Crossroads: Addressing Historical Redlining through Greenway Accessibility

Case Study of Pleasant Run Greenway in Indianapolis, Indiana

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Abstract

Greenway planning has advanced from its traditional role of linking open space networks to a holistic approach focused on providing equitable access to recreational corridors, urban landscapes, and culturally significant nodes. This research investigates the Pleasant Run Greenway and its surrounding neighborhoods, one of the most underutilized greenway systems in Indianapolis, Indiana, to explore how historic redlining has deprived these communities of the fundamental benefits of a greenway network, which is vital to enhancing the quality of life. The aim of the research was to answer three research questions: how does historical redlining impact the accessibility and connection to Pleasant Run Greenway in the present day? What gaps exist in the neighborhood's access to nature, social activities, and economic opportunities? And what improvements should be made to enhance accessibility and connection to the greenway?

Through a comprehensive site analysis, incorporating GIS mapping, on-site assessments, and online reviews, the study identifies critical gaps and opportunities for enhancing connections to the Greenway. For an experiential observation, on-site observations were performed along all the bikeable streets connecting to the greenway. This includes identifying green elements for the study area derived from American Society of Landscape Architects (ASLA) Standards and Green Plan Philadelphia and scoring their performance benefits in terms of environmental, social, and economic aspects. The findings revealed several priority areas that hinder access to the greenway, including unsafe bridge underpasses, vacant lands, and street networks, particularly in historically redlined neighbourhoods. The outcome of this study is a practical design guideline with targeted interventions across three critical dimensions of environmental, social, and economic lens on a destination-to-destination basis.

Crossroads is a step towards creating a thriving community around the Pleasant Run Greenway. This research underscores the transformative potential of greenway networks as a tool for urban regeneration whilst advocating for historically marginalized communities. By re-envisioning connections to the greenway as catalysts for safe, equitable, and enjoyable routes to nature and community, the research contributes to a broader vision of greenways as drivers of social equity and urban resilience.

Introduction and Literature Review

During the Great Depression, the Homeowners' Loan Corporation classified urban neighborhoods by socioeconomic status, ethnicity, and race, designating areas in "Zone D" as high-risk for investment—a practice known as redlining (Moxley & Fischer, 2020). This systemic segregation led to lasting disparities in neighborhood development, particularly in access to green spaces and recreational infrastructure. In Indianapolis, the effects of redlining persist, with historically redlined areas receiving limited investment in public amenities like parks and

greenways. Urban renewal policies of the 1960s further deepened these inequities by disproportionately acquiring redlined areas for highways and industrial zones (Moxley & Fischer, 2020). Today, these areas contain nearly 60% of the city's brownfields, all four superfund sites, and a disproportionate share of industrial waste facilities. The Thrive Indianapolis initiative (2017) acknowledged these social disparities, finding that historically redlined communities experience lower tree cover, less access to green space, and greater exposure to extreme summer heat.

Greenways can play a crucial role in promoting urban sustainability and enhancing quality of life (Shahani, 2013). This research examines the Pleasant Run Greenway, a 6.7-mile corridor created under George Kessler's Park and Boulevard Plan in 1994, which connects key parks like Garfield Park, Christian Park, and Ellenberger Park. Despite its ecological and recreational significance, much of the greenway passes through historically redlined neighborhoods where access remains unsafe and inconsistent (Figure 1). These areas, while offering historic charm and scenic views, face challenges such as vacant commercial spaces, abandoned buildings, and homeless encampments, which hinder equitable use of the greenway. Greenways offer ecological, recreational, and cultural benefits (Fabos, 1995), yet Pleasant Run Greenway lacks safe, convenient access in redlined neighborhoods. This research examines existing connections and proposes a strategic master plan to improve equitable access.

