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The Strip District Sustainable Community Strategy: Stakeholder Engagement and Baseline Assessment

Final Report



Source: <https://sburghcurrent.com/strip-district///www.pitt>

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Executive Summary

Strip District has experienced tremendous growth in the past five years. As a community with a long history as a transition zone from industrial neighborhood to market district, the Strip District is still under change, facing both exciting opportunities and challenges on its way to a sustainable and resilient community. Therefore, a strategic plan for sustainable community development is necessary for Strip District's transition to create a shared vision for the neighborhood's future.

This report is a sustainability baseline assessment of Strip District based on the research of existing sustainable standards, documents, and case studies. The goal of the report is to create a sustainable measurement infrastructure for a neighborhood plan. The report identifies the gaps that still exist in the neighborhoods and proposes a guideline as a pathway for Strip District's transition to a sustainable community for all.

We desire to enhance the overall efforts of economic growth and long-term success in the Strip District. Through gathering input from stakeholders and establishing a metric system to help strategically plan to draw a picture of future success based on shared value. There are three main goals to reach in this report:

1. **Summary of the community's current state.** Based on comprehensively understanding Strip District's history, demographic, development and stakeholders' input, provide key insights of existing reports, including the gaps the community is facing, key metrics and data and recommendations.
2. **Case study analysis to identify referenceable success for community development.** Look for worldwide successful precedents to analyze their sustainable features and sustainable approaches. Based on the case study of successful practices, conclude a successful development model for Strip District and provide develop methodologies and recommendations.
3. **A metric system that clearly identifies future success.** Based on research of the existing Pittsburgh neighborhood plan guides and sustainable evaluation systems, align the major consideration with Strip District's sustainable development and identify the priorities and metrics to define the community's future success.

Background - A Place of Yesterday and Today

The Strip District is a neighborhood located in Pittsburgh. It is a two-mile-long strip area running along the Allegheny River from Lawrenceville into Downtown. As a district with a long history of transitioning from an industrial district to a marketplace with grocery stores, restaurants, and shops, the neighborhood has formed its unique identity and character. The Strip District is always a place with the city's planning focus and has gradually become a transportation and recreation corridor along the riverfront.



Figure 1 Today's Strip District

Source: <https://www.pittsburghcurrent.com/strip-district/>

The Strip has a rich and storied history. In the 1800s, the district was forged from industry and played an essential role in Pittsburgh's industrial development. At that time, many industrial buildings, including Fort Pitt Foundry, ALCOA, and Westinghouse, were initially located in the Strip District. By the 1920s, the Strip District was the economic center of Pittsburgh. The district grew because of its unique location along the river. The shipping infrastructure and manufacturing companies built along the river attracted merchants to set up their business and shop in the Strip. However, by the mid-to-late 20th century, the decrease of rail and boat transferring caused a lot of produce sellers and wholesalers to leave the place.¹

¹ Pittsburgh City Planning. Strip District Transportation and Land Use Framework Plan, 2013.

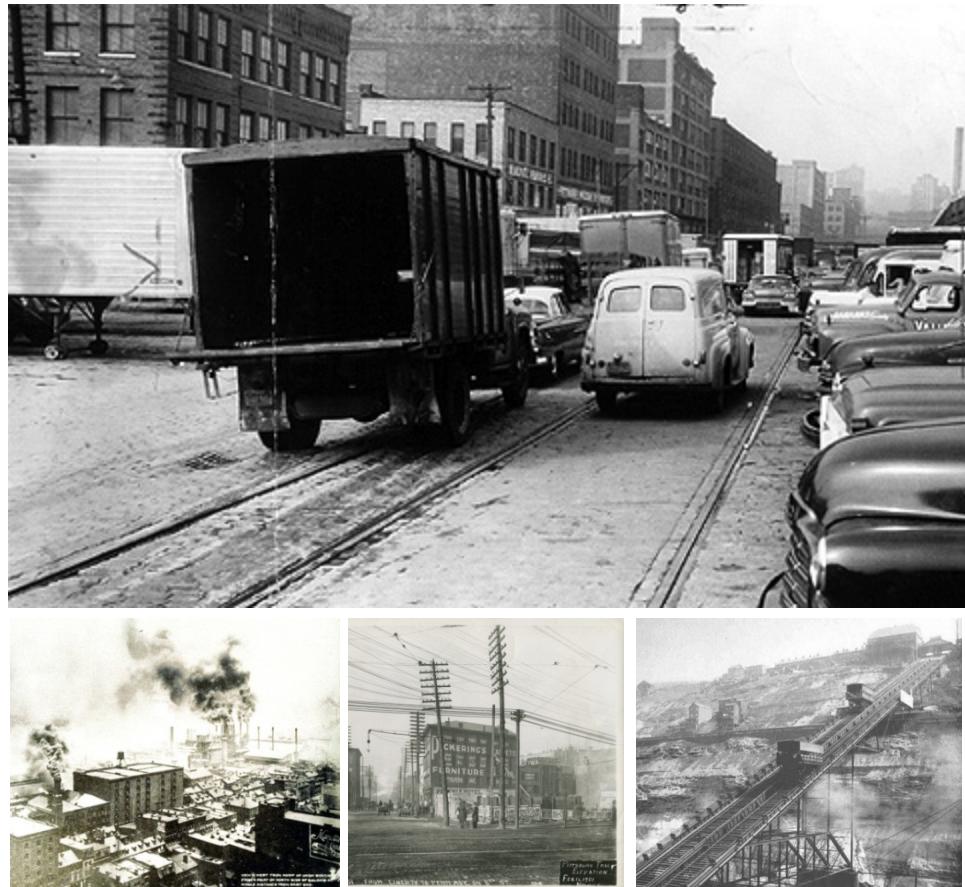


Figure 2 The Industrial History of Strip
Source: *Strip District Transportation and Land Use Plan*

Since the late 20th century, the area has developed into a historic market district. The diverse local businesses existed in renovated industrial buildings and warehouses, which gives the community new opportunities for development. In recent years, many technology companies are being attracted to the district and emerging housing projects, which provide the potential for local employment and population growth.

Opportunities & Challenges - A District in Transition

As we can see from the story of the Strip District, the opportunities and challenges coexist during the transition process. Just as one local business owner summed, the present of Strip is “...one of public life. It’s vibrant, it’s bustling, there’s something for everyone here, there’s...old school shops that have been around for a long time, but there’s new condos that are going in, there’s new restaurants that are going in”². The new developments bring employees, visitors, and residents, but increase the traffic and density against the limited community capacity as well. From another perspective, the opportunities exist as the changes meet challenges - the new strategies, plans and proposals have been drafted for a longer-term vision of the Strip.

Opportunities

1. Increasing Development and Market Demand

As a district with an advantageous location and highly mixed-use pattern, the Strip District has become an opportunity zone that attracts the influx of development including newly-built and reuse projects. In envisioning the future of the riverfront, stakeholders saw the potential to create a market-based model of sustainable development.³ The vast, flat and open area to be developed in the Strip District has proved that it is facing the opportunity of becoming the extension of Pittsburgh’s Golden Triangle.

In recent years, we have seen growing investment and development happening in Strip District. The transformation of Smallman Street along with ongoing renovation projects indicates that the emerging land use framework provides opportunities for transit-supportive uses and development types.⁴ In addition, new developed housing projects along Penn Avenue and Uber Technologies Inc.’s new advanced technology center can bring new employment and residents to the neighborhood, which opens up opportunities for the local market. According to Table 1, the market assessment conducted in recent years provides a huge demand potential for the Strip District’s future development.

² Pittsburgh City Planning. Strip District Transportation and Land Use Framework Plan, 2013.

³ Tim Schooley, “Downtown Pittsburgh will be reshaped with accelerated investment in Strip District”: <https://oxforddevelopment.com/downtown-pittsburgh-will-be-reshaped-with-accelerated-investment-in-strip-district/>

⁴ Pittsburgh City Planning. Strip District Transportation and Land Use Framework Plan, 2013.

