

East Liberty's Green Vision

Funding provided by:

The Heinz Endowments
PA Department of Conservation
and Natural Resources
Roy A. Hunt Foundation

Advisory Committee

John Schombert
Janie French
Marijke Hecht
Jeff Bergman
Scott Bricker
Jeb Feldman
Ann Gerace
Jack Machek
Ellen Kight
Monica Hoffman
Patrice Fowler-Searcy
Danielle Crumrine
Matthew Erb
Eamon Geary
Rebecca Flora
Caren Glotfelty
Janice Seigle
Malik Bankston
Pat Buddemeyer
Gary Cirrincione
Robbie Ali
David Jahn
Noor Ismael
Dan Sentz
Pat Hassett
Mike Gable
Rob Stephany
Duane Ashley
Phil Gruszka
Mary Beth Steisslinger
Patrick Dowd
Deno De Ciantis
Bob Bingham
Diana Ames
Breen Masciotra
Walter Burlack
Joan Barlow
Maria Pranzo
Hilary Brown
Carole Walsh
Lance Cope
John Shea
Karl Thomas
Andrew Butcher
Matthew Ciccone
Chris Koch

3 Rivers Wet Weather Inc.
3 Rivers Wet Weather Inc.
Western Pennsylvania Conservancy TreeVitalize
9 Mile Run Watershed Association
Bike Pittsburgh
City of Braddock
Conservation Consultants, Inc.
PA Department of Community Economic Development
Pittsburgh Partnership for Neighborhood Development
PA Department of Conservation and Natural Resources
East Liberty Presbyterian Church
Tree Pittsburgh
Tree Pittsburgh
Green Building Alliance
Green Building Alliance
The Heinz Endowments
Highmark
Kingsley Association
Mellon's Orchard Neighborhood Association
Negley Place Neighborhood Alliance
Pitt Center for Healthy Environments and Communities
Pittsburgh City Forestry Division
Pittsburgh City Planning
Pittsburgh City Planning
Pittsburgh Department of Public Works
Pittsburgh Department of Public Works
Pittsburgh Urban Redevelopment Authority
Pittsburgh Parks and Recreation
Pittsburgh Parks Conservancy
Urban Ecological Collaborative
Pittsburgh Public Schools / Pittsburgh City Council
Penn State Cooperative Extension
Carnegie Mellon University School of Art
Pittsburgh Shade Tree Commission
State Representative Chelsea Wagner
Student Conservation Association
Sustainable Pittsburgh
Union Project
Union Project
Urban Farming Initiative
Urban Farming Initiative
Penn State Cooperative Extension
Riverquest
GTECH Strategies, Inc.
GTECH Strategies, Inc.
GTECH Strategies, Inc.

Consultant Team

Perkins Eastman
Stefani Danes, AIA LEED AP
Thomas Bartnik, AICP LEED AP
Roland Baer, AIA
Arch Pelley, AIA
Lauren Merski
Melissa Annet
Sammy Van den Heuvel

Cahill Associates
Thomas Cahill
Courtney Marm

Viridian Landscape Studio
Tavis Dockwiller
Rolf Sauer
Suzanna Fabry

ETM Associates
Timothy Marshall

East Liberty Development, Inc.

Executive Director
Maelene Myers

Director of Development
Ernest Hogan

Sustainable Policy Coordinator
Nathan Wildfire

Community Outreach Coordinator
Emily Nordquist

Table of Contents

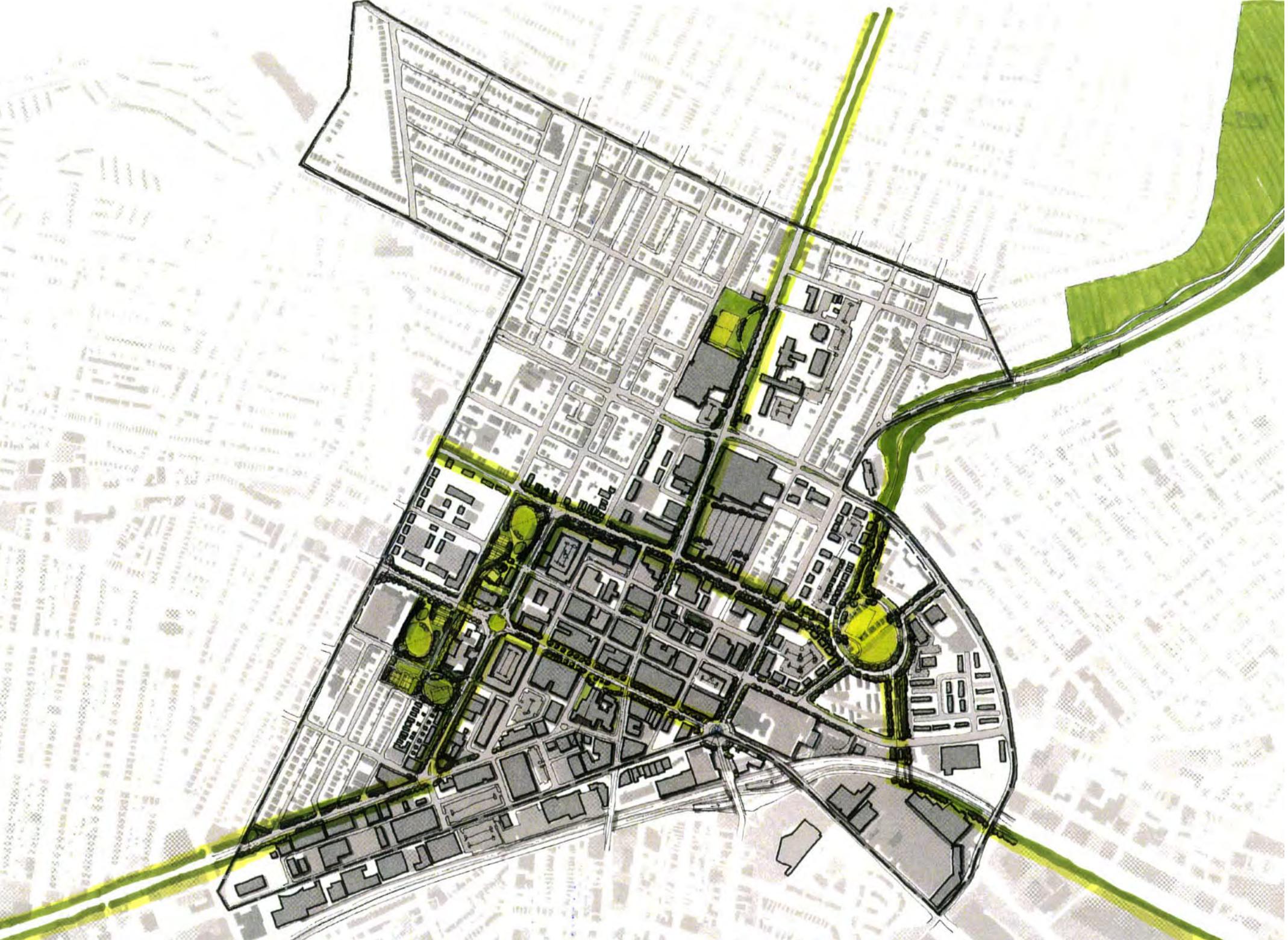
1	Executive Summary	5
	▪ Green Vision	
	▪ Green Vision Elements	
	▪ Priority Projects and Measures of Success	
2	Introduction	15
	▪ East Liberty Today	
	▪ What is a Green Vision?	
	▪ East Liberty’s Green Liabilities and Green Assets	
	▪ Why a Green Vision?	
	▪ Principles for a Green Vision	
	▪ A Green Future—Imagine East Liberty in 2020	
3	Green Vision Elements	29
	Sustainable Infrastructure Investment and Neighborhood Quality	
	▪ Build Green Infrastructure for the 21st Century	
	▪ Create Exceptional Parks, Recreation and Open Space	
	▪ Reinforce Urban Farming and Urban Forestry Practices	
	Walkable, Bikable Neighborhood Patterns	
	▪ Optimize Neighborhood Density and Diversity	
	▪ Build Mixed-Use Projects at a Pedestrian Scale	
	▪ Expand Transit Alternatives and Bicycle Network Options	
	Local Impact and Individual Community Actions	
	▪ Improve Energy Efficiency and Target Waste Reduction	
	▪ Incorporate Art into the Neighborhood Landscape	
	▪ Advance Local Environmental Awareness and Education	
4	East Liberty Parks	85
	▪ Existing Conditions of East Liberty Parks	
	▪ Short Term Considerations	
	▪ Town Square Plan	
	▪ Liberty Park Plan	
5	Measuring Success	113
	▪ Indicators	
	▪ Return on Investment	

East Liberty’s Green Vision

Funding provided by:

The Heinz Endowments
Pennsylvania Department
of Conservation and
Natural Resources*
Roy A. Hunt Foundation

*This project was financed in part by a grant from the Community Conservation Partnerships Program, Environmental Stewardship Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation.



East Liberty's Green Elements



Achieving the East Liberty's Green Vision involves nine fundamental green elements, classified under three general categories:

1. Sustainable Infrastructure and Landscape

- Build Green Infrastructure for the 21st Century
- Create Exceptional Parks, Recreation and Open Space
- Reinforce Urban Farming and Urban Forestry Practices

2. Compact Green Development

- Optimize Neighborhood Density and Diversity
- Build Mixed-Use Projects at a Pedestrian Scale
- Expand Transit Alternatives and Bicycle Network Options

3. Community Action and Education

- Improve Energy Efficiency and Target Waste Reduction
- Incorporate Art into the Neighborhood Landscape
- Advance Local Environmental Awareness and Education

The relevance of each element to East Liberty is briefly described in the following pages with summaries of the primary issue that needs to be addressed; the resources, tools and strategies for each element; and potential targeted opportunities for implementation within East Liberty.

East Liberty's
Green Vision

Executive
Summary

Sustainable Infrastructure and Landscape





Build Green Infrastructure for the 21st Century

Pittsburgh’s 100-year old combined sewers were not designed to handle the runoff from the current impervious areas. Combined Sewer Overflows (CSOs) degrade water quality, drive up costs for water treatment, including over \$21 billion in projected hard infrastructure costs. Instead of ‘big-pipe’ solutions, East Liberty can be a green neighborhood model to minimize stormwater runoff at its source.

- Reduced impervious surface area
- Porous pavements
- Bio-retention areas
- Trees
- Infiltration beds
- Cisterns and rain barrels
- Rain gardens
- Green roofs
- Enlarged tree planting strips

- Penn Avenue street trees
- Porous paving and sidewalks for the 700 Block of Euclid
- Green roofs for retail properties
- Porous parking lots, bio-retention areas, bio-swales, rain gardens and residential rain barrels
- Green alleys
- Neighborhood-wide tree plantings



Create Exceptional Parks, Recreation and Open Space

East Liberty’s three public parks are in various states of disrepair, have no active programming and are impacted by either development plans or development potential surrounding their sites.

Peabody High School’s outdoor facilities are central to the more than half of East Liberty’s population who live north of East Liberty Boulevard.

- Green connections to local parks
- Work with non-profit partners to develop parks programming
- Improve park access and visibility
- Link to educational opportunities
- Orient new real estate development to maximize frontage on the parks
- Enhance links to Regional Parks

- New Liberty Park and surrounding development potential
- Open connections for better public access to Enright Park
- Garland Park’s revitalization with Mellon’s Orchard South
- Peabody School along Beatty
- Town Square and Broad Street Plazas
- Clean and maintained hillsides



Reinforce Urban Farming and Urban Forestry Practices

Urban tree canopies offer vital benefits which include improved air quality, a reduced “heat island” effect, reduced stormwater runoff, habitat for migratory birds and increased property values.

Urban agriculture means better use of vacant land, job training and educational opportunities, local community engagement and healthier lifestyles.

- Invest in street trees/tree wells and planting strips
- Volunteers for tree maintenance
- Establish community tree nursery
- Wood products artwork
- Neighborhood composting
- Urban agriculture (CSA) production
- Native and edible landscaping
- Master Gardener volunteers

- Restore the tree canopy between Negley Run and Garfield Heights
- Bio-remediation and green strategies
- Both Tree Tenders and Eco-Stewards programs in East Liberty
- Urban agriculture implemented with many partners

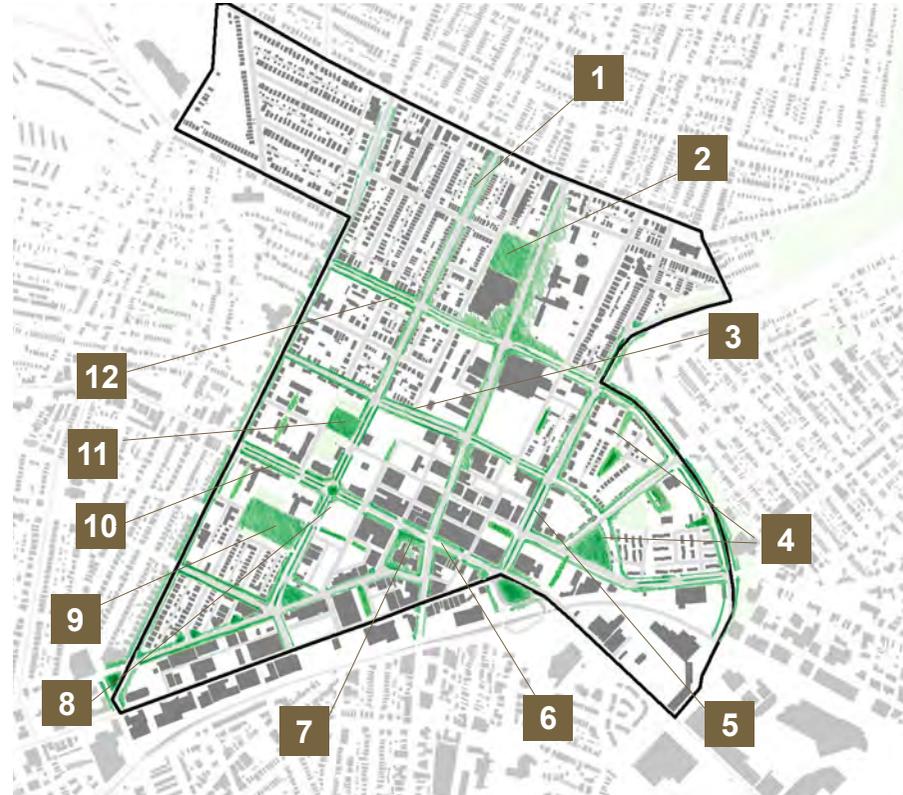
Primary Issue

Resources, Tools and Strategies

East Liberty Targeted Opportunities

Invest in Sustainable Green Infrastructure, High Quality Parks, Connected Open Space and Urban Agriculture

Sustainable Infrastructure and Landscape



- | | | | |
|----------|-------------------------------|-----------|------------------------------|
| 1 | 700 Block N. Euclid Avenue | 7 | ELPC Town Square |
| 2 | Peabody H.S. Grounds | 8 | Penn Circle W.—Euclid Avenue |
| 3 | Penn Circle N.—Rural Street | 9 | Enright Park |
| 4 | Liberty Park and Trail | 10 | Penn Avenue Gateway |
| 5 | Penn Circle E.—Collins Avenue | 11 | Garland Park Center |
| 6 | Penn Avenue Commercial | 12 | East Liberty Boulevard |

Green Streetscapes and Two-Way Traffic Turns Penn Circle West into North Euclid Avenue



Priority Indicators, Neighborhood Baselines and Targets

	Existing Condition Baseline	2008 to 2011	2011 to 2014	2014 to 2017	2017 to 2020	Strategic Initiatives
Reduce Amount of Impervious Pavement Area (SF) to Pervious	213.0 Acres (57.6% of Area)	206.6 Acres (54.6% of Area)	200.4 Acres (51.6% of Area)	194.4 Acres (48.6% of Area)	188.6 Acres (45.6% of Area)	Pervious pavements; infiltration beds; downspout disconnects; green roofs
Reduce Amount of CSO Events in the three Sub-Watershed Areas	15,500,000 gallons (Annual Total)	10% Reduction	20% Reduction	35% Reduction	50% Reduction	Target "zero" storm-water runoff for parking lot/street retrofits, new construction and downspout disconnects
Net Trees Planted (for Each 3-Year Period)	0	500	500	500	500	City supported tree installation; TreeVitalize and volunteers; private on-site owner planting
Increase Overall Tree Canopy in East Liberty	9.0%	10.0%	12.0%	16.0%	24.0%	Street tree maintenance; new street trees; residential, parks and institutional site plantings
Increase Urban Agriculture and Local Food Production	33,000 SF (0.75 acres)	87,000 SF (2 acres)	130,000 SF (3 acres)	174,000 SF (4 acres)	218,000 SF (5 acres)	Community gardens or bio-fuel agriculture on vacant lots, institutional lawns or indoor hydroponic systems with the involvement of local partners
Increase Annual Operating Support for Local Parks	\$43,600	\$75,300	\$100,200	\$133,500	\$177,600	Obtaining grants and in-kind park services for East Liberty (first 3 years 25% increase; 10% thereafter)
Increase Local Volunteer Support System for Local Parks	2,400 Volunteer Hours Per Year	4,800 Volunteer Hours Per Year	9,600 Volunteer Hours Per Year	19,200 Volunteer Hours Per Year	38,400 Volunteer Hours Per Year	Coordination and involvement with local non-profits, universities and block groups

Compact Green Development





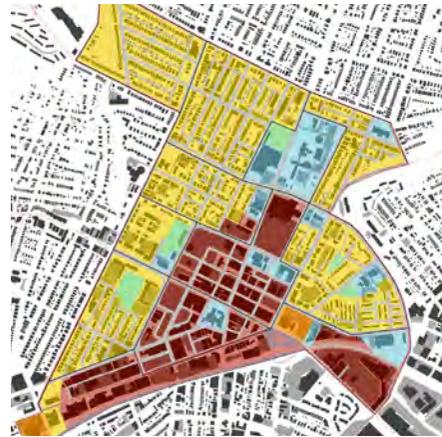
Optimize Neighborhood Density and Diversity

Appropriate neighborhood density is key to walkable communities versus those which always require a car.

In contrast to single family residential developments, urban neighborhoods can achieve desirable density by offering a variety of housing types and tenure, with the option of moving through various stages of life in the same community.

- Variety of housing types: single family, townhouse, duplex, triplex, senior housing, multi-family apartments, granny-flats and mixed-use buildings.
- Alternative options for tenure: fee-simple ownership, market-rate rental, subsidized rental, cohousing, cooperatives and condominiums.

- Mellon's Orchard South
- The Highland Building
- Liberty Park and surrounding blocks
- 700 Block of N. Euclid Avenue
- Apartments in commercial core
- Mixed-use, transit-oriented developments



Build Mixed-Use Projects at a Pedestrian Scale

Development density alone will not guarantee a more pedestrian friendly neighborhood.

Along with the larger, regional retailers, a mix of commercial storefront and residential options presents the greatest opportunity to reduce vehicular miles traveled.

- Market based pricing for parking
- District-wide parking plan
- 100% parking exempt business district
- Initiative signage for transit
- LNC zoning
- Residential on upper-floors above commercial or retail if possible
- Storefront retail support
- Shared or public structured parking
- Traffic calming measures
- Hotel development
- Sustainable streetscapes

- Highland Building
- Commercial core upper floors
- Centre Avenue density
- Target—North side street edge
- Mellon's Orchard South
- Penn Circle conversion
- Pay stations for parking



Expand Transit Alternatives and Bicycle Network Options

Bicycle and pedestrian friendly neighborhoods mean viable alternatives to the car.

Traffic of all kinds should move efficiently and safely.

The alternatives must be convenient, safe, accessible, economical and enjoyable.

- Transit Oriented Development
- Bicycle lanes/shared lanes
- Bicycle trails for recreation
- Car sharing—i.e. Zipcars
- Bicycle amenities—racks, etc.
- Bicycle wayfinding signage
- Adaptive signalization in core

- Transit-oriented development at busway hubs
- Bike lanes
- Highland Avenue to Highland Park
- Liberty Park to Negley Run
- East Liberty Boulevard
- Penn Avenue through Mellon Park
- Free Ride neighborhood clinics
- Regional Park bus loop

Primary Issue

Resources, Tools and Strategies

East Liberty Targeted Opportunities

Develop a Healthy Built Environment with Lively Mixed Uses, Pedestrian-Scale Density, and a Walkable Streetscape

Pedestrian Oriented Development Patterns



Mixed Use Development

Introduce housing options within the commercial core

East Liberty currently has very limited mixed-use development sites (orange) with residential (yellow) surrounding a commercial core and strip along the East Busway (red).

Combining residential and commercial uses assure an active pedestrian-friendly core from early morning through the evening hours. Mixed-use development in East Liberty should include a variety of:

- Residential options
- Employment opportunities
- Retail establishments
- Entertainment and arts programs
- Recreation and education
- Cultural and worship spaces



User Friendly Downtown

Target development within a 5 to 10 minute walk of busway stations

The one-quarter and half-mile zones surrounding the East Busway stations approximate five to ten minute walks, respectively.

The Baum/Centre corridor and the downtown core of East Liberty within the one-quarter mile radius are targeted for higher density development: 3 to 5 stories and a new development ratio of 30 percent residential.

The properties around the perimeter of Penn Circle are generally within the half-mile radius and are targeted for medium density development: 2 to 3 stories and a new development ratio of 60 percent residential.



Local Connections

Strengthen local public transit, pedestrian and bicycle connections

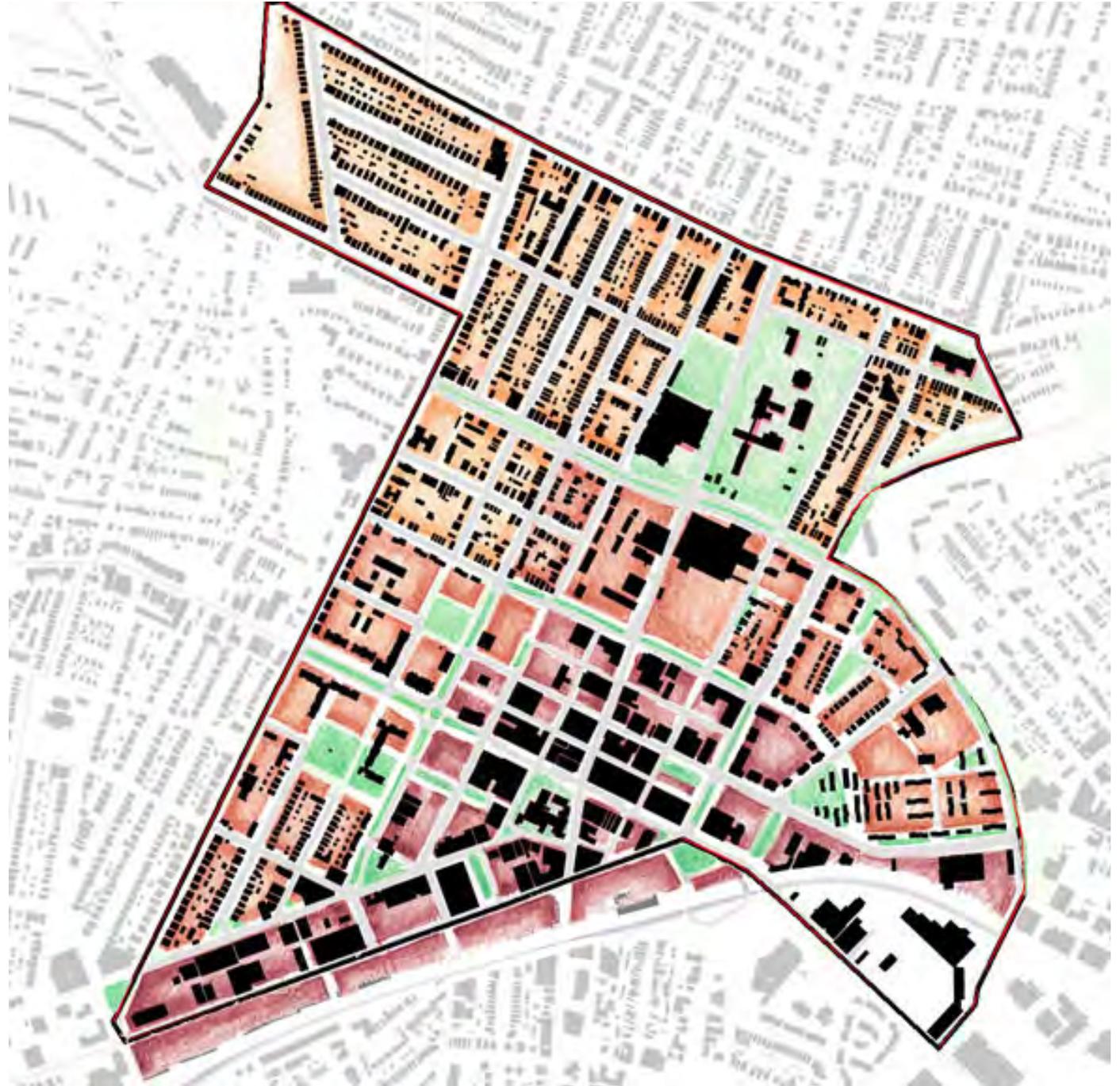
Viable alternatives to traveling by automobile require an investment in planning and funding a pedestrian friendly network of infrastructure that includes:

- Secure and protected bicycle parking, especially at major transit hubs
- Structured parking in conjunction with market demand
- Bicycle lanes, trails and amenities
- Street calming measures
- Safe Routes to School programs
- Retail/grocery deliveries
- Improved park access
- Signals should be coordinated
- Transit use should be initiative
- Regional networks for bikes

Priority Indicators, Neighborhood Baselines and Targets

	Existing Condition Baseline	2008 to 2011	2011 to 2014	2014 to 2017	2017 to 2020	Strategic Initiatives
Cumulative Net Density Increase in Medium Density Target Areas	0 Square Feet (SF)	100,000 SF	200,000 SF	400,000 SF	1,000,000 SF	Infill development in low density; new in medium density areas (SF includes residential development)
Net Total Housing Unit Increase in Medium Density Areas	0 Units	50	300	525	700	Mixed-Use; 2 to 3 story development of the lower density properties, primarily those surrounding Penn Circle
Cumulative Net Density Increase in High Density Target Areas	0 Square Feet (SF)	100,000 SF	400,000 SF	800,000 SF	1,200,000 SF	Mixed-use and transit-oriented development (SF includes residential development)
Net Total Housing Unit Increase in High Density Areas	0 Units	50	150	250	350	Mixed-use and transit-oriented development near the two East Busway stations
Increase % of Owner Occupied Units	18% (Owner Occupied)	20%	25%	30%	35%	Selective demolition; new construction; condominium or co-op conversion; cohousing
Restore Local Street Connections to Break Down "Super-blocks"	550 Linear Feet (LF) (Broad Street)	1 connection	3 connections	5 connections	7 connections	Garland Park—Broad and St. Clair; and Liberty Park; East Liberty Boulevard
Add Designated or Shared Bike Lanes on East Liberty Streets	0 Miles	4 Miles	10 Miles	15 Miles	20 Miles	East Liberty Boulevard; Highland; Friendship; Euclid, Rural; Negley Run; Baum, Broad and Larimer
Increase Number of Shared Cars and % Run on Clean Power	6/15%	18/35%	30/50%	48/70%	72/90%	Zipcar fleet conversion to hybrid, electric, natural gas or fuel cell; establish local/block car co-ops
Update All Transit Signage to Real-Time Info	0	2 stations	4 stations	6 stations	8 stations	
Replace Street Meters with Pay Stations	1 Block	5 Blocks	10 Blocks	15 Blocks	20 Blocks	All

Community Action and Education





Improve Energy Efficiency and Target Waste Reduction

Reducing energy use results in lower CO₂ emissions, less demand on the grid and direct cost savings to local municipal, commercial and residential utility bills.

Reducing waste not only lessens pressure on landfill space, but ultimately decreases the cost of total tipping fees. Recycling or reuse captures the value of materials no longer needed for their intended use.

- LEED standards for all types of development
- Energy Star ratings
- Energy audits for apartments
- Alternative energy and fuels
- Neighborhood energy production
- Net Zero energy houses and apartments

- Cogeneration and Central Plants
- Green power purchase network
- Alternative fuel for municipal fleets
- Energy audits for apartments
- Household retrofit kits
- Material Recycling Facility (MRF)
- Second chance, resale retail shops
- Promotional—i.e Styrofoam-Free Zone
- Geothermal heating and cooling



Incorporate Art into the Neighborhood Landscape

Incorporating art into public infrastructure and private development helps to create a unique sense of place by making the ordinary extraordinary.

Artwork and artists also provide an impetus for community economic development, community events and activities and public education.

- Art market factor in development
- Environmental art
- Garden art with recycled materials
- Schools and churches
- Local commercial artisans
- Special events/festivals
- Local street vendors and artists
- Streetscapes and traffic calming art

- Peabody High School along Beatty
- Dilworth Elementary gardens
- Recycled art contests/exhibits
- Neighborhood art common theme—i.e. birdhouses, rain barrels
- Environmental Art Cart in Parks
- Street artist/vendor stands
- Community gardens
- New streetscape elements



Advance Local Environmental Awareness and Education

Understanding how actions at the regional and local levels impact our day-to-day lives is critical to being an effective green neighborhood.

To get to a Green Vision, local residents need to see the environmental issues and understand the relationship between these issues and their everyday lives.

- Urban Environmental Center
- Local school and church presentations and volunteer projects
- Earth Day, Arbor Day events
- Smoky City to Green City
- Website and website links
- University community outreach
- National organizations' local chapters

- Garland Park
- Peabody High School and Dilworth—Green Careers mentorships
- Regular green forums/workshops
- Dilworth School garden
- Pilot project central

Primary Issue

Resources, Tools and Strategies

East Liberty Targeted Opportunities

Inspire Local Opportunities by Creating Green Jobs and Enhancing Education, Environmental Art and Individual Community-Based Actions

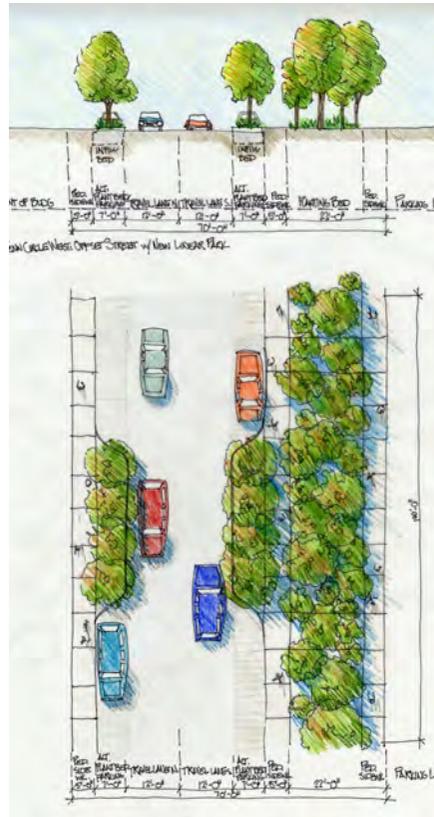
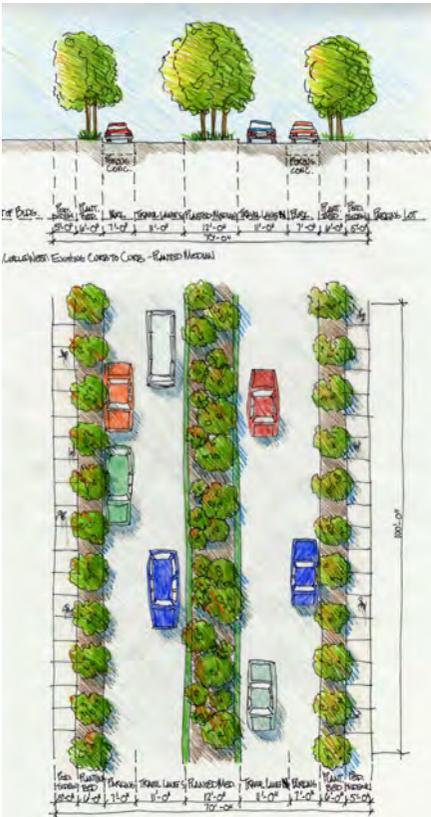
Community Action and Education



Priority Indicators, Neighborhood Baselines and Targets

	Existing Condition Baseline	2008 to 2011	2011 to 2014	2014 to 2017	2017 to 2020	Strategic Initiatives
Energy Audits for Commercial Units	0%	10%	20%	40%	80%	Apartment building and individual unit energy audits
Percentage of Waste Diverted from Landfills for Recycling	0%	10%	25%	40%	60%	Building construction sites; neighborhood materials recycling facility; local and city-wide composting
Increase Amount of Renewable Energy Produced in East Liberty	0%	2%	4%	8%	15%	Renewable and alternative energy alternatives: solar; geothermal; co-generation; fuel cell central plants
Increased Neighborhood Arts Initiatives	Few	2 Initiatives	10 Initiatives	20 Initiatives	30 Initiatives	Streetscape infrastructure investments; regular youth arts programming in parks; artist studios/lofts
Number of Annual Neighborhood Green Special Events	0	4	6	8	12	Earth Day, Arbor Day, Spring and Fall Equinox; Summer and Winter Solstice; forums and workshops
Number of Organizational Green Events in East Liberty	4	8	12	18	24	Forums and workshps sponsored by local schools, churches, organizations with/without outside partners
Green Jobs or Internship Experiences in Community	4	6	10	20	30	

The Framework for East Liberty's Green Street Network



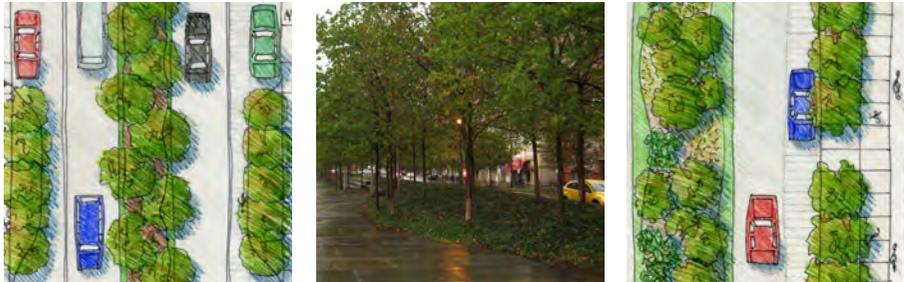
Collins Street
(Penn Circle East)

Rural Street
(Penn Circle North)

Euclid Avenue
(Penn Circle West)

Penn Avenue
West Gateway

East Liberty's Current Development Momentum Presents an Opportune Time for a Neighborhood-Based Green Vision



Historically, East Liberty has benefited from its pedestrian friendly origins during the 1940s and 1950s, its access to public transportation, its proximity to three of Pittsburgh's four regional parks, and the neighborhood stabilization provided by leadership from local institutions.