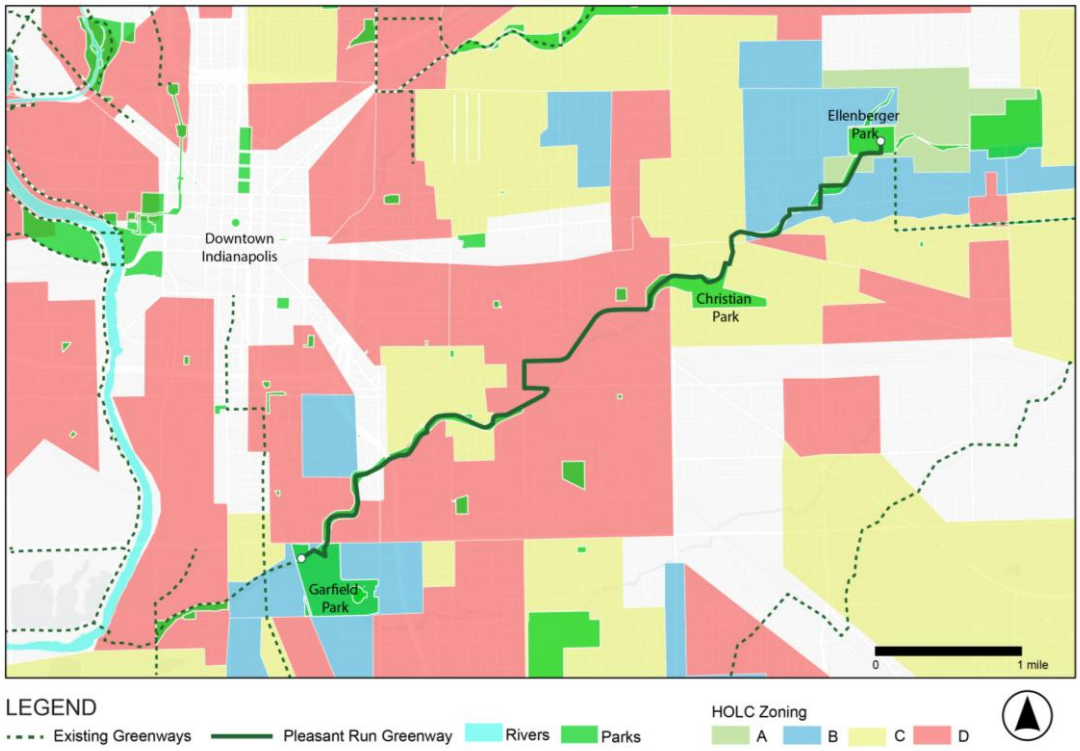

Figure 1: Existing greenway network in Indianapolis and historically redlined zones

Method and Analysis

This research necessitated a qualitative site analysis to examine prevailing issues within the study area, document existing conditions, and pinpoint areas and factors to improve. The tools include:

1. GIS Mapping

The initial site analysis mapped tree cover, summertime temperatures, bike accessibility, land use, and social and economic opportunities along Pleasant Run Greenway and nearby parks (Garfield Park, Christian Park, Ellenberger Park). Key findings include:

a. Redlined areas have only 5-30% tree cover (Figure 2).
b. These areas experience higher summer temperatures (85-92°F), indicating less green space (Figure 3).
c. Bikeable access points to the greenway are fewer in historically redlined neighborhoods (Figure 4).
d. Highways (I-465, I-70), railroads, industrial sites, and vacant structures limit social and economic activity (Figure 5).
e. The area consists mainly of single-family lots, with commercial activity at major intersections and vacant lots near railroads and highways (Figure 6).

2.

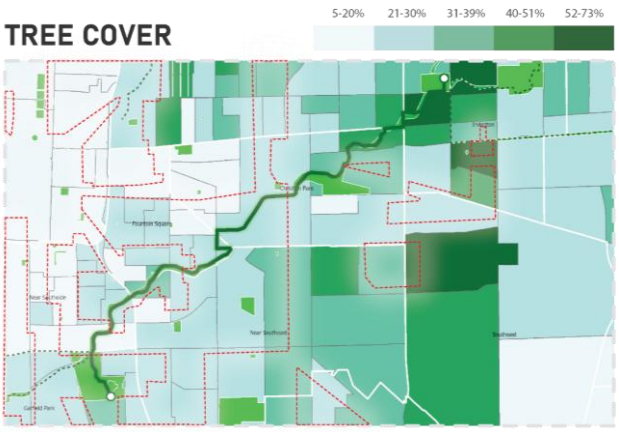

Figure 2: Map showing redlining & the percentage of tree cover in study area, Esri ArcGIS Online