Table 1 Market Analysis Demand Projections

Development Type	10-Year (sq. ft.)	20-Year (sq. ft.)
Industrial and Office		
Traditional Industrial	86,143	135,815
Flex Office / R&D / Industrial	297,000	468,258
General/Neighborhood Office	256,429	404,292
Market Estimate Demand	639,571	1,008,366
Transit Related Additional Demand	25,580	100,840
Total Industrial and Office Demand	665,151	1,109,206
Retail		
Household Retail Demand	40,420	69,714
Employee Supportable Retail SF	18,464	94,825
Regional Retail Demand	108,056	236,515
Market Estimate Demand	166,940	401,054
Transit Related Additional Demand	2,360	16,450
Total Retail Demand	169,300	417,504
Residential		
<i>For-Sale</i>		
Townhouses (renovated)	736,200	897,424
Townhouses (new)	630,000	767,966
Condominiums	300,000	365,698
<i>Rental</i>		
Townhouses (renovated)	82,800	100,933
Apartments	942,000	1,148,293
Market Estimate Demand	2,691,000	3,280,314
Transit Related Additional Demand	107,650	328,030
Total Residential Demand	2,798,650	3,608,344
Total New Square Footage	3,623,101	5,135,054

Source: Strip District Transportation and Land Use Framework Plan

2. Unique Historic and Cultural Character

Due to the historic transition of the Strip District, both the constructed pattern and its wide array of uses and activities have formed the neighborhood's unique identity. The liveliness of Penn Avenue attracts thousands of visitors during weekends and holidays, depicting the dynamic and engaging picture of a highly mixed-use district.

The mixed-use pattern of the Strip District provides the opportunity for diverse amenities, culture, and residents. Based on this, the future of the Strip District will welcome a more diverse and inclusive environment in the neighborhood.

Challenges

1. Weak Connection from Riverfront

As we can see, development is already happening quickly on riverfront properties in the Strip District. However, the various owners of land along the riverfront has become an issue that

causes the lack of openness of the riverfront.⁵ In addition, the industrial structures including railroad and warehouses are barriers that segregate the Strip from the riverfront. Currently, there are not enough public open spaces along the river to form a connected walking and recreational system. The challenge of weak access to riverfront is one of the focus of Riverlife's to deal with, which needs both negotiation among landowners and a comprehensive riverfront plan to realize the riverfront transition.

2. Increasing Transportation Pressure

As more and more developments are happening, the increasing traffic amount and limited traffic capacity of streets are existing issues the Strip District is facing - the traffic congestion during the peak time, the increasing parking demand, the need to build up a transit-based public transit system in the community.

Based on the existing traffic survey, there are public responses about traffic improvement in the Strip District⁶:

Walk:

- Improve lighting
- Shut down Penn Avenue to cars on Saturdays
- Raise awareness of hilltop stairs

Bike:

- Make Spring Way bike only
- Add more bike racks and corrals
- Connect Lawrenceville and Downtown
- Add bike lanes: Penn Avenue, 31st Street Bridge, and on the East Busway

Transit:

- Add a circulator (Molly's trolleys), ferry service, connect to the East Busway for better transit service, and bring back the incline
- Saturday bus service to the Strip

Parking:

- Parking should be free
- Garages too far away to carry bags
- Need public parking in the Core of the Strip
- Expand metered parking beyond 25th Street
- Cork Factory parking is good for visitors
- Better information on public parking

3. Environmental Concerns

The improvement of the environment is another important focus in the Strip District. Due to the high traffic volume and remaining industrial sites, air pollution is always a concern for the

⁵ Riverlife. Strip District Riverfront Park Vision Plan, 2016.

⁶ City of Pittsburgh + Stantac. Strip District Mobility Network & Parking Study Findings & Preliminary Strategies, 2020.

neighborhood. As the Breathe Project Air Pollution Map(Figure 3) shows, there is a high concentration of Black Carbon in the Strip District. Also, according to the Street Trees Map based on the 2010 City of Pittsburgh SNAP census data(Figure 4), the Strip District is one of the neighborhoods that have the fewest street trees.

In addition, some sustainable features such as energy and water efficiency, waste management are also crucial for the development of the Strip District.

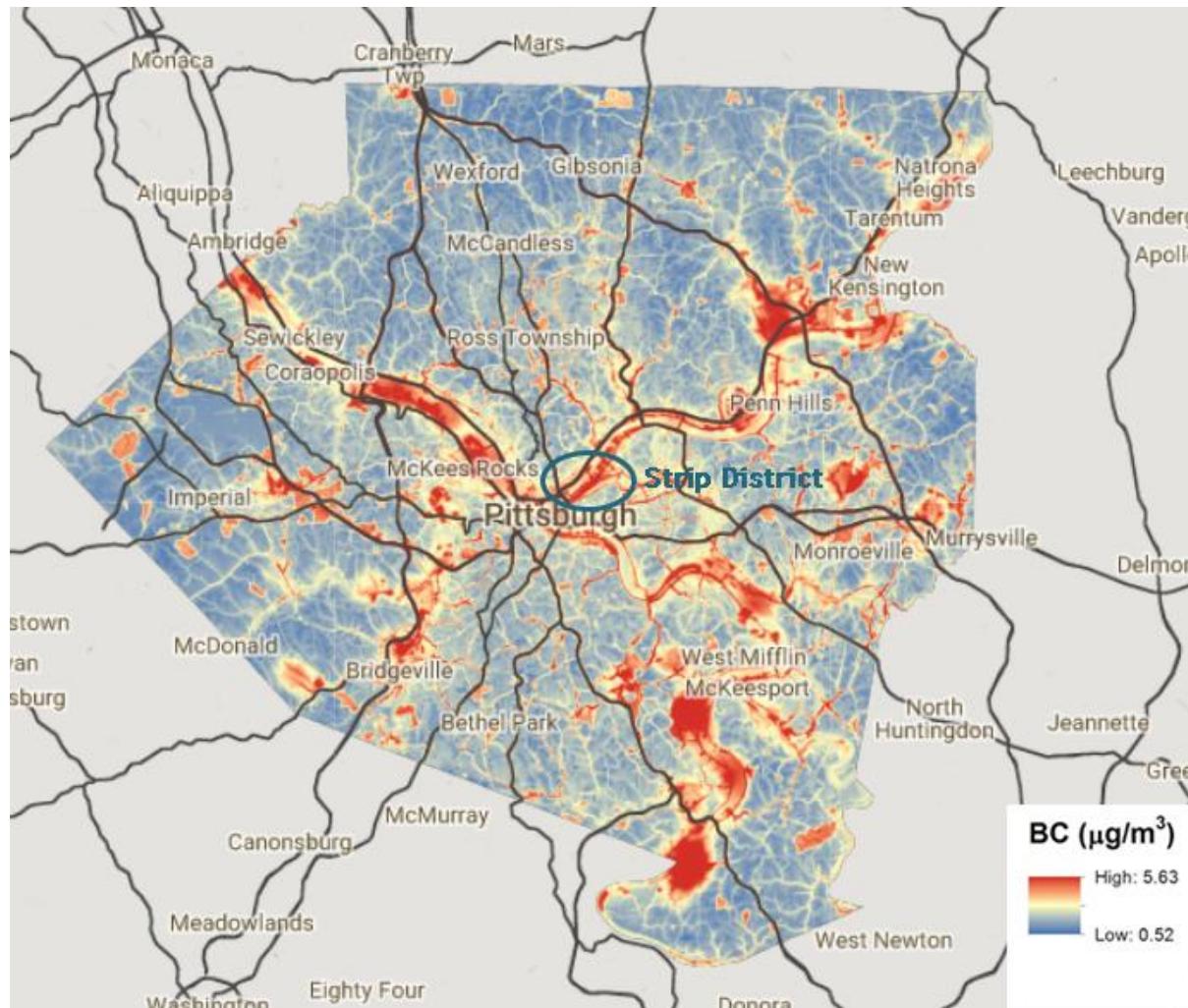


Figure 3 Breath Project Air Pollution Map (Black Carbon)

