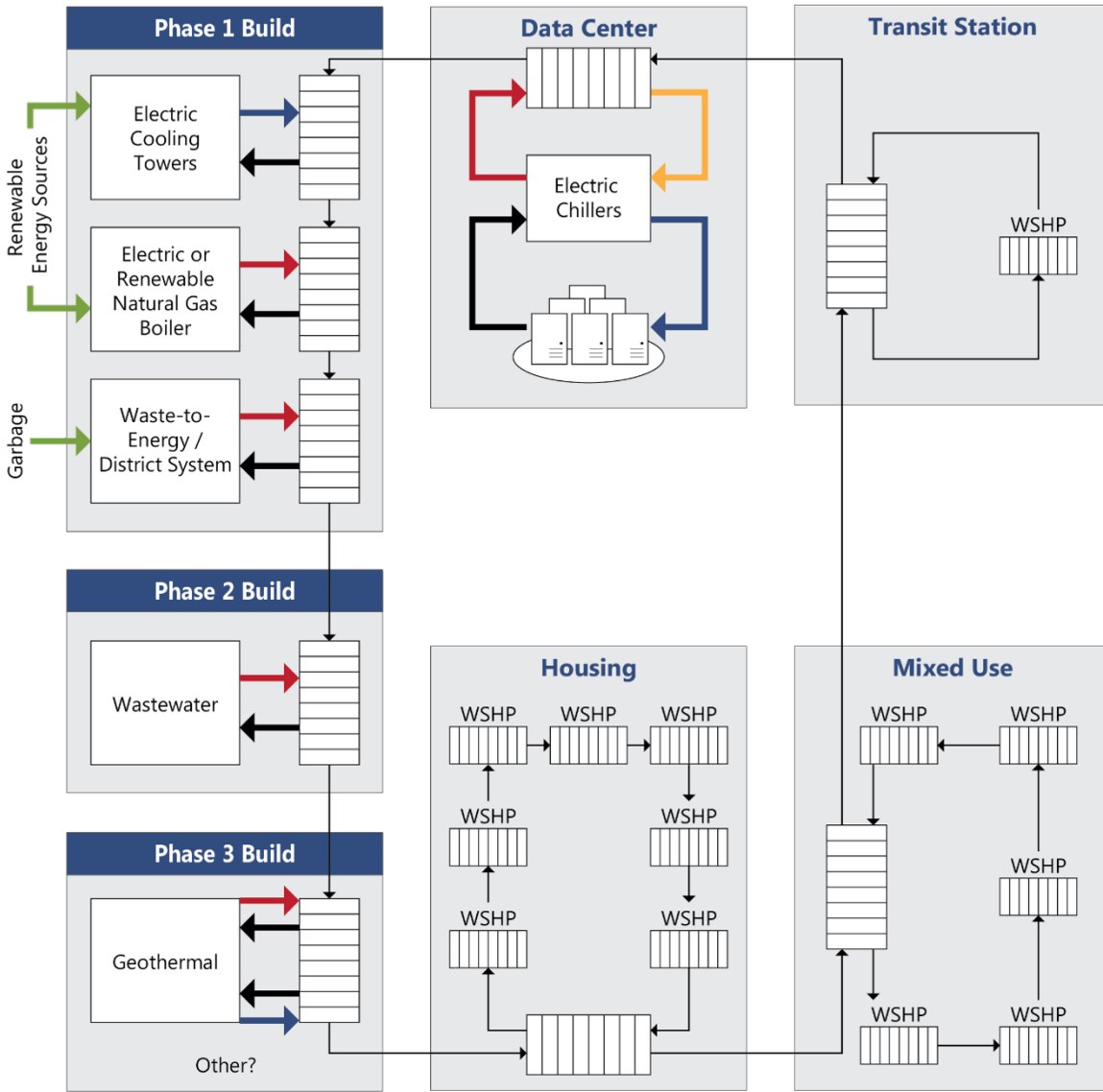
A useful guide to help identify where policy or funding barriers lie along the spectrum of achieving a fully regenerative development.

[Partners in Energy Program](#)

A program that supports communities in developing and implementing an energy plan, and a possible funding source for the district’s energy feasibility study.

[Xcel Energy – Renewable Energy](#)

Minneapolis Root District: Two-Pipe District Energy / Heat Pump Concept



District Heating and Cooling (DHC) Two-Pipe Water Source Heat Pump (WSHP) Loop

- Provides sustainable / efficient / resilient heating and cooling in a wide range of building types
- Interconnected with Hennepin County waste-to-energy and Clearway district steam for backup reliability
- Integrated with local utility renewable energy programs / sources
- Lower DHC first cost due to two-pipe distribution system design; distribution loop temp range 60F - 90F
- Utilizes proven, efficient WSHP technology that provides building design flexibility
- Allows for building hybrid system designs for unique requirements (e.g. data center)
- Integrated system-level controls for end-to-end optimization
- Flexible design structure to transition to more renewables and local / waste heat integration over time
- Scalable to allow for community growth and economic development
- Provides for public private partnership / policy framework to achieve community objectives

PUBLIC TOOLS, POLICY OVERSIGHT & THE BUSINESS CASE FOR NET ZERO

Formalize District Boundary for the Root District

The first recommended step to effectively engage with opportunities presented by public tools and policy oversight is to create a formal district boundary. There should be a shared vision and collective strategy for this district within this boundary. Because of its ability to require or incentivize people to be involved, a formal district boundary helps support the pursuit of the district's overall vision. A formal district boundary can be beneficial in procuring governmental grants and foundation funding. In addition, formal district boundaries provide specific context for branding and marketing.