Since 1999, East Liberty experienced Home Depot's opening; construction of New Pennley Place; rehabilitation of the Kelly-Strayhorn Theater and the Liberty Building; and the EastSide development beginning with the introduction of Whole Foods to Pittsburgh. Recent demolition of the troubled residential high-rises proved to be a strong symbolic "tipping point" for the neighborhood. Momentum is growing with new plans for green residential for-sale and rental housing at all price points, increased national retail and small local businesses, new transportation infrastructure, and rehabilitated parks and open space. East Liberty and Friendship are two of Pittsburgh's "Elm Street" neighborhoods, and both are adjacent to the existing East Liberty Main Street District.

Recently featured as one of the communities in *This is Smart Growth* (2006), "East Liberty reversed its fortunes by working with national retailers, local activists, and government and non-profit agencies to bring back stores, jobs, services, and well-built affordable homes." Through continued use of initiatives in the public realm to leverage private investments, there is an opportunity to create and enhance a special sustainable East Liberty, challenging typical regional development agendas and raising the standards for sustainable development.

This is an exciting time for the neighborhood to implement a Green Vision.

East Liberty's Green Vision

Introduction

What is a Green Vision?

Green infrastructure, a green space network, energy efficiency and conservation, mixed-use development, pedestrian friendly streetscapes, improved education, and sustainable local economic development are all components of a **Green Vision for East Liberty**

A sustainable Green Vision means the 3 E's:

EQUITY: all stakeholders share in a revitalized community

ECONOMIC VITALITY: Markets guide neighborhood development

ENVIRONMENT: Every development improves the natural environment and quality of life.

A "Green Vision" makes concerns of daily life a priority, addressing not just environmental issues, but quality of life issues for every visitor, business owner, employee and resident of East Liberty.

The Green Vision for East Liberty represents a neighborhood planning effort initiated by East Liberty Development, Inc. (ELDI), a non-profit community-based development organization in Pittsburgh. Led by the consultant team of Perkins Eastman, Cahill Associates, Viridian Landscape Studio and ETM, Inc., this effort was funded by The Heinz Endowments, the Pennsylvania Department of Conservation and Natural Resources (PA DCNR) and the Roy A. Hunt Foundation.

Developed as a model for a sustainable healthy urban neighborhood in conjunction with the update of East Liberty's Community Plan, the project proceeded with the assistance of a Technical Advisory Committee consisting of local experts from organizations involved with environmental, educational and sustainable planning efforts.

More than a planning document, the Green Vision offers resources and tools for ELDI and the community to help guide development and provide a foundation for integrating green practices into neighborhood investments—both public and private.



The impositions of the Urban Renewal program have begun to be transformed through neighborhood-based community revitalization.

The former third largest retail district in Pennsylvania, East Liberty's retail stores once again draw people from far and wide.

East Liberty's Challenges to Being Green

Over one million square feet of neighborhood buildings were demolished and many streets were eliminated to create super-blocks as part of the 1960s and 1970s Urban Renewal era. Some challenges to creating a green neighborhood in East Liberty include the following existing conditions:

- **Extensive Impervious Areas:** The impermeability of public rights of way—streets, sidewalks and public parking—significantly contributes to stormwater runoff and the increased frequency of combined sewage overflow (CSO) events, a major regional problem.
- **Excessive Surface Parking:** An extensive amount of both public and private surface parking not only significantly adds to East Liberty's impervious areas, but also detracts from the pedestrian experience.
- **Unfriendly Pedestrian Environment:** East Liberty's street trees are nonexistent, dying, or inappropriately sited; street lighting is harsh or missing; street furniture is largely absent; pedestrian crossings are dangerous; and there is little to no consideration for cyclists.
- **Inefficient Housing:** Dominated by 100 year-old Victorians and 1960s era houses, neighborhood homes use huge amounts of energy and result in high utility bills, making East Liberty less affordable to vulnerable populations.

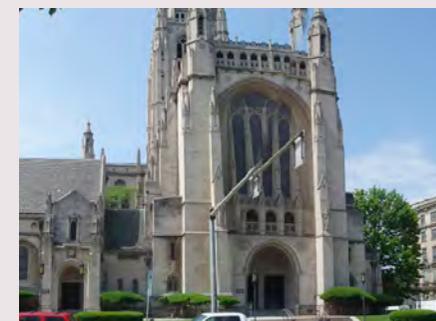


- **Limited and Inaccessible Green Space:** East Liberty's parks are currently community liabilities—surrounded by fencing, traffic and vacant lots, and rarely serving resident needs.
- **Penn Circle:** An overbuilt and divisive ring road, Penn Circle highlights one of the major flaws with Urban Renewal era planning with its emphasis on auto-oriented accommodations.
- **Site Contamination:** Environmental remediation is necessary on some existing vacant sites.

East Liberty's Green Assets

Yet East Liberty still maintains some and is beginning to build more critical components of a green neighborhood. These features include:

- **Public Transportation:** East Liberty is accessible via two stops along the Port Authority's East Busway and is served by many bus routes.
- **Regional Parks:** 3 out of 4 Pittsburgh Regional Parks are within 2 miles of East Liberty.
- **Local Parks:** Liberty, Garland and Enright Parks are in the neighborhood; Mellon Park is nearby; and the Peabody High School campus serves some local recreation needs.
- **Historic Urban Fabric:** In spite of Urban Renewal initiatives in the 1970s, East Liberty is still home to significant buildings with historical character and still maintains most of its traditional street grid.
- **Pedestrian Friendly Topography:** Pittsburgh is known for its hillsides, but East Liberty has one of the flattest terrains in the City.
- **Commercial and Retail Activity:** Market demand and development for commercial and retail activity have greatly increased in East Liberty since 1999.
- **Regional Partners:** Since this document's first drafts, more than 10 environmental non-profits have done work in East Liberty.



- **Affordable Housing:** East Liberty includes some of the most attractive affordable housing in the City including New Pennley Place, Fairfield Apartments, Penn Manor, Negley Neighbors and other recent residential developments.
- **Recent History of Green Initiatives:** In the last four years alone, East Liberty has witnessed more than 300 trees planted, 4 community gardens started, and construction of both green housing and LEED Certified commercial buildings.

Why a Green Vision? Making East Liberty a Thriving Neighborhood: Dynamic, Greener, Healthier and Economically Sustainable.



Neighborhood-Based Community Planning Effort

Being strategic in recognizing that revitalization always occurs within a dynamic and changing context—requiring catalytic initiatives by groups and individuals—the process included the participation of local residents and stakeholders through a series of task force meetings and the involvement of “technical” expertise from the project’s Advisory Committee.

Requiring both physical and non-physical transformations, a number of related strategies were integrated into a coordinated effort that included parks and open space planning, infrastructure planning, pedestrian friendly amenities, neighborhood education and organizing, social services, financing programs, business and job opportunities, and promoting improved public health.



Green Infrastructure—Providing Links Between Form and Function

In addition to providing a framework for neighborhood park development, and open space linkages within the neighborhood and surrounding area, the plan incorporates a series of low-impact development strategies for local implementation. Urban forestry initiatives not only include planting, but maintenance of street trees.

Landscaping and gardening recommendations not only include the promotion of native plants, but new tree beds, bio-swales, infiltration beds and the incorporation of rain gardens at both residential and commercial scales. Infrastructure improvements which include pervious pavements are recommended for both public right-of-ways and on-site private development.

Transit-oriented development, a neighborhood bike network, mixed-uses and a series of pedestrian-friendly initiatives promote alternatives to auto-only means of travel.



Ecological Engineering Equals Effective Economic Impact

In creating a Green Vision, it is necessary to understand that resources are limited. Especially in the case of public investment, the plan needs to make the best use of those resources. With the Pittsburgh region under a consent decree from U.S. EPA to confront the growing problems of stormwater management and combined sewer overflow events, this project demonstrates an alternative way of dealing with these problems, beginning at the local level.

This plan promotes a shift in public infrastructure investment from one which relies on expensive piping and contaminated water treatment to one which incorporates the green infrastructure strategies; thereby providing benefits for local streets, streetscape and neighborhood investment, recharged aquifers and reduced combined sewage overflow events.

Community Survey: Principles for a Green Neighborhood

The initial East Liberty Community Meeting to kick-off the update of the 1999 East Liberty Community Plan also introduced the Green Vision process to over 125 people. The pre-meeting Green Open House included information tables with representatives from some two dozen organizations involved in green neighborhood planning issues.

More than 50 percent of all community meeting attendees—65 people—completed a neighborhood survey at the event. A portion of the survey asked about the relative importance of each of the adjacent six principles for the Green Vision. Participants were offered the following choices:

- Minimally Important
- Moderately Important
- Very Important
- Essential

These fundamental principles provide a foundation for the development of the Green Vision for East Liberty.

Community Support for the Green Vision Principles

67%

- 1 Balance the natural and built environments** with an understanding of the added value that green space opportunities bring to enhance urban neighborhoods.

79%

- 2 Promote energy efficiency, conservation and waste reduction** to reduce environmental impacts and realize cost savings at both community and individual levels.

81%

- 3 Achieve exceptionally good water and air quality** to maintain the health of urban ecosystems which includes neighborhood residents, community visitors and children.

94%

- 4 Integrate land use, quality urban design and healthy communities** to improve neighborhood quality of life for people to live, work and play.

81%

- 5 Enhance community economic development** to help create locally-based wealth and living wage employment opportunities for local residents.

82%

- 6 Promote community education and increased public awareness** of the environmental components and economic benefits of a green neighborhood.

The corresponding percentages reflect the ratio of people identifying each principle as being “essential” or “very important” to a green neighborhood.

No one fully understands how, or even if, sustainable development can be achieved; however, there is a growing consensus that it **must be accomplished at the local level** if it is ever to be achieved on a global basis.

*International Council for
Local Environmental Initiatives (ICLEI)*

*The Local Agenda 21
Planning Guide
Toronto (1996)*

A Green Future: Imagine East Liberty in 2020

The Green Vision: Daily Life in the Year 2020

One dozen years ago when ELDI initially undertook the task of establishing a Green Vision for East Liberty, many folks were skeptical. They were uncertain of the Vision's relevance to East Liberty and its residents, and were unclear about what it even meant to be a green neighborhood. But perhaps most importantly, people asked, why should a "Green Vision" be a priority when decent and affordable housing, jobs, economic development, crime and safety were issues confronting the daily lives of so many members of the local community? Although not simple to implement, the answer was simple to articulate: A "Green Vision" makes those daily issues a priority and addresses not only environmental issues, but quality of life issues for every visitor, business owner, employee and resident of East Liberty.

It seemed counterintuitive to think about ecological issues within the confines of artificial neighborhood boundaries, but what's transpired over the last 12 years is a model for showing how sustainable neighborhood planning offers community revitalization, systemic environmental change and sound economic policy.

The Green Vision Pays Dividends on Green Infrastructure Investments

Strategic public investments in green infrastructure and pedestrian-friendly amenities have contributed to positive public perceptions of East Liberty, improved safety and private reinvestment in both commercial ventures and residential developments.



Now, as a major destination for Pittsburghers and tourists alike, East Liberty is enjoying a neighborhood vibrancy that has been dormant for over two generations. The quality of life for the neighborhood has been tremendously improved over the last decade. The clean tree-lined streets that greet visitors to East Liberty complement the surrounding hillsides and have transformed the urban core. Some say that the trees are a big factor in contributing to East Liberty being among the top three most desirable Pittsburgh neighborhoods for three years in a row.

At a time when dollars for public improvements were particularly scarce, the Green Vision demonstrated that infrastructure dollars could be targeted in more effective ways. Instead of looking at street construction, streetscape improvements and stormwater management

as independent projects, the proposition of green infrastructure argued for a more efficient use of public funds. Rather than installing larger pipes to treat the symptoms of combined sewer overflows, the installation of green infrastructure began to effectively deal with the fundamental issues of stormwater management.

The solutions addressed stormwater at its source, not only keeping millions of gallons of stormwater out of the combined sewers, but allowing stormwater to infiltrate the soil, recharge aquifers and complete the natural rain cycle. As an added bonus, it also provided beautiful streetscapes and pedestrian-scale urban amenities that began to enhance the image of East Liberty. This investment in green infrastructure has helped leverage private development initiatives by twenty-fold within the last ten years.

East Liberty's Green Vision

2020 Foresight



Active Street Life Adds to Vitality and Safety in the Neighborhood

The trend that began with innovative and higher density development resulted in a boost to pedestrian street life, more eyes on the street and a sense of ownership not only for private property but for common and publicly owned spaces as well. The addition of 800 housing units—a broad range of market rate and affordable options—within a 15-minute walk of the busway stops is largely responsible for the new vitality in East Liberty’s urban core.

The significant reduction in crime incidents—by more than half—proves that East Liberty is a much safer neighborhood than a decade ago.

Relocating the East Liberty police station involved a shift to community policing and the introduction of beat cops and bicycle police to patrol the streets. With the ability to cover the local neighborhood with greater efficiency than squad cars, the bike police are not only more visible but have become more actively engaged with East Liberty residents and local merchants.

Wide Range of Housing Options Accommodate the “Life Cycle”

Housing choices, for long-time and new residents alike, have been greatly improved in terms of quality, variety, affordability and tenure options. The range of “life cycle” options assures that people who want to live in East Liberty throughout the various times in their lives are able to do so.

New market rate housing includes single family houses, duplexes, apartments, lofts and cohousing developments in the neighborhood. A variety of affordable housing is offered to seniors, students and families and is made possible through tax credits, location efficient mortgages and limited-equity cooperatives.

Older rental units have become more affordable for families. More than 200 apartment units have cut their operating expenses in half after implementing recommendations from energy audits.

One-Car Families Mean More Money in People’s Pockets

Transportation alternatives abound in East Liberty. The two busway stops have not only experienced a twofold ridership increase over the last 12 years, but have also become hubs of activity with new transit-oriented developments featuring a variety of retail, commercial and residential mixed-use structures. These projects have nearly doubled the building density and almost tripled the population of people living within one half mile of each station.

Zip Cars have become a popular and affordable alternative to owning a second car for families, or for some even owning a car at all. In 2008, East Liberty was the base for 5 Zip Cars. Today that number has increased to more than 60 vehicles, with a combination of hybrid and electric cars eventually being phased to a fleet of hydrogen powered cars.

The Port Authority of Allegheny County has moved to more efficient and cleaner energy alternatives. All hydrogen powered buses serving the neighborhood have bike racks which are in use for more than three-fourths of the time along the average bus route.

And the city that once ran the “Ultra-Violet Loop” now has the “Inner-Green Loop”—a regular circuit route which provides 15 to 20 minute connections from East Liberty to each of three Pittsburgh regional parks: Highland, Schenley and Frick parks.

At an average annual savings of \$5,400 in total auto operating savings, households in East Liberty now have more disposable income and often spend it within the neighborhood.

Biking is the Preferred Mode of Travel in East Liberty

In addition to the bus bike racks and bicycle police, all aspects of cycling have blossomed in East Liberty—for commuters, running errands, family rides and school children. One of the greater surprises is the number of people who have geared up to ride year round, limited by only the most severe weather.

Bike Pittsburgh has been particularly instrumental in creating 26 miles of new bike lanes or shared parking/bike lanes throughout East Liberty and completing bicycle connections from Mellon Park to Negley Run and Highland Park.

Neighborhood Parks Programs become Central to Daily Activity

Local parks have become models for innovation at the neighborhood level. East Liberty's Environmental Center is a resource for Pittsburgh's entire East End. With leadership from ELDI and assistance from Pittsburgh's Green Building Alliance, the adaptive reuse of a vacant building achieved not only a LEED Platinum Certification, but the distinction of being Pittsburgh's first zero-energy building. The center boasts the latest in solar and fuel cell technology, window and building shell energy efficiency. A living machine treats all on-site waste biologically with plants and the building's greywater system has cut water usage to a minimum.

The center's grounds offer features unique to an urban park: infiltration beds and dynamic raingardens to capture stormwater run-off; constructed wastewater wetlands for the building's facilities, transitional native plant gardens and nurseries; and reservable shelters for family and friends to gather or to use for many of the regular outdoor workshops focused on gardening, horticulture, forestry, arts, orienteering and outdoor activities. The center has become a regional resource for green neighborhood development, green business assistance and educational programming for private and public schools and local non-profit organizations.



Urban Forest Initiative Emphasizes the Benefits of Trees

In the last ten years, Tree Pittsburgh has led the charge to plant over 3,600 new trees in East Liberty alone—including street trees, park trees, trees in residential yards, school grounds and churches; and trees planted as part of new commercial and mixed-use development projects.

With its growing staff and impressive volunteer force contributing to regular street tree pruning and maintenance, the health of East Liberty's urban forest has been greatly enhanced and the tree canopy increased from 9 percent in 2007 to more than 13 percent in 2020. It's expected that the exponential benefits of mature trees will help boost the neighborhood's tree canopy to a commendable 25 percent by 2028.

Energy Initiatives Save Money and Power East Liberty

On the energy front, with efforts led by ELDI and Pittsburgh City Council members, East Liberty became the first neighborhood to completely replace all cobra-head street lights and traffic signals with LED (light emitting diode) fixtures. This has reduced energy usage by 50 percent and has cut back maintenance costs to one third of the original lights. East Liberty's central micro-power plant—with both fuel-cell and solar powered energy—is providing clean affordable power to meet 15 percent of East Liberty's current energy demands.

Every new residential unit constructed since 2010, at a minimum, has met the 5-star standards for Energy Star construction. Compared to houses constructed under conventional energy

standards, the houses built today in East Liberty are 70% more efficient and operate at a fraction of the cost.

Arts Initiatives and Gardens for the Environment and Economy

East Liberty's creative arts programs are thriving with an emphasis on engaging local artists in environmental and garden art that promotes the re-use of materials, incorporating artistic elements into private gardens and automatically including local art into public infrastructure and open space projects.

In 2008, the Citypark's "Art Cart" program visited East Liberty for just one day during the summer. Today, East Liberty has its own parks art program, which operates year round and serves over 500 adults and 1,500 children each year.

Public and private gardens are showcases for native plants, edible landscapes, local food production, local education, vocational training and community participation. Several local schools and dozens of restaurants are serving fruits and vegetables and using spices grown in East Liberty.

Green Community with Green Jobs: Environmental Efforts Create Employment Opportunities and Strong Local Economy

While many communities were still struggling with the antiquated argument of employment versus the environment, East Liberty moved forward in capitalizing on the

“green collar” market and using environmentally responsible initiatives to create quality, living-wage jobs for local residents and small businesses.

In addition to the millions of dollars directed away from “big-pipe” projects to local green street infrastructure initiatives, East Liberty is home to businesses that are leading efforts for alternative energy, material recycling and green building materials.

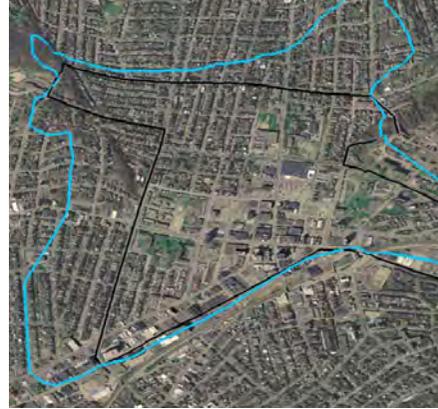
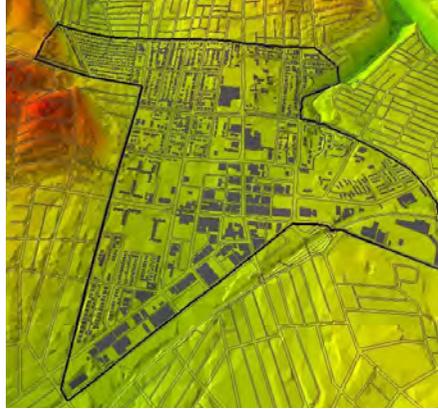
Work Still to Be Done: The Ultimate Goal is Zero

The progress made in the Green Vision over the last dozen years has been remarkable. East Liberty is not only a model for Green Neighborhood planning in the City of Pittsburgh, but it has inspired similar initiatives across the county. The achievements have been possible with great efforts. However, as much as the progress adds up, the ultimate goal is to achieve nothing—the simple number, zero:

- Zero Stormwater Runoff
- Zero Emissions
- Zero Energy Buildings
- Zero Energy Transit
- Zero Crime
- Zero Hunger
- Zero High School Dropouts
- Zero Waste

Will there be skeptics who say this cannot be done? Sure. But in carrying out the Green Vision, East Liberty has dealt with skeptics before. Gearing up for the next level of “green,” the neighborhood is prepared to do it again.





East Liberty's
Green Vision

Green Elements

The Elements of a Green East Liberty

Achieving the East Liberty's Green Vision involves nine fundamental green elements, classified under three general categories:

Sustainable Infrastructure and Landscape

- Build Green Infrastructure for the 21st Century
- Create Exceptional Parks, Recreation and Open Space
- Reinforce Urban Farming and Urban Forestry Practices

Compact Green Development

- Optimize Neighborhood Density and Diversity
- Build Mixed-Use Projects at a Pedestrian Scale
- Expand Transit Alternatives and Bicycle Network Options

Community Action and Education

- Improve Energy Efficiency and Target Waste Reduction
- Incorporate Art into the Neighborhood Landscape
- Advance Local Environmental Awareness and Education

The relevance of each element to East Liberty is briefly described in the following pages with summaries of the primary issue that needs to be addressed; the resources, tools and strategies for each element; and potential targeted opportunities for implementation within East Liberty.



Build Green Infrastructure for the 21st Century

Combined Sewer Overflow (CSO) events continue to be a major problem for Pittsburgh by reducing water quality and driving up costs for wastewater treatment. Without alternative interventions, cost to implement “big-pipe” solutions are estimated at roughly \$21 billion.

Instead of continuing to rely on hard infrastructure solutions, East Liberty offers the opportunity to be a model for a neighborhood-based strategy to minimize stormwater runoff at its source.

Available Tools and Strategies

- Reduce impervious surface area
- Porous pavements
- Bio-retention areas/tree trenches
- Infiltration beds
- Cisterns/rain gardens/green roofs

East Liberty Targeted Opportunities

- Penn Avenue planted median
- Penn Avenue tree trenches
- Porous paving, sidewalks and rain gardens—700 block of North Euclid
- Green roof for Target and other large retailers
- Porous parking lots and bio-retention areas
- Bio-swales
- Green alleys

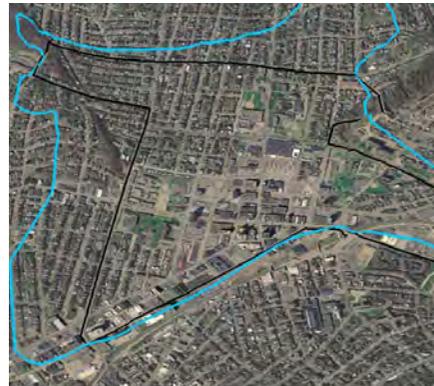
Problem: Costly, Inefficient Infrastructure

As little as one-tenth inch of rain can cause raw sewage to overflow into our waterways. An average rainfall in Allegheny County is one-quarter inch. Approximately 90% of Allegheny County residents get their drinking water from four rivers—the Monongahela, Allegheny, Ohio and Youghiogheny rivers. Correcting the sewer infrastructure problems in the Pittsburgh region could potentially cost over 21 billion dollars.

3 Rivers Wet Weather

Success is relative.
It is what we can make
of the mess we have
made of things.

T. S. Eliot



Sub-Watershed Area

As illustrated above, the political boundaries of East Liberty (black line) closely align with the sub-watershed area (blue line) which encompasses nearly all of East Liberty and portions of the adjacent neighborhoods.

Prior to the area's settlement and development, a raindrop falling within the blue area would most likely infiltrate the soil within the sub-watershed or find a stream and work its way back into the natural water cycle to recharge the aquifers. Today, it most likely ends up in the combined sewer system.



58% Impervious Surface Area

Nearly two thirds of the surface area in East Liberty is impervious and does not allow for water to pass through. This includes:

- Buildings (22.4%)
- Surface parking lots (14.1%)
- Streets/Sidewalks (21.1%)

Even the pervious areas—lawns, parks, planting beds—may have impermeable qualities as well (primarily due to compaction) which further adds to the volume of runoff generated during a rain storm.

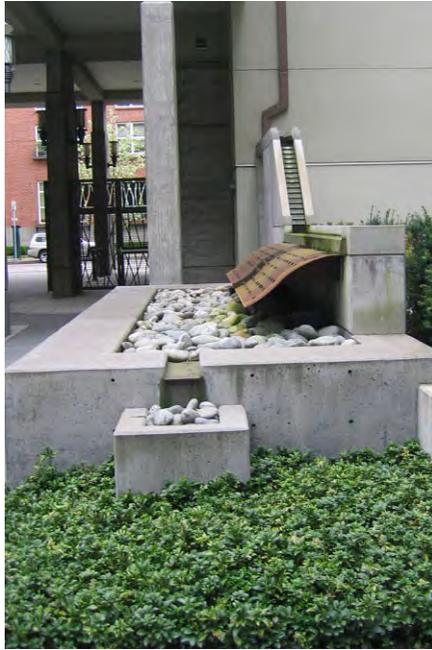


Big Pipes = Big Local Costs

As impervious areas increase, the amount of stormwater that finds its way back into the natural water cycle is greatly reduced. To handle the additional runoff, East Liberty and Pittsburgh rely on a century-old sewer pipe system.

With a combined sewer system, raw sewage from households and businesses mix with stormwater that flows from downspouts and street inlets. When the storm event is big enough, the system exceeds capacity and the combined sewer overflow ends up in one of the local rivers.

Solution: Efficient and Effective Alternatives at the Local Level



Let the Stormwater Soak In

Pittsburgh's average annual rainfall is 36 inches. Picture three feet of standing water over each impervious surface and that's roughly how much stormwater is being diverted from its natural course into a combined sewer system, requiring treatment by artificial means and at a significant cost to taxpayers.

Allowing water to soak in closes the loop of the water cycle, minimizes contamination and reduces costs associated with water treatment and CSOs. Actions taken at the local level have the potential to produce efficient and effective stormwater alternatives.

Disconnecting Downspouts: Putting Stormwater to Better Use

East Liberty is covered by buildings equalling over 80 acres of roof area and accounting for the greatest amount of impervious coverage in the neighborhood.

Nearly all of the rainfall onto these roofs is directed into downspouts that are connected to the City of Pittsburgh's combined sewer system, contributing to combined sewer overflow into Pittsburgh's three rivers.

Many cities across North America—including Chicago, Vancouver, Toronto, Boston and Milwaukee—are promoting "downspout disconnection," which redirects downspouts away from sewer pipes and diverts that stormwater into infiltration beds. These programs are an effort to:

- Reduce the amount of CSO pollution
- Limit the amount of resources devoted to water treatment
- Promote water conservation through grey water reuse
- Recharge groundwater



Cisterns, Rain Barrels, Rain Gardens and Green Roofs

Bio-Retention, Pervious Streets, Green Alleys, Porous Parking, and Porous Sidewalks

Green Stormwater Strategies: Public Area Infiltration and Rainwater Reuse

Quick Facts and Impacts

- Portland measured a 95% flow reduction when using bioretention systems.
- Seattle has reduced runoff by 98% in a neighborhood with extensive green infrastructure implementation.
- The University of New Hampshire Stormwater Center found that bioretention can reduce key pollution from runoff by nearly 100 percent.
- In cold climate conditions, permeable pavement can reduce freezing, salt use and associated road wear.
- “On our own office building, we used a strategy of porous paving and groundwater infiltration in beds under parking lots. That allowed us to capture 100% of the stormwater in a 100-year event.” (Sandy Wiggins, V.P. W.S. Cumby and Sone, Inc.)
- “The work that’s been done so far indicates that as long as the infiltrating rainwater percolates through a couple of feet—and we usually use 2 to 3 feet of soil—virtually all the pollutants that are contained in that stormwater are removed, broken down, or transformed in that infiltration/percolation process.” (Tom Cahill, President, Cahill and Associates, Inc.)

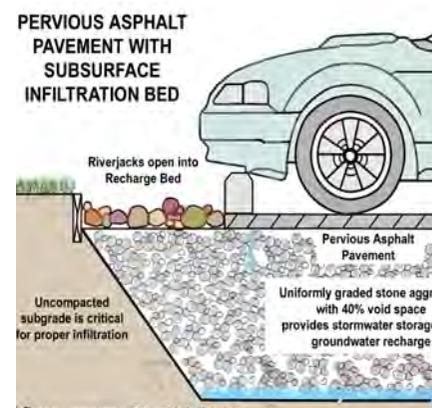


Porous Streets and Sidewalks

Local streets and sidewalk alternatives include porous concrete, porous asphalt or porous pavers. The Portland street above uses a combination of porous asphalt travel lanes and porous pavers in parking lanes. Infiltration beds under the sub-base allow stormwater that passes through the pavement to infiltrate into the ground instead of being piped into the city’s sewer system.

Street Potential

Penn Avenue
700 Block—North Euclid
200 Block—South St. Clair
Broad Street
Penn Circle Conversion
Penn Avenue Streetscape
Mellon’s Orchard South
East Liberty Boulevard—Pedestrian Crossings
Other Residential Streets
Town Square



Porous Parking Areas

Pervious asphalt pavement can also be used with subsurface infiltration bed in parking lots to not only retain on-site water for the parking lot area, but for the adjacent buildings as well.

On sites with greater room for planted materials, vegetative swales offer the same storm water capture and recharge potential.

Institutional Potential

Existing Port Authority Parking Lots
Public Parks
School Grounds
Library and Churches
Pittsburgh Theological Seminary

Commercial Potential

Home Depot Retrofit
Whole Foods Retrofit
Target New Construction
New Multi-Family Residential



Green Alleys

Chicago is one city that has instituted a “Green Alley” program to incorporate a variety of sustainable stormwater techniques as viable alternatives to expensive sewer system connections. Their prototypes feature permeable pavement, high albedo pavement, recycled construction materials, and “Dark Sky” compliant light fixtures.

Opportunities

Residential Alleys
Commercial Alleys
Private Alleys and Drives

and Opportunities on Private Properties



Green Roofs

Two types of vegetated roofs capture rain and reduce stormwater run-off. The first (like the roof at Carnegie Mellon University above) and most common type is extensive green roofs, which are typically 3-4 inches of lightweight growth medium and plants. The second, intensive green roofs, may have significant depth to accommodate larger perennial plants and trees, and are typically found on structured plazas.



Rain Barrels

Rain barrels are placed next to downspouts, which divert rainwater for storage. Rain barrel kits are available for purchase from retail suppliers. Alternatively, rain barrels can also be assembled with a wooden or plastic barrel fitted with a cover, screening, spigot to collect the water, a drain-plug and over-flow spout typically attached to a hose to assure that water is directed away from the foundation.



Cisterns

Cisterns capture stormwater runoff from roofs in storage tanks, which could be underground, adjacent to buildings or as an artistic education piece like the blocks shown above in Delaware's Woodlawn Library. Water from cisterns can be used for landscaping purposes, incorporated into a greywater system for building restrooms, or in some industrial applications even used for production processes.



Rain Gardens

A typical urban rain garden can handle roughly 750 gallons of rainwater; much more than a 60 or 125 gallon rain barrel distributed as part of the Nine Mile Run program, in Pittsburgh. In addition to capacity, the other advantage is that unlike rain barrels, rain gardens do not need to be emptied, the plants directly benefit from rainfall and they offer beautiful landscaping.

Commercial Potential

- Home Depot Retrofit
- Whole Foods Retrofit
- Target New Construction
- Montrose Exchange

Residential Demonstration

- Single Family Houses
- Apartment Buildings
- Garages—Flat or Low Pitch

Residential Opportunities

- New Construction
- Retrofits for Existing Houses
- Retrofits for Residential Garages

Institutional/Community

- Local Schools
- Neighboring Gardens
- Small Roof Areas—Large Buildings

Commercial Potential

- Home Depot
- Whole Foods
- Montrose Exchange Development
- Offices—New or Retrofit

Institutional

- Peabody High School
- Dilworth Elementary
- Pittsburgh Theological Seminary
- East Liberty Presbyterian
- Eastminster Presbyterian

New Institutional Potential

- Public Parking Lots
- Public Parks
- School Grounds
- Library and Churches

New Residential and Retrofits

- Single Family Houses
- 200 Block—South St. Clair

Case Studies: Demonstrated Impacts

Bellingham, Washington—Parking Lot Retrofits

The City of Bellingham, Washington retrofitted two parking lots—one at City Hall and the other at Bloedel Donovan Park—with rain gardens in lieu of installing underground vaults to manage stormwater. At City Hall, 3 parking spaces out of a total of 60 were used for the rain garden installation. The City compared actual rain garden costs to estimates for conventional underground vaults based on construction cost for similar projects in the area. Rain garden costs included labor, vehicle use/rental and materials. The City Hall rain garden saved the City \$22,000 (or 80% over the underground vault option; the Bloedel Donovan Park installation saved \$40,000 (or 76%).

Toronto, Ontario—Toronto Green Roofs

Toronto is home to more than 100 green roofs. The City conducted a study using a geographic information system to model the effects of installing green roofs on all flat roofs larger than 3,750 square feet. (The model assumed that each green roof would cover at least 75 percent of the roof area.) If the modeling scenario were implemented, 12,000 acres of green roofs (8 percent of the city's land area) would be installed. The study quantified five primary benefits from introducing the green roofs: (1) reduced stormwater flows into the separate storm sewer system, (2) reduced stormwater flows into the combined sewer system, (3) improved air quality, (4) mitigation of urban heat island effects, and (5) reduced energy consumption.

The study predicted economic benefits of nearly \$270 million in municipal capital cost savings and more than \$30 million in annual savings. Of the total savings, more than \$100 million was attributed to stormwater capital cost savings, \$40 million to CSO capital cost savings, and nearly \$650,000 to CSO annual cost savings. The cost of installing the green roofs would be largely borne by private building owners and developers; the cost to Toronto would consist of the cost of promoting and overseeing the program and would be minimal. The smallest green roof included in the study, at 3,750 square feet, would cost between \$22,000 and \$27,000. The total cost to install 12,000 acres of green roofs would be \$3 billion to \$3.7 billion. Although the modeled total costs exceed the monetized benefits, the costs would be spread across numerous private entities.