Source: <https://breatheproject.org/pollution-map/>

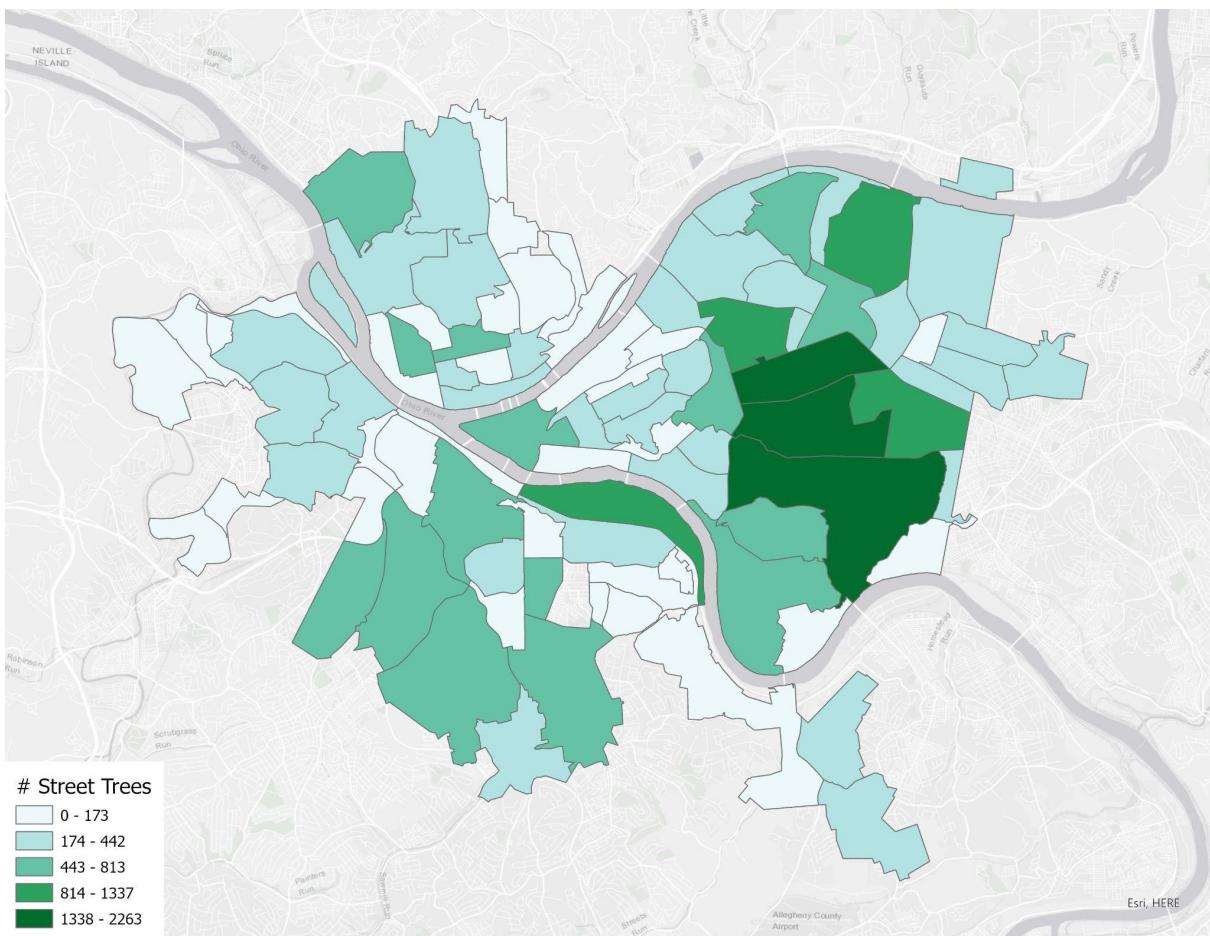


Figure 4 Pittsburgh Street Tree Map
Data Source: 2010 City of Pittsburgh SNAP Census Data

Existing Sustainable Strategy Study - A Pathway to Sustainability

The Strip District is one of the special places where the City has a concerted planning focus, with a series of vision and framework plans in place. There was sufficient literature available to analyse the history of planning and implementation process, stakeholder priorities and recommendations on how to move forward. In this section we review the literature.

1. Stakeholder Input for Riverfront districts

Land Use

- A majority of industrially zoned land in the City is located along the riverfront, but current zoning, including the IPOD District, does not properly address the needs of the industrial users located on the river. These uses are vital contributors to the local economy, and must be accommodated.
- Balancing of uses is critical. The City's rivers must be thought of in terms of areas of different character, potential sub-districts in the permanent zoning district with different regulations.
- A diverse mix of uses can and should be accommodated.

Building Height

- Height is a critical issue. Some stakeholders want to see heights kept low along the riverfront to maintain views. Others argued that it is important to consider site constraints when thinking about height, i.e. if increased setbacks are required, more height should be permitted.
- Consider that there are currently a number of potential developments for riverfront sites in the City that would require greater height allowances.
- The impact of height restrictions on existing industrial users should be carefully examined. In many cases, these types of uses require more height.

Site Development/Design

- Physical and visual access to the river must be maintained. Ensure that new development does not “wall off” neighborhoods.
- If design guidelines are included, they must be objective and clear, so they can be met easily and not interpreted through multiple review processes. They must also be flexible enough to allow for creativity in design.
- Parking facility requirements along the riverfront require careful consideration. Some stakeholders suggest parking maximums should be considered, while others caution that regulations must ensure enough parking is available. Proper parking location should also be considered.
- Design of structured parking should be considered to ensure requirements are achievable and not onerous.
- Sign regulations need careful examination, and are perhaps too restrictive. Since most

- sign variances are generally granted, consider revising regulations to be more flexible.
- Development needs to acknowledge that there are two front doors – the river and the street.
 - Ensure that design requirements do not de facto restrict industrial users.
 - The current 500 foot maximum building length should be reevaluated.

Environmental

- A balance needs to be struck between ecological concerns and development potential.
- Green Infrastructure solutions should be prioritized/incentivized along the river. Stormwater management is critical.
- Allowing for adequate buffers, shoreline restoration, alternatives to traditional paving, etc. should all be strongly considered.
- Consider allowances for alternative energy uses along the river.

Open Space/Recreation

- Wherever possible, public access to the riverfront should be increased.
- If open space/trails or other amenities are required along the riverfront, maintenance of these amenities must be considered.
- More opportunities for water-oriented uses, such as marinas and launches for kayaks/non-motorized vessels are needed.

Transportation

- Connected and safe pedestrian and bicycle transportation networks are needed along the riverfront.
- The barge system is the most fuel and traffic efficient way of moving materials in the City. The loss of the barge system, or access to the rivers as a means of moving materials, would mean increases in truck/freight shipping on Pittsburgh's roads.
- Think about the riverfront/trail system as not just recreation, but as a transportation system. Consider accommodation for future transportation uses on the water as well, such as a water taxi.

2. Strip district Mobility Network and Parking study

Survey Findings

- Half drove, but +40% took bus, walked, carpool, taxi, and / or biked
- Majority occasional visitors : 60% visit a few times a month or year
- Many in 25-34 and 55-65 age groups
- Almost 20% of workers take the bus
- A majority (60%) value convenience / easy access over price

Parking study summary

- There are nearly 1,000 publicly available spaces available on weekdays at peak, although they are not right in the Core

- Restricted spaces are no more than 60% utilized at peak on a weekday, leaving 1,600 unoccupied spaces
- In the Core on weekends, publicly accessible parking is functionally full
- The Cork Factory Garage, the Hub, and other publicly accessible facilities have availability even at peak times
- Utilization peaks at 1:00 PM on a weekday and 10:00 AM on a weekend
- While Penn Avenue in the Heart of the Strip is busy at peak times, off street facilities close by have availability
- In the evenings, utilization drops significantly
- Private developers are building on private parking lots that were previously open to the public

3. Recommendations from Existing Studies

Design Recommendations

- For Strip District from 11th Street to 21st Street
 - Development should be ecologically sustainable, multi-use, built to green standards, residentially compatible, with access to the riverfront along its length.
 - Establish the riparian buffer, street grid, rights of way, and infrastructure to support future high-density development along the riverfront.
 - Rebuild the public trail along the riverfront and continue the complete Allegheny Riverfront Green Boulevard as an extension of Railroad Street to 11th Street.
 - Utilize Railroad Street as the front door to riverfront buildings.
 - Control building heights to maintain Downtown's iconic image.
 - Do not incent change of the historic retail/wholesale nature of Penn Avenue and established sites in the Strip District, but allow change to occur as an evolutionary process.
 - Provide parking facilities to support the public use of the area's amenities but discourage commuter parking.
- Strategic catalyst properties on the Strip
 - Bunker Company Properties
 - Produce Terminal
 - Tippins International Site
- Maintenance recommendation
 - Historic Penn Avenue and Smallman Street market district between 16th and 22nd Streets
 - Upper Strip District in the Transition Zone
- Recommended heights in the Strip District to 33rd Street
 - Up to 8 stories along the riverfront and 6 stories where development is encouraged
 - All other buildings in the Strip District per existing zoning heights