One way that this boundary can be defined or envisioned is as an EcoDistrict, which operates as an oversight and process-oriented framework to have this net zero discussion. This framework is centered around the process itself rather than the outcomes. This process seeks to do the following:

- Uncover the district's vision;
- Form a collaborative (similar to the NūLoop Partners);
- Ask what the roadmap is to get to net zero; and
- Determine how performance will be measured.

Another local strategy that may be effective is to request that the Root District become what is known as an "Innovation District" through the City of Minneapolis. The goal of these innovation districts is to employ district-scale infrastructure and systems and to implement flexible policies and practices that allow for experimentation and innovation consistent with City goals. This would require a specific request to the City and a multi-step process. An example of an Innovation District in Minneapolis is the [Towerside Innovation District](#) that borders the City of Saint Paul.

Tools, Policy, and Programs

With the established boundary, the next step is to evaluate the existing policies and regulations. In the case of the Root District, some of the key examples would be the

Minneapolis 2040 plan and policies related to the light rail and station area planning. Once these policies have been evaluated, it's time to start thinking about where the gaps are. These may be things like green space, net zero, connections, or equity-related elements. These gaps represent the delta between the existing framework and the goal of reaching net zero, which provides a sense of what additional metrics may need to be assessed and captured.

The panel recommends evaluating the benefits of utilizing an Alternative Urban Areawide Review (AUAR) to move beyond the broader framework of the EcoDistrict and the guidance of existing policy. An AUAR is an environmental review that's used to test a development's impact on the environment for things like stormwater, traffic, wetlands, natural resources, or land-use intensity, among other things. It's intended for testing development that's greater than a single site, and it can assess phased development and collective needs that transcend property lines like wastewater and stormwater management. This state tool is governed by Minnesota statutes and rules and can be used to compare multiple development scenarios, which makes it beneficial for a project with the scale and complexity of the Root District. For the Root District's net zero development planning, the panel recommends using an AUAR to test what the Minneapolis 2040 plan looks like and then compare it to a district plan that is created based on the community engagement feedback. With these two base scenarios to compare, various factors and impacts can

be assessed to guide strategic adjustments. This process can help lead to a district-level strategy that meets the community's needs and accomplishes the district's net zero goals, while taking a broad range of factors into account.

Other tools that can provide guidance for this process include programs like Living Building Communities and LEED for Neighborhood Development. These systems are helpful in establishing specific metrics that can be applied to the types of mitigation strategies that are discovered through the AUAR.

In 2012, the City of Minneapolis amended the zoning code to expand urban agricultural land uses in all zoning districts allowing urban agriculture and market gardens. This will allow future development to incorporate additional food suppliers that builds off the existing farmers market. In addition, the City is in the process of developing a Food Action Plan to reduce food deserts and provide options for locally sources and affordable food choices. These actions will help the Root District in elevating the importance of equitable access to food sources and the protection and enhancement of the Farmers Market as a key goal in the area.

Finally, to support greater equity in the Root District, evaluations of alternative ownership structures and funding resources should be explored now rather than waiting until transformative development occurs in the district.

Key Players & Champions

Several entities play critical roles in making sure that development like what is desired in the Root District moves forward effectively. Currently, the business community appears to have strong involvement in the process, but many of the other necessary roles do not yet have a strong leader to act as a champion. This district is still somewhat lacking in specific leadership from grassroots engagement, political leaders, and pioneering developers. Engaging a political champion is one of the main leverage points that would help to move a net zero framework into action. To create a district with a collective vision for the future that looks beyond property lines, the Root District needs a strong champion saying that it must be that way. This champion usually comes in the form of an elected official.

This individual needs to be a strong planner with enough gravitas to get things rolling and guide the district forward.

Of course, even with a strong government leader to champion the district's development goals, there still needs to be a pioneering developer to take the first step in developing the area. The following section elaborates on the critical role this developer plays in moving this process forward and how they can be supported to make it happen.

The Business Case: A Catalyst Project

Once the previously discussed elements are all in place – the community has been engaged, a net zero vision has been established, studies have been performed, and collective action and strategies have been defined – then comes the crucial moment when development needs to begin. Though the Root District offers a great deal of potential, there is also risk involved for the first developer to stick their neck out and begin developing in this area. Given the importance of that first catalyst project that will spur future development and the risk involved for the developer who accepts that challenge, the panel recommends that the groups and champions engaged in this Root District development throw all their support behind that first pioneering developer. **Catalyst projects** are public or private projects that are planned and designed to cause a corresponding and complementary development reaction on surrounding properties. They are projects of sufficient magnitude to stimulate redevelopment of underdeveloped properties or major rehabilitation of underutilized buildings. This will help to reduce the risk for that early adopter and incentivize the first development. The reasoning behind this move has three primary driving factors:

1. Development will not occur if the risk is too great.
2. Spreading resources too thin is not effective and a more focused effort is likely to be far more impactful.
3. Everyone who follows this initial pioneer will benefit from the risk they took.