Portland, Oregon—Downspout Disconnections

Across the country, cities have mandated that residents disconnect their downspouts from the sewer system.

The Downspout Disconnection Program in Portland, Oregon gives homeowners, neighborhood associations, and community groups the chance to work as partners with the City to help reduce CSOs. Residents of selected neighborhoods disconnect their downspouts from the combined sewer system and allow their roof water to drain to gardens and lawns. Residents can do the work themselves and earn \$53 per downspout, or they can have community groups and local contractors disconnect for them. Community groups earn \$13 for each downspout they disconnect. (Materials are provided by the City.)

More than 44,000 homeowners have disconnected their downspouts, removing more than 1 billion gallons of stormwater per year from the combined sewer system. The City estimates that removing the 1 billion gallons will result in a \$250 million reduction in construction costs for an underground pipe to store CSOs by reducing the capacity needed to handle the flows. The City has spent \$8.5 million so far to implement this program and will continue to encourage more homeowners and businesses to disconnect their downspouts to achieve additional CSO and water quality benefits.

For more information on similar downspout disconnection programs visit these websites:

- Milwaukee, WI—http://v2.mmsd.com/Downspout_Disconnect.aspx
- Vancouver, Canada—www.cityfarmer.org
- Toronto, Canada—www.city.toronto.on.ca
- Portland, Oregon—www.ci.portland.or.us
- Chicago, IL—www.cityofchicago.org

Case Study Excerpts from: U.S. EPA, Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices, EPA 841-F-07-006, December 2007. Available for download at www.epa.gov/nps/lid

East Liberty Opportunities to Explore



Public Streets, Public Sites and Rights-of-Way

- Penn Avenue: West gateway planted median
- Penn Avenue commercial corridor: expanded tree trenches and porous paving
- Penn Circle West: Median and sidewalk tree trenches
- Penn Circle North: Median and sidewalk tree trenches
- Penn Circle East: Tree trenches between sidewalk and curbs
- East Liberty Boulevard: Pervious pavement pedestrian crossings
- East Liberty Boulevard: Median planting and new street tree trenches
- East Liberty Boulevard: Pervious parking lanes
- Street retrofits to achieve zero stormwater runoff
- New green alley systems throughout East Liberty
- Curb cuts and bio-swales on residential streets
- Public parking lot retrofits with the goal of zero runoff
- Peabody High School infiltration bed under outdoor ball field

Commercial and Institutional Site Development

- Home Depot retrofits with the potential for a green roof, parking lot bio-swales and pervious paving
- New Target store development incorporating soil cells for stormwater infiltration
- Montrose Exchange stormwater control from plaza and roof
- East Liberty Presbyterian Church to incorporate new landscaping along the front of the town square to capture stormwater
- Eastminster Presbyterian Church downspout disconnect with rain gardens
- Pittsburgh Theological Seminary stormwater management with new porous paving parking lot
- East Liberty Public Library with new public plaza with porous pavement system
- Craig Academy development with new green alley for stormwater infiltration
- Transit Oriented Development with the goal of zero runoff
- Small business/restaurant green roofs utilizing Carnegie Mellon University tray program

Existing and New Residential Site Development

- Downspout disconnection and rain barrel distribution on selected residential blocks
- New residential infill developments such as the 700 block of N. Euclid Avenue to include rain gardens, bio-swales or pervious sidewalks and pavement
- Mellon's Orchard South development to be designed for zero stormwater runoff in conjunction with the transformation of Garland Park
- Future phases of new residential development surrounding Liberty Park can be developed in conjunction with infiltration beds in the park, resulting in zero runoff for the entire area—both the residential development and the park

Resources

Publications, Standards and References

- LEED ND—U.S. Green Building Council
LEED for Neighborhood Development
www.usgbc.org
- Green Communities Criteria 2008
www.practitionerresources.org/cache/documents/666/66641.pdf
- NYC High Performance Infrastructure Guidelines
www.nyc.gov/html/ddc/downloads/pdf/hpig.pdf
- The Toronto Green Development Standard
www.toronto.ca/planning/greendevlopment.htm
- Sustainable Philadelphia: “Clean and Green by 2016”
www.sustainablephiladelphia.com/pdf/Sustainable_sm.pdf
- Green Neighborhoods: Planning and Design Guidelines for Air, Water and Urban Forest Quality
www.sdnpsbd.org/sdi/international_days/wed/2005/document/green%20neighborhoods%20-%20planning%20and%20design%20guidelines.pdf

Other Outside Resources

- Bioneers
www.bioneers.org
- Tree People
www.treepeople.org
- Chicago Wilderness
www.chicagowilderness.org
- Nature in the City
www.natureinthecity.org
- Chicago Green Alley Handbook
www.greenbiz.com/files/document/CustomO16C45F95080.pdf
- City of Portland 2008 Stormwater Management Manual
www.portlandonline.com/bes/index.cfm?c=47952and
- City of Portland Sustainable Stormwater Management Solutions
www.portlandonline.com/bes/index.cfm?c=31870and
- Portland Stormwater Handbook
www.portlandonline.com/bes/index.cfm?andc=43110
- Using Smart Growth Techniques as Stormwater Best Management Practices
http://epa.gov/piedpage/pdf/sg_stormwater_BMP.pdf

Pittsburgh Resources

- 3 Rivers Wet Weather
- Tree Pittsburgh
- Green Building Alliance
- Nine Mile Run Watershed Association

Create Exceptional Parks, Recreation and Open Space

East Liberty's three public parks are in various states of disrepair, have no active programming and are impacted by either development plans or development potential surrounding their sites.

Peabody High School's outdoor facilities are central to the more than half of East Liberty's population who live north of East Liberty Boulevard, but are available to the public only on a limited basis.

Available Tools and Strategies

- Greenway connections between parks
- Work with non-profit partners to develop parks programming
- Improve park access and visibility
- Link to educational opportunities
- Orient new real estate development to maximize frontage on the parks
- Enhance links to regional parks

East Liberty Targeted Opportunities

- New Liberty Park and surrounding development potential
- Open connections for better public access to Enright Park
- Garland Park's revitalization with Mellon's Orchard South
- Peabody School along Beatty
- Town Square Plaza at East Liberty Presbyterian Church



Problem: Regional Park Access and Local Park Connections and Limitations

Urban green space provides a range of tangible benefits, such as mitigating air and water pollution, combating suburban sprawl, providing opportunities for recreation, reducing crime and fostering cohesive neighborhoods, attracting businesses, and stabilizing property values.

As part of a broader urban agenda, investing in open space can serve as an anchor for revitalizing neighborhoods and building healthy communities.

Trust for Public Land

Realizing that the four Regional Parks cannot accommodate all needs for all visitors, the other components in the system (parks, parklets, playgrounds, fields, greenways, etc.) should be developed and maintained so that those needs can be met elsewhere in the system. If an experience sought cannot be found in one of the four Regional Parks, it should be only a short walk or bike ride away.

Pittsburgh's Regional Parks Master Plan, Pittsburgh Parks Conservancy



Three of Four Regional Parks

East Liberty is in the unique position of being central to three of four Pittsburgh Regional Parks—Highland Park, Frick Park and Schenley Park. All three are within two miles of the neighborhood's borders.

Also, just outside the neighborhood boundary to the southeast is Mellon Park at Fifth Avenue and Penn Avenue, which is also home to the Pittsburgh Center for the Arts.

The proximity and connections to those nearby resources are a great benefit to East Liberty and should be promoted more effectively.



East Liberty Parks

Two of East Liberty's three city parks, Garland and Enright, are in close proximity and include all of East Liberty's public park courts and playgrounds. The other, Liberty Park has one softball field. All three local parks are south of East Liberty Boulevard, yet over half of East Liberty's population is to its north.

Peabody High School's outdoor facilities are the largest in the area, and are the only ones north of East Liberty Boulevard. However, it has limited public access, especially while school is in session.



Connections and Paths

Access to both regional and neighborhood parks from East Liberty is crucial to their enjoyment by neighborhood residents. The Urban Renewal era eliminated many local street connections. Safe and pleasant pedestrian connections to the local parks will not only contribute to their level of use, but will also help to establish a "green street" network.

Access to the regional parks via improved bicycle and public transit connections can offer reasonable and reliable alternatives to travelling by car.

Solution: Improving Parks and Open Space as an Integral Part of Neighborhood Development

The Potential Role of Parks in East Liberty

Just five percent (5%) of the land area in East Liberty is devoted to local parks and public open space. All three local parks are south of East Liberty Boulevard, yet over half of East Liberty's population is to its north.

In addition to enhancing and promoting connections to the three Pittsburgh Regional Parks, the local parks should include the following neighborhood amenities in order to be a catalytic influence of neighborhood development surrounding the parks:

- Recreation—courts, fields and playgrounds
- Gathering and meeting space for family and friends
- Passive—places to picnic, sit or lay in the grass
- Performance areas for special events
- Natural landscaping for environmental relief



Portland's Pearl District (above) is one of the city's most desirable neighborhoods and includes open space with native and natural landscape features.

Clockwise from upper right: Parks and open space include a variety of landscaped features: a neighborhood park entry at the street corner; PNC Firstside Park's paths and seating areas; Asheville's corner plaza; Pittsburgh Montessori's playground and amphitheater; restored natural habitat along the edge of Pittsburgh's Highland Park; and new residential development overlooking the outfield of a neighborhood ballpark in Chicago's Wicker Park neighborhood.



How Cities Use Parks: City Parks Forum*



Community Revitalization

- Parks that serve as central walking, resting, and meeting places can revive failing or threatened commercial areas.
- Renewal takes leadership, vision, and time; with these three ingredients, revitalization tends to attract ever more investment.
- Community residents and the city, working together on a neighborhood park project, can turn around a distressed residential area.
- Parks don't automatically lead to neighborhood revival; before investing, the city should make sure the relation of a park to its surrounding neighborhood will allow revitalization.

Economic Development

- Real property values are positively affected.
- Municipal revenues are increased.
- Affluent retirees are attracted and retained.
- Knowledge workers and talent are attracted to live and work.
- Homebuyers are attracted to purchase homes.

Safer Neighborhoods

- Time spent in nature immediately adjacent to home helps people to relieve mental fatigue, reducing aggression.
- Green residential spaces are gathering places where neighbors form social ties that produce stronger, safer neighborhoods.
- Barren spaces are more frightening to people and are more crime prone than parks landscaped with greenery and open vistas.
- In order to make the best use of greenery and open space, it must be positively incorporated into a community's design.

Community Engagement

- Parks are one of the quickest and most effective ways to build a sense of community and improve quality of life.
- Parks provide places for people to connect and interact in a shared environment.
- Parks channel positive community participation by getting diverse people to work together toward a shared vision.

* Excerpts from American Planning Association. City Parks Forum, Brief Papers at <https://www.planning.org/cpf/briefingpapers.htm>



Green Infrastructure

- Creating an interconnected system of parks and open space is manifestly more beneficial than creating parks in isolation.
- Cities can use parks to help preserve essential ecological functions and to protect biodiversity.
- When planned as part of a system of green infrastructure, parks can help shape urban form and buffer incompatible uses.
- Cities can use parks to reduce public costs for stormwater management, flood control, transportation, and other forms of built infrastructure.



Learning Opportunities

- City parks offer children the daily benefits of direct experience with nature—the motivation to explore, discover, and learn about their world and to engage in health-promoting, physical activity.
- City parks offer children a sense of place, self-identity, and belonging as an antidote to social alienation, vandalism, and violence.
- City parks engage children in informal, experiential learning through play and shared experiences with peers, laying the foundation for effective formal education.
- City parks provide a valuable resource for closing the educational achievement gap in communities.



Better Public Health

- Parks provide people contact with nature, known to confer certain health benefits and enhance well-being.
- Physical activity opportunities in parks help to increase fitness and reduce obesity.
- Parks resources can mitigate climate, air, and water pollution impacts on public health.
- Cities need to provide all types of parks, to provide their various citizen groups with a range of health benefits.



Arts and Cultural Programs

- Cities today use parks for a wide range of artistic events and activities.
- Parks can provide a setting for in-depth and long-term partnerships between communities and artists.
- Arts activity can play an integral role in the revitalization of a park.
- Arts and cultural programs in parks can help arts organizations develop new audiences and can provide suitable rehearsal and performance space.

East Liberty Parks and Open Space: Opportunities to Explore

Quick Facts and Impacts

As part of a broader urban agenda, investing in open space can serve as an anchor for revitalizing neighborhoods and building healthy communities. Urban green space provides a range of tangible benefits, such as:

- Mitigating air and water pollution. To take up the 462,000 tons of sulfur dioxide released annually in St. Louis, Missouri, it would require 50 million trees, occupying about 5 percent of the city's land area.
- Reducing crime. In Fort Myers, Florida, police documented a 28 percent drop in juvenile arrests, following the construction of a new recreation center in the heart of a low-income community.

Source: *Trust for Public Land*

Initial Considerations

The Parks section of this report offers greater detail on the existing conditions of East Liberty's parks and the strategy for improving the conditions and the roles that the neighborhood parks play in the overall greening of the neighborhood.

The following opportunities describe some actions that could offer immediate park improvements.



Connect East Liberty to Pittsburgh Regional Parks

- Build Green Street connections to Highland, Schenley and Frick Parks.
- Test an "Ultra-Green Loop" bus route circulating between East Liberty and the three parks on weekends and summertime.
- Promote programming and use of Mellon Park and the Pittsburgh Center for the Arts in Mellon Park.
- Provide location maps, signage and directions from East Liberty to the other parks, with an emphasis on green wayfinding connections.

Immediate Park Improvement Possibilities



Liberty Park

Liberty Park's future potential is highly dependent on the future development of the immediately adjacent sites: vacant former Saints Peter and Paul Church, postponed Liberty Park for-sale phase, and East Liberty Gardens.

The immediate actions and opportunities include:

- Commitments to greenway connections to the East Liberty Boulevard pedestrian underpass to Negley Run, the Kingsley Center and Mellon Park.
- Simple improvements: bike racks on site, repairs to the fence, backstop and benches, new trash/recycling cans and native perimeter landscaping.
- Short-term promotion of alternative programming with Kingsley Center or U9 soccer.



Garland Park

Garland Park will be impacted by the proposed Mellon's Orchard South development. The site's potential includes an environmental recreation/education center with climbing wall and indoor programs for neighborhood youth; surrounding development with "eyes on the park;" reducing the amount of impervious surface and consideration for a "portable" skateboard park on the current tennis courts; and pavilion space for picnics.

The immediate short-term actions and opportunities include:

- Reducing the amount of on-site fencing to improve circulation through the park.
- On-site gardens that engage residents from New Pennley, Penn Manor and Mellon's Orchard Neighborhood Association.
- Partnerships with the fire department to offer programming days in the park.



Enright Park

Enright Park is somewhat landlocked without direct exposure or access to a major street. The immediate short-term actions and opportunities include:

- Negotiate connections to Penn Avenue and Euclid Avenue with adjacent property owner: short-term pedestrian improvements and eventually a new street from St. Clair to Amber Street.
- Reduce amount of fencing to allow pedestrian access from Penn Avenue and Euclid Avenue.
- Replace the outdated playground equipment and transform it into a natural playground area, potentially in cooperation with the new Craig House School.
- Introduce alternative landscaping to reduce mowing in the appropriate areas, including part of the "meadow," increasing infiltration for and preservation of the row of Pin Oaks.



Peabody High School

Peabody High School grounds can be the new "north side" neighborhood park open to the community during non-school use hours.

The immediate short-term actions and opportunities include:

- Explore reducing the height of the bleachers to expand the linear green space and negate the negative impact on neighboring residential properties.
- Remove barbed wire and second fence to accommodate access to a new landscaped open space along Beatty Street that could potentially become a student garden with a grove of trees.
- Landscape pedestrian path between Beatty Street and Highland Avenue.

Resources

Publications, Standards and References

- Parks and Economic Development, John L. Crompton, American Planning Association PAS Report 502, 2001
www.planning.org
- The Benefits of Parks, The Trust for Public Land, 2006
www.tpl.org/content_documents/parks_for_people_Jul2005.pdf
- The Excellent City Park Systems
www.tpl.org/content_documents/excellentcityparks_2006.pdf

Other Outside Resources

- Project for Public Spaces
www.pps.org
- Trust for Public Land
www.tpl.org
- Chicago Wilderness
www.chicagowilderness.org
- Nature in the City
www.natureinthecity.org

Pittsburgh Resources

- Pittsburgh Parks Conservancy
- City of Pittsburgh Forester
- Tree Pittsburgh
- Western Pennsylvania Conservancy—TreeVitalize



Reinforce Urban Forestry and Urban Farming Practices

Urban tree canopies offer vital benefits which include improving air quality, mitigating the “heat island” effect, reducing stormwater runoff, increasing property values; all of which make cities more livable.

Urban agriculture means better use of vacant land, job training and educational opportunities, local community engagement and healthier lifestyles.

Available Tools and Strategies

- Street trees/pits/planting strips
- Volunteers for tree maintenance/planting
- Establish community tree nursery
- Reuse of urban wood waste
- Neighborhood composting
- Urban farming/food production
- Native and edible landscaping
- Master Gardener volunteers

East Liberty Targeted Opportunities

- New urban street tree standards
- Tree canopy restoration between Negley Run and Garfield
- Tree Pittsburgh and Eco-Steward programs in East Liberty
- Production for local grocery stores: Giant Eagle, Whole Foods, Trader Joe’s and others
- Community gardens with neighborhood, corporate and institutional partners

Problem: Lack of Capital Investment in Urban Trees, Forests and Gardens

Trees are a critical element for a livable urban environment. Publicly owned trees—and, collectively our urban forest—provide a wide range of health and safety, social, economic, and environmental benefits as essential to the vitality of a city as any other component of community infrastructure. Like streets, sidewalks, public buildings, and recreational facilities, trees are a major capital asset.

Tree Pittsburgh

How do we make schools better, attract people, and make the physical environment better?

Urban Gardens are one piece of the picture, turning liabilities into assets. Creating gardens involves people, rebuilds relationships and connects individuals with nature again.

*CAREN GLOTFELTY, DIRECTOR
HEINZ ENDOWMENTS
ENVIRONMENTAL PROGRAM*



Street Trees

The benefits of street trees can be measured in environmental, economic and psychological impacts. Yet, East Liberty's street trees do not currently excel in these realms. As the above photo illustrates, many of East Liberty's trees are challenged by poor sub-surface soils and harsh urban conditions.

Many street trees in East Liberty survive in spite of these conditions, but investment in site preparation and proper maintenance are critical to the long-term life and maximum benefits of urban street trees.



Urban Forests and Tree Canopy

Only six of Pittsburgh's 90 neighborhoods have a smaller tree canopy percentage than East Liberty's nine percent (9%) coverage.

The national average for street trees is one tree per three people. In Pittsburgh, there is one tree for every 11 people.

The dearth of tree cover is especially evident in the area framed by Penn Circle, extending out to Home Depot, the East Busway and the proposed Target retail site.



Urban Agriculture

Pittsburgh's neighborhoods support a number of community gardens, but East Liberty has just a few small plots, including GTECH bio-fuels initiatives and the community garden south of Enright Park.

Locally grown products not only engage community residents, but offer benefits of environmental remediation, support farmers markets, provide educational opportunities and have the potential for economic development initiatives.

Solution: Factor in Both the Environmental and Economic Benefits of Trees



Cooling Cities

Trees help to alleviate the effects of the heat by providing shade over our homes, streets, parking lots, and parks. In addition to providing shade, trees emit water vapor that cools hot air. By lowering temperatures, urban trees reduce our energy consumption and decrease power plant emissions that contribute to climate change. Urban trees also use photosynthesis to rid the atmosphere of carbon dioxide, the primary gas responsible for global warming.

Enhanced Community Life

Neighborhood trees enhance community life, creating natural places for children to play, to relax, or talk with neighbors. Trees support wildlife. Many birds, small animals, and insects rely on trees for food and shelter. Wildlife offers additional character to communities and provides learning opportunities for our youngsters. Trees improve the view, screening unsightly areas and adding beauty throughout our community.

Reduced Crime and Anxiety

Trees lower stress by buffering traffic noise and cooling hot temperatures. Trees provide a soothing and harmonious environment that reduces blood pressure and speeds healing. Studies show that hospital patients recover faster when they have a view of trees. Trees make communities safer. Trees planted along the street enhance pedestrian safety and encourage walking by providing a natural, physical barrier between traffic and sidewalk.

Increased Economic Growth

With many direct economic benefits, trees are an asset. Trees help to lower energy bills by providing shade for buildings in the summer and blocking cold wind in the winter. Trees increase residential property value. And, according to the Arbor Day Foundation, commercial retail areas with trees are more attractive to shoppers, apartments rent more quickly, tenants stay longer, and space in a wooded setting is more valuable to sell or rent.

Excerpted from Tree Pittsburgh website <http://www.pittsburghforest.org/Resources/TheCaseForTrees>

Addressing the Challenging Conditions for Street Trees in East Liberty

A large front yard tree can intercept 760 gallons of rainfall in its crown, thereby reducing runoff of polluted stormwater and flooding.

*Center for Urban Forest Research,
USDA Forest Service, Davis, CA*



Confining Conditions

The trees on Highland Avenue (above) were given such little room to grow that they now have become root bound.

The sycamores along North Beatty in the Alpha Terrace Historic District have shown remarkable resiliency, their trunks growing over the curb and beyond a narrow planting strip that is less than two feet wide.



Big Sidewalks, Small Tree Pits

Most sidewalks built during the Urban Renewal era in East Liberty were overly generous in width, but confined trees to 4 by 4 foot tree wells, in the 20-foot plus wide sidewalks on Penn Avenue above.

Trees were also squeezed in around the Penn Circle perimeter—the tree wells periodically notched into the 11-foot sidewalks.



Lost Opportunities

New development along Penn Avenue provided new street trees in three 5 by 5-foot tree wells instead of within a continuous tree trench.

East Liberty Boulevard's London Plane trees were planted in highly compacted soils, re-seeded for grass. Larger landscaped mulch beds would offer better chance for survival and stormwater retention.



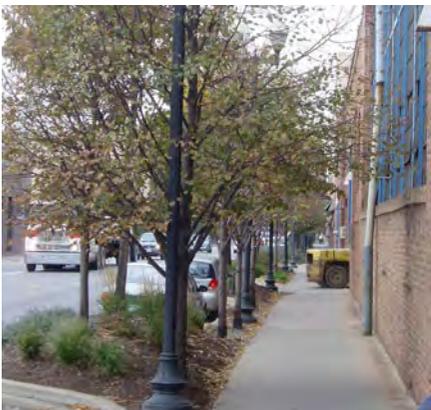
Plant Trees for Stormwater Infiltration and to Reduce the Heat Island Effect



Tree Trenches and Street Trees

The key components of extended tree wells include continuous planting beds that offer good soil conditions, water infiltration and aeration.

Tree wells can be effective in dense residential neighborhoods such as Savannah, GA (above) or industrial districts like Chicago's Clybourn Corridor (below).



Planted Medians and Circles

In Pittsburgh's Golden Triangle, Grant Street illustrates the opportunity to increase tree canopy and reduce impervious surfaces in dense, urban commercial districts.

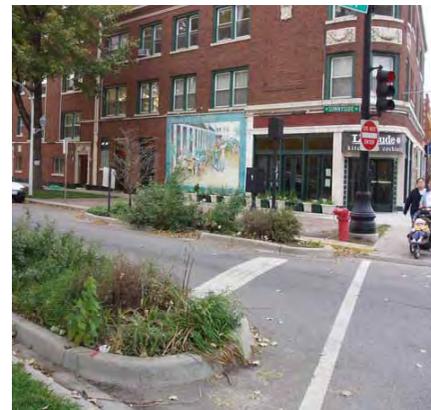
In Point Breeze, small residential traffic-calming circles reduce the amount of impervious area, reduce heat gain and add to the character of the community.



Bio Swales and Retention Areas

In addition to bio-swales or rain gardens within private property lines, the public rights of way can be effectively used for local stormwater control.

Portland, OR (above) uses the area between the curb and the sidewalk and Chicago (below) has reclaimed some of the pavement between curbs at street corners.



Site Trees and Hardscape

Creating groves of trees on commercial or institutional developments provides shade during the summer season.

Combined with porous pavements, appropriately designed systems can typically handle runoff from an area five times the size of the porous pavement surface area.



Quick Facts and Impacts

According to David Nowak, Project Leader of the U.S. Forest Service's Urban Forest Ecosystem Research Unit, each year in Chicago, the urban tree canopy removes:

- 15 metric tons of carbon monoxide
- 84 metric tons of sulfur dioxide
- 89 metric tons of nitrogen dioxide
- 191 metric tons of ozone
- 212 metric tons of particulates

Trees absorb these gaseous pollutants via their leaf stomata (the tiny pores on leaves) and break them down into less harmful molecules during photosynthesis.

Though scattered individual trees can absorb pollution, urban forests provide the most bang for a city's buck. "Parks with higher proportions of their area covered by healthy trees will provide the greatest impacts," said Nowak.

Chicago's urban forest canopy, which covers roughly 11 percent of the city's total land, saves the municipal government more than \$1 million every year in what would otherwise be spent on traditional pollution mitigation efforts, according to Nowak.



Urban Forestry Case Studies:

Olympia, WA

A "Level of Service" Approach to Planting Street Trees

In Olympia, urban forestry is addressed as a community element on a par with housing, transportation, or economic development. In addition to having its own comprehensive plan element, the urban forest program has two primary implementation mechanisms—the Master Street Tree Plan and the Tree Protection and Replacement Ordinance.

To work toward its goals, Olympia has developed a "level of service" approach to achieve street tree planting, tree maintenance, and hazard tree abatement objectives. In addition, the city has received grants to conduct separate projects, including a structural soil demonstration project, a low-income and underserved population outreach campaign, and an anti-tree topping campaign.

Resources Available

Master Street Tree Plan (pdf)

Urban Forestry Manual (pdf)

City of Olympia Urban Forestry

Urbana, IL

Integrating Tree Planting with Infrastructure Expenditures

Urbana's commitment to its urban forest is in plain sight: 95 percent of its parkways are lined with trees. The city has integrated tree planting as part of infrastructure expenditures in its Capital Improvement Plan, and further promotes tree planting through zoning and landscaping ordinances.

Urbana also carries out preventive, systematic pruning of trees to avoid branch and tree failure before nuisance complaints or injuries occur. Removed trees and branches find new uses through the Landscape Recycling Center, a program that transforms municipal and private landscape waste into mulch and firewood. That process is self-financed through disposal fees and proceeds from sales of the recycled products.

Resources Available

Urbana Tree City USA

Cooperative "Share the Cost" Tree Planting Program

Landscape Recycling Center

Recycled Products for Sale

Excerpts on these two pages are from:

The American Planning Association Community Forest Case Studies:

<http://www.planning.org/research/forestry/casestudies.htm>

Social, Environmental, Economic and Educational Impacts

Minneapolis, MN

A Holistic Municipal Approach to Forest Management

In Minneapolis, collaboration among different government entities and integration of urban forestry into planning processes and agency programs are yielding a holistic approach to forest management.

While the Minneapolis Park and Recreation Board is the agency responsible for managing public trees, the City recognized that many other departments and organizations significantly impact the urban forest's long-term health.

In response, the city crafted an urban forestry policy that increased cooperation between the City Council, the Park and Recreation Board, and various city departments. The city is also in the process of tightening the connections between its Urban Forest Policy Plan and comprehensive planning.

Resources Available

City of Minneapolis Urban Forestry Policy (pdf)

Minneapolis Urban Forest (pdf)

Natural Ecology Element, Minneapolis Plan 2004 (pdf)

Ithaca, NY

Planting Technology and Participatory Urban Forestry

Ithaca is the home of Cornell University, and the city's urban forestry program boasts some of the most innovative techniques thanks to the research institution's presence.

Through a partnership with university researchers, the city has experimented with forestry technologies such as bare-root planting and structural soils. Citizen participation also plays a major role at all levels of Ithaca's urban forest management, from volunteer "Citizen Pruners" to a citizen-controlled Shade Tree Advisory Committee.

Resources Available

Master Plan for Ithaca, the "Forest City"

The Citizen Pruners

City of Ithaca, General Code, Chapter 306: Trees and Shrubs

Ithaca Tree Works volunteer program

Emeryville, CA

Urban Forestry and Brownfield Redevelopment

Located between San Francisco and Berkeley, Emeryville has responded to development pressures and the presence of brownfield contamination in an innovative way that includes urban forestry as part of an integrated approach.

The urban forest plays a role in the city's stormwater management and redevelopment strategies, and implementation is carried out by a variety of city and county agencies through various programs.

Resources Available

Stormwater Guidelines for Green, Dense Redevelopment (pdf)

Municipal Code of the City of Emeryville, California, Title 7, Public Works (See Chapter 10) (pdf)

Chapel Hill, NC

Incorporating Tree Protection in the Development Process

In this college town, tree protection has been fully incorporated into the site development process.

Developers are required to submit a Landscape Protection Plan with their site plans and attend a pre-construction conference with the town manager.

In addition, developers are required to assign the role of Landscape Protection Supervisor to one of their crew members, who undergo training and certification by the city, and must be present whenever construction activity is occurring. This requirement also applies to existing single and two-family home renovations where land disturbance exceeds 5,000 square feet and a building permit is requested.

Resources Available

Tree Protection Ordinance for Chapel Hill, North Carolina

Ordinances: Key Provisions

Chapel Land Use Management Ordinance, Article 5: Design and Development Standards

Chapel Hill Description of Required Information

Urban Agriculture Building Blocks

These gardens turned eyesores into beautiful community spaces where residents take an interest in their surroundings, interact with one another, and above all build community.

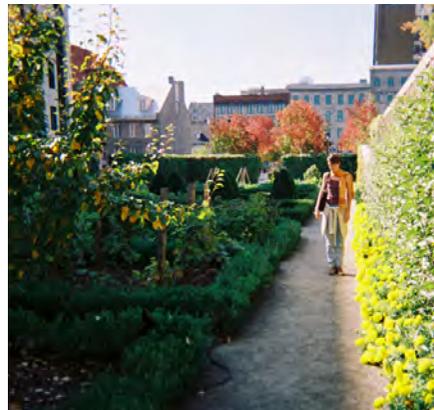
*Cincinnati Police Dept.
Sgt. Stephen Saunders*



Community Gardens

Community gardens include neighbors planting plots on vacant land, or local school or church gardens.

Experimental gardens like the one above at the Oberlin College Lewis Center or public perennial gardens such as the one in the heart of Old Montreal below offer an alternative greenspace in urban locations.



Composting

Composting is simplest at an individual household level, whether it is composting in outdoor backyards or indoors with worms.

At a larger scale, composting can take place at a community garden, or on school or church grounds, or can be industrial scale on a municipal or neighborhood level.



Urban Food Production

Local restaurants, households and entrepreneurs can all benefit from local food production at the neighborhood level.

Urban farming can be for personal use, neighborhood use, local farmers markets, restaurants, non-profit training programs or community kitchen cooperatives.



Urban Agriculture: More than Gardening and Farmers Markets



The Fruit Tree Project— Victoria, BC

<http://www.vcn.bc.ca/fruit/home.html>

The Fruit Tree Project is a community-based food project that collects the unwanted fruit from backyard fruit trees, cares for neglected fruit trees and distributes food to individuals in need and food banks. The fruit is used as a valuable source of food with some of it being preserved at neighborhood canning workshops.

The idea is to connect those who have excess fruit with those that have time and energy to harvest it. The project is also about bringing neighbors together and building community. There are now seven groups in the region.

The most successful, in Victoria, harvested 18,000 lbs. of fruit in 2002. Vancouver harvested 3,500 lbs. during the same year.



Field to Table Commercial Kitchen—Toronto, ON

<http://www.foodshare.net/>

About ten years ago, Field to Table, a non-profit organization dedicated to building sustainable community food systems, constructed a 4,500 square foot incubator commercial kitchen in Toronto. Most of the cooking equipment (all natural gas fired) was donated by Consumers Gas. In addition, the kitchen receives \$70,000 per year in financial assistance from the Toronto Economic Development Corporation.

Tenants typically pay \$20/hour to use the facility, although the Program Coordinator, Mary Lou Morgan, indicated that the market rental rate for the facility would be about \$50/hour. The facility generates about \$35,000 in revenues per year and is available half time (the other half of the time, the facility is used by Field to Table to cater meals for its other programs).



Richmond Specialty Mushroom Farms, Ltd.— Aldergrove, BC

<http://www.specialtymushroom.net/>

Richmond Specialty Mushroom Farms is a small family run operation that has developed a reliable, computer controlled organic method of cultivating specialty mushrooms such as Portabellas, oyster and crimini mushrooms. They offer turnkey operations housed in shipping containers.

Personal communication with the owner/operator established that an operator could generate at least 100 pounds of specialty mushrooms per week, per container, which retails at \$500. The farm's current output exceeds \$300,000.



Fairmont Waterfront Hotel Vancouver, BC

www.greenroofs.org/img/fairmount.jpg

The Fairmont Waterfront Hotel includes a rooftop garden.

Executive Chef Daryl Nagata has championed this rooftop garden which now provides herbs, vegetables and fruit to the restaurant from February to November. Managed by a consultant Master Gardener and assisted by other Master Gardeners and community volunteers rewarded in food, the 2100 SF garden saves the Hotel approximately \$30-40,000 per year in food costs and has been a very effective marketing vehicle. Many of these savings are reinvested in the garden.

The garden has to look good 365 days of the year because hotel rooms look down on the garden, a big difference from the typical community garden.

Excerpts from: Southeast False Creek Urban Agriculture Strategy, Prepared for City of Vancouver by Holland Barrs Planning Group, in association with Lees + Associates Sustainability Ventures Group; November, 2002. Photos on this page from the programs' respective websites.

Urban Agricultural Case Studies:

There is another way to live and think: it's called agrarianism. It is not so much a philosophy as a practice, an attitude, a loyalty and a passion—all based in close connection with the land. It results in a sound local economy in which producers and consumers are neighbors and in which nature herself becomes the standard for work and production.

WENDELL BERRY

Eco-Industrial Food Complexes—Intervale Community Food Enterprise Centre Burlington, VT

The City of Burlington, in partnership with the Intervale Foundation, the Compton Foundation, and the US Department of Energy, is developing a state-of-the-art facility that combines food processing, food waste treatment and aquaculture using the principle of living machines. The City's aim is to harness the economic value found by linking organic agriculture, sustainable building design/architecture/engineering, local employment, small business development, and quality, affordable food.