Mobility Network Recommendations

The Strip's tightness and limited rights-of-way led to a variation- the concept of a Complete System of Streets. The solution is an interrelated set of five "Ways":

- The Through Way
 - Liberty Avenue will be reduced to three lanes with two outbound lanes and one inbound lane - providing fewer, but wider lanes to improve traffic flow and safety.
- The Pedestrian Way
 - To accommodate the pedestrians, enhancements are recommended for safety improvements, slowing down the traffic, putting safe pedestrian crosswalks and lights where they're needed, and sidewalks on every block on the Penn Avenue
- The Transit Way
 - The streetcar is the centerpiece of the Transit Way. The new signature transit service for the Strip – centered on Smallman Street, is the central spine of the Strip.
- The Cycle Way
 - Railroad Street is the recommended location for the Cycle Way, which is a dedicated cycle track for commuter bikers.
- The Green Way
 - A key vision for the Strip is to maximize the connection to the river.
 - The Riverfront Trail constitutes the Green Way and supports the recommendations of the Allegheny Riverfront Vision Plan and the Allegheny Riverfront Green Boulevard Plan concept.

Transportation and Parking Recommendations

- Increase price where congestion happens due to parking
- Decrease price off street and further away from core
 - Benefits :
 - Higher prices in the Core incents shorter stays, lower prices a short distance away incent longer term parking
 - Incents employees to park further away and not use prime spaces
 - Frees up prime spaces for customers
- Incentivise private property owners to open up supply
 - Benefits:
 - Ease congested parking areas
 - Add to publicly accessible supply
 - Reduce pressure to build more parking
 - Reduce curb cuts by combining adjacent lots
- Link to remote parking for special events, summertime weekends, piloting of Penn Avenue summertime closures, and potentially during the week
 - Include Strip District employment centers and Herron Avenue East Busway stop

as part of route feasibility

- Eliminate maximum and minimum time limits
 - To increase flexibility which will provide consistency to visitors
- Consolidate public parking information
 - One stop shop for all things Strip District parking
 - One, unified system / information point
 - Can include other, non driving options
- Designate loading areas, limit to off hours, and enforce
 - Improves safety
 - Reduce curbside congestion
 - Prioritize curb for short term visits
- Pedestrian improvements
 - Consider two-way conversion to calm traffic
 - Retain parking on both sides
 - Introduce time restricted loading zones
 - Use as key driving link to the Strip from Liberty Avenue

4. Funding Programs

There are a number of available grants, loans, tax credits, and real property tax exemptions available to facilitate development projects. The Strip District and 40th Street Corridor transformation designs qualify under the Southwestern Pennsylvania Commission's transit oriented development (TOD) criteria.

- City of Pittsburgh
 - Tax Increment Financing (TIF)
 - Pittsburgh Housing Construction Fund
 - Pittsburgh Rental Housing Development & Improvement Program
 - Neighborhood Housing Fund
 - Commercial LERTA (conversion)
 - Residential LERTA (conversion)
 - Act 42 Enhanced (defined areas)
- Allegheny County
 - Tax exemptions and deferred second mortgages
 - Act 202
 - Allegheny Housing Development Fund
- Commonwealth of Pennsylvania programs
 - PA Housing Finance Agency
 - Growing Greener II

- Housing and Redevelopment Assistance
- Transit Revitalization Investment District Fund (TRID)
- TRID Fund
- PA Economic Development Financing Authority
- H2O PA
- Infrastructure Development Program
- Federal and Other Programs
 - New Markets Tax Credits
 - Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER)
 - Program
 - Federal Transit Administration
 - Federal Appropriation/Earmark
- Joint Federal programs for riverfronts and sustainability:
 - Department of Transportation's (DOT) Transportation Investment Generating
 - Economic Recovery program (TIGER II)
 - Department of Housing and Urban Development (HUD) Community Challenge planning grants
 - Upcoming joint EPA/FTA/HUD programs

Case Study - Picturing Success for the Strip District

Case Study Sites Selection Criteria

The evaluation, analysis, and comparison of case studies to a site is standard in planning qualitative research. When dealing with complex issues like assessing existing conditions in the Strip vs. other comparable sites, case studies allow for insight to be derived and potential next steps to crystallize.

Due to guidance from our client, we looked for multiple case studies, ranging from transition zone redevelopment by cities to sites owned and developed for reuse as successful tourist destinations by private developers. The attributes of the Strip District that we looked to replicate in our chosen case studies were a history of former industrial use, many property owners, and a growing residential population, and more demand for housing. Additionally, the Strip is a bustling tourist destination with a mix of multigenerational/traditional businesses and innovative new companies. Two areas where the Strip District has room to grow are its relatively weak connection to the waterfront and its transportation, mobility, and accessibility, so we looked for sites with more strengths in those areas.

The three sites we chose for the case studies were Fulton Market Innovation District in Chicago, Faneuil Hall Marketplace in Boston, and Dockside Green in Victoria, BC. These sites all had a relevant former history, robust transportation, and proximity to one or more of the types of features that make the Strip District interesting (waterfront, mix of businesses, etc.) Two (Dockside Green and Faneuil Hall) were private developments, and the Fulton Innovation District is a designated neighborhood district. We compared the three case study sites to the Strip District on the following criteria: type of ownership (multiple owners, single-owner development), current and former use, active transportation infrastructure, connectivity to public transit, accessibility, and funding source(s).

Site Descriptions

Fulton Market Innovation District is a former meatpacking, warehousing, and industrial district in Chicago's Near West Side. Like the Strip District, the Fulton Market Innovation District has many property owners and a unique industrial feel. Today, Fulton Market Innovation District has been granted Landmark Status by the City of Chicago. The Innovation District is zoned for a combination of manufacturing, business and mixed uses. Like the Strip District, the Innovation District is home to a mix of multigenerational and traditional businesses alongside innovative tech companies. Fulton Market Innovation District is actively undergoing planning processes by the City of Chicago; further plans aim to improve accessibility by public transit, construction of separate bike lanes, and include millions of dollars of infrastructure investment in the next four years.



Figure 5 Fulton Market Innovation District

Source: <https://www.architecture.org/tours/detail/fulton-randolph-market/>

Faneuil Hall Marketplace is a former marketplace and historic meeting hall located near the waterfront in Boston, Massachusetts. The buildings that make up Faneuil Hall Marketplace were built (and rebuilt due to fire) in the 1740s-1760s. Faneuil Hall is part of the Boston National Historical Park and is a popular stop on the Freedom Trail, as well as one of America's most popular tourist attractions in its own right. The businesses housed in Faneuil Hall Marketplace are a mix of multigenerational businesses and larger chain retail. Faneuil Hall, along with three other historic buildings that comprise the Marketplace (North Market, Quincy Market, and South Market) were purchased and developed by a single developer. The Marketplace is accessible by bus, train, and subway.



Figure 6 Faneuil Hall Marketplace
Source: <https://www.afar.com/places/faneuil-hall-marketplace-boston>

Dockside Green is a mixed-use planned community development in Victoria, British Columbia. The development is located in Victoria's Inner Harbour neighborhood, and was formerly a waterfront brownfield site used for over a century for light industry. Cleanup efforts were spearheaded by the City of Victoria, which bought and remediated the site before its sale to private developers, who maintain ownership. Dockside Green was developed with green building principles in mind. Dockside Green has focused on connection with its community through an emphasis on renting retail space to local businesses and reaching out to local First Nations peoples. Residents at Dockside Green get a discount on rent for not retaining a vehicle on-site, each residential building has a car-share program. Dockside Green is able to be accessed by shuttles and harbor ferries, and enjoys a strong active transportation network.