While support for this developer can come in a variety of forms, the panel focused primarily on several financial mechanisms that are in place and can be tapped into to drive this catalyst project. Agreements can be arranged

so that the developer in question is guaranteed that their application will be accepted if they apply for different funding through programs like Hennepin County's Transit-Oriented Development Grant, brownfield grants, Hennepin County Community Works, Active Living Funds, etc. This is the business case for moving the Root District development forward: one catalyst project that receives the support necessary to bring the district's vision into reality.

To effectively support the pioneering developer of this catalyst project, it's imperative that short-term realities are balanced with long-term vision. For example, net zero goals require a reduction in the reliance on single-occupant gas vehicles. However, if neither parking nor transit solutions are present in an area when that first project is kicking off then it can present a challenge to developers. How can stakeholders like the city or county help bridge gaps like this for catalyst projects? One option would be to ensure that transit or infrastructure are in place or committed to at the time of that first development. Another option for this example would be to provide special incentives for developers that limit over-building parking today to meet the goals of tomorrow. Stakeholders should support the pioneering developer to overcome challenges like this to balance the short-term realities with the long-term vision for the district.

Partnership with this initial developer to provide this funding and support can also offer opportunities to integrate public spaces and implement the community's vision. One example of this might be working with this first developer to establish a green plaza for their project. The area needs to be revitalized. This catalyst project is the way to make that happen.

Incentives & Financial Resources

The following is a list of development finance and public partnership tools that cities and counties can adopt and consider for redevelopment projects. Several of these tools may currently be utilized by the governmental entities, however reinforcing how they apply to the Root District and considering them as best practice resources are an important strategy that the panel believes should remain front and center as master planning and development unfolds.

- Land write-down by the city or county for publicly owned land
- Tax Increment Financing can support costs associated with land acquisition, contamination/demolition, open space / public realm, infrastructure, and parking, and affordability
- Tax abatement, credits, and incentives
- Renewable Energy Tax Credits
- Forgivable loans
- Federal or local grants
- Creation of a Special Service/Improvement district
- Allow height/density bonuses
- Provide flexibility in land use and zoning
- Expedite approvals and permits to:
 - » help address the difficulty developers have closing on land and going through a multi-year engagement process without knowing what the outcome of city approval process may be (land use or zoning)
 - » provide relief for developers working with private land sellers who may get tired of a developer continuously extending their contract and decide to go with another buyer instead
- Issuance of city bonds to help pay for public infrastructure

There are several green energy financing incentives as well. Some options for review include the following:

- The N.C. Clean Energy Technology Center provides a list of programs and resources by State. For Minnesota the programs and resources can be found here: [NC Clean Energy](#).

Next Step Actions: Public Tools and Policy Oversight

To take advantage of public tools and policy oversight and strengthen the business case for a net zero Root District, the panel recommends that the following actions be taken:

1. Create a formal boundary for the district.
2. Evaluate existing regulation and determine what gaps need to be addressed.
3. Model potential development scenarios using AUAR to assess the impacts of different development strategies.
4. Engage champions to lead and maintain momentum for a cohesive district vision.
5. Support a pioneering developer in their efforts to produce the first catalyst project for the district.



Root District area.

Case Studies & Resources

[Minneapolis 2040 Goals](#)

The Minneapolis 2040 goals are intended to state the plan's intent as clearly as possible, so that we as a city know what we are working to accomplish through the policies of the Comprehensive Plan. Goal number 10 references climate change resilience that is relevant to work in the Root District.

[SB2030 Minnesota Energy Requirements](#)

The B3 Sustainable Building 2030 (SB 2030) Energy Standard is a progressive energy conservation program designed to significantly reduce the energy and carbon in Minnesota commercial, institutional and industrial buildings. Eighty percent reduction below typical building EUI is now required.

EcoDistrict Information & Examples

EcoDistricts promotes a new model of urban development to empower just, sustainable, and resilient neighborhoods. The Protocol and EcoDistricts Certified guide city makers to take a collaborative, holistic, neighborhood-scale approach to community design to achieve rigorous, meaningful performance outcomes that matter to people and planet.

- [EcoDistricts Certified](#)
- [Towerside Innovation District](#) (Twin Cities, MN)
- [Talbot-Norfolk Triangle Eco Innovation District](#) (Dorchester, MA)
- [Sun Valley EcoDistrict](#) (Denver, CO)
- [Central Area Culture District](#) (Seattle, WA)
- [Sustainability Districts for NYC Summary](#)
- [Establishing 2030 Districts and Organizational Structures](#)

AUAR

The alternative urban areawide review (AUAR) process is a hybrid of the environmental assessment worksheet (EAW) and environmental impact statement (EIS) review processes. responsible governmental units (RGU) can use

an AUAR as a planning tool to understand how different development scenarios will affect the environment of their community before the development occurs.