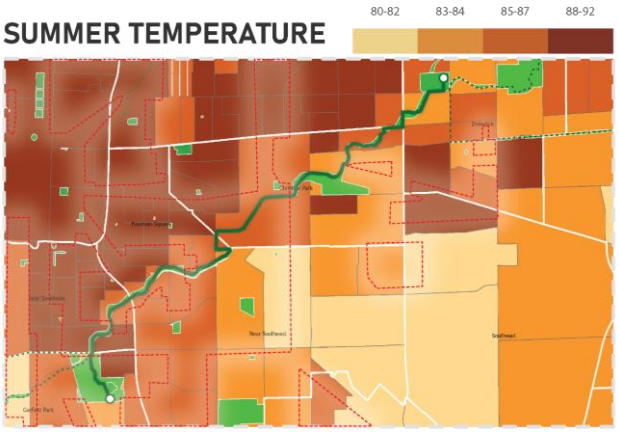

Figure 3: Map showing redlining & summertime max temperature in study area, Esri ArcGIS Online

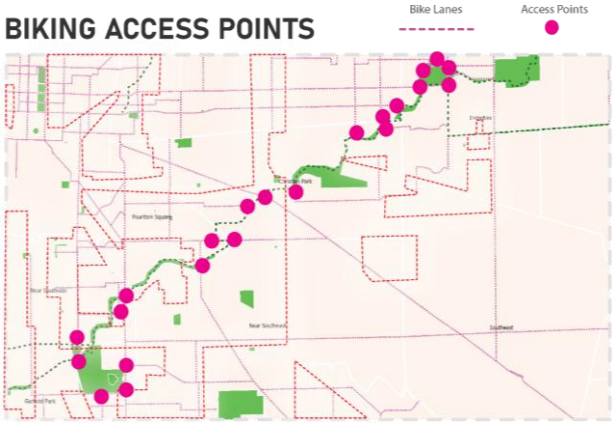

Figure 4: Map showing relation of redlining & bikeable access to the greenway, Esri ArcGIS Online

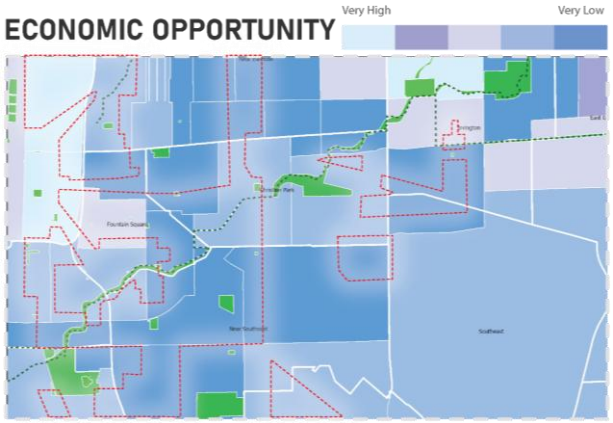

Figure 5: Map showing relation of redlining & presence of social and economic opportunities in study area, Esri ArcGIS Online

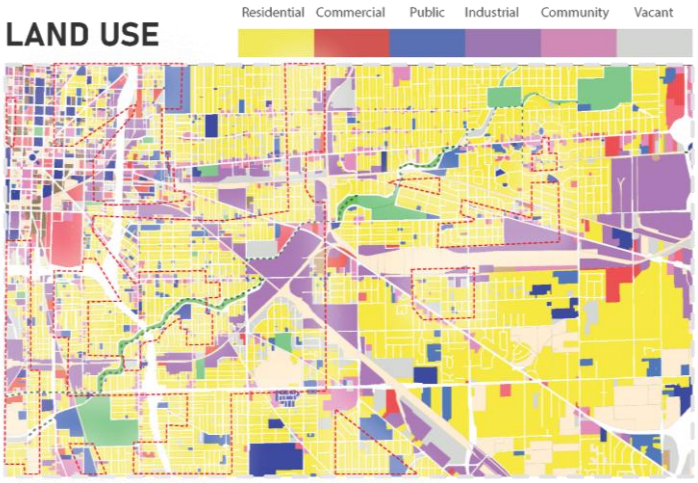

Figure 6: Relation of redlining to current land use patterns in study area, Map created in Esri ArcGIS Online