The facility consists of two parts: 20,000 SF of commercial building space for food processing, a community kitchen, environmental research and education facilities, and 21,000 SF of organic food growing in commercial greenhouse facilities. This 10-acre project is geared toward filling specific market niches for new business enterprises. Its location in the Intervale, a 200-acre agricultural area in Burlington, allows existing agricultural activities to benefit from access to the facility and ensures support for new business enterprises. Shared cooperative business services, such as production modules, pressurized steam, and ample power and water, are tailored specifically for businesses looking to move into or expand production.

www.cedoburlington.org/intervale_community_food_enterpr.htm

Growing Power and Maple Tree School Community Garden Milwaukee, WI

The Growing Power and Maple Tree School Community Garden provide opportunities for young people to learn the basics of organic agriculture, develop leadership and entrepreneurial skills, work with a diverse group of people, and gain valuable life skills that will apply to future social and work experiences. Located in the Millwood Parks neighborhood, Growing Power is leasing the five-acre plot for 20 years from the City of Milwaukee to develop one of Milwaukee's first school and community partnerships of its kind. Community members, youth, local volunteers including students from University School of Milwaukee, Work Institute of Milwaukee, UWM and Marquette University, installed over a thousand feet of raised garden beds averaging three feet in width.

At the end of the summer, 13 community youth received stipends and weekly produce from the garden. Community members and Maple Tree School families also worked at the garden and harvested a variety of greens, such as collards, curly and slick leaf mustards, salad, and turnips on a weekly basis. Growing Power provides training for community members who rent plots for private growing in the community garden section and works closely with the Maple Tree School to support curricular development that incorporates the school subjects while working in the school gardens.

Growing Power's additional programs and projects include:

- Youth Corps: Providing year-round gardening activities for neighborhood children aged 10-18 years at the Silver Spring Neighborhood Center. Teens also work at the urban farm site through multiple service learning opportunities.
- School Gardens: Milwaukee staff assist with school gardens at Maple Tree School, Urban Day School and University School of Milwaukee.
- Community Gardens: Facilitate gardens throughout the city, such as the Sixteenth Street Community Health Center and the Growers of Peace Garden.
- Just... Good... Food: Provide sustainably and justly grown food to the greater Milwaukee area through the Farm-to-City Market Basket program and selling produce at Farmers' Markets from June through December.
- Food Policy Initiatives: Helping shape Food and Fitness guidelines in Milwaukee.

www.growingpower.org/milwaukee_projects.htm

Social, Environmental, Economic and Educational Impacts

City Fresh Northeast Ohio

City Fresh is a joint initiative between the New Agrarian Center (NAC) and Ohio State University Cooperative Extension. The goal of City Fresh is to build a more just and sustainable local food system in Northeast Ohio.

City Fresh seeks to meet the needs of both urban and rural communities by improving access to fresh locally grown food for urban residents and marketing opportunities in the city for local farmers. The City Fresh program impacts the local food system through the development of neighborhood food centers, nutrition education, urban market garden training, and the cultivation of direct farm to business connections.

City Fresh includes a wide range of community partners, including the City of Cleveland Health Department, Heifer International, Ohio Farmers Union, the Great Lakes Brewing Company, the Clark-Metro Community Development Corporation, the Urban Community School, and the Cuyahoga County Planning Commission.

Excerpts on this page are from the following websites:

www.gotthenac.org
www.cityfresh.org
www.georgejonesfarm.org
www.growinghomeinc.org
www.growinghomeinc.org/wood-st

George Jones Farm Cleveland, OH

Started in 1998, the George Jones Farm, a large urban market gardening project in the inner city in Cleveland, contained severely depleted soil with a very low organic content. Currently the farm serves as a model for organic food production, habitat restoration, and soil restoration. The soil has been systematically amended and organic content has dramatically increased, from 0.5% to over 7% in less than 10 years.

The farm produces free range eggs and meat broilers, bee products and worm castings. The New Agrarian Center manages the farm around several enterprises including market production for Oberlin Farmer's Market, Oberlin College and several restaurants in Oberlin.

The New Agrarian Center is committed to building a stronger and more sustainable regional food system in Northeast Ohio—a food system that promotes health in the broadest sense of the word: healthy land, healthy communities, healthy individuals, and a healthy economy.

In 2005, the farm developed a K-5 outdoor education curriculum and began educational programs for local schools. The aim of the educational program is to provide quality programming to increase environmental awareness in youth. It provides interactive outdoor education experiences for schools and local youth organizations.

Growing Home Chicago, IL

Growing Home operates an innovative transitional employment program based in Chicago for homeless and low-income people within the context of an organic agriculture business. Three farm sites—two on Chicago's south side and one outside the city in Marseilles, IL—allow program participants to learn job and life-skills as well as gain valuable hands-on experience with organic agriculture.

Program staff on the farm sites work with and train participants—who often have multiple barriers to employment, including a history of homelessness, incarceration or substance abuse issues—in cultivation, harvesting, and processing.

Additionally, the staff also train participants in marketing and sales, educate them about food and nutrition, and provide mentoring for life skills such as personal money management and computer literacy.

The combination of hands-on and classroom training, coupled with the one-on-one mentoring and job development services participants receive from staff, serve not only to help participants find jobs at the conclusion of the program, but also help raise self esteem and overall well-being. Program participants have gone on to restaurant and landscaping jobs in the service industry as well as been motivated to continue their education by searching out further training programs.

Wood Street Urban Farm Chicago, IL

The Wood Street Urban Farm is located in the Englewood neighborhood on the South Side of Chicago, just a few blocks west of Ashland and 58th Street. This site is not yet certified organic (the process is underway) but everything there is grown organically in three permanent hoophouses as well as outside.

This site is unusual because it is Chicago's first permanent, year-round urban farm, meaning that they are able to grow in hoophouses all the way through the winter. In fact, they were able to harvest spinach even during the record breaking cold of January and February 2008.

While the site is small—only about 2/3 of an acre—they grow a great deal of produce. At the Wood Street urban farm, they grow spinach, salad mix, arugula, and swiss chard, which all like to grow in the warm, moist hoophouse climate, as well as tomatoes, zucchini, beets, turnips, kale, mustard greens, and collards.



Local Focus

Tree Pittsburgh

www.treepittsburgh.org

Tree Pittsburgh is an environmental non-profit organization dedicated to enhancing the City's vitality by restoring and protecting the Urban Forest through communication, maintenance, planting, education and advocacy.

The vision is to be a leader in creating a healthy, attractive and safe urban forest by inspiring and engaging citizens to maintain, plant and protect trees. Taking care of trees will improve our quality of life by maximizing the substantial environmental, social and economic benefits of trees.

Bidwell Training Center

www.bidwell-training.org/majors/horticulture-technology/

Vocational Training in Horticulture Technology prepares students for jobs in greenhouse operations, interior plantscaping, agriculture, environmental technology, nursery management, landscaping, and the wholesale and retail floral industries.

Grow Pittsburgh

www.growpittsburgh.org/growpittsburgh/

Grow Pittsburgh's vision is to revitalize local economies through the social, economic, and environmental benefits of urban agriculture. Its mission is to model, teach, and facilitate sustainable urban agriculture within the Pittsburgh region, with a commitment to:

- Growing Food
- Growing Farmers
- Growing Community
- Growing Capacity

Homewood Community Garden

www.homewoodgarden.net

Homewood Community Garden is an urban community garden in Pittsburgh, PA located on Forbes Avenue between Homewood Cemetery and Frick Park, offering 20-by-20-foot plots for an annual fee.

Its mission is to provide people with a little bit of land on which to grow food, flowers, and the sense of well-being that comes from nurturing growing things.

The gardener of plot 41 has a garden blog with a lot of interesting info at: <http://homewoodgardenplot41.blogspot.com/>



GTECH Strategies

www.gtechstrategies.com

Growth Through Energy and Community Health (GTECH) merges community development and principles of sustainability into a synthesized model for sustainable community development.

Its vision is to establish a fundamental shift in urban revitalization by linking environmental stewardship and innovation with economic development as a bundled strategy. They utilize vacant land as a mechanism to extend the opportunity of the Green Economy into the most marginalized of neighborhoods.



East Liberty Opportunities to Explore

Urban Forestry

- Enact a local tree protection policy which includes requirements to replace destroyed trees, proportionate to the tree canopy removed.
- Recruit local residents, high school students and college students to be Tree Tenders in East Liberty.
- Penn Avenue Arts Initiative Challenge: Art opportunities from fallen trees.
- Produce mulch from tree pruning at the neighborhood level for local gardens.
- Establish conservation easements in neighboring wooded hillsides and greenways to provide and preserve a wooded wildlife habitat corridor.
- Create a conditions-based street tree plan for East Liberty to guide developers in proper streetscape installation and design.
- Utilize all resources available to add trees to public sites, private property and all medians.
- Build strong local partnerships with Tree Pittsburgh, TreeVitalize, the Pittsburgh Shade Tree Commission, the City Forester and the Urban Forester.

Urban Agriculture

- Create an urban agriculture center near a new Liberty Park, linked to potential green space initiative in the nearby Larimer neighborhood, with the potential for a hydroponic farming building in the former Saints Peter and Paul Church school building.
- Support local farmers and CSA's (Community Supported Agriculture) by increasing public awareness of the importance of buying local and promoting East Liberty's farmers market.
- Initiate East Liberty Orchards—an effort to plant a variety of fruit trees on private property.
- Partner with local churches to set up community kitchens to process local harvests, since most of the kitchen facilities are already in place.
- Construct high tunnel, hoophouses or cold frames to extend the Pittsburgh growing season.
www.hightunnels.org
- Expand the bioremediation/biofuels plantings in East Liberty with GTECH, especially as a temporary holding strategy for underutilized vacant land.

Gardening

- Offer regular backyard composting and worm composting classes to neighborhood residents, schools and churches.
- Establish new community garden plots on underutilized land—vacant lots, school yards, institutional or commercial properties.
- Promote edible landscaping throughout the neighborhood on residential and institutional sites, with consideration for rooftop gardening.
- Initiate a “Spin Farming” program in East Liberty to encourage locally grown produce opportunities for all residents.
www.spingardening.com/whatsSpin/
- Explore partnerships and/or mentoring with the Phipps Master Gardener's Program and the Landscape Architecture program at Chatham University.

Resources

Forestry

- Community Forests: A Community Investment Strategy
www.tpl.org/content_documents/community_forests_report_webversion.pdf
- The Excellent City Park Systems
www.tpl.org/content_documents/excellentcityparks_2006.pdf
- American Forests Air Quality Calculator
www.americanforests.org/airqual/index.php
- National Arbor Day Foundation
www.arboday.org/trees/nineThings.html
- Friends of the Urban Forest
www.fuf.net
- TreeLink.org
www.treelink.org
- National Alliance for Community Trees
www.actrees.org
- Tree People
www.treepeople.org
- Bioneers
www.bioneers.org

Pittsburgh/PA Forestry

- City of Pittsburgh Forestry Division
www.city.pittsburgh.pa.us/pw/html/forestry.html
- Pittsburgh Shade Tree Commission
www.city.pittsburgh.pa.us/cp/html/shade_tree_commission.html
- Pittsburgh Parks Conservancy
www.pittsburghparks.org
- Penn State Co-operative Extension
<http://allegHENY.extension.psu.edu>
- Phipps Conservatory and Botanical Gardens
www.phipps.conservatory.org
- Urban Ecology Collaborative
www.urbanecologycollaborative.org
- Western Pennsylvania Conservancy TreeVitalize
www.paconserve.org/216/treevitalize

Urban Agriculture

Urban Farming Initiatives

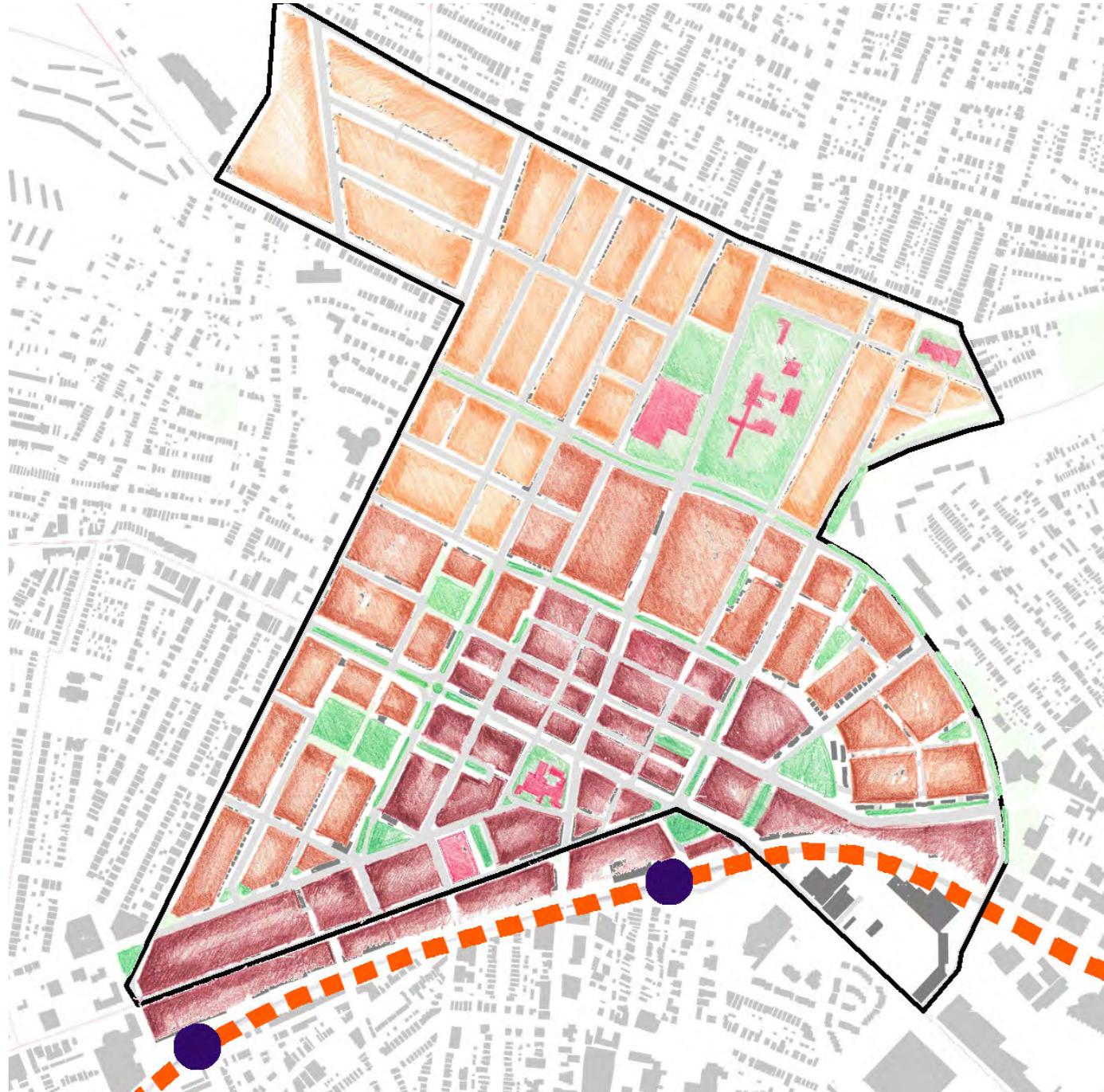
- Urban Sprouts
www.urbansprouts.blogspot.com
- Chicago Wilderness
www.chicagowilderness.org
- Nature in the City
www.natureinthecity.org
- City Farmer
www.cityfarmer.org

School and Youth Programs

- Kids Gardening
www.kidsgardening.org
- National Wildlife Foundation Schoolyard Habitats Program
www.nwf.org/schoolyard/

Composting

- PRC—Pennsylvania Resource Council's Composting Classes
www.prc.org/community_adultedu.html
- Master Composter
www.mastercomposter.com



Optimize Neighborhood Density and Diversity

Appropriate neighborhood density is key to walkable communities versus those which always require a car.

In contrast to single family residential developments, urban neighborhoods can achieve desirable density by offering a variety of housing types and tenure, giving residents the option of moving through various stages of life in the same community.

Resources, Tools and Strategies

- Variety of housing types: single family, townhouse, duplex, triplex, senior housing, multi-family apartments, granny-flats and mixed-use buildings.
- Alternative options for tenure: fee-simple ownership, market-rate rental, subsidized rental, cohousing, cooperatives and condominiums.

East Liberty Targeted Opportunities

- Mellon's Orchard South
- The Highland Building
- Liberty Park and surrounding blocks
- 700 block of N. Euclid Avenue
- Penn Avenue apartments: upper floors in commercial core
- Mixed-use, transit-oriented developments

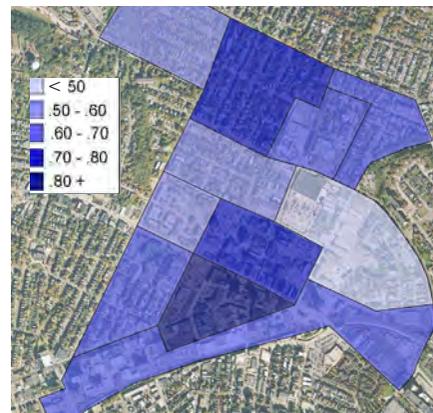
Problem: Suburban Density Diminishes the Urban Pedestrian Experience

Sustainable urban development is ultimately a cultural statement about ourselves, how we want to live, and our ability to manage our needs, desires, and dreams in ways that are effective and caring.

P. Jacobs, "Sustainable Urban Development" in Architecture in the Year 2000: Conference Proceedings; Royal Architectural Institute of Canada (1992)

To maintain the low-density lifestyle in this new era of rising energy costs and shrinking budgets, we will consume significant energy resources and require government subsidies.

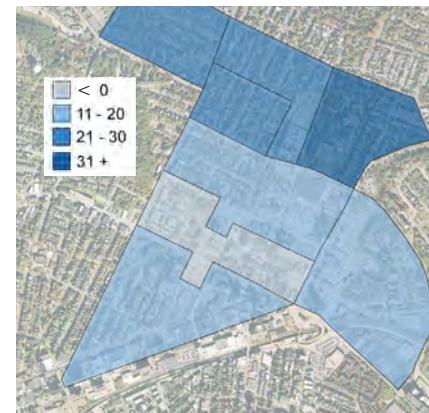
*"VISUALIZING DENSITY"
Julie Campoli and Alex Maclean*



Building Floor Area Ratio

The building density of East Liberty is represented by the Floor Area Ratio (F.A.R.) diagram above—the ratio between building floor area and site area, not including streets.

A few buildings, four stories or higher, help boost the central core F.A.R. above 0.80. Most of the neighborhood has a F.A.R. that is less than 0.70, while a large portion of the blocks between Penn Avenue and East Liberty Boulevard have a F.A.R. less than 0.60. This low density is attributable to the loss of over 1.1 million square feet of buildings to Urban Renewal.



Persons Per Acre

The above diagram illustrates the population density of East Liberty by Census Tract Block Groups, with the lighter shading representing lower densities.

East Liberty's population density is higher north of East Liberty Boulevard, with more than 21 people per acre. This is a sharp contrast to the blocks south of East Liberty Boulevard where the density is comparatively less than half.

The depopulation in this area of East Liberty is also in sharp contrast to the neighboring residential areas of Friendship and Shadyside.



1/4 and 1/2 Mile to Busway

East Liberty is served by two East Busway stops. As illustrated above, more than half the neighborhood is within a 1/4 or 1/2 mile radius of the East Liberty Station and nearly all of the neighborhood area south of Penn Avenue is within 1/2 mile of the Negley Station.

Smart development patterns would suggest that the density be higher closer to both these stops. However, as both the population density and building area density illustrate, in East Liberty, this is not the case. The density in these areas is less than those of the residential blocks north of East Liberty Boulevard.

Solution: Creating Great Places to Live and Work with Appropriate Density at a Walkable Scale

How Density Creates Great Places to Live

- **Density helps create walkable neighborhoods.**—Higher density development contributes to the viability of a wider range of businesses, ultimately resulting in more destinations for residents to walk to.
- **Density supports housing choice and affordability.**—The greater range of housing types expands housing choices within a neighborhood. This allows residents to choose housing that meets their changing needs and preferences over their lifetime.
- **Density helps expand transportation choices.**—Density creates choice by providing the ridership needed to make bus and rail transit a viable and competitive transportation option.
- **Density supports community fiscal health** by reducing infrastructure duplication and making efficient use of present capacity, before investing in costly infrastructure expansion.
- **Density helps improve security.**—The concept, sometimes referred to as “eyes on the street,” reflects common experience that people in homes, shops and on the street deter street crime simply through their presence.
- **Density helps protect the environment.**—By concentrating development and people within a smaller geographic area, density reduces land consumption and allows communities to protect valuable open space, habitat, farmland and ecologically sensitive areas.

Excerpt from “Creating Great Neighborhoods: Density in Your Community,” Local Government Commission in cooperation with U.S. Environmental Protection and National Association of Realtors (September 2003). Available for download at: http://www.lgc.org/freepub/PDF/Land_Use/reports/density_manual.pdf



Using Density to Reduce Automotive Trips

Higher-density development expands transportation choices by making it easier to use non-automobile transportation—walking, biking, bus and rail transit—by locating activities closer together. Studies indicate that the average resident in a compact neighborhood will drive 20 to 30 percent less than residents of a neighborhood half as dense.

At densities of eight units per acre and higher, neighborhoods begin to support bus and rail transit by increasing the number of transit users within walking and bicycling distance of a bus or rail station. Some areas refer to eight housing units per acre to support minimal bus service (30-minute headways), 20 units per acre to support a transit station, or 30 units per acre to support high-frequency transit service (10-minute headways).

Source: John Holtzclaw—www.sierraclub.org/sprawl/articles/designing.asp

Above: Portland’s light rail system is part of a development strategy that optimizes density for a walkable, transit oriented neighborhood.

Green Pockets Enhance More Densely Developed Neighborhoods

Three Key Questions To Ask About Density

1. Is this the appropriate place for density?

Some clues: designations as such in the community plan, proximity to existing or planned public transit line, location in or near an existing town center.

2. Does the design of the project blend with the neighborhood context?

3. What amenities will density bring to the community?

Some possibilities: better selection of shops and restaurants, a pocket park, reclamation of an ugly parking lot or dead mall, upgraded streetscapes.

"CHOOSING OUR COMMUNITY'S FUTURE"

David Goldberg—*Smart Growth America*



Clockwise from top left: Interior residential parking court; a small front yard with native landscaping; a residential traffic circle; a school garden on a leftover triangular piece of land; front yard gardens instead of lawns for Baltimore rowhouses; and corner parking lot landscaping for adaptive reuse retail in Chicago.

Smart Use of Small, Dense, Urban Spaces Creates Special Shared and Public Spaces



Kenilworth Mews

This residential development becomes awash in fall color and the narrow mew is altered in both quality of space and sense of scale with the careful placement of trees.

Sansom Common

What once was limited to building services (dumpsters and back-door deliveries) along pedestrian street frontage has been transformed with an arbor, landscaping and tables and chairs for the public.

Penn Pedestrian Connection

The formerly restricted parking area's asphalt is replaced with porous pavers, landscaped beds and a welcoming pedestrian path with greatly improved connections and aesthetics.

Penn Nursing School

The cold concrete entry is opened with both a direct path and landscaped beds that tame the harsh brick facade by offering an enhanced pedestrian-friendly scale entry to the institutional building.

East Liberty Potential

Mellon's Orchard South
Medium Density Developments
Green Alleys
Commercial Courtyard Retrofits

East Liberty Potential

Highland Avenue
Penn Circle East Parking Lot Edges
Penn Circle West—Fire Station
SE Corner of Highland and Penn Circle North
Peabody Bleachers along Beatty
North side of Home Depot

East Liberty Potential

ELPC's Rear Parking Area
Parking Lot East of Enright Park
Parking Lot—6000 Penn Block

East Liberty Potential

National City Bank Building
Big Brothers Big Sisters

Myths and Facts About Higher Density



Case Study: East Village

East Village is a small urban revitalization project on the edge of downtown Minneapolis. Before the project was built, the neglected 2.9-acre site contained several deteriorating rental homes, old commercial buildings, and abandoned surface parking lots. The neighborhood wanted to improve the area and the image of one of the city's oldest neighborhoods, Elliot Park. The developers of the project, Central Community Housing Trust and East Village Housing Corporation, developed the new mixed-income housing and commercial community to encourage a sense of community and ownership. East Village now features community green space, pedestrian paths, and neighborhood businesses. Buildings surround the greenway that leads to Elliot Park, a city park with year-round activities and a community center. Brick, bay windows, and French balconies complement historic buildings in the area. In addition, all buildings have multiple entrances to encourage interaction among neighbors. An underground 350-space parking garage frees up space for landscaped areas. This once neglected area has won two awards for innovation and design and become an exceedingly successful vibrant and safe community.

The additional “eyes on the street” created by the development of East Village in Minneapolis has led to a safer vibrant community.

MYTH Higher-density development overburdens public schools and other public services and requires more infrastructure support systems.

FACT The nature of who lives in higher-density housing—fewer families with children—puts less demand on schools and other public services than low-density housing. Moreover, the compact nature of higher-density development requires less extensive infrastructure.

MYTH Higher-density developments lower property values in surrounding areas.

FACT No discernible difference exists in the appreciation rate of properties located near higher-density development and those that are not. Some research even shows that higher-density development can increase property values.

MYTH Higher-density development creates more regional traffic congestion and parking problems than low-density development.

FACT Higher-density development generates less traffic than low-density development per unit; it makes walking and public transit more feasible and creates opportunities for shared parking.

MYTH Higher-density development leads to higher crime rates.

FACT The crime rates at higher-density developments are not significantly different from those at lower-density developments.

MYTH Higher-density development is unattractive and does not fit in a low-density community.

FACT Attractive, well-designed, and well-maintained higher-density development attracts good residents and tenants and fits into existing communities.

MYTH Higher-density housing is only for lower-income households.

FACT People of all income groups choose higher-density housing.

Excerpted from: Haughey, Richard M. Higher-Density Development: Myth and Fact, Washington, DC: ULI—the Urban Land Institute, 2005. Available for free download at: <http://www.nmhc.org/Content/ServeContent.cfm?contentItemID=3422>

Higher Density with Low-Rise Residential Buildings



Pittsburgh's Southside New Birmingham

One of the first new green housing projects built in Pittsburgh during the late 1990s, the 32 unit site plan is at a density consistent with its context, at 24 units per acre.

Marketed toward low to moderate middle-income buyers, this low-scale development includes a landscaped parking court, at one space per unit, and garden walks lead to private courtyards.



Chicago's Wicker Park North Wilmot Townhouses

On a site once occupied by a one-story light-industrial building and parking lot, this 24 unit, fee simple townhouse development includes alternating setbacks and a variety of front elevations which make them read as single family houses.

At 16 units per acre, each unit has a front yard garden, a small rear yard and a two-car garage accessed via a rear alley.



East Liberty Opportunities to Explore

Improve Neighborhood Density with Adaptive Re-use, Infill Construction and New Developments

- Optimize the density of all new development within and surrounding Penn Circle, with a primary focus of development density within one-half mile of both East Busway stops—Negley Station and East Liberty Station.
- Maximize the density of Eastside IV as part of an effort to enhance the Transit-Oriented Development potential of not just the site, but also the surrounding blocks.
- Optimize the density surrounding East Liberty green space in conjunction with improving or configuring Garland, Liberty and Enright Parks, with “eyes on the street” and “eyes on the parks.” Use the added value of quality green space to help leverage the market value of development surrounding the parks.
- Explore the potential for alternative housing developments that offer alternatives not available in other Pittsburgh neighborhoods, including:
 - Co-housing
 - Eco-villages
 - Community land trusts
 - Limited-equity or shared-equity cooperatives
- Create dense development only where appropriate. In some cases, reduce density on residential blocks by encouraging single family homeownership and eliminating obsolete housing.

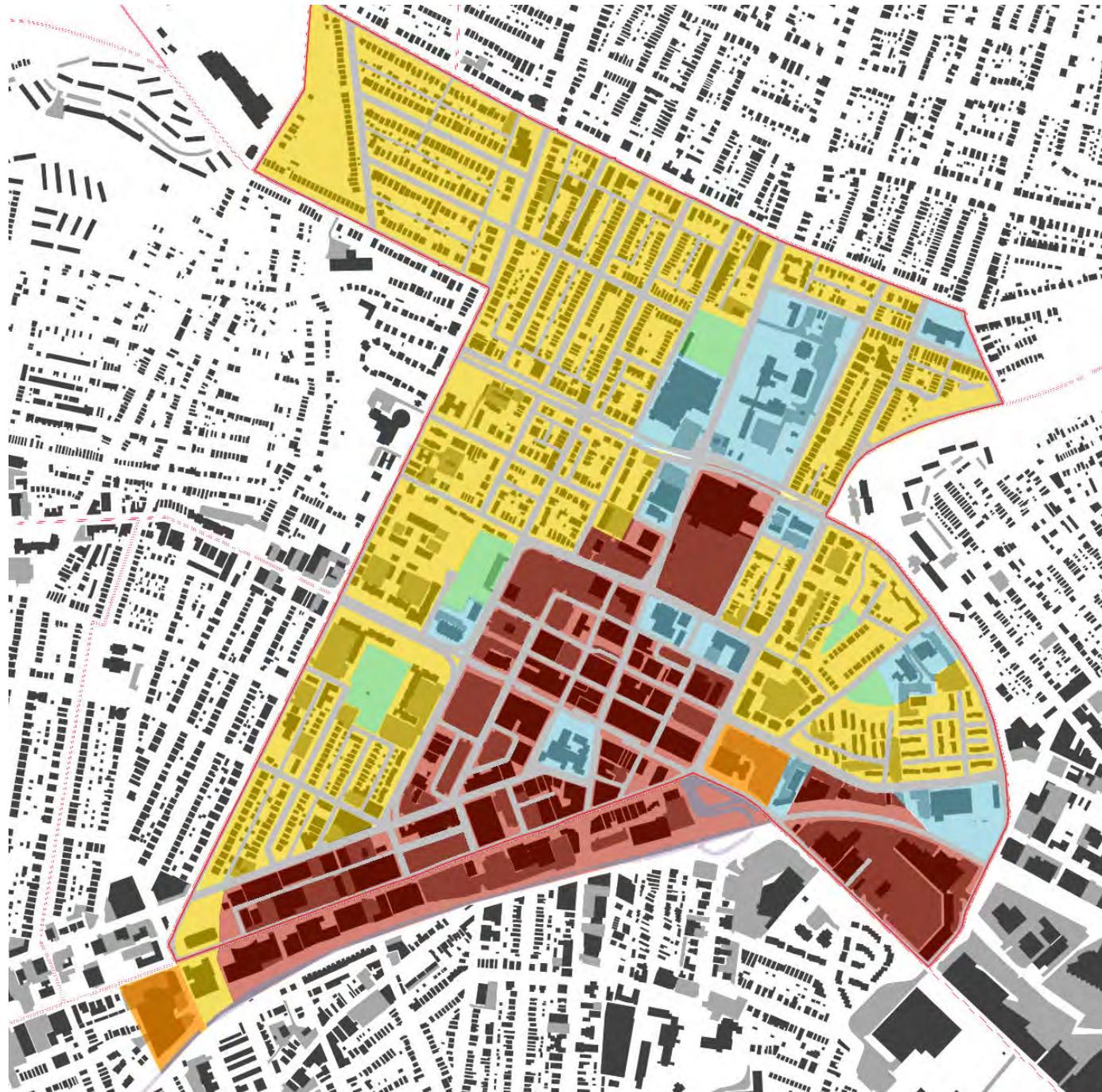
Resources

Printed Resources

- Local Government Commission in cooperation with U.S. EPA and National Association of Realtors, *Creating Great Neighborhoods: Density in Your Community*, (2003).
www.lgc.org/freepub/PDF/Land_Use/reports/density_manual.pdf
- Haughey, Richard M., *Higher-Density Development: Myth and Fact*, Washington, DC: ULI—the Urban Land Institute, 2005.
www.nmhc.org/Content/ServeContent.cfm?contentItemID=3422

Organizational Resources

- Smart Growth Network
www.smartgrowthamerica.org
- Eco-City Cleveland
www.ecocitycleveland.org
- CoHousing Network
www.cohousing.org
- Institute for Community Economics (ICE)
www.iceclt.org



Build Mixed-Use Projects at a Pedestrian Scale

Development density alone will not guarantee a more pedestrian friendly neighborhood.

Along with the larger, regional retailers, a mix of commercial storefront and residential options presents the greatest opportunity to reduce vehicular miles traveled.

Resources, Tools and Strategies

- Local Neighborhood Commercial (LNC) Zoning
- Residential on upper-floors above commercial or retail
- Storefront retail support
- Shared or public structured parking
- Addition of granny-flats, coach houses or accessory apartments
- Traffic calming measures

East Liberty Targeted Opportunities

- Highland Building
- Penn Avenue upper floors
- Baum Boulevard upper floors
- Centre Avenue density
- Target—North side street edge
- Mellon's Orchard South
- Bike cops and beat cops

Problem: Single Use Development is Inefficient and Less Walkable

People who live in location-efficient communities reap many rewards. Stores, schools, and public transit, all lie within walking distance of their homes. They have less need to drive, which gives them more discretionary income. They're more likely to know their neighbors. Their frequent use of local amenities saves energy, which means cleaner air for us all!

"This Is Smart Growth"
Smart Growth Network (2007)



Surface Parking Surrounding East Liberty's Core

The position of the 52 acres of surface parking in East Liberty not only reduces and limits the neighborhood density, it also creates pedestrian barriers between the core of East Liberty and the surrounding residential blocks.

The only structured parking in the neighborhood is the two-level parking incorporated into the Eastside retail development adjacent to Whole Foods and the busway.



Surface Parking and One Story Buildings

Including the surface parking in East Liberty, the diagram above shows the location of one-story buildings (darker shade of grey).

The inefficiencies of this very low density development pattern "doughnut" surrounding East Liberty's core, reduces the potential for the highest and best use of these properties and further promotes an auto-oriented neighborhood over a pedestrian-friendly one.



Buildings with Three Stories or More in East Liberty

Buildings with at least three stories afford the greatest potential for mixed-use buildings, typically with ground floor retail and office or residential on the upper floors.

Buildings up to five or six stories are appropriate in scale for some parts of East Liberty and are not subject to the more robust fire proofing for buildings exceeding 75 feet tall. However, current market conditions create little demand for upper floor use.