[Living Community Challenge](#)

The Living Community Challenge is a framework for master planning, design, and construction. It is a tool to create a symbiotic relationship between people and all aspects of the built environment. <https://living-future.org/lcc/>

[The Essential Guide to Energy Efficiency Financing](#)

A guide has been developed to navigate the complex energy efficiency financial options. The guide provides answers to the most frequently asked industry questions and provides comprehensive understanding of energy efficiency financing.

[NYC Legislative Example: Utility Thermal Energy Network and Jobs Act](#)

NY Senate Bill S9422 was signed into law in July 2022 which establishes the Utility Thermal Energy Network and Jobs Act to promote the development of thermal energy networks throughout the state and provide jobs to transitioning utility workers who have lost or are at risk of losing their employment.

NEEP Green Zoning Report: Using Local Zoning to Achieve Community Energy Efficiency and Resiliency

Green zoning gives communities the ability to craft local zoning ordinances that emphasize investment in more energy efficient buildings, curb GHG emissions on the local level, and promote quality of life benefits. Green zoning is the use of zoning bylaws and ordinances to address sustainability, green building, and resiliency. The practice employs various strategies that promote the local context of zoning while addressing the energy, ecological, and climate impacts of the built environment. [Report Template \(neep.org\)](#)

IMMEDIATE NEXT STEPS

It's an exciting proposal to reimagine the Root District as a net zero district that strives for a sustainable future while embodying the community's needs and desires. It has the potential to greatly benefit the community it serves while also providing a model for how similar sustainable, community-driven district development can be implemented for other cities. The scale, complexity, and aspirations that have been outlined for this area will require patience and perseverance if a cohesive, thriving, and equitable community is to emerge from these efforts. While the task may appear daunting, these resources and next steps should provide advocates and champions with an understanding of where to begin and how to move forward.

Some of the steps discussed earlier in the report and recapped here will require other steps to be completed first. There are some action items, however, that can be tackled simultaneously. The following graphic presents the recommended order of operations for completing the steps necessary to advance the Root District's vision and redevelopment.

It's important to note that time is of the essence for this district. Making collective and coordinated efforts now will prevent the district's vision from slipping out of grasp if properties get bought up and redeveloped before the cohesive district visioning plan has been fully established. A cohesive plan is critical for achieving an outcome that supports the community's needs, incorporates net zero goals, and optimizes synergies that can be achieved at a district level rather than an individual parcel level.

Identify champion(s) to generate momentum

For this net zero district vision to move forward, one or several key champions need to be identified. These individuals are necessary to generate and maintain momentum, while also serving as a means to preserve the cohesive and overarching vision for the district that transcends property lines.

Hire a consultant for community ecosystem evaluation

A professional consultant needs to be hired to spearhead and guide the community engagement process. This consultant's role is critical for ensuring that there is a deep

understanding of the social ecosystem of the district and surrounding areas and that all voices are engaged and heard in an equitable manner.

Commission a district energy feasibility study

While the panelists provided an initial proposal for a district energy system, a formal study needs to be conducted that assesses the feasibility, cost, and most appropriate methods for the scaling and implementation of a district-wide energy system for the Root District.

Funding sources to support this feasibility study should be explored. Utilities and local district energy providers may present partnership opportunities for sponsoring a share of the study.

Expand the Farmers Market and food culture

The food culture already present in the Root District provides a powerful platform for supporting and developing the culture and community of the area. The Minneapolis Farmers Market is a well-loved resource in this district that should be nurtured and integrated into the vision for the Root District's future.

The desire for affordable, healthy, local food that supports the Farmers Market and the community as a whole may require existing resources to be bolstered. One avenue that could be assessed is the opportunity for urban agriculture. Critical questions like what kinds of food, by whom and for whom they're grown, and where the growing takes place

should be integrated into the community engagement process. Ensuring the food availability for the district supports the needs of the community, as defined by the community itself, will lead to a more successful and vibrant food culture for the district.