3. Online Reviews

User reviews from AllTrails (2022 – 2024) (Figure 7) highlight negative experiences, reducing Pleasant Run Greenway's rating to 3.4 stars. Issues are concentrated in redlined neighborhoods and include homeless encampments, unsafe intersections, poor trail maintenance, dirty paths, inadequate signage, and limited social and outdoor activities. Users also express a need for amenities like seating, shade, restrooms, bike lanes, and pedestrian sidewalks.

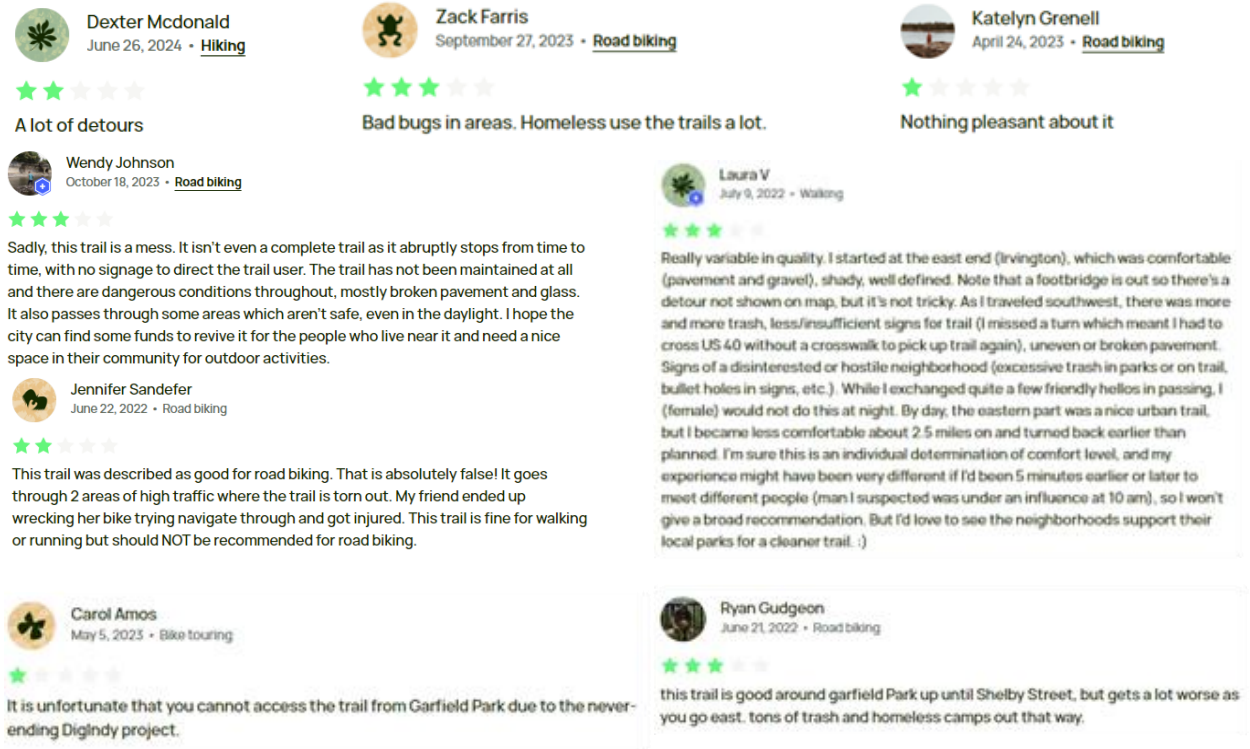

Figure 7: Reviews on All Trails Indianapolis, https://www.alltrails.com/trail/us/indiana/pleasant-run-trail

4. On-Site Observations

The site observation verified the online reviews as the author experienced the Pleasant Run Greenway and observed the bikeable street connections (Shown in Figure 8) firsthand. The author noted the performance benefits of each of the green elements with photographic proofs. The primary goals of the site observation were an opportunity to find potential areas for improved connectivity (including streets with limited connectivity, visibility, or an under-functioning street network) and potential redevelopment areas (including underutilized or vacant land that can be redeveloped).