Solution: Promote Mixed-Used Development for Single Projects in Addition to the Neighborhood Level

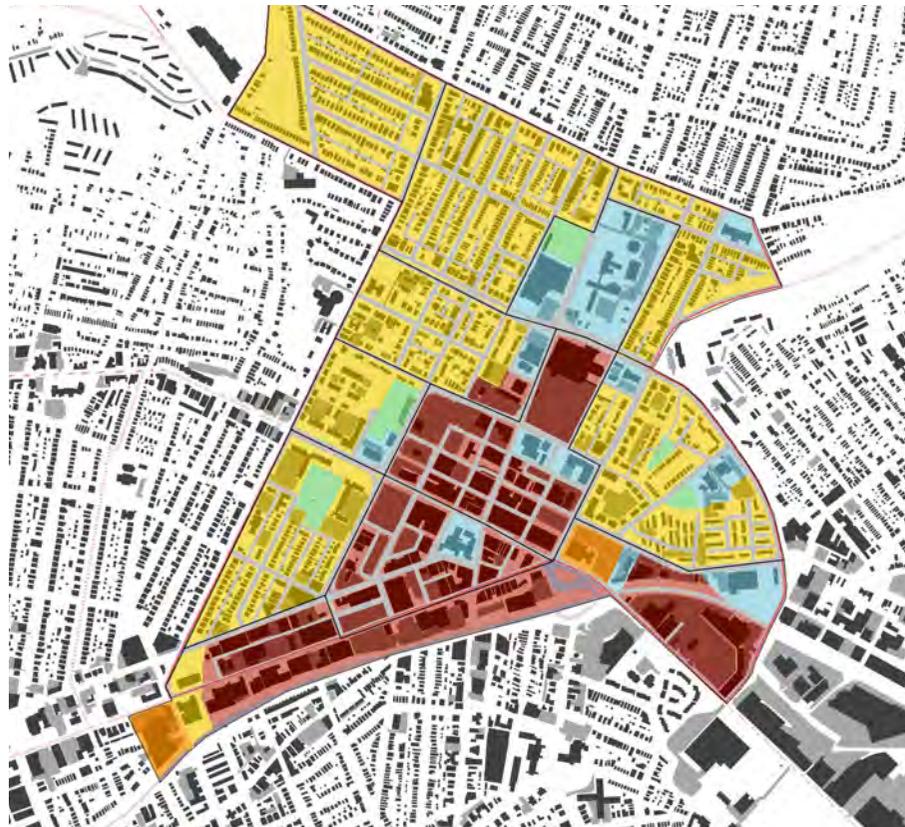


Land Use in East Liberty

Although a variety of uses—with the notable exception of light industry—are present in East Liberty, the mix is on a neighborhood level, not on a site or project specific mixed-use building.

As the adjacent map illustrates, only two percent of the land area highlighted include sites that are true mixed-use developments: those that contain a mixture of housing and non-residential use.

The integration of residential and non-residential uses are important not only at these edges, but also within East Liberty's central core. Providing a diversity of uses between the ground floor commercial and upper floor residential is particularly important to promoting a more desirable and vibrant street activity.



Residential 171.5 acres 43%	Commercial 94.2 acres 23%	Streets 78.3 acres 21%	Civic/Institutional 38.5 acres 9%	Parks 9.2 acres 2%	Mixed Use 8 acres 2%
-----------------------------------	---------------------------------	------------------------------	---	--------------------------	----------------------------

Mixed-Use Development Patterns: Comparative Perspectives



East Liberty NW Corner of Penn Circle

An inordinate amount of surface parking—both public and private—dominates the northwest quadrant of East Liberty’s Penn Circle.

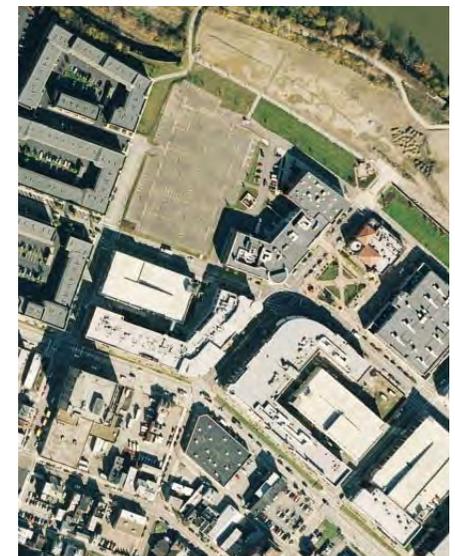
Much of this area is targeted for the proposed residential redevelopment of Mellon’s Orchard South.



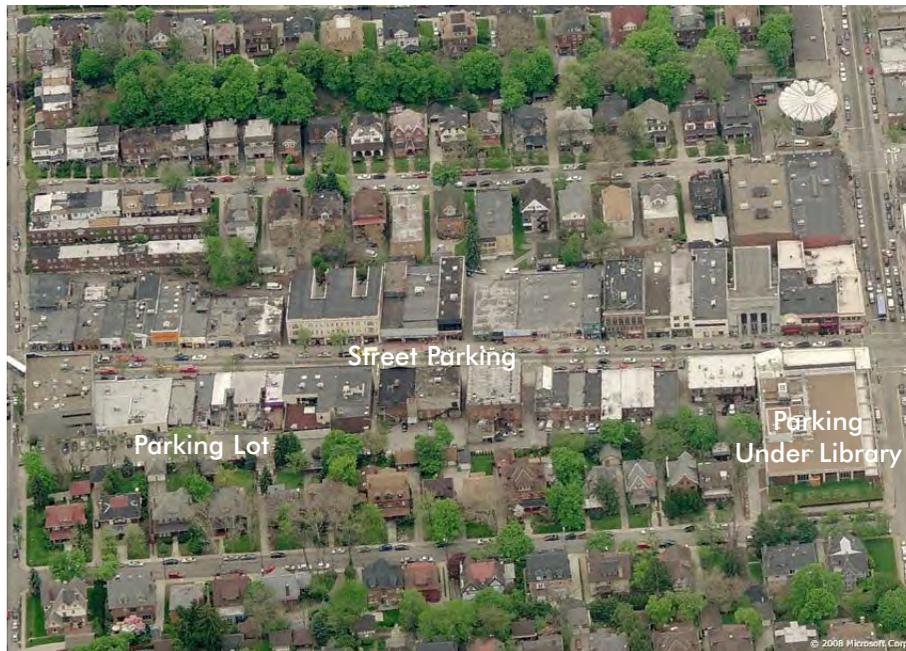
Southside Southside Works

Pittsburgh’s Southside Works is a mix of retail, residential and office development. The west side of the site includes several apartment buildings and the upper floors along Carson Street and 27th Street include residential rental units above first floor retail. Office buildings are on the site’s east end and future residential development is planned along the river.

In order to accommodate visitors to this regional draw, the project includes several parking structures, including the three shown above.



Mixed-Use Development Patterns: Residential Backing Up to Retail



Squirrel Hill Shady, Forbes and Murray

Squirrel Hill's Forbes Avenue, between Shady and Murray, is one of the more successful traditional neighborhood commercial streets in the City of Pittsburgh (shown above looking south).

A solid street wall of mostly one to three story buildings along Forbes backs up to strong blocks of both single and multi-family housing.

In addition to street parking, and the rear parking lot, this district includes one level of parking under the public library building.



Shadyside Aiken, Walnut and Negley

This mixed-use district is less orderly than Squirrel Hill. By comparison, the Walnut Street shopping district includes perpendicular cross-streets between Aiken and Negley and the surrounding blocks include a more eclectic mix of apartment buildings and a variety of multi-family buildings in addition to single family homes.

The district also includes parking at the rear of the retail establishments, a parking garage one block north of Walnut and abundant street parking.



East Liberty Opportunities to Explore

Opportunities for Mixed-Use Development

- Reduce the amount of surface parking within East Liberty's central core by constructing strategically located structured parking. This establishes a better urban density not only with higher parking space efficiency, but also by freeing up current public parking lots for private development.
- The Highland Building is located in East Liberty's commercial core and close to the East Busway station. Its redevelopment not only preserves an architecturally significant building, but presents the opportunity for a mixed use development and the potential for a growing residential core.
- Targeting residential and/or office development of upper floors along Penn Avenue, Baum Boulevard, Centre Avenue and Highland Avenues in conjunction with the commercial ground floor uses will create a more desirable pedestrian experience.

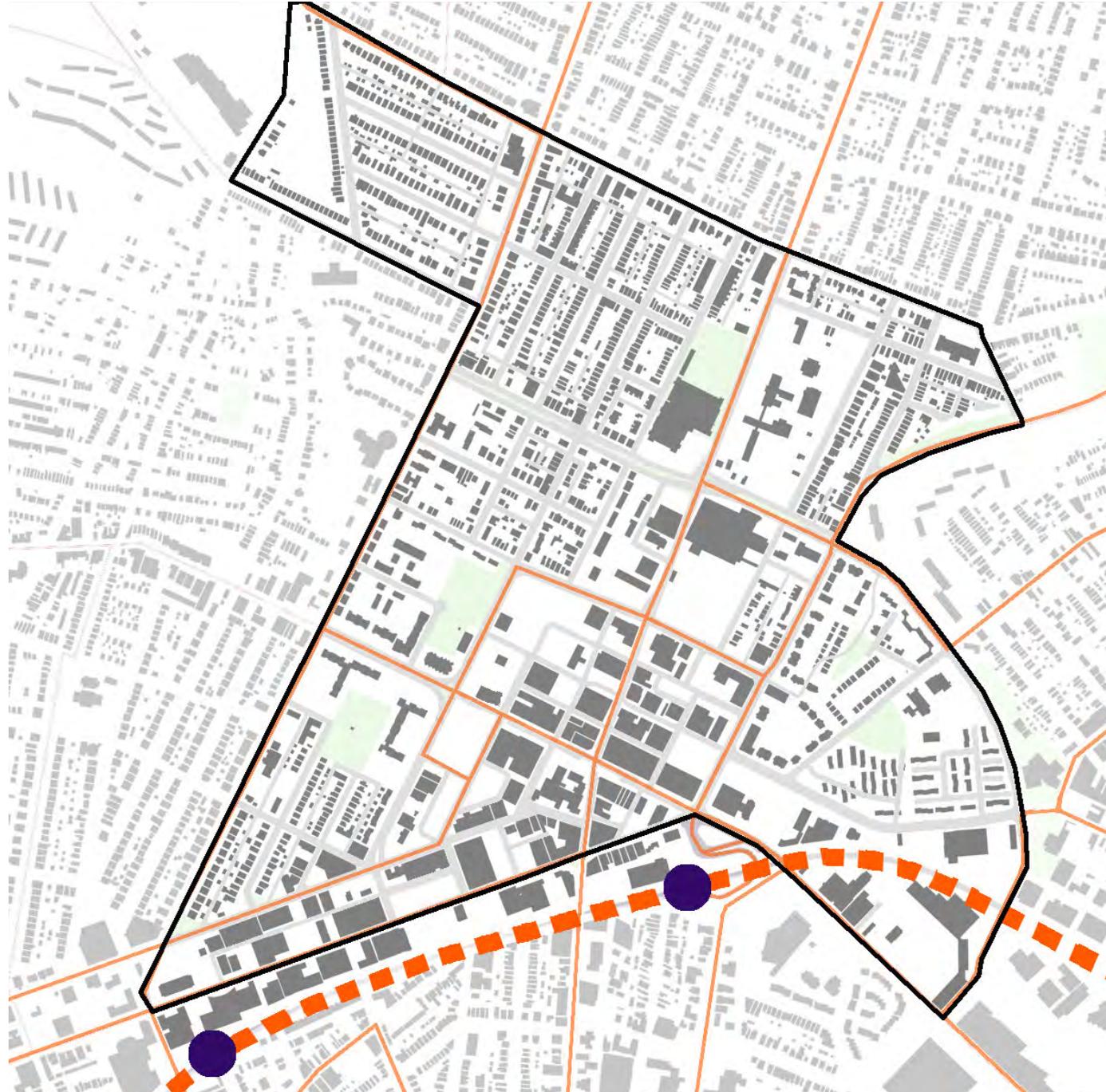
Resources

Printed Resources

- The Smart Growth Network (SGN) and the International City/County Management Association (ICMA)—"This Is Smart Growth Solutions," 2006
www.smartgrowth.org/library/articles.asp?art=2367&adres=1280
- U.S. EPA, Parking Spaces/Community Places—Finding the Balance through Smart Growth Solutions, 2006
www.epa.gov/dced/pdf/EPAParkingSpaces06.pdf

Transit Oriented Development

- Smart Growth Network
www.smartgrowthamerica.org
- The Center for Transit Oriented Development
www.transitorienteddevelopment.org
- Reconnecting America
www.reconnectingamerica.org



Expand Transit Alternatives and Bicycle Network Options

Pedestrian friendly neighborhoods mean viable alternatives to the car.

The alternatives must be convenient, safe, accessible, economical and enjoyable.

Resources, Tools and Strategies

- Transit-oriented development
- Bike racks on all buses
- Bicycle lanes/shared lanes
- Bicycle trails for recreation
- Car sharing—Zipcars or other
- Bicycle amenities—racks, etc.
- Carpool networks
- Retail delivery service—groceries

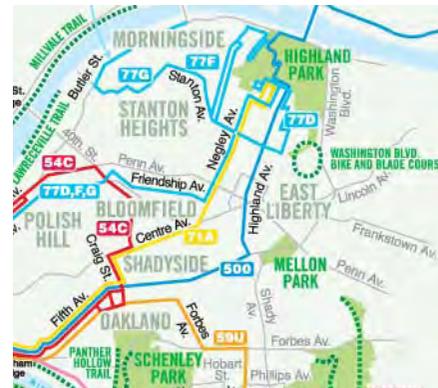
East Liberty Targeted Opportunities

- T.O.D. surrounding East Liberty and Negley East Busway Stations
- Bike lanes
- Highland Avenue to Highland Park
- Liberty Park to Negley Run
- East Liberty Boulevard
- Penn Avenue to Mellon Park
- Free Ride neighborhood clinics
- Regional Park Bus Loop

Problem: New Development Often Encourages Auto-Dependency

Development touches every part of our lives, so we should make sure we get the development we want.... What if, rather than traffic problems, a new development near you meant new walking and biking paths? What if, rather than higher taxes, development meant new friends for your kids? What if, rather than more pollution, development meant a new neighborhood park? In short, what if development created great new places that made your community a better place to live?

"This Is Smart Growth"
Smart Growth Network (2007)



Every time I see an adult on a bicycle, I no longer despair for the future of the human race.

H.G. WELLS

Public Transportation—Alternative Fuels and Routes

East Liberty is well-served by public transportation—17 Port Authority bus routes, consisting of over 800 bus trips per weekday.

However, since the buses are gasoline powered, that also means a lot of unnecessary emissions that could be avoided by using alternative energy.

And although the buses with bike racks serve Highland Park through East Liberty, there are none that have direct routes to Schenley or Frick Parks.

Bikable Topography—Limited Bike Friendly Amenities

Although East Liberty has one of the rare distinctions of being a topographically flat neighborhood in Pittsburgh, the neighborhood contained no on-street bike lanes until late 2008 (when lanes were added to East Liberty Boulevard).

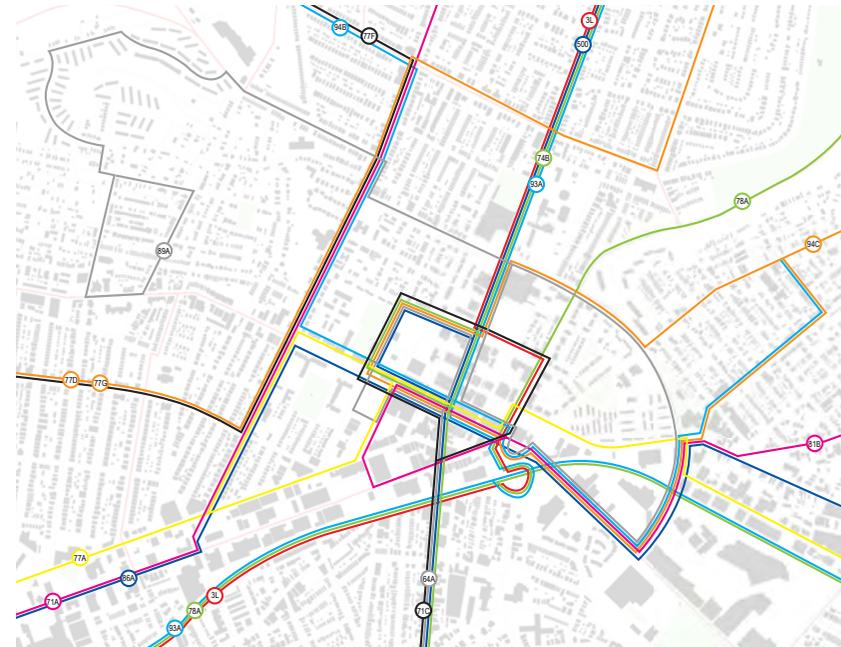
The Three-Rivers bike racks (shown above) are present at the new Eastside retail development, but are few and far between everywhere else in the neighborhood.

East Liberty's Broken Pedestrian Connections

In spite of plans for a pedestrian bridge at Whole Foods, there is currently no direct pedestrian connection from East Liberty to Shadyside between Negley and Highland Avenues.

Also, Urban Renewal's removal of several local streets and the creation of "super-blocks" has also limited pedestrian connections within the neighborhood. Some arteries, such as East Liberty Boulevard, actually serve as barriers to pedestrians.

Solution: Build on—and Improve—the Public Transit Infrastructure Already Present in East Liberty



East Liberty's Public Transit Access

East Liberty is fortunate to have exceptional public transportation in terms of number of bus routes (17) and the number of buses per day (more than 800). And of the thirteen bus routes equipped with bike racks—"Rack-n-Roll"—five of those routes travel through East Liberty.

Building on the core of East Liberty's public transportation infrastructure includes improving the buses and busways and also improving multi-modal connections:

- Safe and efficient connections between biking and buses
- Cross-marketing buses and car-sharing as alternatives to second cars
- Direct connections to the three Pittsburgh Regional Parks
- Public-private partnerships in Transit-Oriented Developments

Number of Buses Per Day thru East Liberty—Each Direction

EAST LIBERTY - HOMESTEAD waterfront (36 min)	27	LINCOLN downtown	48
NEGLEY downtown / oakland / highland park	92	EAST HILLS downtown	37
WILKINSBURG - EAST LIBERTY downtown / EB wilkinsburg station	64	GARFIELD HEIGHTS allegheeny cemetery	23
HIGHLAND PARK - RIDC oakland (22 min) / waterworks (16 min)	10	ASPINWALL - CHESWICK EXPRESS downtown / new kensington	2
OAKMONT downtown (25 min) / waterworks (30 min)	15	MORNINGSIDE waterworks	24
HIGHLAND - FRIENDSHIP downtown / highland park	25	PAULSON AVENUE shuman center juvenile detention (20 min)	15
MORNINGSIDE - FRIENDSHIP downtown / zoo	16		
STANTON HEIGHTS - FRIENDSHIP downtown	8		
OAKMONT EXPRESS downtown	15		

A Different Perspective on Driving Cost and On-Street Parking

AAA Driving Costs

Annual driving cost in each category is based on average costs (fuel, maintenance, tires, insurance, depreciation and finance), based on 15,000 miles driven per year for five top-selling 2007 models, listed below, as selected by AAA.

Small Sedan:	\$ 6,320
Medium Sedan:	\$ 8,273
Large Sedan:	\$ 9,769
Minivan:	\$ 8,644
SUV:	\$10,448

- Small Sedan: Chevrolet Cobalt, Ford Focus, Honda Civic, Nissan Sentra and Toyota Corolla.
- Medium Sedan: Chevrolet Impala, Ford Fusion, Honda Accord, Nissan Altima and Toyota Camry.
- Large Sedan: Buick Lucerne, Chrysler 300, Ford Five Hundred, Nissan Maxima and Toyota Avalon.
- Minivan: Chevrolet Uplander, Dodge Grand Caravan, Kia Sedona, Honda Odyssey and Toyota Sienna.
- SUV: Chevrolet TrailBlazer, Ford Explorer, Jeep Grand Cherokee, Nissan Pathfinder and Toyota 4Runner.

Source: www.aaaexchange.com/Assets/Files/20084141552360.DrivingCosts2008.pdf



Back-In Angled Parking

Some communities have found back-in, drive-out angle parking an attractive alternative to head-in angle parking. This design removes the sight-distance issues associated with standard angle parking, directs passengers to the sidewalk rather than the street and is the preferred configuration of diagonal parking on roadways with bicycle lanes or a higher number of bicyclists. This technique is being championed in some projects within the state, such as High Street in Pottstown, PA (as well as Philadelphia).

Excerpt from PennDOT SMART Transportation Guidebook
www.smart-transportation.com/assets/download/Smart%20Transportation%20Guidebook.pdf



City of Seattle On-Street Bike Parking Program

As part of the Bicycle Master Plan adopted by the City of Seattle, the Seattle Department of Transportation is installing On-Street Bicycle Parking.

Why On-Street Bike Parking? The combination of the increasing urban density in Seattle and the goal of the Bicycle Master Plan (BMP) to install 3,000 new bicycle racks within the city over the next 10 years, has increased the density of amenities on urban village sidewalks. Due to this increased density, in many urban villages there is little existing space to install sufficient bicycle racks to meet the growing demand.

Where will they go? On-street bike parking will be in place of public car parking spaces in locations where bicycle parking demand exceeds existing supply of sidewalk-mounted bicycle parking. Each installation will take the space of one or two car parking stalls, which will then be surrounded by barriers and filled with bicycle racks. Bicyclists may enter the parking stall from the sidewalk. Ideal locations for new installations are:

- Where more bike parking is needed and will be used
- Where there is already on-street parking and perhaps a curb bulb
- Far enough away from bus stops to not interfere with bus travel

Photos and Above Excerpt from Seattle Department of Transportation Website
www.ci.seattle.wa.us/transportation/bikeparking.htm



Alternatively-Fueled Municipal Fleets

EBus in Indianapolis, IN

An inaugural ceremony was held at the Eiteljorg Museum on August 5, 2003 marking the introduction of the IndyGo Blue Line featuring five new distinctively wrapped Ebus, hybrid-electric buses. The Blue Line is a circulator route serving downtown Indianapolis including the Arts District, museums and zoo as well as other important downtown attractions such as restaurants and clubs. With both environmental and noise pollution along with a desire to promote advanced technology being the driving factors in the selection process, IndyGo chose the Ebus 22,' 22 seated passenger buses employing a series hybrid electric drive train powered by a diesel fueled Capstone MicroTurbine.™ With a series hybrid electric bus, the bus is driven by an electric motor, which receives its electricity from a battery pack. The batteries in turn are recharged as needed by an "on-board" auxiliary power unit (APU). The Capstone MicroTurbine™ has the least emissions of any engine in production today with a noise level that is almost indistinguishable. This combination of technology provides a bus that travels throughout the downtown area with minimal contribution to ambient noise and environmental pollution.

"Indianapolis is the largest city in the country to use this cutting-edge technology. It is also one of the first projects of its kind in the nation that ties public transportation, commerce and the arts together," stated Gilbert Holmes, President and CEO for IndyGo.

After riding the bus, Congresswoman Julia Carson who lives in Indianapolis and was instrumental in securing funding for the project stated, "I remember riding trolleys that moved on tracks and were hot. Now, I can ride a bus that helps the environment, is energy efficient and is air conditioned!"

Denver Hybrid Buses

Denver's Regional Transportation District operates a fleet of 36 hybrid electric buses on the 16th Street Mall, each powered by a dual electric and compressed natural gas (CNG) engine. The buses have greater fuel efficiency and produce lower emissions than a typical diesel bus. It is one of the world's largest fleets of advanced heavy-duty alternative vehicles.

Green Fleet Implementation: City of Hamilton, Ontario

The Green Fleet Implementation Plan has been developed for the City of Hamilton's Central Fleet, which manages vehicles used by the Public Works Department, the Planning and Development Department, and several other City agencies (the Corporate Fleet). As a large consumer of energy, the City has an influential role in developing more efficient vehicle technology that reduces both energy consumption and environmental impact.

Biodiesel for the entire City fleet and hybrid electric vehicles for the Corporate Fleet are being recommended as practical and affordable tactics. Participation in anti-idling campaigns has proven to be successful and this plan includes a new anti-idling policy for City vehicles. It excludes vehicle acquisition for Police, Fire, and EMS vehicles but does affect fuel for these organizations, as well as for GO Transit buses based in Hamilton.

The Plan will reduce the carbon dioxide output of this inventory by 4,000 to 6,000 tons and significantly reduce other forms of pollutants over the three years of the Plan and continue in future years. It will accomplish this by focusing on greater use of biodiesel and hybrid-electric vehicles. Central Fleet estimates the additional cost to implement the Plan will be less than 1.9% of the forecast \$16,810,600 already planned for vehicle replacement over the next three years from 2005 to 2007. The increase to operating costs is expected to be less than 1% in the worst case situation, based on adjustments to fuel.

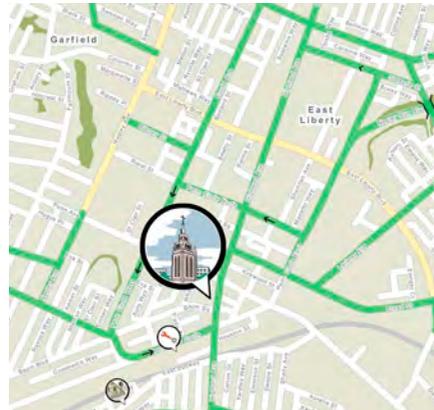
The Green Fleet Implementation Plan is a way to implement affordable and sustainable vehicle technology that clearly demonstrates the City's leadership role toward reducing its environmental impact.

East Liberty Opportunities to Explore



Alternative Fueled Fleets and Local Filling Stations

Operating buses, garbage trucks and other municipal vehicles on alternative fuels such as fuel cells, bio-diesel or electric/hybrid police cars are green options at both the neighborhood and city level. History could be repeated if East Liberty establishes the first local all-alternatives fuel station in East Liberty.



Bus Bike Racks and Bike Cops on Neighborhood Blocks

Taking full advantage of the rare flat land in Pittsburgh includes enhancing bicycle amenities:

- Bike racks on all buses
- Police on bike patrol
- Neighborhood bike racks
- Designated bike lanes and trails or paths



Car Sharing and Alternatives to Owning a Second Car

Zipcars are available as a car sharing alternative, including from reserved parking spaces near East Liberty's East Side development.

Neighborhood block car-cooperatives are also an option for several households to sharing a "second" car, instead of individually owned second cars.



Pedestrian Amenities and Street Calming Techniques

Creating a walkable and pedestrian friendly environment includes a variety of street calming techniques:

- Enhanced/raised crosswalks
- Gateways/crossing islands
- Mini traffic circles
- Street trees/landscaping
- On-street parking
- Curb extensions



Local Focus

Free-Ride!: Earn-A-Bike

Earn-A-Bikers give back (time) to Free Ride! an agreed-upon value of the bike (usually \$20—\$150, depending upon the quality of the bike). With the help of volunteer mechanics, they then repair their chosen bicycle, using the free access to shop parts and tools. The average earn-a-bike volunteers between 8 and 20 hours doing various tasks, such as stripping down old bikes, organizing parts, or cleaning the shop. Some people have also found creative ways to use skills such as carpentry, print-making, accounting, cooking/baking, or photocopying to give back to the shop.

By completing the Earn-A-Bike program people not only receive a bike but they also acquire the skills to keep that bike running and in good working condition. The Earn-A-Bike program tries to counteract consumer culture that teaches people to buy new things instead of repairing what they already have. It strives to show that broken, used bicycles, once destined for a landfill, can be salvaged and live a new life cruising the streets of Pittsburgh.

Excerpt from www.freeridepgh.org/html/earn.html

City Fleets

- Alternative fuels (i.e. bio-diesel) for garbage collection and other City maintenance vehicles.
- Purchase hybrid, fuel cell or plug in electric fleet for police patrol cars.
- Increase the number of bike cops and beat cops in East Liberty.
- East Liberty had the first gas station in the city, why not the first bio-fuels station?
- Replace all East Liberty Port Authority Buses with fuel cell powered buses.
- “Ultra-Green Loop”: A hydrogen power bus route, equipped with bike racks, to circulate between East Liberty and the three regional parks on weekends year-round and seven days a week during the summer, with an extra route which connects East Liberty to the rivers.

Neighborhood/Household/Block Level

- Promote the elimination of second cars with:
 - Increased use of public transit, walking or biking.
 - Car pooling, taxi use or occasional car rental.
 - Grocery delivery from local stores to East Liberty homes, allowing local residents to go to the grocery store without the use of a car.
- Expanded car sharing opportunities—commercial enterprise or coordinated local car co-ops at the neighborhood or block level.
- Conduct regular bike workshops in East Liberty with Free Ride, with an emphasis on local youth participation, education and advocacy; supported by the installation of bicycle infrastructure at all schools.
- Establish a neighborhood bike store or bike exchange with an organized “bike swap” for those getting rid of outgrown bikes or those looking for a gently used bike.
- Create bike sharing clubs on a block basis—using donated bikes or those obtained through Free Ride—with combination locks for easy access.
- Purchase shared “Work Bikes” to handle loads too big for a regular bike, but not necessarily needing a car or truck.
- Install bike lockers (in structured parking garages) near the two East Busway stations and bike racks throughout the neighborhood along commercial streets, in public parks and all public facilities.
- Coordinate a targeted helmet distribution program for East Liberty cyclists—especially children—in conjunction with local hospitals.
- Provide local support in conjunction with Pedal Pittsburgh, Bike Pittsburgh (New Bike Map) and other bike oriented events and activities.
- Establish local bike lanes and shared lane routes, in cooperation with the City and Bike Pittsburgh, that coincide with City plans to connect with adjacent neighborhood routes.
- Install bumpouts and visually enhanced crosswalks to slow traffic and improve pedestrian safety.

Resources

Publications, Standards and References

- PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System (U.S. DOT)
www.walkinginfo.org/pedsafe/pedsafe_downloads.cfm
- BIKESAFE: Bicycle Countermeasure Selection System (U.S. DOT)
www.bicyclinginfo.org/bikesafe/downloads.cfm
- BIKESAFE: Guides, Handbooks and References
www.bicyclinginfo.org/bikesafe/moreinfo_guides.cfm
- PennDOT SMART Transportation Guidebook
www.smart-transportation.com/assets/download/Smart%20Transportation%20Guidebook.pdf
- For Complete Street Sample Policies and Guidelines see:
www.completestreets.org/documents/CompleteStreetsPolicyChart.pdf

Other Outside Resources

- Model Bicycle Programs:
 - City of Austin
www.ci.austin.tx.us/bicycle
 - City of Seattle Bicycle Program
www.ci.seattle.wa.us/transportation/bikeprogram.htm
 - City of Toronto Cycling
www.toronto.ca/cycling/
 - City of Chicago 2015 Bike Plan
www.chicagobikes.org
 - Chattanooga Urban Area Bicycle Facilities Master Plan
www.chattbike.com/bikechat/masterplan.htm
- Complete The Streets
www.completestreets.org
- World Carfree Network
www.worldcarfree.net
- For News on Hybrid Government Fleets:
www.government-fleet.com/News/List/Tag/hybrids.aspx

Pittsburgh Resources

- Bike Pittsburgh
www.bike-pgh.org
- Free Ride!
www.freeridepgh.org/html/earn.html
- Venture Outdoors
www.ventureoutdoors.org



Garland Park



Enright Park



Liberty Park

East Liberty's Green Vision

The Parks

Topography, Sub-Watershed and the Sewershed Context for East Liberty's Parks and Green Space

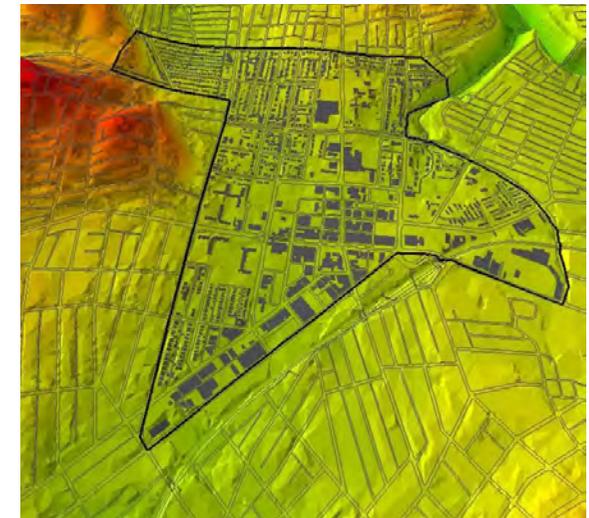
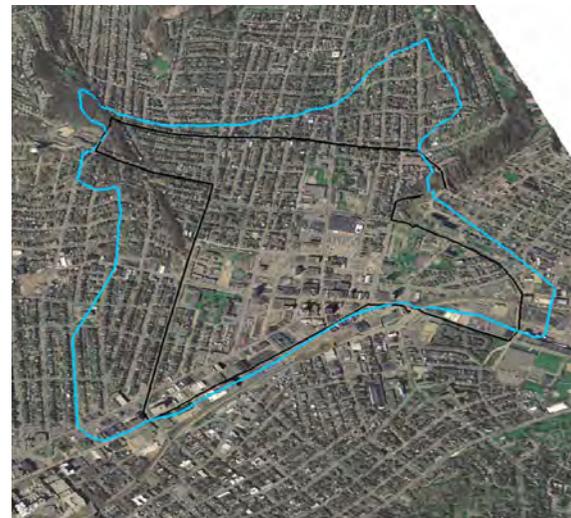
Sub-Watershed, Topography, Combined Sewer System and PWSA Sewersheds

East Liberty's topography (upper right) is relatively flat by Pittsburgh standards with the ridge of Garfield Heights to the west and the valley of Negley Run to the east of the neighborhood boundaries.

The sub-watershed (the blue line, upper left) closely mimics the neighborhood boundary, but stormwater runoff is artificially directed by the combined sewer network (bottom right).