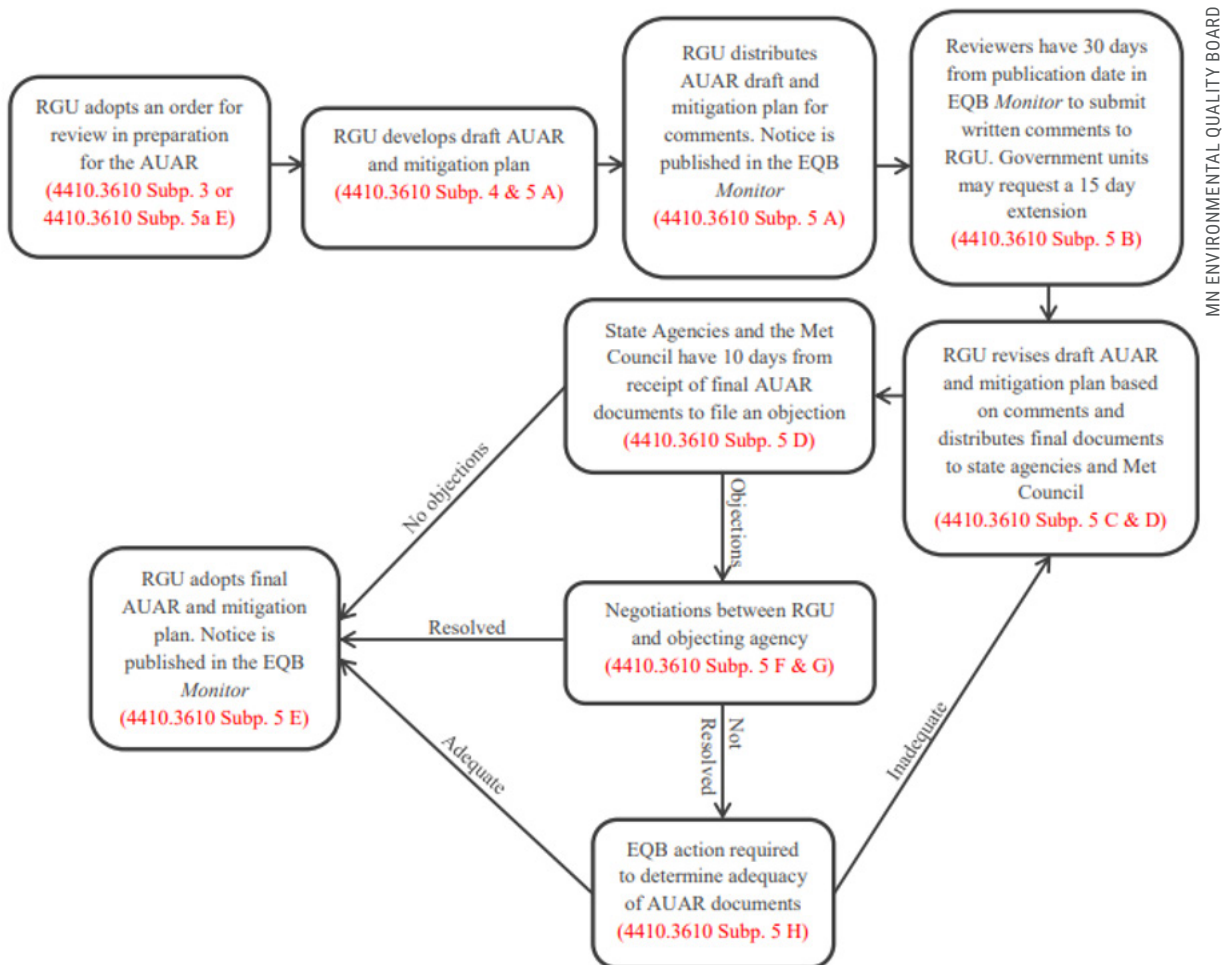
Conduct an AUAR and ecosystem evaluation

With the multitude of possibilities and the complexity of the potential impacts the development of the Root District will have, conducting an AUAR and ecosystem evaluation as part of the planning process will help to provide insight into the best path forward for the district. This evaluation should take both the net zero district goals and the feedback from the community engagement process into account when

determining the development models to be tested.

The AUAR process is a hybrid of the Environmental Assessment Worksheet (EAW) and Environmental Impact Statement (EIS) review processes. Responsible Governmental Units (RGU) can use an AUAR as a planning tool to understand how different development scenarios will affect the environment of their community before the development occurs. The process is designed to look at the cumulative impacts of anticipated development scenarios within a given geographic area. More information on the process can be found at the [Minnesota Environmental Quality Board website](#).

AUAR Process Diagram



Minneapolis Root District: Process for Implementing Next Steps

1

Engage champions to lead and maintain momentum for a cohesive district vision.

2

Create a formal boundary for the district.

3

Commission a study to be completed for the district to evaluate the feasibility and conceptual costs for a two-pipe district heating and cooling system that incorporates local and renewable energy sources.

4

Onboard a credible community engagement consultant to help develop outreach and engagement strategies that overcome challenges, build connections, and identify needs.

5

Level-set by defining what equity is and who the community and stakeholders are.

6

Design an equity system framework that delivers direct benefits to stakeholders and the broader community over a multi-generational time horizon.

7

Establish a Community Benefits Agreement that includes drivers/champions and an answerable mechanism/entity.

8

Expand the Farmers Market and food culture of the district.

9

Explore public/private partnership options and benchmark these partnerships against other district heating and cooling networks in the U.S. and Europe.

10

Establish a district decarbonization commission to manage further energy planning studies, policy making, and procurement processes.

11

Evaluate existing regulation and determine what gaps need to be addressed.

12

Model potential development scenarios using AUAR to assess the impacts of different development strategies.

13

Support a pioneering developer in their efforts to produce the first catalyst project for the district.

Legend

- Equity & Community Engagement
- District Strategy & Renewable Energy
- Public Tools, Policy & the Business Case

Case Studies & Resources

Farmers Market Case Study: Union Market, D.C.

What was originally a food distribution and warehouse neighborhood with a farmers market at the center developed into an incubator of small food and goods offerings. The whole area is now developing into a vibrant mixed-use community. [Union Market example](#).

Minneapolis East Gateway Redevelopment AUAR

This AUAR study area encompasses 24 parcels on approximately 12 acres in the city of Minneapolis, Hennepin County, Minnesota. The study area currently includes residential and commercial property and a stormwater basin. Two development scenarios are proposed for evaluation in the AUAR. Scenario 1 represents the density of the development proposed within the AUAR study area. Scenario 2 represents a higher density development based on the City's Transit 30 Built Form district, which calls for building heights of 10 to 30 stories. All buildings in Scenario 2 are assumed to be 20 stories, except those that are proposed to be more than 20 stories in Scenario 1; these are assumed to be 30 stories in Scenario 2.