Figure 7 Faneuil Hall Marketplace
Source: <https://hcma.ca/project/dockside-green/>

Structural Analysis of Case Studies

Based on the important structural components, we conclude the structural analysis between Strip District and Cases as the table shows below:

Table 2 Structural Analysis between Strip District and Cases

	Strip District	Fulton Market Innovation District	Faneuil Hall Marketplace	Dockside Green
Current Use	Historic market district with speciality grocers, multigenerational businesses, and tech corporate headquarters	Corporate headquarters, tech industry, hotels, bars, restaurants, and retail	Indoor/outdoor mall and eatery	Planned neighborhood and mixed-use community
Former Use	Historic industrial transition, warehousing, and manufacturing zone	Former meatpacking, warehousing, and industrial district	Former marketplace and historic meeting hall	Former industrial brownfield
Active Transportation Infrastructure	Room for improvement; trail could be connected into the larger network; sharrows for bikes	Dedicated bike lanes proposed; plans for a Metra Station; e-scooter pilot	Located on Boston's Freedom Trail, pedestrian-oriented	Bike and ped trails
Connectivity to Public Transit	Some connectivity by bus	Connectivity by bus, train, the L	Connectivity by bus, train, and subway	Discount for no car on-site, car-share program, shuttles, and harbor ferry
Accessibility	Room for improvement (narrow and uneven sidewalks, sidewalk sales, lack of safe crossings)	Design guidelines include accessibility criteria	Wheelchair accessible	Designed for universal accessibility
Type of Ownership	Multiple Owners	Multiple Owners	Single Developer Owned	Single-Developer Owned Planned Neighborhood
Funding Source	Improvements could be funded by city/grants	Innovation Zone run by city/zoning, improvements by city	Privately owned/funded	Land revitalized and bought by city, privately owned and operated by developer

Sustainability Metric System - A Guideline that Leads to Future

Based on existing neighborhood research and case studies, the picture of the future success of the Strip District has been depicted. However, it is significant to provide a measurement standard that can evaluate a community's sustainability. Related to the Strip District's vision plan and existing sustainable standard, a sustainable metric system is proposed to measure the community's sustainability.

Existing Sustainable Standard Review

There are five existing sustainable standards and documents referenced for the Strip District's sustainable metric system, including:

1. United States Sustainable Development Goals (SDGs)

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.⁷

There are 17 Sustainable Development Goals(SDGs) as its heart for actional by all countries. The 17 SDGs are listed below:

- ***Goal 1: No Poverty***
- ***Goal 2: Zero Hunger***
- ***Goal 3: Good Health and Well-being***
- ***Goal 4: Quality Education***
- ***Goal 5: Gender Equality***
- ***Goal 6: Clean Water and Sanitation***
- ***Goal 7: Affordable and Clean Energy***
- ***Goal 8: Decent Work and Economic Growth***
- ***Goal 9: Industry, Innovation and infrastructure***
- ***Goal 10: Reduced Inequalities***
- ***Goal 11: Sustainable Cities and Communities***
- ***Goal 12: Responsible Consumption and Production***
- ***Goal 13: Climate Action***
- ***Goal 14: Life Below Water***
- ***Goal 15: Life on Land***
- ***Goal 16: Peace, Justice and Strong Institutions***
- ***Goal 17: Partnerships for the Goals***

SDGs are a good reference for the Strip District's sustainable metric system because they set up the standards that improve health and education, reduce inequality, and spur economic growth while tackling climate change, aligning with the Strip District's sustainable goals well.

⁷ United Nations. Sustainable Development 17 Goals: <https://sdgs.un.org/goals>

2. EcoDistricts Protocol

EcoDistricts Protocol is a sustainable standard created to foster a new model of urban regeneration. The EcoDistrict Protocol is a rigorous, sustainable urban development framework for achieving people-centered, economically vibrant neighborhood- and district-scale sustainability.⁸

In the protocol, there is one section about priority indicators that can be referenced as details for the Strip District's metrics. There are six priorities listed:

- ***Place - create inclusive and vibrant communities***
- ***Prosperity - support education and economic opportunities that build prosperity and accelerate innovation***
- ***Health + Wellbeing - nurture people's health and happiness***
- ***Connectivity - build effective connections between people and places***
- ***Living Infrastructure - enable and connect to flourishing ecosystems***
- ***Resource Regeneration - work towards net positive energy, water, and waste***

3. p4 Pittsburgh Goals

The p4 initiative builds upon Pittsburgh's global relationships with cities, advocates for equity and inclusion, clean technology innovators, universities, and globally renowned architects and planners to create a new sustainable and inclusive approach to urban development, design, building, and employment. Its goal is for Pittsburgh to be a world-class city that benefits all its citizens.⁹

p4 Pittsburgh is a model of urban growth and development that is innovative, inclusive and sustainable. This model is referenceable for the Strip District's sustainable development because it is designed for Pittsburgh, which provides more priorities for localized growth.

In p4 Pittsburgh Goals, there are four dimensions that build up the framework:

- ***People***
People of all backgrounds will receive social and economic opportunities and benefits through the advancing of a just and sustainable city.
- ***Planet***
Planet preservation and cultivation will become top priorities as every sector in the region is involved in creating a green and healthy environment.
- ***Place***
Place will not be an afterthought but an opportunity for promoting innovation in urban design.
- ***Performance***

⁸ EcoDistricts. EcoDistricts Protocol, 2018.

⁹ P4. p4 Pittsburgh Goals: <http://www.p4pittsburgh.org/>

Performance accountability and excellence will be critical components of building an inclusive economy.

4. LEED v4.1 Cities and Communities

LEED v4 Cities and Communities is both a guideline and a rating system that shape a community's future of sustainability performance.

Six key goals have guided the technical development process for the LEED v4.1 Cities and Communities program¹⁰:

- inspire leadership
- foster achievement of global goals
- ensure continuity of performance from design to development and operation
- leverage the large portfolio of complementing systems in GBCI portfolio, particularly STAR
- expand the market from buildings to cities and communities
- focus on quality of life of residents and enhance living standards

There are the following highlights in LEED v4.1 Cities and Communities that can be referenced by the Strip District's sustainable metric system:

- ***Integrative Process (IP)***
- ***Ecology and Natural Systems (EN)***
- ***Transportation and Land Use (TR)***
- ***Water (WE)***
- ***Energy and Greenhouse Gas Emissions (EN)***
- ***Materials and Resources (MR)***
- ***Quality of Life (QL)***
- ***Innovation (IN)***
- ***Regional Priority (RP)***

5. Pittsburgh Neighborhood Plan Guide

Adopted in March 2020, Pittsburgh Neighborhood Plan Guide explains how public agencies, RCOs, and the public work together to create neighborhood plans throughout the city.¹¹

In the Plan Content Details section, it referenced a wide range of existing city and community sustainability standards and plan guides, which can be a good reference of the Strip District's sustainable plan guide.

¹⁰ USGBC. LEED Cities and Communities Existing Guideline, 2020.

¹¹ City of Pittsburgh. Pittsburgh Neighborhood Plan Guide, March, 2020.

Metric System Construction

Based on existing research and analysis, “15-minute neighborhoods” is an ideal model for the Strip District’s future transition. The 15-minutes neighborhood concept is derived in part from historical concepts of proximity and walkability¹² and now being widely proposed for the community development that enables residents, visitors, employees to have access to diverse amenities, facilities and satisfy their everyday needs within a 15-minute walkable distance.



Figure 8 The Concept of “15-minute neighborhoods”

For the Strip District’s transition to a sustainable community, the metric system is built up based on six priorities:

1. Access and Connection

People can easily arrive at their destination through diverse transportation and transit within and near the community.

Sustainable Metrics	Indicators
Access and Connection	
Pedestrian access, street walkability	<ul style="list-style-type: none"> - Percentage of street length in the neighborhood with sidewalks on both sides. (EcoDistrict) - The neighborhood’s Walk Score. (EcoDistrict) - Percentage of blocks longer than 200 feet that have mid-block crossings. (EcoDistrict)
Transit-based development	<ul style="list-style-type: none"> - Intersections per square mile or kilometer. (EcoDistrict) - Transit stops per square mile or kilometer. (EcoDistrict) - Percentage of total street length with bicycle sharing. (EcoDistrict)

¹² 15-minute city: https://en.wikipedia.org/wiki/15_minute_city

On- and off-street parking strategy and management	<ul style="list-style-type: none"> - Neighborhood parking strategy is adopted and implemented. (Pittsburgh Neighborhood Plan Guide) - Provide carpool or shared-use vehicle parking spaces equivalent to at least 10% of the total off-street parking space for each nonresidential and mixed-use building on the site(LEED ND) - On-street parking is properly regulated, potentially including residential permit programs, dynamic pricing, or other technological solutions. (Pittsburgh Neighborhood Plan Guide) - Curbside management plan is adopted and implemented. (Pittsburgh Neighborhood Plan Guide)
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2. Local Economy Prosperity

Encourage the diversity of local business development and ensure the affordability and equity of development.