A performance benefits matrix (Table 1) was developed by merging concepts of green elements from Post Occupancy Landscape Performance and Metric Primer from ASLA Standards, 2018, and Green Plan, Philadelphia, 2010. It consists of a list of questions that were studied regarding the environmental, social, and economic aspects of each green element, indicated below:

1 Vegetation (Provide shade, aesthetic appeal to sidewalks and create a buffer from streets), **2** Open spaces (vacant lands, parks, cemeteries, community gardens, orchards), **3** Biodiversity (influence on the presence of flora and fauna in green areas), **4** Streets (vehicular-oriented or pedestrian oriented), **5** Trails and Bikeways (dedicated bike lanes, separate bike trails, shared lanes), **6** Stormwater management (roadside gutters, permeable surfaces, rain gardens, retention ponds), **7** Lighting (presence of lighting features for safety and visibility), **8** Signages (safety and wayfinding), **9** Materiality (surfaces and pavements of a previous/impervious nature).

Table 1: Template for performance benefits matrix for on-site observation, prepared by the author

Performance standards	**Green Elements**									**Likert Scale**
Environmental aspect	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Are they providing enough shade from heat in the summer?										○ Most satisfying ○ Satisfying ○ Neutral ○ Not Satisfying ○ Least Satisfying
Are they reducing stormwater run offs through permeable surfaces, gutters, rain gardens?										
Are they reducing urban heat island effect in the neighbourhood and providing a hospitable microclimate for living beings?										
Are there providing shelter or food to non-human living beings?										
Are there any watersheds or water features?										
Are they contributing towards a cleaner environment?										
Social aspect										
Are they universally accessible for adults, children and differently able?										
Are they creating a safer community for the residents?										
Are they promoting physical wellbeing and health of the users by providing: a) recreation b) physical exercise c) quality greenery										○ Most satisfying ○ Satisfying ○ Neutral ○ Not Satisfying ○ Least Satisfying
Are they contributing towards perceived safety, such as allowing for unobstructed views, safer pavement conditions, hospitable environment?										
Are they adding to the beauty, inspiration and visual quality of the neighbourhood it is situated at (includes streetscapes, landscaping, building facades)?										
Are they attached to neighbourhood's history and need preservation?										
Are there any gathering spaces like plazas, seatings, gardens or amphitheatres on the site?										
Economic aspect										○ Most satisfying ○ Satisfying ○ Neutral ○ Not Satisfying ○ Least Satisfying
Are they contributing towards any economic benefits or revenue generation?										
Are they contributing to vibrant recreational spaces like playgrounds, gyms, swimming pools, sport fields, golf courses?										
Are the features well-maintained?										
Additional Comments										