Burnsville AUAR for Center Village Redevelopment Vision

The Burnsville AUAR study area encompasses 426 acres, including 77 existing tax parcels located north and south of County Road 42 between County Road 5 and I-35W. The AUAR will help the City understand the environmental implications of a future redevelopment of the Burnsville Center area. This step creates the opportunity to anticipate and manage impacts before projects are built and any future development proposals that are in full conformance with the AUAR and mitigation plan will not need to conduct their own environmental reviews.

ABOUT THE PANEL



Yolanda Cole, FAIA
TAP National Chair
Senior Principal
Hickok Cole

Yolanda Cole, FAIA, is a Senior Principal and Owner of Hickok Cole, a forward-focused commercial architecture and design practice located in Washington, DC. With over three decades of experience in base building and interior design, Yolanda has worked on projects ranging from large-scale, mixed-use developments to commercial and retail interiors. She is widely recognized for spearheading innovation in the profession through the cultivation of a collaborative, research-based practice. Yolanda is a frequent speaker at conferences on topics ranging from transforming the practice of architecture through exploration, to ground-breaking technologies for urban Net Zero renovations. Her personal passion is to influence housing policy and create new prototypes to maintain young families in our cities.

Yolanda is a Past Chair of the Washington District Council of the Urban Land Institute (ULI) and Past Chair of the Governance Committee. She is a Fellow of the American Institute of Architects and Past President of the local AIA|DC chapter, where she served on its Board of Directors for many years. In 2013, Yolanda was named one of the Washington Business Journal's Women Who Mean Business. In 2017 she was honored as a Women of Influence in Commercial Real Estate at Bisnow's Power Series and was named one of the Washington Business Journal's Power 100. In addition to her leadership in the real estate profession, Yolanda is a founding board member of the DC Concert Orchestra and serves as the orchestra's Chair of Development and Principal Flutist.



Keith Baker
TAP Local Chair
Executive Director
Reconnect Rondo

Keith Baker is the executive director for ReConnect Rondo, Inc., an umbrella advocacy organization committed to addressing racial disparities in Minnesota. Keith is leading the organization's mission to revitalize the Rondo Community with a land bridge that reconnects Rondo and creates Minnesota's first African American cultural enterprise district. Keith has more than 35 years of experience in the public, private and nonprofit sectors. His 18 years with the Minnesota Department of Transportation included oversight of federal and state professional technical contract administration and construction compliance monitoring.

Keith served as a member of the Ramsey County Blue Ribbon Commission in 2010, which was in the forefront of elevating Minnesota's ranking as 50th in the nation for racial disparities. Over the years, he has identified and executed strategies supportive of equitable development, entrepreneurship, ownership, business and workforce, and opportunity access. As a strategist, connector and influencer, Keith has a reputation for seeing the big picture, along with the connective links needed for genuine progress. He's known for skillfully navigating within constrained environments, creating outputs that result in equitable outcomes. These characteristics were instrumental in the successful orchestration of a collective impact approach that ensured equitable inclusion of minority- and women-owned engineering and architect firms on the billion-dollar U.S. Bank Stadium project.



Beth Elliott
Senior Urban Planner
Stantec

Beth has two guiding principles: planning needs to be accessible, and the outcomes should elevate

everyone. As the downtown planner for the City of Minneapolis, Beth has worked on several regionally significant projects in her 15-year career.

She's completed complex implementation strategies for historic streets in the Warehouse District, creative zoning solutions, the design of multimodal streets, and—most notably—the Southwest LRT Green Line extension and redevelopment surrounding U.S. Bank Stadium. Beth has proven experience managing complex short- and long-term projects related to comprehensive planning, community revitalization, and other regulatory frameworks. Her work has included downtown planning and revitalization, funding and implementation, and public participation methods.

She's mentored up and coming planners at her graduate school, and she's an enthusiastic runner, yogi, and pretty much anything else that gets her moving. Regular exercise keeps her sane—which her family and coworkers appreciate.

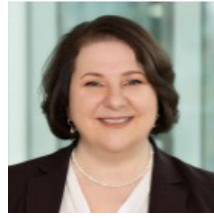


Luke Gaalswyk
Regional General Manager
Clearway Community Energy

Luke Gaalswyk is the Regional General Manager for Clearway Community Energy's Midwest

district heating and cooling systems. In this role, Luke is responsible for managing operations, engineering, and business development of Clearway's systems in Minneapolis and Omaha, leading a team of personnel supplying heating and cooling services to hospitals, universities, and downtown central business districts of Minneapolis and Omaha.

Luke has 15 years of experience in energy, operations and maintenance, and engineering and is a veteran of the United State Air Force. He holds degrees in mechanical engineering from the United States Air Force Academy and the University of Dayton.