Local Economy Prosperity	
Local Business and Informal Economy	
Local business diversity (Compact, mixed use and transit oriented development)	Compact and Complete Centers (CCC): <ul style="list-style-type: none"> - Access to Diverse Uses - at least 90% of residential and non-residential buildings within the CCC have access to at least 10 diverse uses - Access to Transit Facilities - at least 90% of residential and non-residential buildings within the CCC are within $\frac{1}{4}$ mile (400 meters) walking distance of an existing or planned bus, streetcar or informal transit stops that connects to a mass rapid transit station or a pulse point within 3 miles16 (5 kilometers). (LEED Cities and Communities)
Increase local employment	<ul style="list-style-type: none"> - Percentage of district residents employed at locations in the district. (EcoDistrict) - Number of neighborhood-based start-ups in emerging sectors annually. (EcoDistrict) - Median wage. (EcoDistrict)
Increase rentable commercial space	<ul style="list-style-type: none"> - Percentage of commercial spaces at affordable levels. (EcoDistrict) - Number of newly created commercial spaces. (EcoDistrict)
Community markets and events	<ul style="list-style-type: none"> - Percentage of population participating annually in cultural events within the district. (EcoDistrict) - Number of public spaces available for cultural events. (EcoDistrict)
Affordable Housing and Offices	
Housing and workspace affordability	<ul style="list-style-type: none"> - Percentage of affordable housing and workspace provided in the community. (EcoDistrict) - Percentage of households spending less than 45% on housing and transportation combined. (LEED Cities and Communities)
Increased ownership and occupation	<ul style="list-style-type: none"> - Percentage of dwelling units occupied. (EcoDistrict) - Ratio of rent vs. ownership (residential). (EcoDistrict) - Percentage of federally subsidized housing units. (EcoDistrict)

Housing type diversity	<ul style="list-style-type: none"> - Housing type diversity index score of neighborhood dwellings. (Pittsburgh Neighborhood Plan Guide) - Percentage of dwellings meeting local visitability and universal design standards. (Pittsburgh Neighborhood Plan Guide) - Number of Accessory Dwelling Units (ADUs) built by homeowners. (Pittsburgh Neighborhood Plan Guide)
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3. Renewable Energy

Build up on-site and off-site renewable energy infrastructure systems and networks within neighborhoods.

Renewable Energy	
Alternative fuel vehicles and charging infrastructures	<ul style="list-style-type: none"> - The number of private and public electric vehicle charging stations exceed 1.07 per 10,000 residents, or comply with local or national equivalent. (LEED Cities and Communities) - The total number of government and privately owned alternative fuel stations meet or exceed 1.52 per 10,000 residents, or comply with local or national equivalent. (LEED Cities and Communities)
On-site renewable power and thermal energy	<ul style="list-style-type: none"> - Percentage of annual electric supply generated from neighborhood-based renewable sources. (EcoDistrict) - Percentage of buildings connected to a district thermal energy or co-generation system. (EcoDistrict) - Number of renewable energy generating systems. (EcoDistrict)
Green buildings and building energy use intensity reduce	<ul style="list-style-type: none"> - Percentage of buildings meeting 2030 District energy efficiency goals. (2030 District Goals) - Percentage of residents spending greater than 3.5% of their gross income on energy costs. (Pittsburgh Neighborhood Plan Guide) - Number of buildings that have met the standards of 2030 District, LEED, WELL, Energy Star, Living Building, Net Zero, or other green building certifications. (Pittsburgh Neighborhood Plan Guide)

4. Waste Management

Make good use and reuse of materials and form a regenerative waste management system in the community.

Waste Management	
Waste is diverted from landfills through reduction, reuse, and recycling	<ul style="list-style-type: none"> - Percentage of nonhazardous waste diverted from landfills annually. (EcoDistrict)
The residual value of organic waste is captured	<ul style="list-style-type: none"> - Percentage of organic waste diverted for energy recovery or composting annually. (EcoDistrict)

5. Environmental Resilience

Create a resilient environmental system in the community through diverse approaches, including place-making, natural resources preservation, pollution reduction, and water management.

Environment Resilience	
Natural Systems and Habitat Integrity	
Water Efficiency	
Public space accessibility and quality	<ul style="list-style-type: none"> - Percentage of residents within a 1 mile/20 minute walk to natural open space(riverfront specifically) (EcoDistrict) - Percentage of dwelling units and businesses within a 0.5 mile/10 minute (moderate density areas) or 0.25 mile/5 minute (high density areas) walk of a public space other than a street. (EcoDistrict) - Number of activities programmed annually for public spaces, including streets. (EcoDistrict) - Number of people using public spaces daily, at peak and average levels of occupancy. (EcoDistrict)
Natural Resources Conservation and Restoration	<ul style="list-style-type: none"> - Canopy coverage area as determined by LiDAR. (Pittsburgh Neighborhood Plan Guide) - Street tree and private tree survey including species and trunk diameter at chest height (DBH). (Pittsburgh Neighborhood Plan Guide) - Annual compaction, erosion, and chemical treatment rates. (Pittsburgh Neighborhood Plan Guide)
Pollution Reduction	<ul style="list-style-type: none"> - Annual air quality index score and/or Smell Pittsburgh score. (EcoDistrict) - Number of air quality monitors located throughout the neighborhood. (Pittsburgh Neighborhood Plan Guide) - Number of days annually that air quality emission standards are exceeded in and near the district. (Pittsburgh Neighborhood Plan Guide) - Percentage of population living near an unremediated brownfield or contaminated site. (Pittsburgh Neighborhood Plan Guide)
Stormwater management	<ul style="list-style-type: none"> - Percent above and beyond first 1.5 inches of runoff in a 24-hour period managed using green infrastructure within the neighborhood. (Pittsburgh Neighborhood Plan Guide) - Ratio of pervious to impervious surfaces. (EcoDistrict) - Water quality testing at output of management systems. (Pittsburgh Neighborhood Plan Guide) - Number of private sewage/basement backups reported. (Pittsburgh Neighborhood Plan Guide)
Water quality is protected from pollutants.	<ul style="list-style-type: none"> - Annual water quality index score. (EcoDistrict) - Percent of water service lines that are lead. (Pittsburgh Neighborhood Plan Guide)

Water use/recycling efficiency	<ul style="list-style-type: none"> - Percentage of buildings connected to non-potable water sources. (EcoDistrict) - Gallons of water used daily per capita, indoors and outdoors. (EcoDistrict) - Number of buildings meeting 2030 District goals for water use intensity. (2030 District Goals)
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6. Community Identity

Strengthen community identity through history and culture preservation, increasing public engagement and wellbeing of neighborhoods.

Community Identity	
Social & environmental justice	<ul style="list-style-type: none"> - Narrative describing the identification of the priority environmental justice conditions, priority areas and values of risk reduction to environmental justice conditions in priority areas in the last five years. (LEED Cities and Communities)
Cultural heritage and preservation	<ul style="list-style-type: none"> - Number of historic/cultural preservation projects completed and programs operated annually. (EcoDistrict) - Number of public art and cultural interpretive installations. (EcoDistrict)
Public health and safety	<ul style="list-style-type: none"> - Average life expectancy. - Percentage of population with cardiovascular disease. - Asthma rates. - Obesity rates. - Crime rates - Area per capita used for food production. - Percentage of households with a home garden or using a community garden. - Quantity of local fresh food procured. (EcoDistrict)
Engagement + Inclusion	<ul style="list-style-type: none"> - Percentage of population engaged in public consultation processes (e.g., attendance rates, social media subscribers). - Demographic makeup of engagement participants. - Number of hours per capita volunteered annually by residents and business employees. - Percentage of eligible residents voting in most recent local election. - Number of sharing programs in continuous operation. - Percentage of households and businesses participating in sharing programs annually. (EcoDistrict)

Conclusion and Recommendations - What is Needed?