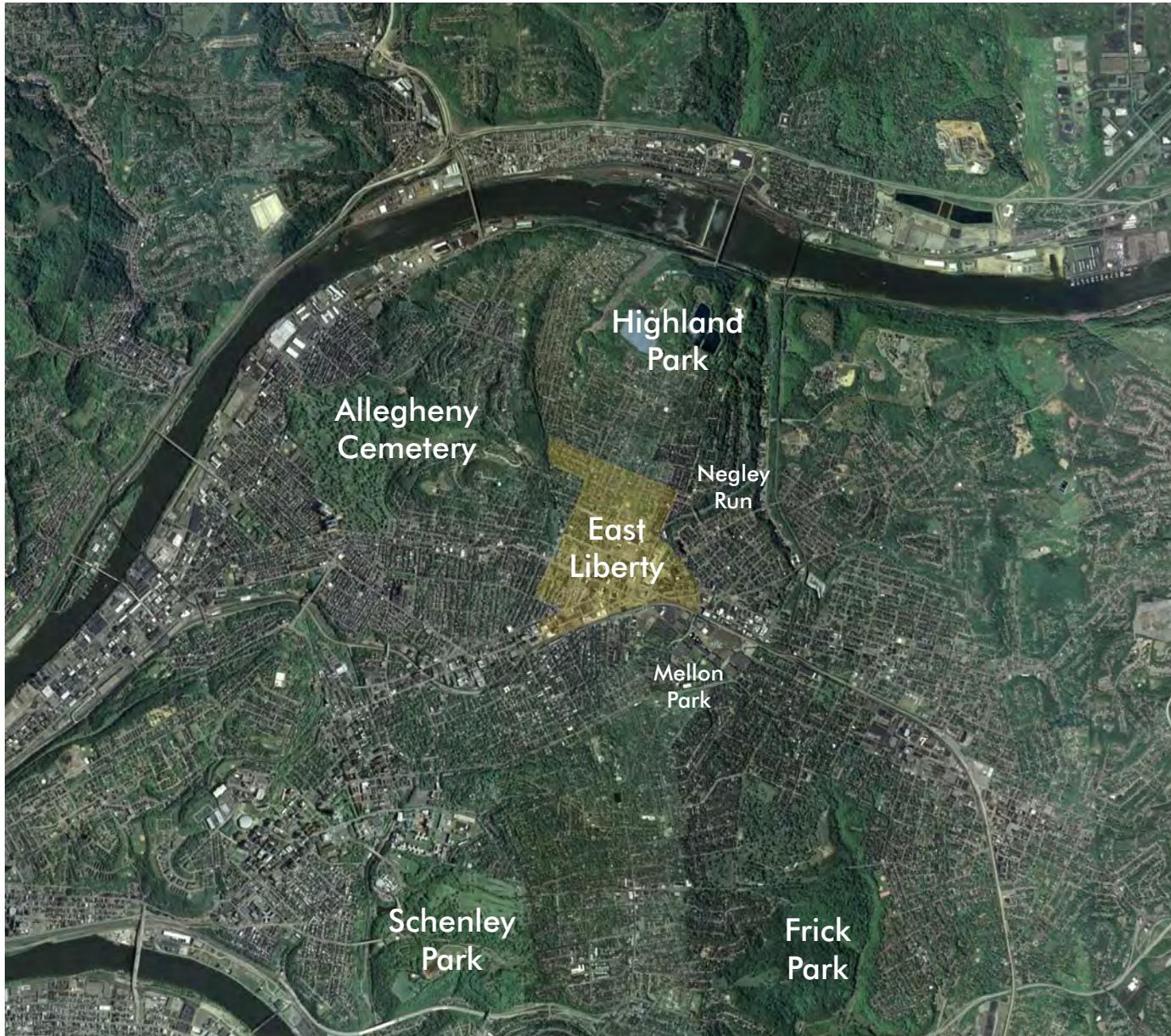
East Liberty and its neighborhood parks are at the nexus of three of the Pittsburgh Sewer and Water Authority (PWSA) sewersheds (lower left):

- Two Mile Run Sewershed
- Heths Run Sewershed
- Negley Run Sewershed



Clockwise from top left, East Liberty Sub-Watershed, Topography, Combined Sewer Lines, and East Liberty's Sewer Shed: Drainage Areas to Combined Sewers (courtesy PWSA).

East Liberty and Regional Green Space



Regional Green Space Proximity

Beyond the neighborhood limits, East Liberty is central to three of Pittsburgh's four regional parks:

- Highland Park
- Frick Park
- Schenley Park

The neighborhood is also less than one mile away from Allegheny Cemetery — a green space which equals the tree canopy and size of each of the three parks.

The green space along Negley Run leads to Washington Boulevard and the bike track.

One-quarter mile from East Liberty's southeast boundary is Mellon Park and the Pittsburgh Center for the Arts along Fifth Avenue.

The Existing Green Space, Public School Grounds and Recreational Facilities in East Liberty

TYPE OF FACILITY	FACILITY NAME	ADDRESS	OWNER	SITE SIZE
PUBLIC PARKS	Enright Park	Eva Street and Amber Street Pittsburgh, PA 15206	City of Pittsburgh	3.4 Acres
	Garland Park	Penn Circle West and Ansley Street Pittsburgh, PA 15206	City of Pittsburgh	4.2 Acres
	Liberty Park	Larimer Avenue and Broad Street Pittsburgh, PA 15206	City of Pittsburgh	2.3 Acres
PUBLIC SCHOOLS	Peabody High School	515 N. Highland Avenue Pittsburgh, PA 15206	Board of Education Pittsburgh School District	2.9 Acres
	Dilworth Elementary School	6200 Stanton Avenue Pittsburgh, PA 15206	Board of Education Pittsburgh School District	N/A
	Rogers Middle School*	5525 Columbo Street Pittsburgh, PA 15206	Board of Education Pittsburgh School District	N/A
PRIVATE RECREATION	Kingsley Center*	6435 Frankstown Avenue Pittsburgh, PA 15206	Kingsley Association	N/A
	East Liberty Presbyterian	115 N. Highland Avenue Pittsburgh, PA 15206	East Liberty Presbyterian Church	N/A
	Eastminster Presbyterian	515 N. Highland Avenue Pittsburgh, PA 15206	Kingsley Association	N/A
COMMUNITY GARDENS	Community Garden (1)	521-523 N. Beatty Avenue Pittsburgh, PA 15206	ELDI (Bio-Fuels plantings maintained by GTECH)	6,700 SF
		525-533 N. Beatty Avenue Pittsburgh, PA 15206	City of Pittsburgh (Bio-Fuels plantings maintained by GTECH)	9,000 SF
	Community Garden (2)	Borland and N. Euclid Avenue Pittsburgh, PA 15206	City of Pittsburgh (Garden maintained by local block group)	2,100 SF
	Community Garden (3)	214 S. St. Clair Street Pittsburgh, PA 15206	Private Individual Owner (Garden maintained by several neighborhood partners)	4,100 SF

* The Kingsley Center and Rogers Middle School are outside of the neighborhood, abutting the East Liberty border.



East Liberty's Green Space, Tree Canopy and Recreation Facilities

As the map to the right illustrates, the limited tree canopy is evident throughout East Liberty, especially in the central core.

The primary green space in East Liberty includes:

- Enright Park
- Garland Park
- Liberty Park
- Peabody High School ball fields
- The wooded hillside north of Rogers School
- East Liberty Boulevard's median
- Negley Run steep hillsides

In addition to the local public schools, the other neighborhood institutions which offer recreational opportunities include the Kingsley Center's Pool and Gymnasium; the East Liberty Presbyterian Church Gymnasium; and the Eastminster Presbyterian Church Gymnasium.

The latter two have hours for local youth, but are not very well used beyond church functions.

East Liberty's Public Parks

Urban Renewal Origins

The history of East Liberty Parks is relatively brief and unspectacular. With the exception of the outdoor field north of Peabody High School, East Liberty parks were created as part of the Urban Renewal plans nearly 40 years ago. Liberty, Garland and Enright parks were each positioned adjacent to the three large "super block" subsidized housing developments.

Poor Rental Management and Limited Programming

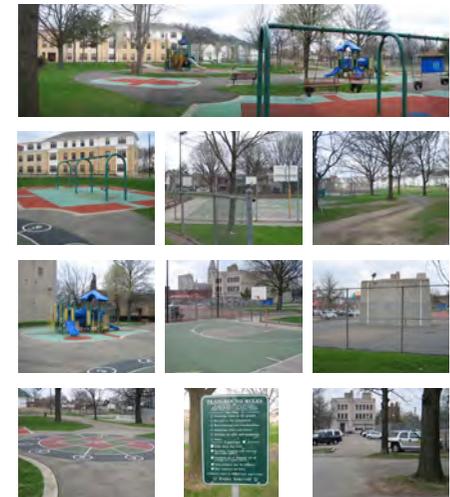
Poor management of the neighboring housing developments contributed to their failures as places to live and to the negative impressions of the parks themselves. The parks suffered even more because of inadequate funding for long-term maintenance and active programming. Today, there are no active programs provided in any of the local East Liberty parks.

Limited Improvements and Minimal Maintenance

Except for capital improvements of limited scope over the last 10 years—as noted in the following conditions for each park—the operating expenses are limited to the bare minimum maintenance. The maintenance budget is limited to grass cutting, litter and rubbish removal, leaf removal and snow and ice control.

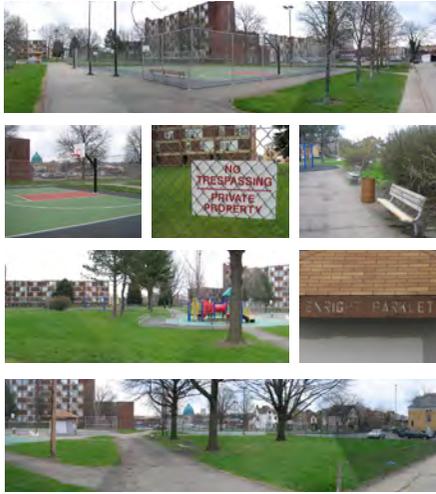


Garland Park





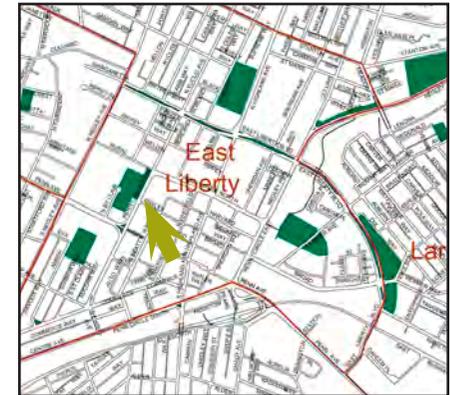
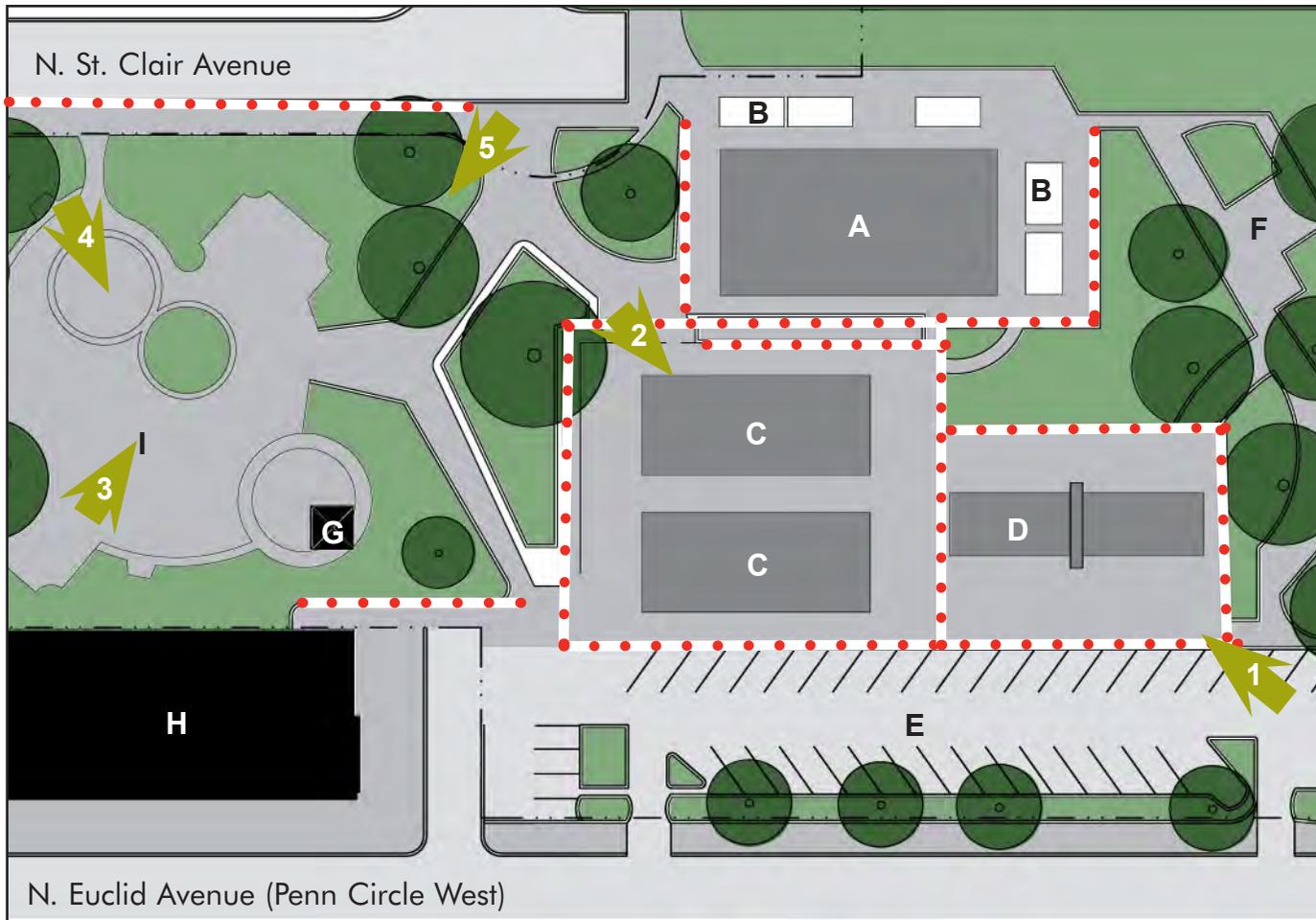
Enright Park



Liberty Park



Garland Park—Existing Conditions



Park Inventory 4.2 Acres

- A Basketball Courts
- B (5) Bleachers at Basketball Courts
- C (2) Tennis Courts
- D (2) Handball Courts
- E Parking Lot—Fire Station Only
- F Picnic Area
- G Storage (Former Pump House)
- H Fire Station
- I Playground Area and Equipment



..... FENCING
 1 REFERS TO PHOTO ON OPPOSITE PAGE

	BUILDINGS		COURTS
	SIDEWALK		GRASS
	TREES		STREETS

Perspectives from Noted Locations on Site Plan



Operations, Programs and Safety

Annual Operating Costs: \$17,558.00

Estimated at 505 maintenance hours for grass cutting, litter, rubbish removal, leaf removal, snow/ice control.

Recent Capital Improvements

\$ 48,000	Resurface/Color Coat Courts (2004)
\$ 14,000	New Fence (2004)
\$ 6,000	Timeclock (2004)
\$ 139,000	Playground (1999)

Park Programs

No City of Pittsburgh park programs are currently run at Garland Park. The Connie Hawkins basketball tournament, which had been held at Garland Park for 12 years, was moved to an indoor location beginning the summer of 2007.

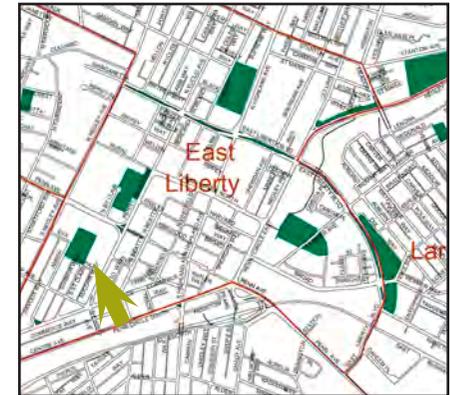
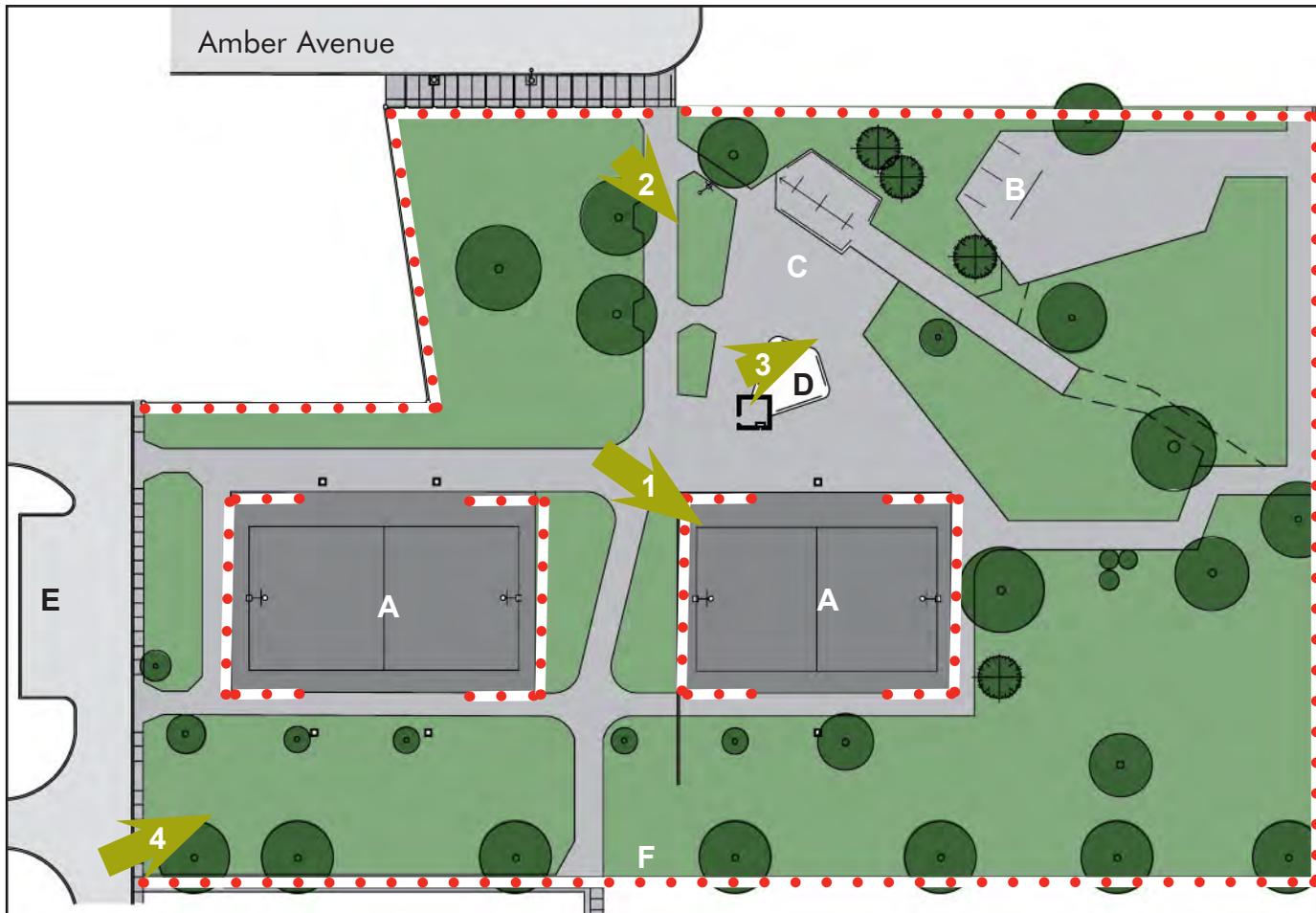
Safety Issues

- Some of the concrete borders, which frame the protective surfacing under the playground equipment, are within the six-foot minimum fall zone.
- The asphalt paths at the northern end of the site are in poor condition, with loose gravel conditions in some areas and potential tripping hazards at uneven surfaces where soil has been compacted next to these paths.
- Bordered by a vacant lot, the police parking lot, a windowless fire station and high fence with backyards to the north, there are no "eyes" on the park except for Penn Manor across from the southwest corner of the park.

Other Noteworthy Conditions

- Tennis courts are rarely used; the handball court even less.
- North end of park is nicely shaded with mature trees, but lacks amenities (this area had originally been designed for checkers tables).
- The north and south ends of the park are disconnected without a clear path through the hard surface courts, and the flow through the park is greatly disrupted and dominated by the chain link fencing on the site.

Enright Parklet—Existing Conditions



Park Inventory
3.4 Acres

- A Basketball Courts
- B Swings
- C Playground Area and Equipment
- D Spray Fountain Area
- E Parking
- F Line of Oak Trees



..... FENCING
 REFERS TO PHOTO ON OPPOSITE PAGE

 BUILDINGS	 COURTS
 SIDEWALK	 GRASS
 TREES	 STREETS

Perspectives from Noted Locations on Site Plan



Operations, Programs and Safety

Annual Operating Costs: \$14,603.00

Estimated at 420 maintenance hours for grass cutting, litter, rubbish removal, leaf removal, snow/ice control.

Recent Capital Improvements

\$100,000	New Basketball Courts/Fence (2005)
\$ 6,000	Timeclock (2005)
\$ 37,000	Playground (1997)

Park Programs

No City of Pittsburgh park programs are currently run at Enright Parklet. In previous years, the City's "Art Cart" occasionally came during the summer, but this location was not on the 2007 summer schedule.

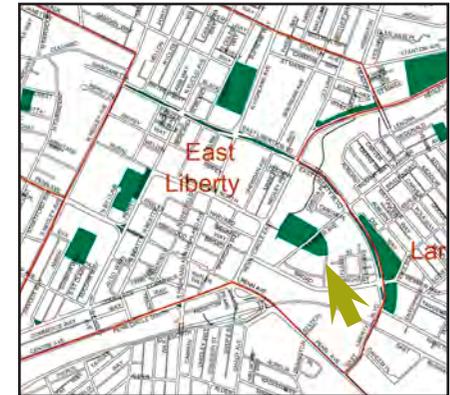
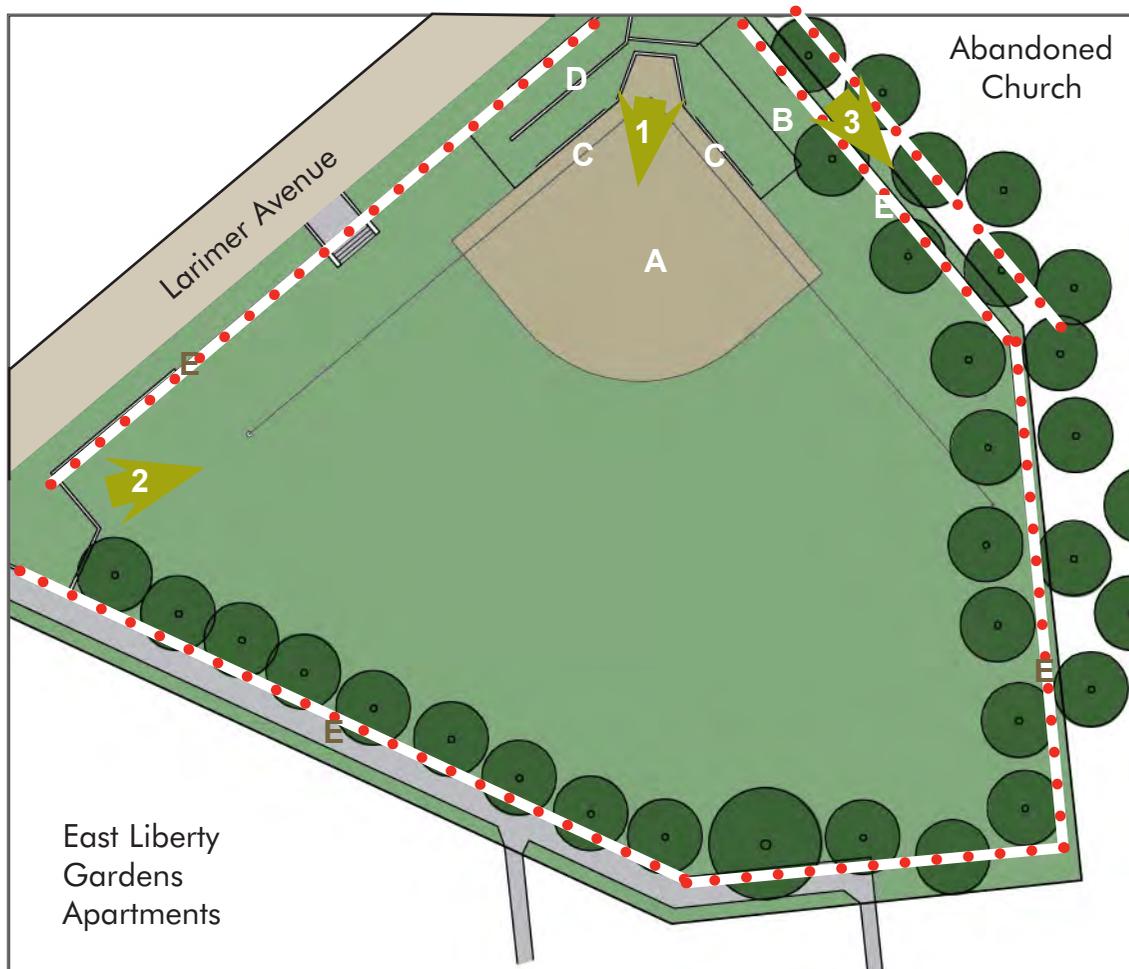
Safety Issues

- The railings around some of the playground equipment, including the whale spray fountain are, in effect, "ladders" and could be hazardous to children climbing and falling on the concrete or asphalt below.
- The protective surfacing around the play equipment is starting to deteriorate and is loose in some areas.
- The play equipment is in full sun, with limited shade.

Other Noteworthy Conditions

- Enright Parklet is particularly isolated because its street frontage is limited to a small section of Amber. In addition to having no frontage on the primary neighborhood streets of Penn, Negley and Penn Circle West, the disconnect is further reinforced by private chain-linked fence surrounding nearly 75 percent of the park's perimeter.
- The isolation helps contribute to both real and perceived concerns for safety and security.
- The whale spray fountain is still in place, but has not operated for several years.
- The eastern edge is nicely lined by mature Pin Oaks, adjacent to the former street right-of-way and an area that neighbors refer to as "the meadow."

Liberty Park—Existing Conditions



Park Inventory 2.3 Acres

- A Ball Field
- B Bleachers
- C (2) Team Benches
- D Accessible Ramp
- E Perimeter Fence



REFERS TO
PHOTO ON
OPPOSITE
PAGE



FENCING



BUILDINGS



SIDEWALK



TREES



COURTS



GRASS



STREETS

Perspectives from Noted Locations on Site Plan



Operations, Programs and Safety

Annual Operating Costs: \$11,439.00

Estimated at 329 maintenance hours for grass cutting, litter and rubbish removal, leaf removal, snow/ice control.

Recent Capital Improvements

\$15,000 New Asphalt (2001)

Park Programs

No City of Pittsburgh park programs are currently run at Liberty Park. On rare occasions, the ballfield will be reserved by the Pittsburgh softball leagues.

Safety Issues

- The site is poorly maintained and the cut fence presents potential entanglement hazards, especially for smaller children trying to climb through.

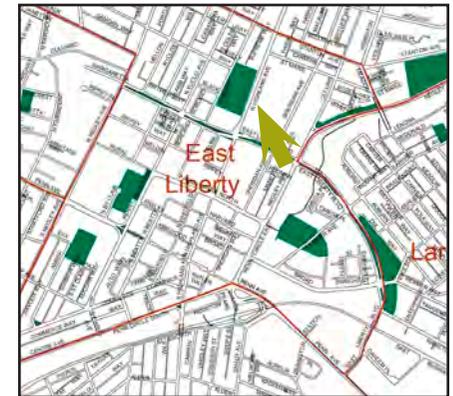
Noteworthy Conditions

- More than half of the original Liberty Park was incorporated into the Fairfield Apartment housing development. All that currently remains is the softball field on the east side of Larimer Avenue.
- The site still includes a right-of-way to access the pedestrian path that goes under East Liberty Boulevard and connects to Negley Run Boulevard.
- The outfield is nicely lined by a row of mature oaks and sycamores.

Neighboring properties

- The former Saints Peter and Paul church and school property parallels the third base and has been vacant for more than a decade. Two fences, each set back roughly five feet from the property line create an unusable 10 foot strip of land (see photo 3). The current owner has done little to prevent the buildings from falling into their present deteriorated state.
- The neighboring residential property beyond the outfield is a project-based Section 8 development, whose restrictions are to expire in 2009.
- This site falls within the Larimer Avenue corridor, scheduled for a master plan and market study in 2009.

Peabody High School—Existing Conditions



Outdoor Facility Inventory 2.9 Acres

- A Ball Field
- B Bleachers
- C Batting Cages
- D (2) Basketball Courts
- E Perimeter Fence with Barbed Wire



REFERS TO
PHOTO ON
OPPOSITE
PAGE

Perspectives from Noted Locations on Site Plan



Operations, Programs and Safety

Annual Operating Costs: N.A.

The grounds are maintained by the Pittsburgh Public School District.

Recent Capital Improvements

N.A.

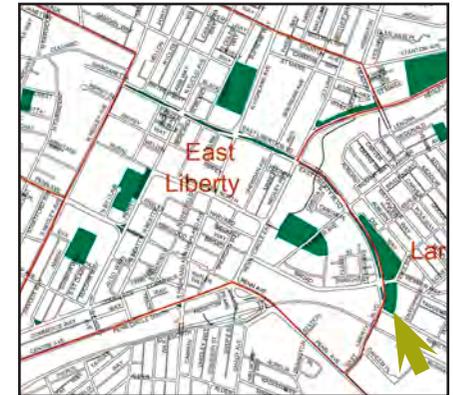
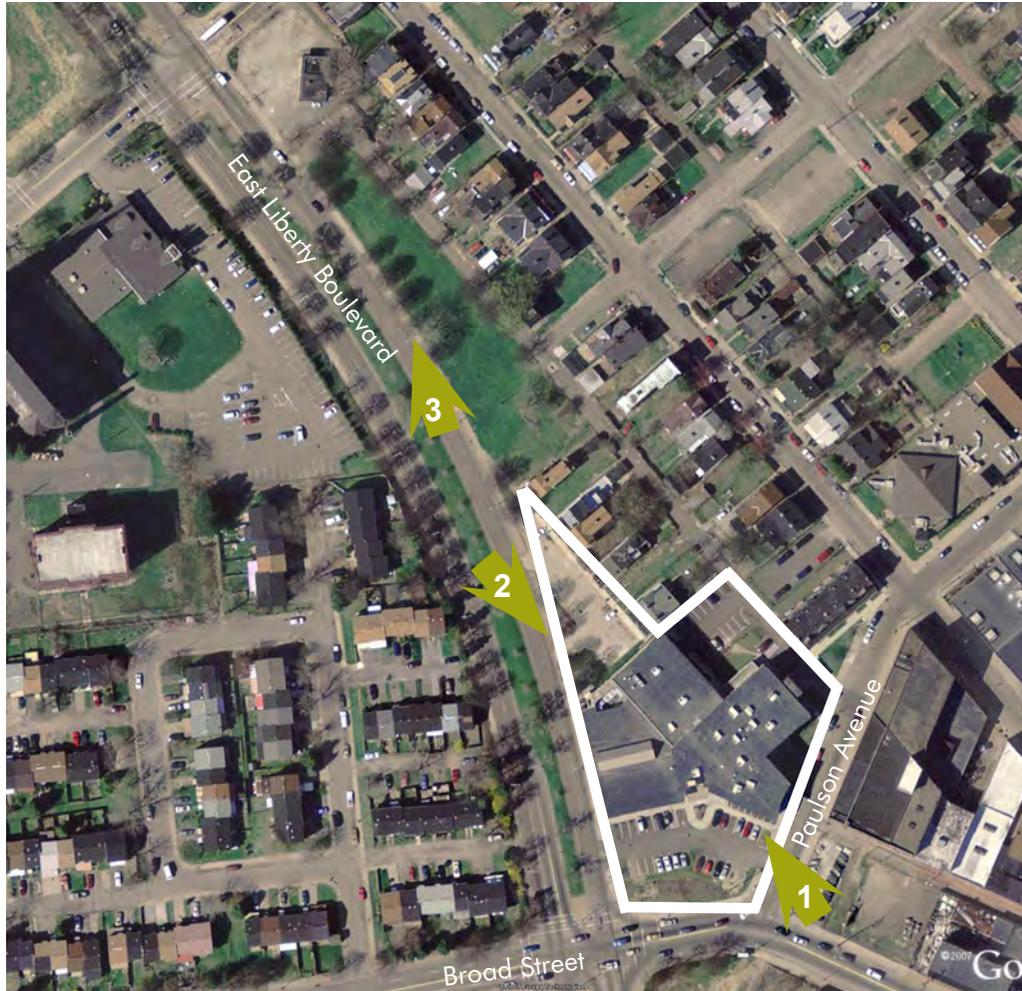
Park Programs

The City of Pittsburgh does not run park programs at the Peabody High School Facilities.

Noteworthy Conditions

- Most of the outdoor area is off-limits to the neighborhood. Access to the facility during non-school hours is limited primarily to the basketball courts for unorganized games and the football field for Little League in the fall.
- Bleachers are oversized for the number of spectators. Peabody High School's football team uses the facility for practice only, and not for games.
- The bleachers further block the view corridor from Beatty to the green space of the Pittsburgh Theological Seminary campus.
- The barbed-wire fence along North Beatty Street is a harsh element in the neighborhood context.
- This portion of North Beatty Street lacks the continuity and the beauty that comes with the mature trees in the Alpha Terrace Historic District, just one block north.

Kingsley Center—Existing Conditions



Indoor Facility

- Swimming Pool
- Gymnasium
- Exercise Rooms



REFERS TO
PHOTO ON
OPPOSITE
PAGE

Perspectives from Noted Locations on Site Plan



Operations and Programs

Annual Operating Costs: N.A.

The facility is owned and maintained by the Kingsley Association.

Recent Capital Improvements

The \$8 million facility opened in 2006.

Park Programs

The City of Pittsburgh does not run park programs at the Kingsley Center, a privately operated facility, just outside the official neighborhood boundary north of East Liberty Boulevard.

Noteworthy Conditions

- The facility includes an indoor pool and offers swimming classes.
- Annual memberships are available at the following rates:
 - \$50 for 18 and under
 - \$100 for Adult Membership
 - \$150 for Family Membership
- After school activities, which include basketball, football, baseball and swimming are generally from 3 PM to 6 PM and are free with Kingsley Center membership.
- Other programs available on the second floor of the Kingsley Center include a Headstart program, a dance studio and yoga classes.
- The site has poor outdoor lighting and while parking for the facility is limited, new parking lanes along East Liberty Boulevard provide additional spaces for cars.
- The green space to the northwest of the building, along East Liberty Boulevard, is oddly configured and underutilized.