Renee Loveland
Former Director of ESG
The Green Cities Company

Renee Loveland, is the former director of ESG, and executed the firm's ESG vision and strategy with

a focus on the integration of ESG with value creation and innovation. As a sustainable real estate professional with over 20 years of experience, Renee leverages her technical expertise in environmental impact, efficiency assessment, project management, and ESG programming to produce measurable results across a portfolio of three active funds. Renee maintains the firm's proprietary impact metric, The Green Cities Index, and manages all third-party ESG reporting.

Renee holds a BA in International Relations, is currently completing an Executive Masters in Sustainability Leadership at Arizona State University, and is a LEED Accredited Professional (BD&C and Homes).

An avid Dave Matthews Band fan, Renee enjoys traveling and being outdoors camping, hiking and wine-tasting with her husband and two Shiba Inus. Renee also serves on the boards of two local non-profits, Community Energy Project and B Local PDX Renee Loveland, Director of ESG, executes the firm's ESG vision and strategy with a focus on the integration of ESG with value creation and innovation.



Shanti Pless
Researcher
V-Mechanical Engineering (NREL)

Shanti is a Senior Building Energy Research Engineer in the Communities and Urban Sciences

Research group at the National Renewable Energy Laboratory in Golden Colorado. His research focuses on the adoption of net zero carbon building design and operational practices through applied research, innovative demonstrations, cleantech startup technical guidance, academic engagements, high impact publications, and informed industry outreach.

He teaches Sustainable Construction and Sustainable Real Estate at the University of Colorado and has recently authored a guide on high performance district scale community energy planning.



Bill Mague

**Director of Acquisitions & Special Projects
AEON**

Bill is the Director of Acquisitions and Special Projects for Aeon, Inc.,

a 35-year-old nonprofit housing developer, manager, and owner in the Twin Cities. He is responsible for non-tax credit acquisitions, specifically naturally occurring affordable housing (NOAH) projects, as well as organizational capital formation, and acquisition strategy. Since joining Aeon in 2019 Bill has led the acquisition of over 1,200 NOAH units in Aeon's portfolio.

Bill has 30 years of experience in public and non-profit real estate finance, development, and strategic management. He has held positions with Artspace Projects, Inc., a national nonprofit developer of affordable live/work space for artists, and with the Royal Bank of Canada in Fixed Income Banking. In that capacity he participated in over \$1 billion in tax-exempt bond financing for affordable multifamily housing, senior assisted living facilities, higher education and private K-12 education capital projects, transportation and utility projects. Mr. Mague was a member of the Metropolitan Council's Housing and Land Use Advisory Committee for 3 years in the Twin Cities between 2000 and 2003. A native of New Orleans, Mr. Mague graduated from Carleton College, Northfield, MN with a BA in Economics.



Tom Strohm

**Development Manager
United Properties**

Tom joined United Properties in 2017 with an initial focus on supporting office and industrial

development teams. Since that time, he has supported and led several complex, multi-phased mixed-use redevelopments, including the 50 acre redevelopment of the Upper Harbor Terminal in Minneapolis, MN. Additionally, he was part of a small team that led initial development planning for the University of Minnesota Foundation's East Gateway redevelopment, on the east bank campus of the University of Minnesota. Prior to joining United Properties, Tom developed ten years of wide-ranging experience in design, construction, and real estate. He spent time as a tenant-rep advisor, leading small to large-scale projects from site selection through project occupancy. Additionally, he spent time as a land developer and started his career as an architect working on large healthcare and correctional facilities.

Tom Holds a Bachelor of Arts in Architecture degree from the University of Minnesota and a Master of Science in Real Estate from the University of St. Thomas. He is an active member of ULI and NAIOP.



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APPENDIX: SUMMARY OF STAKEHOLDER COMMENTS

<p>Bigger Than Net Zero</p>	<ul style="list-style-type: none"> • To be successful, this area will need to be affordable, accessible, safe, and provide the resources that the community desires. • The area must be connected to the street grid. • Equitable economic development will require living wage jobs and low barriers to entry. • Placemaking activities should be conducted. • Proximity to cultural communities is significant to residents' experiences. • Land use and transportation are completely co-dependent systems and the Root District presents an opportunity to look differently at the way these two things come together. • The importance of connections has multiple facets. Connection means someone can get from point A to point B, someone can get to another place down the street safely, and someone can see a place from where they are at and can get there safely and easily. • Integrated public spaces need to be inclusive and well-utilized to be successful in serving everyone that is part of the community. • Underpasses in this area are large concrete spaces that feel and look unsafe to the stakeholders interviewed. They would like to see more activation of the spaces, adding lighting and community art.
<p>Flexibility and Adaptability</p>	<ul style="list-style-type: none"> • Despite the longevity of infrastructure, we don't need to assume that our roadways and transportation systems are permanent. • We have flexibility and options for change in 10, 20, or 30 years. We don't have to try and predict the future and make all the changes today. • Existing infrastructure that's already established in the Root District, like the Hennepin Energy Recovery Center (HERC), can be viewed as an opportunity to bridge from where we are at today to a future zero waste vision for the city. • Like roadways, infrastructure like the HERC doesn't need to be seen as a permanent solution for the district and can be used to transition to alternative energy methods that may be integrated in the future.
<p>Timeliness and Order of Operations</p>	<ul style="list-style-type: none"> • Rezoning has allowed for significantly increased density, but current and pending development doesn't match this aspiration. • Managing early development to get enough foot traffic will influence the atmosphere of the area and will draw more people. • There is a fear that if the early development feels like a ghost town, then it will negatively impact future opportunities and interest in the area. • A diversity of uses in the area will be necessary to draw both residents and businesses so that the district can thrive off the synergies and energy of a cohesive and lively community. • The question of how engagement can begin now and then be sustained is important to the goal of maintaining consistent engagement over time. • From a planning perspective, the time to act is now before properties are sold off and developed in a piecemeal fashion. That scenario increases the risk of the current community being forced out or the area not being developed in alignment with the goals and efforts of the community. • Typically to move an area forward, public sector properties need to take the first step. • If the streetscape and designs for walkability are developed early, then the area will benefit from a cohesive plan rather than the choppy nature of each developer taking their own approach to the streetscape as it relates to their property. • The city needs to be realistic about how long this process is, even for city-owned lots. • Finding strong political leadership to act as a champion can be instrumental to the success of projects like this one.