Based on comprehensive baseline assessment, Strip District is on its way to reach the sustainability goal, with existing opportunities and challenges. The development has brought growth, while the environment capacity and market health of the district are far from satisfying the community's future sustainable needs. A comprehensive guideline and consistent stakeholder engagement will be needed in longer-term efforts.

In order to follow the pathways to the future vision of Strip District's sustainability, there are three recommendations proposed:

- 1. Understand the past and now, and engage in the future.** From existing reports and documents, the community has already made a lot of valuable efforts proposing Strip District's sustainable development. This report is constructed based on existing documents and provides preliminary insights into the shared priorities. To engage in the future, a comprehensive guideline needs to be consistently drafted and proposed with these priorities for all types of development in the community.
- 2. Depict a picture of a successful and devoted longer-term commitment.** It is significant to engage stakeholders into the decision-making process on the community's future development. Existing research can give a picture of the Strip District's future success to provide to the stakeholders. Therefore, various ways of public engagement are needed to gather stakeholders' feedback and viewpoints. For long-term development, partnerships and initiatives should be established to create consensus and joint efforts for Strip's transition.
- 3. Measurements of success from multiple dimensions of sustainability.** The metric system can provide quantitative and qualitative measurement of the community's success, which is a more tangible way to evaluate Strip District's growth. At the same time, even though the economy grows rapidly in today's Strip District, other priorities can never be neglected. A sustainable community needs multidimensional success - the social justice, the green infrastructure, the unique culture and identity... Therefore, the community should not only focus on economic growth, but also make efforts to create a livable and equitable environment for all neighborhoods.

Stakeholder Participation - Next Step

Since the project is in its nascent stages, stakeholder mapping and priority analysis would be the first step to design a development plan. Our objective was to design a survey in alignment with the sustainability metrics to understand what were the communities priorities and how satisfied they were with the present condition of amenities. We wanted to balance the need for as much data as possible against preventing survey fatigue amongst the responders. Hence we divided our survey into sections based on different types of stakeholders namely

- Resident
- Local Business Owner
- Visitor
- Company Employee
- Property Developer
- City Employee

Are you a : *

- Resident
- Local Business Owner
- Visitor
- Company Employee
- Property Developer
- City Employee

Each section had 2 -3 common questions, while the rest of the section was custom designed for each type of stakeholder. Studies suggest responders are more likely to complete the survey if they find the questions relevant to them. Most of the questions were kept to multiple choices or check boxes, instead of filling in data. This prevents data corruption and loss, as well as survey fatigue.

The 2 questions that remained common in all the sections were :

How important do you think these sustainable features are to Strip District's development? *

	Not at all	Not much	Neutral	Some	A lot
Transportation ...	<input type="radio"/>				
Renewable Ene...	<input type="radio"/>				
Local Business...	<input type="radio"/>				
Affordable Hou...	<input type="radio"/>				
Ecosystem/Gre...	<input type="radio"/>				
Riverfront/Wate...	<input type="radio"/>				
Material & Reso...	<input type="radio"/>				
Social & Enviro...	<input type="radio"/>				

How much do you wish to see these amenities be added to the Strip District? *

	Not at all	Not much	Neutral	Some	A lot
Parking lot	<input type="radio"/>				
Dog Park/Open ...	<input type="radio"/>				
Grocery Store	<input type="radio"/>				
Pharmacy	<input type="radio"/>				
Bus Stop/Trans...	<input type="radio"/>				
Pedestrian Frie...	<input type="radio"/>				
School and Chil...	<input type="radio"/>				
Bank	<input type="radio"/>				
Restaurant/Bar...	<input type="radio"/>				
Community Ce...	<input type="radio"/>				

Both of these questions gave us not only the community's preference but also the scale of importance associated with every priority. The basic skeleton of the survey is prepared. It can be customised further as per the requirements at the time of rolling it out.

[Link to the survey](#)

Reference

1. Western Pennsylvania Regional Data Center: <http://www.wprdc.org/>
2. Breathe Project: <https://breatheproject.org/>
3. Loysen + Kreuthmeier. 21st Street Public Realm Design, 2016.
4. University of Pittsburgh. Guiding Change in the Strip, 2002.
5. City of Pittsburgh + Stantac. Strip District Mobility Network & Parking Study Findings & Preliminary Strategies, 2020.
6. City of Pittsburgh. Pittsburgh Neighborhood Plan Guide, March, 2020.
7. Perkins Eastman, URA, City of Pittsburgh, Riverlife. Allegheny Riverfront Vision Plan, 2011.
8. City of Pittsburgh. Green Boulevard Strategic Plan, 2013.
9. City of Pittsburgh. Pittsburgh Riverfront Zoning Assessment Report, 2017.
10. Pittsburgh City Planning. Strip District Transportation and Land Use Framework Plan, 2013.
11. Brean Associates. Strip District Improvement Strategy, 2001.
12. Riverlife. Strip District Riverfront Park Vision Plan, 2016.
13. USGBC. LEED Cities and Communities Existing Guideline, 2020.
14. EcoDistricts. EcoDistricts Protocol, 2018.
15. United Nations. Sustainable Development 17 Goals: <https://sdgs.un.org/goals>
16. P4. p4 Pittsburgh Goals: <http://www.p4pittsburgh.org/>

Appendix: Strip District Sustainable Metric System

Sustainable Metrics	Indicators	SDGs	EcoDistrict Priorities	P4 Goals	LEED Cities and Communities
Access and Connection					
Pedestrian access, street walkability	- Percentage of street length in the neighborhood with sidewalks on both sides. (EcoDistrict) - The neighborhood's Walk Score. (EcoDistrict) - Percentage of blocks longer than 200 feet that have mid-block crossings. (EcoDistrict)	11	HEALTH + WELLBEING	PLACE	TRANSPORTATION AND LAND USE
Transit-based development	- Intersections per square mile or kilometer. (EcoDistrict) - Transit stops per square mile or kilometer. (EcoDistrict) - Percentage of total street length with bicycle sharing. (EcoDistrict)	9 11	CONNECTIVITY	PLACE	TRANSPORTATION AND LAND USE
On- and off-street parking strategy and management	- Neighborhood parking strategy is adopted and implemented. (Pittsburgh Neighborhood Plan Guide) - Provide carpool or shared-use vehicle parking spaces equivalent to at least 10% of the total off-street parking space for each nonresidential and mixed-use building on the site(LEED ND) - On-street parking is properly regulated, potentially including residential permit programs, dynamic pricing, or other technological solutions. (Pittsburgh Neighborhood Plan Guide) - Curbside management plan is adopted and implemented. (Pittsburgh Neighborhood Plan Guide)	11	CONNECTIVITY	PLACE	TRANSPORTATION AND LAND USE
Local Economy Prosperity					
Local Business and Informal Economy					
Local business diversity (Compact, mixed use and transit oriented development)	Compact and Complete Centers (CCC): - Access to Diverse Uses - at least 90% of residential and non-residential buildings within the CCC have access to at least 10 diverse uses - Access to Transit Facilities - at least 90% of residential and non-residential buildings within the CCC are within ¼ mile (400 meters) walking distance of an existing or planned bus, streetcar or informal transit stops that connects to a mass rapid transit station or a pulse point within 3 miles16 (5 kilometers). (LEED Cities and Communities)	8	PLACE PROSPERITY	PEOPLE PLACE	TRANSPORTATION AND LAND USE QUALITY OF LIFE
Increase local employment	- Percentage of district residents employed at locations in the district. (EcoDistrict) - Number of neighborhood-based start-ups in emerging sectors annually. (EcoDistrict) - Median wage. (EcoDistrict)	8	PROSPERITY	PEOPLE PERFORMANCE	QUALITY OF LIFE
Increase rentable commercial space	- Percentage of commercial spaces at affordable levels. (EcoDistrict) - Number of new created commercial spaces. (EcoDistrict)	8 10	PROSPERITY	PEOPLE PLACE	QUALITY OF LIFE
Community markets and events	- Percentage of population participating annually in cultural events within the district. (EcoDistrict) - Number of public spaces available for cultural events. (EcoDistrict)	8 11	PLACE PROSPERITY	PLACE	QUALITY OF LIFE
Affordable Housing and Offices					