National Recreation and Parks Association

The role of the NRPA and the basis for their park and recreation standards

NRPA MISSION

The Mission of the National Recreation and Park Association is, "To advance parks, recreation and environmental conservation efforts that enhance the quality of life for all people."

NRPA'S VALUES

We believe that parks and recreation:

- Enhances the human potential by providing facilities, services and programs that meet the emotional, social and physical needs of communities.
- Articulates environmental values through ecologically responsible management and environmental education programs.
- Promotes individual and community wellness that enhances the quality of life for all citizens.
- Utilizes holistic approaches to promote cultural understanding, economic development, family public health and safety, by working in coalitions and partnerships with allied organizations.
- Facilitates and promotes the development of grassroots, self-help initiatives in communities across the country.

NRPA's GOALS

- To promote public awareness and support for recreation, park and leisure services as they relate to the constructive use of leisure and thereby to the social stability of a community and the physical and mental health of individuals. NRPA strives to promote public awareness of the environmental and natural resource management aspects of recreation and leisure services.
- To facilitate the development, maintenance, expansion and improvement of socially and environmentally relevant public policy that supports recreation, parks and leisure programs and services.

- To enhance the development of parks, recreation and tourism professionals and to provide services that contribute to the development of NRPA members.
- To promote the development and dissemination of the body of knowledge in order to improve the delivery of service, increase understanding of leisure behavior and expand the body of knowledge relative to parks and recreation programs and services.

NRPA: RECREATION, PARK and OPEN SPACE STANDARDS AND GUIDELINES

The National Recreation and Park Association (NRPA) recognizes the importance of establishing and using park and recreation standards as:

- A national expression of minimum acceptable facilities for the citizens of urban and rural communities.
- A guideline to determine land requirements for various kinds of park and recreation areas and facilities.
- A basis for relating recreational needs to spatial analysis within a community-wide system of parks and open space areas.
- One of the major structuring elements that can be used to guide and assist regional development.
- A means to justify the need for parks and open space within the overall land-use pattern of a region or community.

The purpose of these guidelines is to present park and recreation space standards that are applicable nationwide for planning, acquisition, and development of park, recreation, and open space lands, primarily at the community level. These standards should be viewed as a guide. They address minimum, not maximum, goals to be achieved. The standards are interpreted according to the particular situation to which

they are applied and specific local needs. A variety of standards have been developed by professional and trade associations which are used throughout the country. The standard derived from early studies of park acreage located within metropolitan areas was the expression of acres of park land per unit of population.

Over time, the figure of 10 acres per 1,000 population came to be the commonly accepted standard used by a majority of communities. Other standards adopted include the "percent of area" approach, needs determined by user characteristics and participation projections, and area use based on the carrying capacity of the land. The fact that some of the standards have changed substantially is not an indication of their obsolescence. Changes are a measure of the growing awareness and understanding of both participant and resource (land, water, etc.) limitations. Parks are for people. Park, recreation, and planning professionals must integrate the art and science of park management in order to balance such park and open space resource values as water supply, air quality, etc.

The above is excerpted from the NRPA website: <http://www.nrpa.org/>.

The table on the adjacent page is adapted from the table in "Park, Recreation, Open Space and Greenway Guidelines"—1996 Publication. ISBN: 0_9603540-1-8, Authors: J.D. Mertes and J.R. Hall, Printed by NRPA.

NRPA Guidelines: East Liberty Comparison

East Liberty Facilities Compared to NRPA Standards for Population

Topology			Number of Facilities by Park					Existing Neighborhood Population: 6,871	
	Standard	Service Radius	Garland	Enright	Liberty	Peabody	TOTAL	Needed	Surplus / (Deficit)
Badminton	1 per 5,000	0.25 to 0.50 mile	0	0	0	0	0	2	(2)
Baseball	1 per 5,000	0.25 to 0.50 mile	0	0	1	1	2	2	0
Baseball (lighted)	1 per 5,000	0.25 to 0.50 mile	0	0	0	0	0	0	0
Basketball	1 per 5,000	0.25 to 0.50 mile	1	2	0	2	5	2	3
Softball	1 per 5,000	0.25 to 0.50 mile	0	0	1	0	1	2	(1)
Volleyball	1 per 5,000	0.25 to 0.50 mile	0	0	0	0	0	2	(2)
Multiple Rec. Court	1 per 10,000	1 to 2 miles	2	0	0	0	2	1	1
Soccer	1 per 10,000	1 to 2 miles	0	0	0	0	0	1	(1)
1/4 Mile Run	1 per 20,000	15 to 30 minute travel	0	0	0	0	0	0	0
Field Hockey	1 per 20,000	15 to 30 minute travel	0	0	0	1	1	0	1
Football	1 per 20,000	15 to 30 minute travel	0	0	0	1	1	0	1
Handball	1 per 20,000	15 to 30 minute travel	1	0	0	0	1	0	1
Swimming Pools	1 per 20,000 (3-5% of pop. at once)	15 to 30 minute travel	0	0	0	0	0	0	0

* The Kingsley Center has a pool and is privately operated, but available to the public for a fee.

How East Liberty Measures Up to Neighborhood Standards

The adjacent chart compares the National Recreation and Park Association (NRPA) Guidelines for a "Neighborhood Park" to the existing conditions in East Liberty.

According to these standards, East Liberty's parks:

- Are deficient in badminton courts, but the need for such facilities is questionable at best.
- About on par with requirements for baseball/softball fields, assuming that the two existing ballfields could be used by both.
- Have more than twice the amount of basketball courts compared to the standard, but are also among the most highly used facilities and two of the courts are on Pittsburgh Public School property.
- Have twice the amount of multi-recreational courts counting the two tennis courts in Garland Park.
- Do not meet, or barely meet the minimum requirements, if the Peabody High School facilities (which are accessible to a limited population) are not included in the tally.

Basic Considerations for East Liberty Parks

Improving park access, circulation and visibility by bringing back the through streets are part of the intermediate plans.

At Enright Park, this includes a new intersection and street at Penn and St. Clair (1) which continues around the north end of the park and connects to Amber Street (2).

At Garland Park, the re-connection of the street grid includes St. Clair (3) from Broad Street to Rural Street and Broad Street (4) from St. Clair to Euclid or Penn Circle West.

Enright Park: No Penn Avenue Access



Garland Park: Little Street Access



Enright Park – Potential



Garland Park – Potential

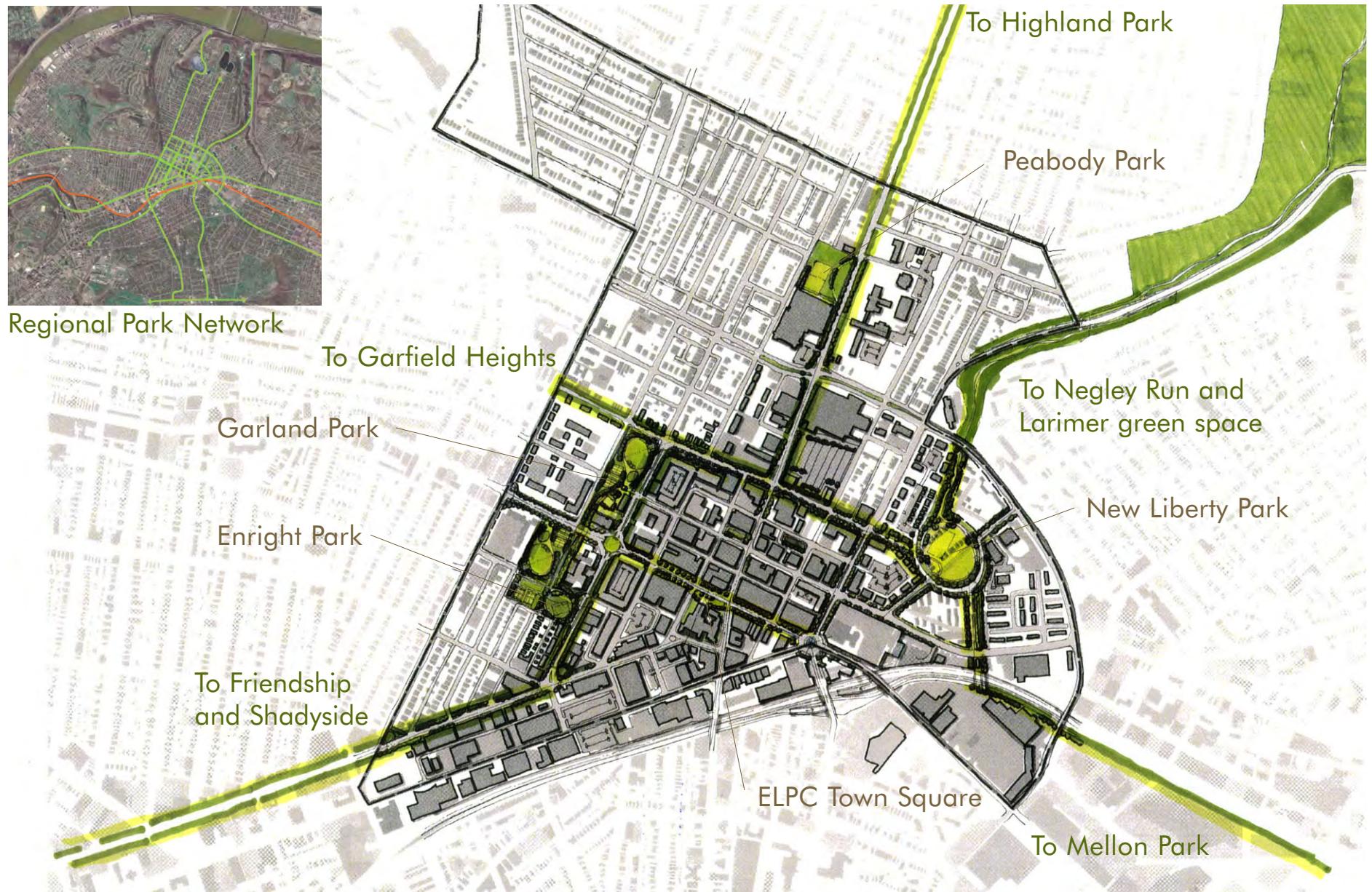


Peabody	Garland Park	Enright Park	Liberty Park
Short-Term (Immediate to 3 Years)			
<ul style="list-style-type: none"> ▪ Eliminate some fencing and all barbed wire. ▪ Work with the school administration and maintenance staff on new facilities plan. ▪ Offer consistent programming during off school hours. ▪ Provide a more gracious street edge with tree plantings. ▪ Engage the school in a community garden project at Black and Beatty Street. 	<ul style="list-style-type: none"> ▪ Explore landscaping alternatives on the north side of the site and around the site's perimeter. ▪ Reconsider the use of the former police parking lot for either public parking or alternative programming. ▪ Upgrade site furnishings, including trash cans, benches and site lighting. ▪ Provide bike racks. ▪ Eliminate some of the site fencing to improve pedestrian circulation through the park. 	<ul style="list-style-type: none"> ▪ Rename the facility Enright Park, instead of Parklet. ▪ Eliminate some of the site fencing to improve pedestrian access and establish connections to Penn Avenue and N. Euclid (Penn Circle West). ▪ Introduce alternative landscaping to reduce mowing around the meadow and in other appropriate areas. ▪ Provide bike racks. ▪ Upgrade site furnishings: Trash cans and benches. ▪ Explore partnership opportunities to work with plans for Craig House's new facility on the block southwest of the park. 	<ul style="list-style-type: none"> ▪ Repair the fence at the backstop and replace the wood on the team benches. ▪ Upgrade site furnishings: Trash cans and new site benches. ▪ Install alternative landscape treatment around perimeter/outfield fence as amenity to both park and neighboring residential development. ▪ Organize alternative programming such as Under 9 soccer with local recreational groups. ▪ Provide bike racks on-site.
Intermediate (3 to 5 Years)			
<ul style="list-style-type: none"> ▪ Explore the potential to incorporate an infiltration bed under the ball field for 100 percent on-site stormwater retention. ▪ Consider reducing the size of the bleachers to a capacity that is consistent with the amount of spectators to reduce negative impact on the residential neighbors. 	<ul style="list-style-type: none"> ▪ Add new through-street connections with stormwater and traffic calming best management practices for both Broad Street (east-west) and St. Clair Street (north-south) through the site. ▪ Revisit long-term site considerations with respect to the proposed Mellon's Orchard South and potential adaptive reuse of the former police / fire station. ▪ Replace the handball court with alternative amenities that are in higher demand. 	<ul style="list-style-type: none"> ▪ In cooperation with neighboring residential owner, negotiate the right-of-way for a new street to connect to Penn Avenue and wrap around the northwest corner of the park. ▪ Incorporate or reconfigure the private parking lot at the southwest corner of the park for shared use. ▪ Preserve the row of oak trees during implementation of any of the above. 	<ul style="list-style-type: none"> ▪ Establish the greenways connection through the East Liberty Boulevard pedestrian underpass to link Negley Run, the Kingsley Center and Mellon Park for bikes and pedestrians. ▪ Secure control of all property necessary to carry out the long-term development of this area with an integrated plan for new residential development fronting onto a greatly improved park.

Connecting East Liberty's Parks with Green Streets and Green Vision Links to Regional Parks and Open Space



Regional Park Network



The East Liberty Park System

The Broader Purpose of East Liberty's Park System

The fundamental problems with East Liberty parks are rooted in their isolated positions in the neighborhood. Although surrounded by residential development of the Urban Renewal era, the relationship between the parks and their neighbors are flawed for three reasons.

- First, the housing does not face the parks, which precludes the “eyes on the park” that are so critical for the safety and “ownership” of the park facilities.
- Second, the park boundaries are primarily defined by private property lines or fences instead of public streets which restricts access and visibility.
- Third, with the parks and the housing not being integral to each other's success, both failed to meet the Urban Renewal expectations for creating a better community.

The sustainability of East Liberty's parks is not as much a parks issue as a community development proposition guided by the principles outlined within the Green Vision:

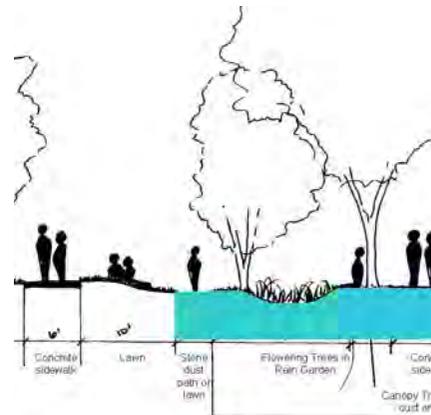
- **Balance the Natural and Built Environment** by creating a synergy between real estate development and the added value of quality green space.
- **Promote Energy Efficiency and Conservation and Waste Reduction** by incorporating best management practices in alternative energy use and maintenance of the parks and the surrounding developments.
- **Achieve Exceptionally Good Water and Air Quality** by using the parks as a way of capturing neighborhood stormwater on site and increasing the neighborhood tree canopy on site and along the streets.
- **Integrate Land Use, Quality Urban Design and Healthy Communities** by creating pleasant pedestrian and bicycle connections through East Liberty's parks and extending the green streets to open spaces outside of the neighborhood.
- **Enhance Community Economic Development** by creating entrepreneurial opportunities within and around the parks through recreation, art, urban agriculture and environmental education.
- **Promote Community Education and Increased Public Awareness** by engaging community stakeholders and explaining the benefits of the Green Vision approach to neighborhood development through demonstration projects throughout the community, including within the parks.



Neighborhood Greenway



Garland and Enright Parks

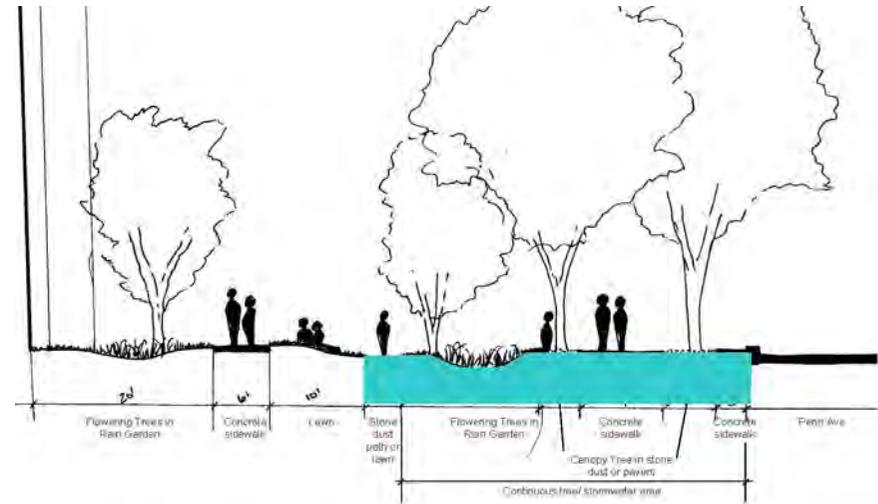
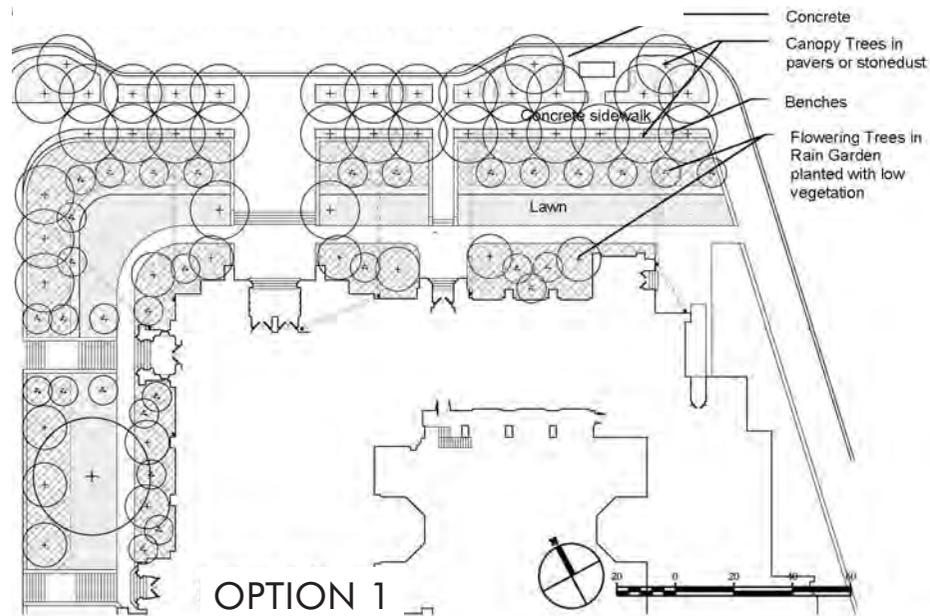


ELPC Town Square

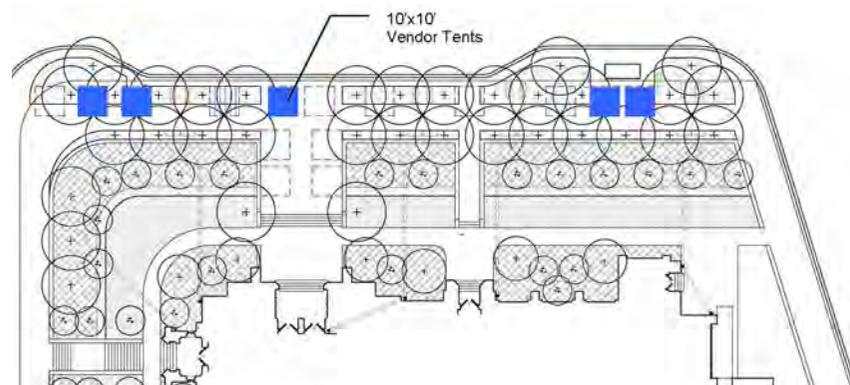


New Liberty Park

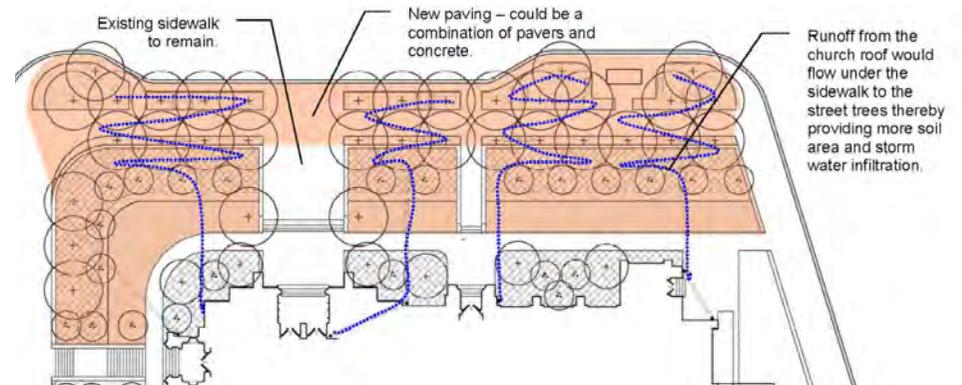
Framework for ELPC Town Square Option 1: The Grand Exterior Nave Canopied Sidewalk



Canopy trees such as the new Elm "Olmsted" or Oaks form a grand exterior "nave" for ELPC and flowering trees provide seasonal interest and a pedestrian-scaled setting for the lawn.

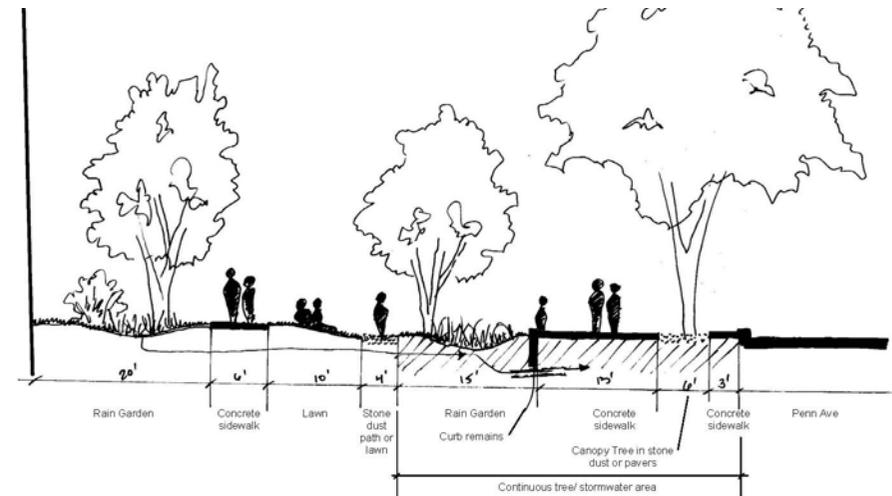
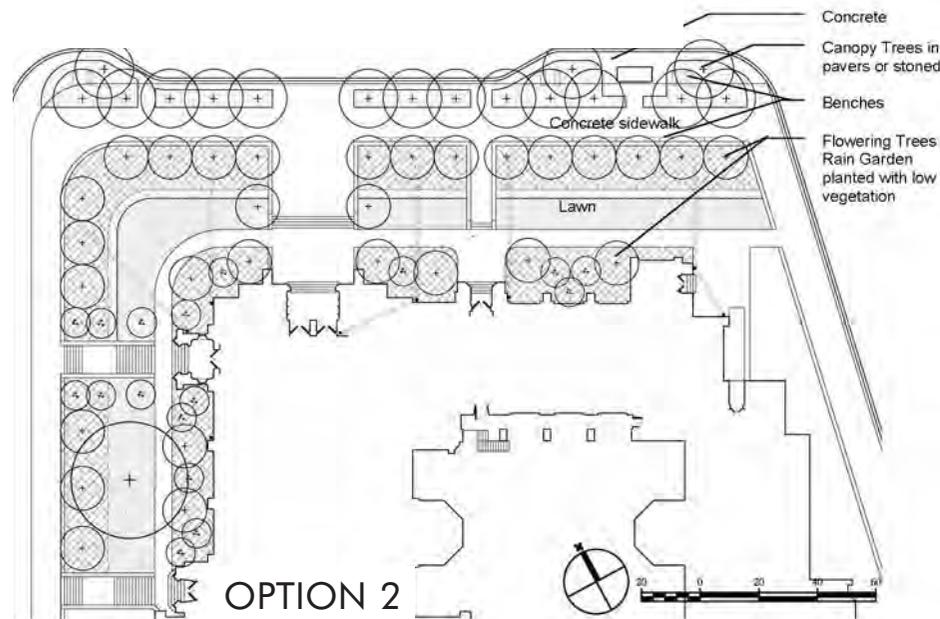


Canopy trees with festival gathering space and potential tent locations.



Maximum soil areas provide a continuous tree/stormwater management area, but requires that the sidewalks need to be rebuilt.

Framework for ELPC Town Square Option 2: Penn Avenue Canopy Trees and Flowering Tree Lawn



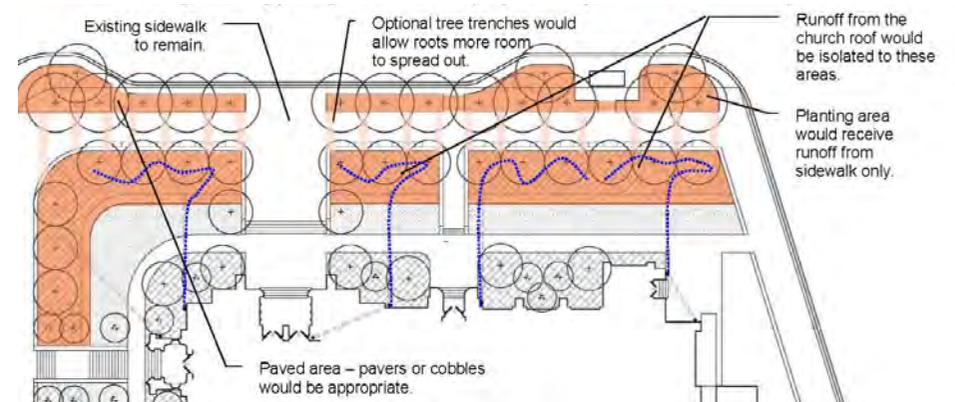
One row of canopy trees such as the new Elm “Olmsted” or Oaks frame the sidewalk perimeter for ELPC and flowering trees provide seasonal interest and a pedestrian-scaled setting for the lawn.

East Liberty Presbyterian Church (ELPC) Town Square

The “front lawn” of East Liberty Presbyterian Church is the focal point of the East Liberty Town Square concept, and the central green space within East Liberty’s commercial core.

The addition of a row of canopy street trees and a row of flowering trees will frame a rain garden which:

- Provides a unique sidewalk edge.
- Allows for a more intimate lawn area on the church property.
- Creates an outdoor urban sanctuary within the heart of East Liberty’s commercial core.



Minimum soil area needed with optional underground trench would provide more soil area for tree roots. Ideally, the existing paving would remain in place to save costs, with post-construction repair as necessary.

Framework for Garland and Enright Parks: The Green Core of East Liberty's West Side

Garland Park

With an emphasis on ecosystem restoration—native plants and low-maintenance landscaping—actively incorporate the redevelopment of the park with the construction of the new Mellon's Orchard South residential development with park frontage, and "eyes on the park."

Transform the former police station and fire station into East Liberty's Urban Environmental Resource Center, a place for:

- Environmental Arts Programs—recycled materials, birdhouses, birdfeeders, painted rain barrels and garden furniture.
- A resource to partner with local public and private schools for environmental education.
- A "trail head" for the East Liberty Parks Green Street system and hiking trail extending across Negley Avenue up through the hillside ridge to Rogers Middle School.
- Sports center—mountain bike shop/Free Ride "annex;" outdoor climbing wall on west side of environmental center; and eco-friendly skateboard park.
- Explore the option of incorporating a geothermal loop under the park for heating and cooling, and/or stormwater infiltration beds for the residential development of Mellon's Orchard South.

Enright Park

Emphasizing an environmentally friendly place for families and kids, the visibility and access to Enright Park needs to extend to both Penn Avenue and Euclid Avenue (Penn Circle West).

Additionally, establish a strong green connection to the nearby Garland Park, just one block to the north, with the possible expansion of Enright Park if the

surrounding residential properties are eventually redeveloped.

- Remove the obsolete playground equipment and transform that area of the park into a natural playground planned and constructed in partnership with local stakeholders such as the Craig Academy.
- Reconfigure the parking on the south end of the park for shared use, incorporating a porous pavement

system for on-site stormwater infiltration and include an area to test as a site for a neighborhood shared bike system.

- Offer small garden plots for community use and create a picnic grove near the native landscaped meadow and a locally built community cob oven.
- Increase safety at night by installing "dark-sky" compliant, solar-powered park lighting.



ENRIGHT & GARLAND PARKS



PLAYGROUND



ENVIRONMENTAL ART PROGRAMS



FARMER'S MARKET



SEASONAL FLOWER SHOP



BIKE SHOP



SPORT COURTS



GARDEN PLOTS



COMMUNITY GARDENS

Framework for New Liberty Park: East Liberty's Anchor for Green Connections

Liberty Park and East Liberty's Gateway to Greener Pastures

Liberty Park has the potential to be transformed into an active neighborhood center and a portal to a larger greening strategy extending up through Larimer and Highland Park.

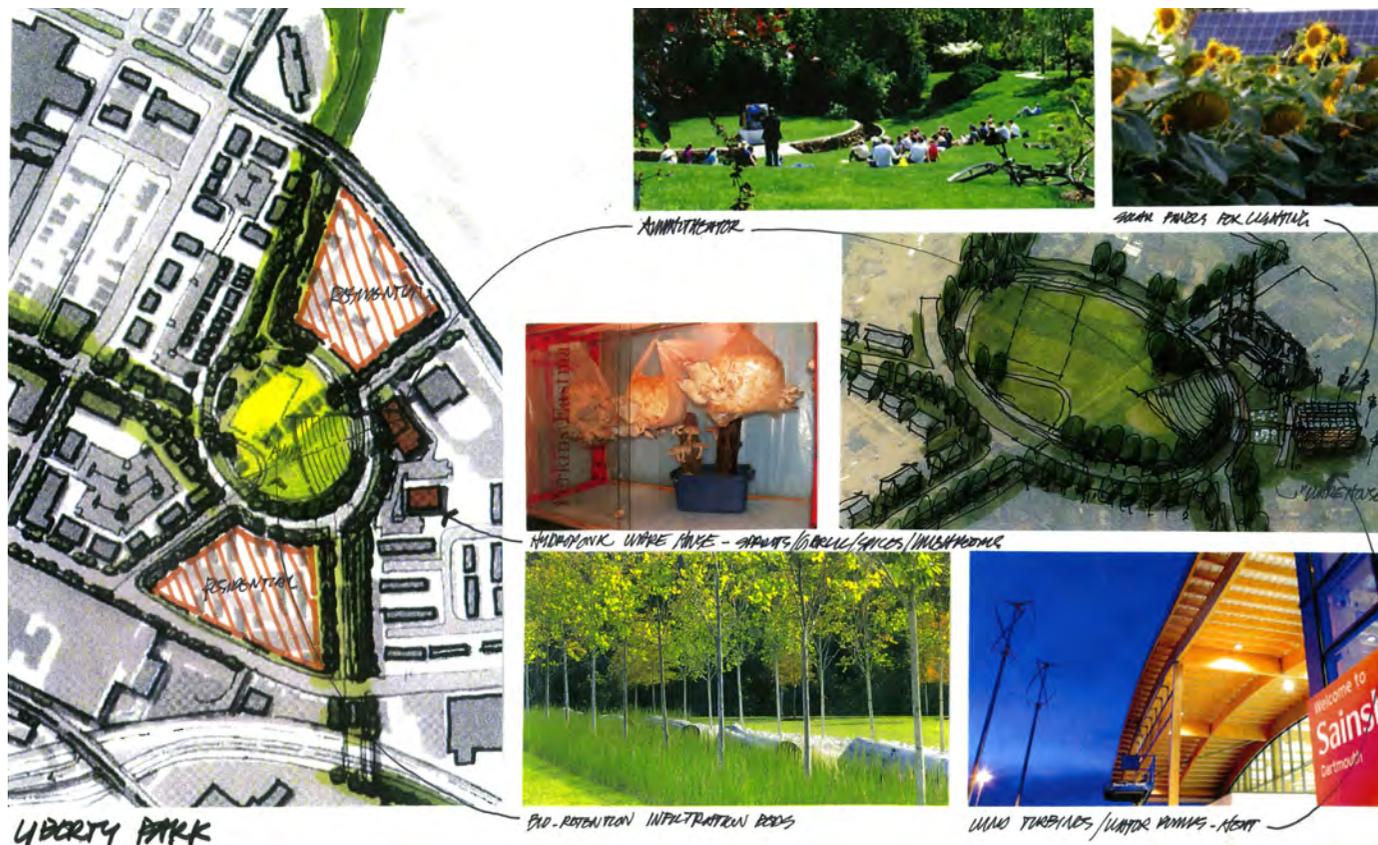
On-site, the new oval park space can serve as a bio-retention area for the surrounding development, with lush landscaping around the perimeter and a multipurpose open space available for non-organized soccer, football and frisbee use; plus offer a venue for special outdoor events.

Harkening back to the days when Pittsburgh's East End began as grazing places called "The East Liberties," the former

Saints Peter and Paul school on the parks perimeter can serve as the new cutting-edge, East Liberty Urban Agriculture Center with:

- Indoor organic/hydroponic production for greens marketable to restaurants and grocery stores (i.e. sprouts, garlic, spices, mushrooms, etc.) with proceeds to benefit an endowment established for East Liberty Parks.

- Micro-wind turbines and photovoltaic system on rooftop to power lighting and water pumps for rainwater captured in cisterns for reuse in growing plants.
- The potential to incorporate a geothermal loop under the park for heating and cooling both the facility and new residential development surrounding the park.
- The potential to use fuel-cells for heating the facility.
- Salvaging the shell of the former Saints Peter and Paul church perimeter walls to house an experimental neighborhood tree nursery within the former church walls.



Liberty Park



Existing Conditions



Potential Future

East Liberty's Green Vision is about building a new sustainable urban infrastructure at the neighborhood level.

This infrastructure framework includes redirected public investments, innovations in private development and commitments to sustainable and healthy lifestyles at both the local and individual levels.

Invest in Green Infrastructure

Public investment in Green Streets, urban forestry/agriculture, parks and open space.

- Implement stormwater alternatives for on-site infiltration and zero runoff.
- Increase the urban tree canopy with trees on both public and private property.
- Develop local food production for community building and business development.
- Transform neighborhood parks into neighborhood catalysts for private investment surrounding high quality open space.
- Integrate low-impact development best practices into East Liberty pilot projects that become the basis for neighborhood standards.