<h2 style="text-align: center;">Inclusivity and Representation</h2>	<ul style="list-style-type: none"> • The district needs to grow in a way that benefits the local community and doesn't displace folks. • A long history of disenfranchisement leads to push back and apathy from the local BIPOC community. • Intentions are good, but the way plans are actualized is critical. • Go to the community without a plan in hand and ask deeper questions for understanding, such as: why do you live here, what things are important to you, and what do you need? • We need to embrace change, but we can't forget the history of how we've gotten here. • All the tools and resources need to be leveraged to provide access and resources to those who have never had them. • The urban is often viewed as a monolith, but it is not. Not everyone wants the same thing within the urban environment. • Alternative transportation isn't a viable option for everyone. Biking and walking is not the ultimate solution because not everyone can take advantage of these things. • Successful community engagement is a question of whose voices are being included and how those individuals are sought out for their opinions. • The greatest challenge to making sure all voices are heard is that marginalized communities are often the targeted population to participate in community engagement, but they rarely see actionable follow-up. This leads to fatigue and distrust of the entities asking for feedback. • Trust must be built first. • Utilizing multiple modes of communication and regular communication rather than a one-time session is most effective. • The desire to preserve a sense of safety at the Farmers Market leads to the exclusion of the homeless population. • There is currently no ownership for residents of the Root District. While there may be an interest in having ownership, the financial mechanisms to make that happen are difficult, particularly considering that much of the development will be new. • How is equity defined and how does it reflect the community rather than being something separate from them? • The community engagement process is challenging and requires healing, trust building, and co-creation. • Housing attainability is critical, especially since what is attainable for one individual is not necessarily attainable for another.
<h2 style="text-align: center;">Value and Economic Stability</h2>	<ul style="list-style-type: none"> • A mix of experimentation, risk, and uses can help undermine the model of the gentrification cycle. There must still be a way to make a profit, but not at the expense of losing the experimental and creative energy of a diverse group of creatives, entrepreneurs, and community members. • Value is not found in just the cost, it's in the human benefits and long-term value for the community. • Different ideas can be prototyped and used as case studies for guiding future equitable development. • This endeavor can't be only public or private. It will take partnership. • Risk must be projected and understood. • Doing things the way we've always done is going to become a liability, both environmentally and economically. • The city is focused mostly on incentives as opposed to regulation, however there are limits to the financial capacity of governing bodies, just as there are for private organizations and others. • The criteria that is valued when awarding funding through place-based development programs in this area include transit oriented development projects or infrastructure, strategic acquisitions for a city, where resources and access are being located, affordability, job creation, and commercial space. • The cost of living is about more than the cost of housing. It's about job creation and livable wages so that people can afford better housing and quality of life. • Mutual benefit must be illustrated. • There must be a catalyst to get development rolling in an area like the Root District. The key is to provide support in a way that mitigates the risk for early investors or developers who take the first step.

<p>Partnerships</p>	<ul style="list-style-type: none"> • Local sustainability curriculum could be tapped into. • Many want to see the Farmers Market as the heart and soul of the neighborhood. • The model of the Black Market and the way it supports black businesses can be iterated on. • The district is a food desert. That, coupled with the fact that vendors accept food stamps, makes this market a vital resource to this community.
<p>Energy</p>	<ul style="list-style-type: none"> • All energy use has an environmental impact so the main consideration must be reducing energy consumption, particularly for transit. • Models need to be developed for this area that include transportation as part of the equation. These models should consider various strategies such as conventional, HERC district energy, distributed generation, and hybrid options. • The energy mix and 2030 and 2050 plans of energy suppliers are important factors, as is local resiliency and grid resiliency. • Green privilege needs to be acknowledged and counteracted so that everyone has access to participate in clean and green environments. • When it comes to transportation, there should be an emphasis on how to reduce consumption by reducing single occupancy vehicles and increasing access to easy and safe active transportation, rather than focusing too heavily on electrification. • Walkability is the key component for successful reduction. It all comes down to how we encourage people to move through neighborhoods. • The community’s perception is divided when it comes to the existing energy infrastructure of the HERC in the Root District: some people love it, some people hate it. But either way, it is a key piece of the puzzle when it comes to energy in the Root District.



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