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Housing and workspace affordability	- Percentage of affordable housing and workspace provided in community. (EcoDistrict) - Percentage of households spending less than 45% on housing and transportation combined. (LEED Cities and Communities)	11	PLACE PROSPERITY	PEOPLE PERFORMANCE	QUALITY OF LIFE
Increased ownership and occupation	- Percentage of dwelling units occupied. (EcoDistrict) - Ratio of rent vs. ownership (residential). (EcoDistrict) - Percentage of federally subsidized housing units. (EcoDistrict)	11	PLACE	PEOPLE PERFORMANCE	QUALITY OF LIFE
Housing type diversity	- Housing type diversity index score of neighborhood dwellings. (Pittsburgh Neighborhood Plan Guide) - Percentage of dwellings meeting local visibility and universal design standards. (Pittsburgh Neighborhood Plan Guide) - Number of Accessory Dwelling Units (ADUs) built by homeowners. (Pittsburgh Neighborhood Plan Guide)	11	PLACE PROSPERITY	PEOPLE PLACE PERFORMANCE	QUALITY OF LIFE
Renewable Energy					
Alternative fuel vehicles and charging infrastructures	- The number of private and public electric vehicle charging stations exceed 1.07 per 10,000 residents, or comply with local or national equivalent. (LEED Cities and Communities) - The total number of government and privately owned alternative fuel stations meet or exceed 1.52 per 10,000 residents, or comply with local or national equivalent. (LEED Cities and Communities)	7 11	RESOURCE REGENERATION	PLANET	TRANSPORTATION AND LAND USE ENERGY AND GREENHOUSE GAS EMISSIONS
On-site renewable power and thermal energy	- Percentage of annual electric supply generated from neighborhood-based renewable sources. (EcoDistrict) - Percentage of buildings connected to a district thermal energy or co-generation system. (EcoDistrict) - Number of renewable energy generating systems. (EcoDistrict)	7 13	RESOURCE REGENERATION	PLANET	ENERGY AND GREENHOUSE GAS EMISSIONS
Green buildings and building energy use intensity reduce	- Percentage of buildings meeting 2030 District energy efficiency goals. (2030 District Goals) - Percentage of residents spending greater than 3.5% of their gross income on energy costs. (Pittsburgh Neighborhood Plan Guide) - Number of buildings that have met the standards of 2030 District, LEED, WELL, Energy Star, Living Building, Net Zero, or other green building certifications. (Pittsburgh Neighborhood Plan Guide)	7 13	RESOURCE REGENERATION	PLANET	ENERGY AND GREENHOUSE GAS EMISSIONS
Waste Management					
Waste is diverted from landfills through reduction, reuse, and recycling	- Percentage of nonhazardous waste diverted from landfills annually. (EcoDistrict)	12	RESOURCE REGENERATION	PLANET	MATERIALS AND RESOURCES
The residual value of organic waste is captured	- Percentage of organic waste diverted for energy recovery or composting annually. (EcoDistrict)	12	RESOURCE REGENERATION	PLANET	MATERIALS AND RESOURCES
Environment Resilience					
Natural Systems and Habitat Integrity					

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Public space accessibility and quality	<ul style="list-style-type: none"> - Percentage of residents within a 1 mile/20 minute walk to natural open space(riverfront specifically) (EcoDistrict) - Percentage of dwelling units and businesses within a 0.5 mile/10 minute (moderate density areas) or 0.25 mile/5 minute (high density areas) walk of a public space other than a street. (EcoDistrict) - Number of activities programmed annually for public spaces, including streets. (EcoDistrict) - Number of people using public spaces daily, at peak and average levels of occupancy. (EcoDistrict) 	11 15	PLACE CONNECTIVITY LIVING INFRASTRUCTURE	PEOPLE PLACE PLANET PERFORMANCE	NATURAL SYSTEMS AND ECOLOGY QUALITY OF LIFE
			REGENERATION	PLANET	NATURAL SYSTEMS AND ECOLOGY
Natural Resources Conservation and Restoration	<ul style="list-style-type: none"> - Canopy coverage area as determined by LiDAR. (Pittsburgh Neighborhood Plan Guide) - Street tree and private tree survey including species and trunk diameter at chest height (DBH). (Pittsburgh Neighborhood Plan Guide) - Annual compaction, erosion, and chemical treatment rates. (Pittsburgh Neighborhood Plan Guide) 	13 14 15 N	PLACE LIVING INFRASTRUCTURE RESOURCE REGENERATION	PLACE PLANET	NATURAL SYSTEMS AND ECOLOGY
			HEALTH + WELLBEING LIVING INFRASTRUCTURE RESOURCE REGENERATION	PEOPLE PLANET	NATURAL SYSTEMS AND ECOLOGY QUALITY OF LIFE
Pollution Reduction	<ul style="list-style-type: none"> - Annual air quality index score and/or Smell Pittsburgh score. (EcoDistrict) - Number of air quality monitors located throughout the neighborhood. (Pittsburgh Neighborhood Plan Guide) - Number of days annually that air quality emission standards are exceeded in and near the district. (Pittsburgh Neighborhood Plan Guide) - Percentage of population living near an unremediated brownfield or contaminated site. (Pittsburgh Neighborhood Plan Guide) 	3 N	PLACE HEALTH + WELLBEING LIVING INFRASTRUCTURE RESOURCE REGENERATION	PEOPLE PLANET	NATURAL SYSTEMS AND ECOLOGY QUALITY OF LIFE
			PLANET	PLANET	WATER EFFICIENCY
Water Efficiency					
Stormwater management	<ul style="list-style-type: none"> - Percent above and beyond first 1.5 inches of runoff in a 24-hour period managed using green infrastructure within the neighborhood. (Pittsburgh Neighborhood Plan Guide) - Ratio of pervious to impervious surfaces. (EcoDistrict) - Water quality testing at output of management systems. (Pittsburgh Neighborhood Plan Guide) - Number of private sewage/basement backups reported. (Pittsburgh Neighborhood Plan Guide) 	6 14	LIVING INFRASTRUCTURE RESOURCE REGENERATION	PLANET	WATER EFFICIENCY
Water quality is protected from pollutants.	<ul style="list-style-type: none"> - Annual water quality index score. (EcoDistrict) - Percent of water service lines that are lead. (Pittsburgh Neighborhood Plan Guide) 	6 14 N	RESOURCE REGENERATION	PLANET	WATER EFFICIENCY
Water use/recycling efficiency	<ul style="list-style-type: none"> - Percentage of buildings connected to non-potable water sources. (EcoDistrict) - Gallons of water used daily per capita, indoors and outdoors. (EcoDistrict) - Number of buildings meeting 2030 District goals for water use intensity. (2030 District Goals) 	6 N	RESOURCE REGENERATION	PLANET	WATER EFFICIENCY
Community Identity					
Social & environmental justice	<ul style="list-style-type: none"> - Narrative describing the identification of the priority environmental justice conditions, priority areas and values of risk reduction to environmental justice conditions in priority areas in the last five years. (LEED Cities and Communities) 	3 10 12	HEALTH + WELLBEING	PEOPLE PLACE PLANET	QUALITY OF LIFE
Cultural heritage and preservation	<ul style="list-style-type: none"> - Number of historic/cultural preservation projects completed and programs operated annually. (EcoDistrict) - Number of public art and cultural interpretive installations. (EcoDistrict) 	11	PLACE	PEOPLE PLACE PLANET	QUALITY OF LIFE

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	- Average life expectancy. - Percentage of population with cardiovascular disease. - Asthma rates. - Obesity rates. - Crime rates - Area per capita used for food production. - Percentage of households with a home garden or using a community garden. - Quantity of local fresh food procured. (EcoDistrict)				
Public health and safety		2 3	HEALTH + WELLBEING	PEOPLE PLACE PLANET	QUALITY OF LIFE
Engagement + Inclusion	- Percentage of population engaged in public consultation processes (e.g., attendance rates, social media subscribers). - Demographic makeup of engagement participants. - Number of hours per capita volunteered annually by residents and business employees. - Percentage of eligible residents voting in most recent local election. - Number of sharing programs in continuous operation. - Percentage of households and businesses participating in sharing programs annually. (EcoDistrict)	3 11 16	PLACE HEALTH + WELLBEING	PEOPLE PLACE	QUALITY OF LIFE