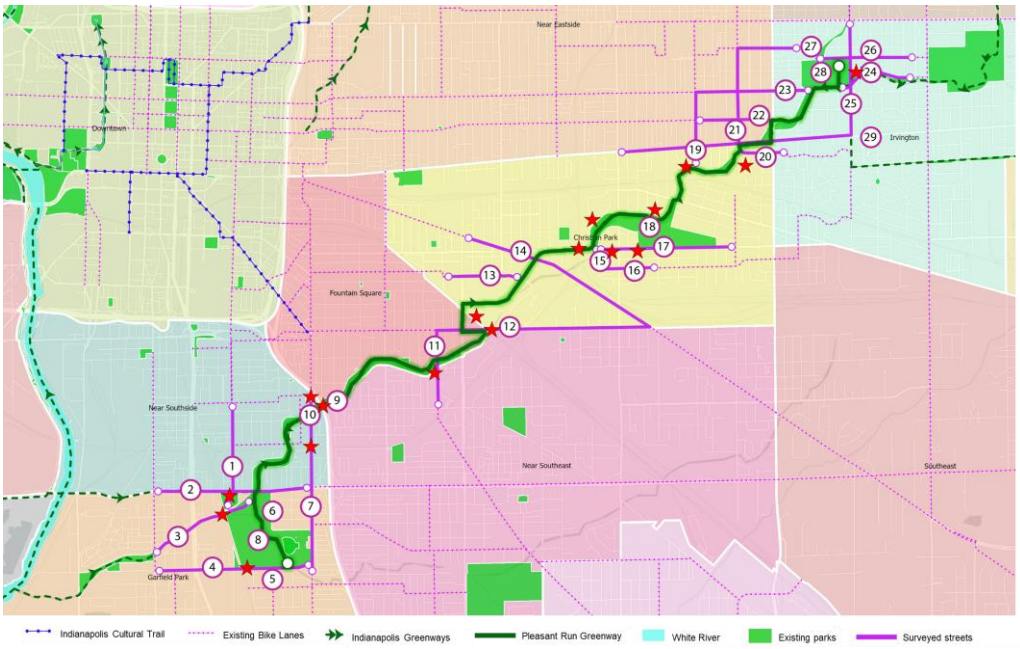

Figure 8: Map showing existing of Pleasant Run Greenway network and surveyed streets for site observation

Results

The site analysis results are shown in Priority Area Map (Figure 9) call attention to three distinct zones: Mixed zone with moderate redlined areas, Most-redlined zone, and Least-redlined zone. The priority concerns include:

- Equity and Accessibility Disparities – The level of accessibility and maintenance varies significantly across different zones, with the trails near Garfield Park and Christian Park facing low visibility, poorly maintained vegetation and very limited number of bikeable streets. In contrast, Irvington Neighborhood has strong greenway ties to Ellenberger Park through amenities such as community center for recreation and sports, and a Grow Indy-sponsored community garden. Among the three, Ellenberger Park is the best maintained, with ongoing upgrades like new restrooms and playgrounds.
- Safety and Environmental Challenges – The performance benefit score significantly dropped with the increase in intensity of redlining. As shown in Figure 9, the most redlined areas along the greenway, particularly starting at the I-70 Bridge underpass towards Christian Park, struggle with major unsafe conditions such as vacant properties, homelessness, under maintained vegetation and inadequate lighting, making them less inviting for pedestrians and cyclists. The mixed zone areas along the greenway have accessibility issues such as no bike infrastructures or sidewalks from residential neighborhoods connecting to the network.
- Community and Development Opportunities –Each of the three parks have community centers and offer strong community ties, presenting opportunities for revitalization by community engagement. Ellenberger Park and the historic Thomas Howe School are well-maintained. Meanwhile, underutilized spaces near Christian Park and Garfield Park could be transformed into safe and accessible neighborhood gathering spots.

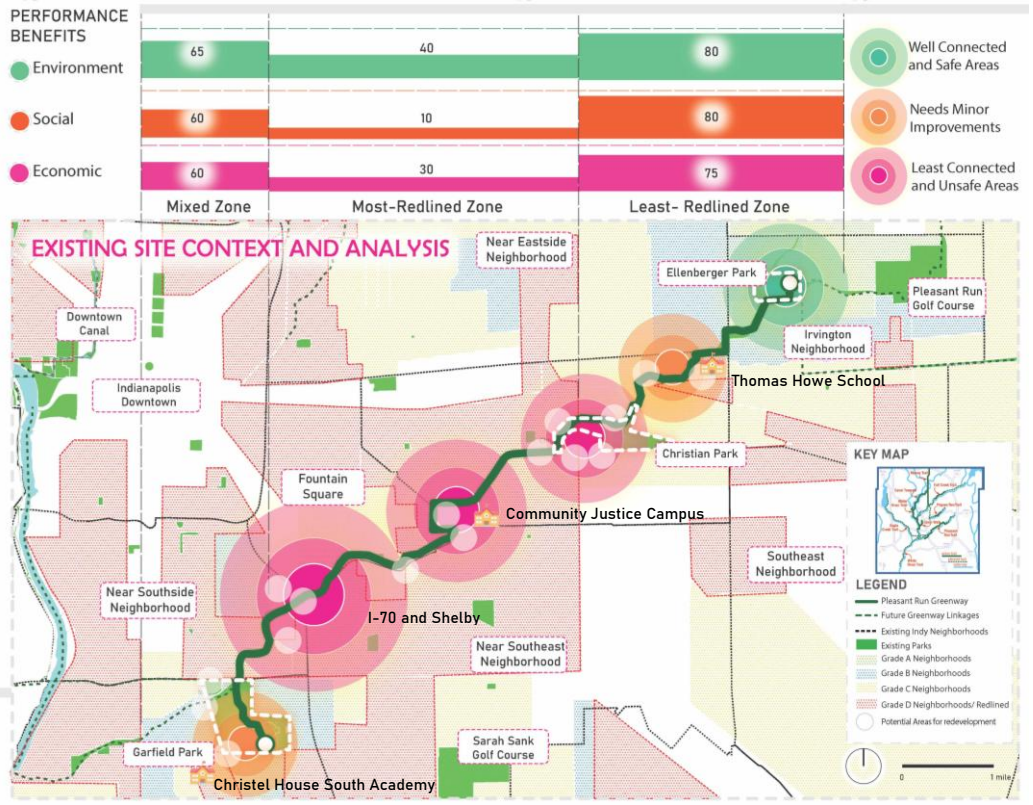

Figure 9: Identifying Priority Areas through On-site observation results

Conclusion

After analyzing the gaps, the concern in most redlined neighborhoods along the greenway was the lack of community interactions, safety and green areas. Activities, actions, and amenities that promote people to gather, celebrate, and interact were prevalent in the three neighborhood parks, because community life was the central theme in designing the parks. Thus, the central theme for Crossroads is to create a thriving community life through equitable access to nature, safer community, and innovating destinations for enjoyment. The proposed masterplan (Figure 9 and 10) indicates identified areas for redevelopment , most of which are either underutilized or vacant lots and parklands. As indicated in Table 2, the recommendation framework encompasses targeted interventions across three critical dimensions of environmental, social, and economic aspects that can become strategic actions to overcome the historical inequalities.

Table 2: Recommendations for areas of redevelopment along Pleasant Run Greenway

Environmental aspect		
Challenges	Lesser Green Networks	Lack of Blue and Green Infrastructures
Potentials	Continuation of Green Boulevards	Availability of Permeable Surfaces
Strategies	Ecological Rehabilitation	Urban Greening
Recommendations	Ensure flora and fauna flourish along indicated improvised streets through: • Native Plantation and Nature Prairies • Track Native Bird Habitat Patterns and boost knowledge through information boards	Ensure blue and green infrastructures in existing parks and new parks through: • Rain gardens for stormwater runoffs • Permeable surfaces as pavements • Stormwater sedimentation ponds for reusing water
Social Aspect		
Challenges	Weak Public Patterns	Disconnected and unsafe accessibility points

Potentials	Redevelop vacant lots	Revive Hidden Connections
Strategies	Inviting public spaces and amenities	Well-linked and safe public spaces
Recommendations	Ensure inclusive community spaces at indicated redevelopment areas (Figure 10) through: • Shade and seating designs • Block-scale playgrounds, sports fields, and pocket parks • Community-scale mom-and-pop shops, restaurants, art, and craft shops • Age-friendly Plaza designs	Ensure safe access and connections in indicated streets for improved connectivity through: • Pedestrian-friendly, bikeable and BRT-accessible streets • Maintain greeneries for visibility • Unique interactive lighting designs • Enhance public art installations • Bike infrastructures: charging stations, bike racks
Economic Aspect		
Challenges	Disinvested Pockets of Land	Weak Public Life Patterns
Potentials	Strategic Locations	Dense Residential
Strategies	Productive Landscapes	Versatile and Transitional Landscapes
Recommendations	Ensure economic upheaval in disinvested locations through: • Outdoor and indoor childcare and support • Information on local homelessness action centres and regular security patrols around parks and greenways. • Annual events and festival markets • Well-designed water features such as accessible ponds, creeks, splash pads, and fountains	Ensure transformative public space activation through: • Investing community effort into community gardens within diverse neighbourhoods such as Grow Indy • Farmer's markets, holiday markets, food trucks, and fresh grocery stores • Create an Art District to revive local artists and for creative placemaking efforts

Similarly, the streets and bridge underpasses for improved connectivity have also been identified in the masterplan and the design recommendations for activating them include:

a. Residential streets: 8' ft wide pedestrian walkways and 6' wide bike lane separated with 8' wide green buffer. Two driving car lanes each 10 ft wide, an street parking lane 8' wide.
b. Commercial streets: ADA accessible walkways, bike paths segregated from two drive lanes through buffers. On-street parking and and biking infrastructure to promote ride and share.
c. Bridge Underpasses: Incorporate four driving lanes each 12' ft wide with seperate biek lanes. Green buffers with shrubs and trees between bike lanes and pedestrian walkways and addition of more landscape furnitures, shaded structures along the greenway area.

While a major goal of the greenway approach is to link together landscape features, the creation of a greenway is an extremely effective means of connecting people with with one another. The road to a strong, more equitable city starts by reconnecting people, local businesses, schools, and jobs with each other and with safe and active new ways to get there. In this context, an accessible greenway network improves the land use planning, links diverse neighborhoods together and enhances living conditions for the residents through enhanced perception of safety, thus, reversing the dire consequences of historical redlining.

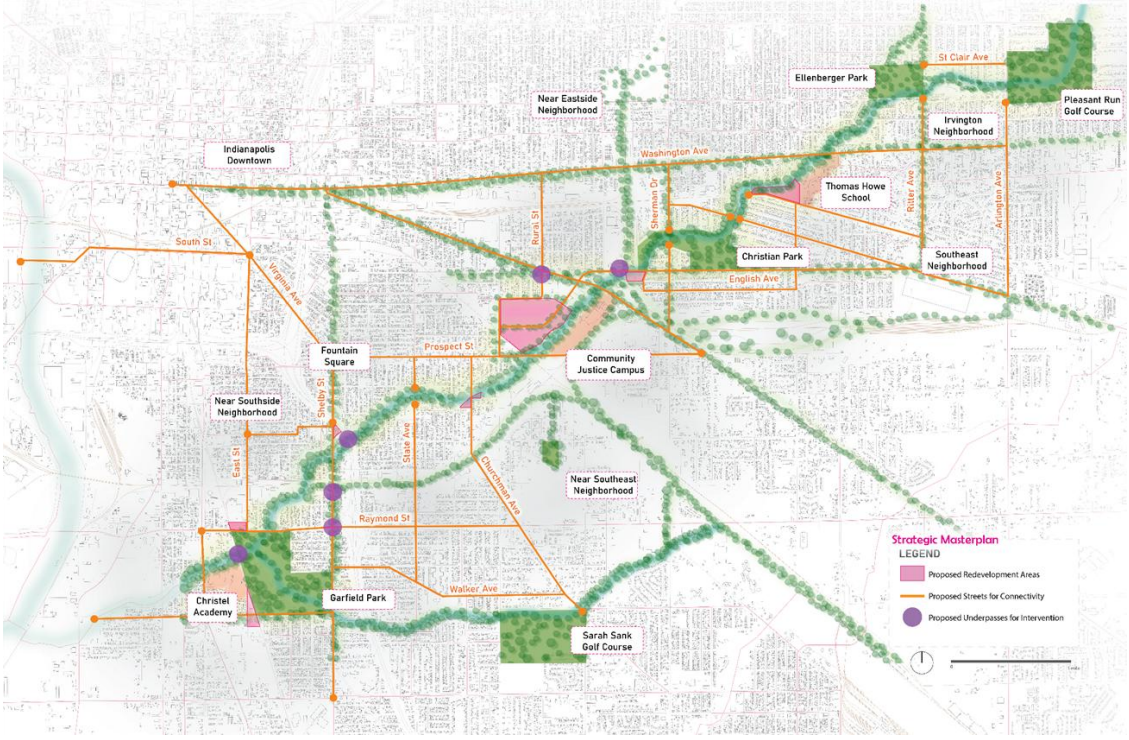

Figure 10: Strategic Masterplan Identifying Areas for Redevelopment and Connection Improvement

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