Make East Liberty Walkable

Private development patterns that create appropriate urban density and diversity, pedestrian friendly mixed-use development and viable local transit alternatives.

- Increase diversity with a range of housing alternatives—style, type and tenure.
- Create mixed-use developments for business opportunities and walkable blocks.
- Emphasize transit-oriented development within half-mile of East Liberty Busway stops.
- Encourage biking and walking with pedestrian friendly amenities that improve safety.
- Prioritize transportation funding to take advantage of walking, biking and public transportation options.

Initiate Individual Actions

Individual actions and commitments to energy and resource efficiency, artistic ingenuity and environmental education.

- Invest in alternative energy options for public facilities and fleets and maximize energy conservation by constructing green buildings.
- Strive to eliminate waste—Reduce/Reuse/Recycle.
- Recognize the importance of art in community improvement and involvement.
- Provide meaningful environmental education at the school and neighborhood level.
- Adopt best green practices as new City standards and codes.

East Liberty's Green Vision

Measuring Success



Invest in East Liberty's Green Infrastructure: Stormwater Infiltration, Increased Tree Canopy, Heat Island Reduction, Quality Recreation and Open Space and Urban Agricultural Production.

- .1 **Create a new green west end gateway to East Liberty** on Penn Avenue between Negley and Euclid (Penn Circle West) with planted median, porous asphalt parking lanes and tree trench planting beds between curbs and sidewalks.
- .2 **Coordinate the redevelopment of Garland and Enright Parks** with the redevelopment of the surrounding residential properties, assuring that the public investment provides added value to the private development, with improved park access, visibility and building frontage along the parks' perimeters.
- .3 **Designate the redevelopment of Liberty Park** as a catalytic priority: a multi-purpose green space; stormwater infiltration bed; opportunity for new residential development surrounding the park; the adaptive reuse of the former Saints Peter and Paul church and school into a model urban agricultural center and a gateway to a greener Larimer and expanded linkage to Highland Park.
- .4 **Transform the "suburban" Penn Circle** ring road into the primary structural element for the green streets framework and the key connection in establishing the green loop connecting the key green spaces and parks within East Liberty.
- .5 **Establish a model commercial district along Penn Avenue** with the incorporation of street trees, tree trenches, planting (and infiltration) beds, and pedestrian scaled lighting and sidewalk amenities including locally commissioned public art.
- .6 With new landscaping and storm water infiltration measures, **transform the "front yard" of East Liberty Presbyterian Church** into a model urban green space which anchors the East Liberty Town Square and provides natural relief and a community gathering space along East Liberty's Penn Avenue commercial core.
- .7 Strategically **maintain and plant street trees throughout East Liberty** with the assistance from Tree Pittsburgh and volunteer tree stewards, and petition property owners to plant trees in both front and back yards.
- .8 **Establish pilot projects and special public programs to reduce stormwater runoff** with the incorporation of porous pavements, downspout disconnection programs, rain barrels, cisterns, rain gardens, infiltration beds, and green roofs.
- .9 **Increase opportunities for local school student involvement in neighborhood gardens**, on-site native landscaping initiatives on public and institutional grounds and economic development initiatives focused on urban agricultural opportunities for both local food production and community business development.
- .10 **Identify sites in or near East Liberty to establish neighborhood nurseries** for street trees, native perennials and rain gardens.
- .11 **Develop urban agriculture opportunities with existing community resources**, such as using church kitchens for local food processing production.

Priority Indicators, Neighborhood Baselines and Targets

	Existing Condition Baseline	2008 to 2011	2011 to 2014	2014 to 2017	2017 to 2020	Strategic Initiatives
Reduce Amount of Impervious Pavement Area (SF) to Pervious	213.0 Acres (57.6% of Area)	206.6 Acres (54.6% of Area)	200.4 Acres (51.6% of Area)	194.4 Acres (48.6% of Area)	188.6 Acres (45.6% of Area)	Pervious pavements; infiltration beds; downspout disconnects; green roofs
Reduce Amount of CSO Events in the three Sub-Watershed Areas	15,500,000 gallons (Annual Total)	10% Reduction	20% Reduction	35% Reduction	50% Reduction	Target “zero” storm-water runoff for parking lot/street retrofits, new construction and downspout disconnects
Net Trees Planted (for Each 3-Year Period)	0	1200	900	1200	700	City supported tree installation; TreeVitalize and volunteers; private on-site owner planting
Increase Overall Tree Canopy in East Liberty	9.0%	10.0%	12.0%	16.0%	24.0%	Street tree maintenance; new street trees; residential, parks and institutional site plantings
Increase Urban Agriculture and Local Food Production	33,000 SF (0.75 acres)	87,000 SF (2 acres)	130,000 SF (3 acres)	174,000 SF (4 acres)	218,000 SF (5 acres)	Community gardens or bio-fuel agriculture on vacant lots, institutional lawns or indoor hydroponic systems with the involvement of local partners
Increase Annual Operating Support for Local Parks	\$43,600	\$75,300	\$100,200	\$133,500	\$177,600	Obtaining grants and in-kind park services for East Liberty (first 3 years 25% increase; 10% thereafter)
Increase Local Volunteer Support System for Local Parks	2,400 Volunteer Hours Per Year	4,800 Volunteer Hours Per Year	9,600 Volunteer Hours Per Year	19,200 Volunteer Hours Per Year	38,400 Volunteer Hours Per Year	Coordination and involvement with local non-profits, universities and block groups

Invest in Sustainable Green Infrastructure, High Quality Parks, Connected Open Space and Urban Agriculture



Regional Park Network

Network Connections



Reduce the Amount of Impervious Area in East Liberty and Invest in Green Stormwater Alternatives throughout the Neighborhood



Cities such as Chicago, Portland, Toronto, Philadelphia and Seattle have implemented alternative stormwater infrastructure strategies to reduce impervious surface coverage and therefore reduce the amount of stormwater runoff. East Liberty is in a position to demonstrate that reduction in stormwater runoff by increasing infiltration at the neighborhood level is not only more desirable from an environmental perspective but also an efficient and cost effective means to solve the CSO problem.

The key directives for East Liberty are to:

- Reduce amount of existing impervious surface in urban neighborhoods
- Maximize stormwater infiltration to recharge aquifers and complete the water cycle
- Create beautiful streetscapes and urban environments with green infrastructure

Opportunities to Reduce Impervious Area by 10% (23 acres) in 12 Years

- | | |
|---|------------|
| ▪ Penn Avenue West Gateway Median | 0.25 acres |
| ▪ Penn Avenue Commercial Corridor | 0.25 acres |
| ▪ Penn Circle West—Median/sidewalk tree wells | 0.50 acres |
| ▪ Penn Circle North—Median/sidewalk tree wells | 0.50 acres |
| ▪ Penn Circle East—Sidewalk tree wells | 0.25 acres |
| ▪ East Liberty Boulevard—Street tree wells | 1.00 acres |
| ▪ East Liberty Boulevard—Pervious parking lanes | 3.00 acres |
| ▪ Street zero stormwater runoff retrofits | 6.00 acres |
| ▪ Home Depot Pervious Parking Lot—20% area | 1.00 acres |
| ▪ Pittsburgh Seminary—Porous parking area | 2.50 acres |
| ▪ ELPC—Town Square infiltration bed | 0.50 acres |
| ▪ Green alleys | 2.00 acres |
| ▪ Infiltration bed at New Liberty Park | 3.00 acres |
| ▪ Bio-retention areas at Garfield and Enright Parks | 0.75 acres |
| ▪ Rain garden/bio-retention at Dilworth Elementary | 0.50 acres |

Additional Options

- | | |
|--|-------------|
| ▪ Green Roof Area | 2.00 acres |
| ▪ Infiltration bed at Peabody football field | 1.50 acres |
| ▪ Bio-retention areas at Garfield and Enright Parks | 0.75 acres |
| ▪ Busway bio-retention demonstration | 1.50 acres |
| ▪ Downspout disconnect of 25% of existing structures | 22.00 acres |

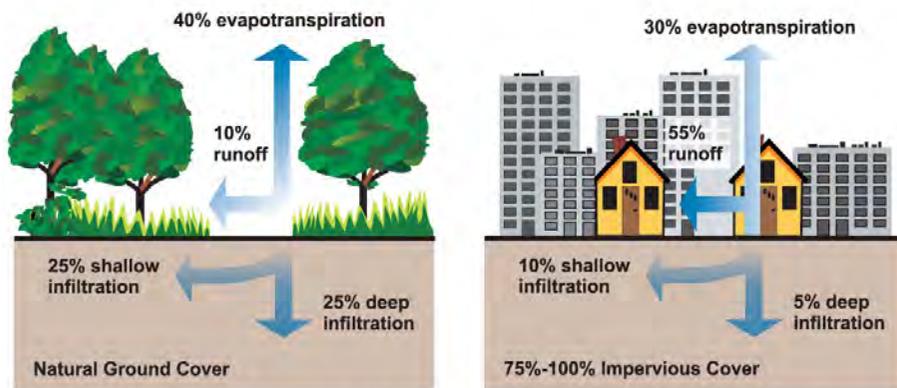
Invest in Green Infrastructure

Green Stormwater Alternatives

Over 57% of East Liberty is covered in impervious surface, plus highly compacted lawns which contribute to high percentage of stormwater runoff. “Big-pipe” solutions to control combined sewage overflows (CSOs) in Allegheny County are projected to cost several billions of dollars. These huge capital expenditures only treat the symptoms, not the root problem—reducing stormwater runoff. Alternative interventions at the local level offer the opportunity to not only minimize CSO events, but also make noticeable investments that will improve neighborhood appeal.

The Comparative Impact of Replacing Impervious Conditions with Green Infrastructure Alternatives for a 1,000 SF Area

The challenge is to try to emulate the conditions of natural ground cover and mitigate the impacts of the built environment on runoff, infiltration and evapotranspiration



Relationship between impervious cover and surface runoff. Impervious cover in a watershed results in increased surface runoff. As little as 10 percent impervious cover in a watershed can result in stream degradation.

Image from U.S. EPA Pamphlet: EPA 841-F-03-003, "Protecting Water Quality from Urban Runoff"

Developing a green infrastructure at the neighborhood level will reduce stormwater runoff and increase infiltration as demonstrated in the following changing conditions

Existing Condition	Future Condition	Area (SF)	Existing Runoff Coefficient*	Future Runoff Coefficient*	Existing Runoff (gal/yr)*	Future Runoff (gal/yr)*	Annual Stormwater Runoff Reduction (gal/yr)	Percent Reduction
Pavement	Tree Canopy Covering Pavement	1,000	0.900	0.700	21,235	16,516	4,719	22%
Pavement	Meadow/shrubs w/out tree canopy	1,000	0.900	0.125	21,235	2,949	18,286	86%
Pavement	Tree Canopy w/ shrubs/meadow	1,000	0.900	0.100	21,235	2,359	18,876	89%
Pavement	Porous Pavement System for Parking	1,000	0.900	0.050	21,235	1,180	20,056	94%
Compacted Grass	Meadow/Shrubs w/out tree canopy	1,000	0.350	0.125	8,258	2,949	5,309	64%
Compacted Grass	Tree Canopy w/ shrubs/meadow	1,000	0.350	0.100	8,258	2,359	5,899	71%
Compacted Grass	Infiltration Bed Under a Grass Ball Field	1,000	0.350	0.050	8,258	1,180	7,078	86%
Conventional Flat Roof	Extensive Green Roof	1,000	0.750	0.200	17,696	4,719	12,977	73%

* Note: Infiltration beds actually receive runoff from tributary areas and effectively lower the coefficient of an area greater than the infiltration bed itself. Accounting for the drainage area instead of the area of the porous pavement/infiltration alone, an infiltration bed generally receives runoff from 5 times its area. So in the examples above, a 1,000 SF infiltration bed would manage runoff from 5,000 square feet. If it is designed to capture/infiltrate 1 inch from that entire area, then the runoff coefficient for the entire 5,000 SF drainage is equal to about 0.05, and results in a higher efficiency in reducing the amount of stormwater runoff.

Increasing East Liberty's Neighborhood Tree Canopy will Reduce Stormwater Runoff, Alleviate the Heat Island Effect and Improve Air Quality

Increase the Neighborhood Tree Canopy

Only 6 of Pittsburgh's 90 neighborhoods have a smaller tree canopy percentage than East Liberty's nine percent (9%) coverage. Fifty-seven of the neighborhoods meet or exceed the 25% tree canopy coverage recommended by the American Forest Service for communities in the Northeast. New tree planting opportunities to increase East Liberty's tree canopy to 24% in 12 years:

1. Street Trees

▪ Penn Avenue, Penn Circle (E/W/N) and Highland	900
▪ Highland/Negley Run	115
▪ Highland/Broad/Larimer	220
▪ East Liberty Boulevard Median—Phase I	115
▪ ELB Median—Phase II w/Street Trees for Phase I and II	230
▪ Area bounded by Penn/Negley/Busway	670
▪ Area bounded by Penn/Negley/ELB/Collins	580
▪ Area north of ELB	870
▪ Area west of Collins/PCE	300

2. Private Property

▪ Penn Avenue, Penn Circle (E/W/N) and Highland	100
▪ Highland/Negley Run	200
▪ Highland/Broad/Larimer	100
▪ Area bounded by Rural/Negley/Busway/Collins	400
▪ Area bounded by Rural/Negley/ELB/Collins	400
▪ Area north of ELB	900
▪ Area west of Collins/PCE	300

3. Public Property

▪ Public Parks	120
▪ School Property	80
▪ Public/Private Parking	400

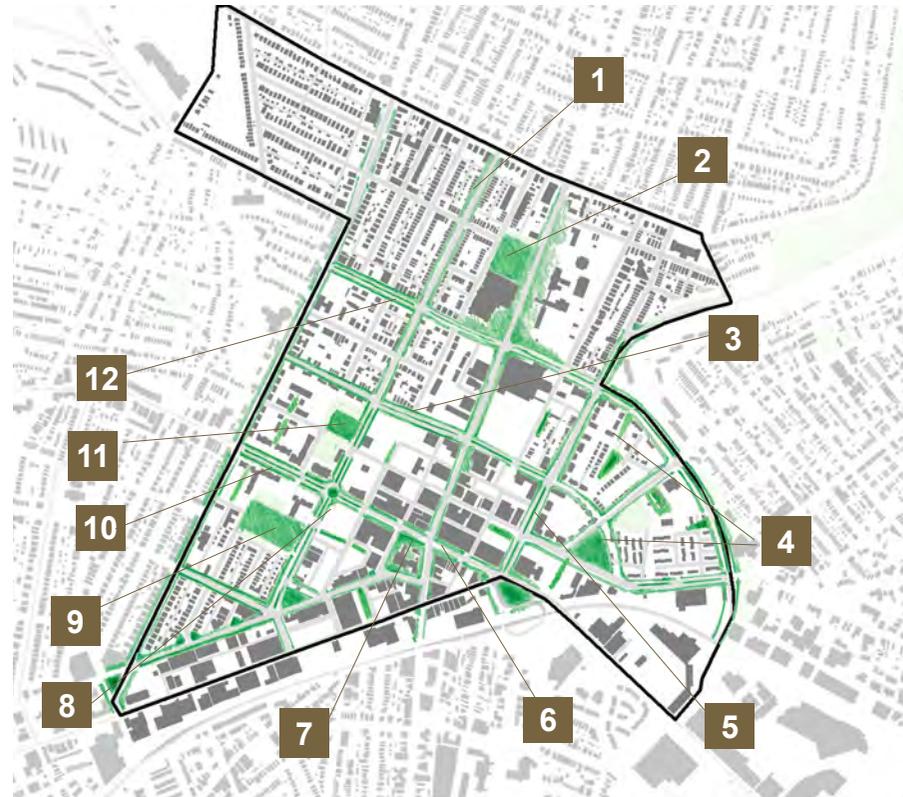
Projected Number of New Street Trees (1) Planted by 2020	4,000
Projected Number of New Yard Trees (2) Planted by 2020	2,400
Projected Number of Added Public Trees (3) Planted by 2020	600
Projected Tree Canopy Coverage by 2020	24%

Bigger Trees offer Exponential Benefits

In terms of providing the most benefit to East Liberty, the overall benefits of planting trees would be greater in 12 years, if more trees were planted sooner rather than later. The stormwater, energy and CO₂ reduction benefits of larger mature trees are exponentially greater than their smaller counterparts. As the table below illustrates, it takes seven (7) 3-inch trees to equal the overall benefits of a 12-inch tree and thirteen (13) 3-inch trees to equal the overall benefits of a 24-inch tree.

BENEFIT OF TREES	3"	6"	9"	12"	24"	Number of 3" trees to equal value of a 12" tree	Number of 3" trees to equal value of a 24" tree
Overall Annual Benefit	\$14.00	\$43.00	\$73.00	\$98.00	\$188.00	7	13
Stormwater	151	604	1273	2312	7669	15	51
Energy Savings (KWhrs)	11	35	65	101	229	9	21
CO ₂ Reduction (lbs.)	53	159	283	391	761	7	14

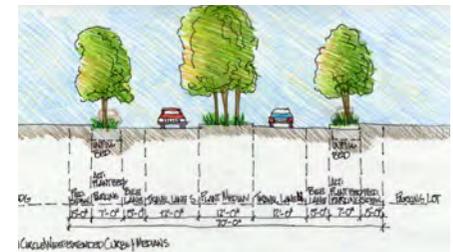
Invest in Sustainable Green Infrastructure with Green Streets



- | | | | |
|----------|-------------------------------|-----------|------------------------------|
| 1 | 700 Block N. Euclid Avenue | 7 | ELPC Town Square |
| 2 | Peabody H.S. Grounds | 8 | Penn Circle W.—Euclid Avenue |
| 3 | Penn Circle N.—Rural Street | 9 | Enright Park |
| 4 | Liberty Park and Trail | 10 | Penn Avenue Gateway |
| 5 | Penn Circle E.—Collins Avenue | 11 | Garland Park Center |
| 6 | Penn Avenue Commercial Core | 12 | East Liberty Boulevard |



**Euclid Avenue
(Penn Circle West)**



Green Streetscapes and Two-Way Traffic Turns Penn Circle West into North Euclid Avenue



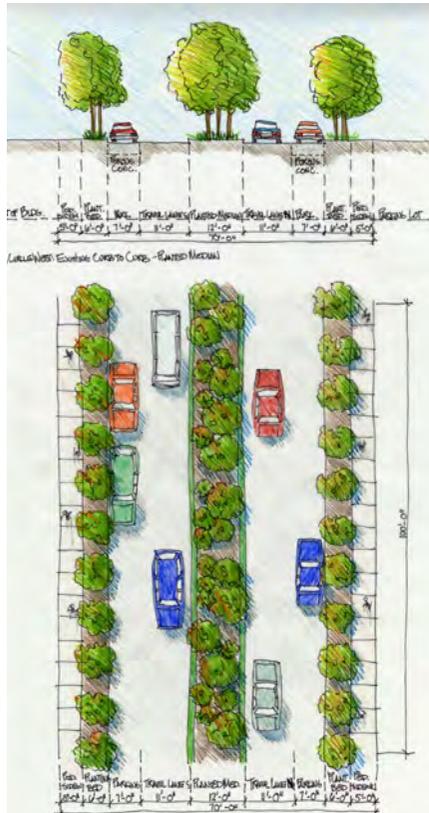
Penn Avenue West Gateway



Groves of trees and a landscaped median create a new west gateway to East Liberty on Penn Avenue.



Collins Avenue (Penn Circle East)



Sidewalk planting beds and an optional median allow for either one lane of travel plus parking or two lanes of travel in each direction.



Rural Street (Penn Circle North)



Offset groves of trees and landscaped bump-outs calm traffic and add street parking on Rural Street.

Sustainable Infrastructure Investment and Neighborhood Quality

If they say it can't be done, it doesn't always work out that way.

Yogi Berra

2

Transform East Liberty into a walkable and bikable neighborhood with public and private investments which offer a diverse range of density, mixed-uses, housing types, sensible parking, improved pedestrian and biking connections and viable transit alternatives.

- .1 **Require private developments to meet traditional urban neighborhood patterns** of desirable urban density and diversity, pedestrian friendly mixed-use development and viable local transit alternatives, within the new green infrastructure framework.
- .2 **Promote transit-oriented development** with higher building and population density within 1/4 to 1/2 mile from each of the two East Busway Stops in East Liberty.
- .3 **Offer a range of housing types:** including a mix of single family houses, townhouses, duplex and triplex units, accessory units, loft apartments, and intergenerational housing developments.
- .4 **Actively develop a range of housing alternatives** in tenure: fee simple, condominium, cooperative ownership, co-housing, shared-equity, equity and both affordable and market rate rental options.
- .5 Whenever possible, **develop mixed-use projects with ground floor commercial and upper floor residential** to establish walkable blocks and increase active street life during both daytime and evening hours.
- .6 **Replace the larger public parking lots with shared structure parking** to condense development to a more pedestrian-friendly scale, create new development site opportunities and increase the local tax-base.
- .7 **Expand the network of neighborhood bicycle lanes and trails** to include East Liberty Boulevard to Garfield and Larimer, Highland Avenue to Highland Park, Friendship Avenue to Friendship, Mellon Park to Beechwood Boulevard and Liberty Park to Negley Run.
- .8 **Introduce a shared-bicycle program** to East Liberty near the Eastside retail development and East Busway stop locations.
- .9 **Expand the network of shared autos**—either commercial enterprise such as Zipcars or through neighborhood block group car co-ops.
- .10 **Link the pedestrian sidewalk network to a broader “urban trail” system** through Garfield green space, Mellon Park, Negley Run and Highland Park and a private conservation easement system extending beyond East Liberty.
- .11 **Prioritize green development in the Larimer Avenue Corridor** with connections to green hillsides and innovative uses for vacant land, which offer new economic, environmental and recreational opportunities for East Liberty.
- .12 **Build on the Town Square concept** to enliven neighborhood street life with outdoor dining, seating and other intimate public gathering places for East Liberty residents and visitors.

Priority Indicators, Neighborhood Baselines and Targets

	Existing Condition Baseline	2008 to 2011	2011 to 2014	2014 to 2017	2017 to 2020	Strategic Initiatives
Cumulative Net Density Increase in Medium Density Target Areas	0 Square Feet (SF)	200,000 SF	600,000 SF	1,000,000 SF	1,500,000 SF	Infill development in low density; new in medium density areas (SF includes residential development)
Net Total Housing Unit Increase in Medium Density Areas	0 Units	175	350	525	700	Mixed-use; 2 to 3 story development of the lower density properties, primarily those surrounding Penn Circle
Cumulative Net Density Increase in High Density Target Areas	0 Square Feet (SF)	500,000 SF	1,100,000 SF	1,700,000 SF	2,400,000 SF	Mixed-use and transit-oriented development (SF includes residential development)
Net Total Housing Unit Increase in High Density Areas	0 Units	135	270	405	540	Mixed-use and transit-oriented development near the two East Busway stations
Increase % of Owner Occupied Units Above City Average of 52%	18% (Owner Occupied)	24%	32%	42%	54%	Selective demolition; new construction; condominium or co-op conversion; cohousing
Restore Local Street Connections to Break Down "Super-blocks"	550 Linear Feet (LF) (Broad Street)	1,000 LF	1,500 LF	2,000 LF	2,500 LF	Enright Park—Amber/St. Clair to Penn Avenue; Garland Park—Broad and St. Clair; and Liberty Park
Add Designated or Shared Bike Lanes on East Liberty Streets	0 Miles	8 Miles	14 Miles	20 Miles	26 Miles	East Liberty Boulevard; Highland; Friendship; Euclid, Rural; Negley Run; Baum, Broad and Larimer
Convert East Liberty Bus Fleet to Operate on Clean Fuels	0%	35%	50%	70%	100%	Port Authority bus fleet conversion to natural gas or fuel cell hydrogen
Increase Number of Shared Cars and % Run on Clean Power	6/15%	18/35%	30/50%	48/70%	72/90%	Zipcar fleet conversion to hybrid, electric, natural gas or fuel cell; establish local/block car co-ops

Develop a Healthy Built Environment with Lively Mixed-Uses, Less Large-Scale Surface Parking Lots, Improved Pedestrian-Scaled Density, Good Local Connections, Walkable Streets and Transit Oriented Development



Reduce Surface Parking

Reclaim large surface parking lots for commercial core redevelopment

The purple areas above represent the larger surface parking lots within East Liberty's commercial core.

Whether privately or publically owned, these lots do not represent the highest and best use of land at the seam between East Liberty's commercial core and the surrounding residential blocks.

The following alternatives offer viable ways to provide adequate parking, while freeing up a significant amount of land for tax generating development:

- Strategic Structured Parking
- Shared Parking Options
- Added on-street parking with the conversion of Penn Circle to two-way traffic and restoring former street-grid connections.



Local Connections

Strengthen Local Public Transit, Pedestrian and Bicycle Connections

Concepts such as Complete the Streets advocate for accommodating more than just auto traffic.

Viable alternatives to traveling by automobile require an investment in planning and funding a pedestrian friendly network of infrastructure that includes:

- Structured Parking
- Bicycle Lanes, Trails and Amenities
- More Bike Racks on Buses
- Shared Cars / Car Co-ops
- Street Calming Measures
- Safe Routes to Schools Program
- Retail/Grocery Deliveries
- Improved Park Access

Green Street Links

Develop a green street network within East Liberty

Line East Liberty's green open space with a network of green streets that include:

- Street trees
- Planted medians
- Infiltration beds with native landscaping
- Green street crosswalks

The neighborhood green street network will connect to:

- Highland Park
- Negley Run
- Mellon Park
- Friendship
- Shadyside
- Garfield



Mixed Use Development

The need to introduce housing options within the commercial core

Best neighborhood development practices, such as those advocated by the Urban Land Institute include mixed-used development.

East Liberty currently has very limited mixed-use development sites (orange) with residential (yellow) surrounding a commercial core and strip along the East Busway (red).

Mixed-use is critical to assuring an active pedestrian-friendly core from early morning through the evening hours. The mixed-use in East Liberty should include a variety of:

- Residential Options
- Employment Opportunities
- Retail Establishments
- Entertainment and Arts Programs
- Recreation and Education
- Cultural and Worship Spaces



Integrated Development

Invest in public parks to leverage private development projects

As demonstrated by the Project for Public Space (PPS) and others, real estate values are generally higher when they are immediately adjacent or across the street from good quality open space.

In redeveloping and repositioning East Liberty parks and open space the investment in these public spaces should be positioned to leverage private investment and increased property values surrounding the parks and include:

- Increased park frontage along streets across from private development sites
- High quality park space with amenities for local residents
- Increasing available on-street parking options



Transit Based Development

Actively support Transit-Oriented Development near the Busway stops

According to Center for Transit-Oriented Development, people within a half-mile radius are 5 times more likely to walk to a major transit stop than others beyond that zone.

Nearly all of East Liberty's core area, currently within Penn Circle, falls within a half-mile radius of one of the East Busway stops.

Creating and supporting development opportunities and patterns within these zones includes identifying the added market value of the proximity of the East Liberty Busway stops. These advantages include the potential for location efficient mortgages, a reduced need for second car and a ten minute commute to downtown Pittsburgh.



Expanding Options for Public Transit and Bicycles within East Liberty



Transit and Bicycle Alternatives

East Liberty is served by over 17 Port Authority bus routes, consisting of over 800 bus trips per weekday. Of the 11 bus routes that currently have bike racks, 5 pass through East Liberty.

With excellent access to the Port Authority's bus network and the relatively flat terrain of the neighborhood, East Liberty is pedestrian friendly, lending itself to convenient, safe transportation options to the car, including bicycles.

Opportunities to Improve Transit and Bicycle Alternatives by 2020

Port Authority

- Install bike racks on ALL East Liberty buses
- Install new bike racks in East Liberty along Penn Avenue, at all parks and all public and private institutional sites
- Add capacity for bike parking in parking garages/structures
- Convert East Liberty buses to LP/Natural Gas or Fuel Cell power
- Test shared use of busway for bicycles

Shared Cars and Other Alternative Transit

- Increase number of East Liberty Zipcars to 60 new cars
 - 45 dedicated parking spaces in high density area
 - 10 in medium density area
 - 5 in low density area
- New cars to be hybrid or plug-in electric with power at parking spaces
- Neighborhood Car Co-op or car pool networks
- Retail grocery store delivery service

Bike Lanes/Trails within East Liberty

- East Liberty Boulevard 3.0 miles (1.5 each direction)
- Highland Avenue 1.0 mile (0.5 in each direction)
- Euclid Avenue (Stanton to Rural) 1.0 mile (0.5 in each direction)
- Collins Avenue (Stanton to Rural) 1.0 mile (0.5 in each direction)
- Stanton Avenue 2.0 miles (1.0 in each direction)
- Collins Avenue (Stanton to Rural) 1.0 mile (0.5 in each direction)
- Friendship and Centre to Highland 1.0 mile (0.5 in each direction)
- Larimer Avenue (Stanton to Rural) 1.0 mile (0.5 in each direction)
- Broad (Highland to ELB) 1.3 miles (0.65 in each direction)
- ELB Underpass to Negley Run 0.25 miles

Bike Connections from East Liberty

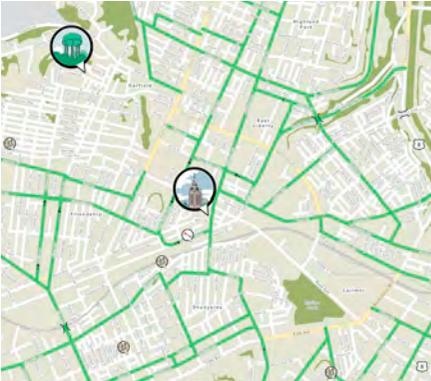
- Negley Run to Highland Park and the Velodrome
 - Negley Avenue up to Garfield
 - Experimental shared use of busway for bicycles
 - Highland—Stanton to Highland Park
 - East Liberty Boulevard and Penn to Mellon Park
-
- Free Ride neighborhood clinics
 - Regional Park Bus Loop with bike racks on buses

Developing a Bike Lane Network in East Liberty to Link with Other City Neighborhoods and Reinforce City-Wide Bike Plan Network



- 1** Friendship, Bloomfield and Central Lawrenceville
- 2** Morningside, Stanton Heights and Upper Lawrenceville
- 3** Highland Park and Morningside
- 4** Highland Park and Zoo
- 5** Negley Run and Velodrome
- 6** Larimer and Highland Park
- 7** Mellon Park and Beechwood Boulevard
- 8** Oakland
- 9** Shadyside

Bike Pittsburgh Bike Map Section including East Liberty



Targeting the Appropriate Density Across Three Zones



Desirable Density

Target development within 5 to 10 minute walks of the Busway stations

The one-quarter and half-mile zones surrounding the East Busway stations approximate five to ten minute walks, respectively.

The Baum/Centre corridor and the downtown core of East Liberty within the one-quarter mile radius are targeted for higher density development: 3 to 5 stories and a new development ratio of 30 percent residential.

The properties around the perimeter of Penn Circle are generally within the half-mile radius and are targeted for medium density development: 2 to 3 stories and a new development ratio of 60 percent residential.



Low Density Zone

Develop market rate single family housing—new and rehab

Low Density Zone goals include an F.A.R. between 0.65 and 0.70. This floor area ratio roughly equals what now exists in this zone.

The primary potential for larger scale developments will be in:

- The medium density areas by leveraging investment in new park amenities to encourage green residential development with street frontage on the improved green space; and
- The high density areas focused on mixed-use Transit-Oriented Development within 1/4 mile of both the Negley and East Liberty busway stations.



Medium Density Zone

Infill with a mix of housing and non-residential development

Medium Density Zone goals include an F.A.R. between 0.90 and 1.00, for a total 1.5 to 1.9 million net additional square feet of development, at a 6 to 4 ratio of new residential square footage to new commercial/non-residential space.

- Targeted amount of non-residential square footage: 620,000 to 760,00 SF
- Targeted amount of residential square footage: 931,000 to 1.1 Million SF
- Targeted number of residential units: (averaging 1,350 SF each): 690 to 841



High Density Zone

Create a mixed-use urban village in East Liberty's core

The High Density Zone goals include an F.A.R. between 1.25 and 1.30, for a total 2.4 to 2.6 million net additional square feet of development, at a 7 to 3 ratio of new residential square footage to new commercial/non-residential space.

- Targeted amount of non-residential square footage: 1.7 to 1.9 Million SF
- Targeted amount of residential square footage: 726,000 to 798,000 SF
- Targeted number of residential units (averaging 1,350 SF each): 538 to 591

A Walkable, People-Scaled Penn Avenue



Walkable, Bikable Neighborhood Development Patterns

The point of cities
is multiplicity of
choice.

Jane Jacobs



The sidewalks along Penn Avenue today (lower left photo) are oversized for neighborhood foot traffic and are even larger than most downtown Pittsburgh sidewalks. Incorporating planting beds and areas for sidewalk seating creates a pedestrian-friendly scale, and adding accent lighting improves safety and comfort at night.

3

Direct public agency, private business and individual household actions toward energy conservation and resource efficiency, artistic ingenuity and environmental education.

- .1 **Begin to replace conventional municipal vehicles**—buses, garbage trucks, police cars—**with alternatively fueled vehicles**; and locate the necessary fuel station(s) in or near East Liberty and near the East Busway.
- .2 **Establish neighborhood recycling facilities** to take advantage of both the environmental and economic opportunities of material recycling, resale and reuse.
- .3 **Set a new standard for public lighting** (i.e. street lights and traffic signals) with energy efficient LED lights and alternatively powered fixtures.
- .4 **Study the feasibility of creating a neighborhood-based central fuel cell power plant** at the location of the current electrical sub-station in the heart of East Liberty.
- .5 **Require private development projects seeking public assistance meet optimal energy design criteria** for both residential and commercial developments, with an emphasis on mixed development projects.
- .6 **Incorporate local art into development projects**, streetscape furnishings and public park amenities; with a focus on environmentally responsible products and installations and maximizing local economic development impact in design, production and installation.
- .7 **Work with existing local arts organizations** to develop and promote environmental art programs, workshops, classes and exhibits.
- .8 **Incorporate meaningful environmental education** in local schools, churches, regular neighborhood forums, website resources and special neighborhood events and celebrations.
- .9 **Create ways for stakeholders to connect to regional green initiatives and green job training** such as those programs provided by Bidwell Training Center and the Blue-Green Alliance.
- .10 **Educate public officials, City leadership and staff from the City of Pittsburgh Department of Public Works and City Planning** with green infrastructure standards, codes and examples from other U.S. and Canadian cities.
- .11 **Advocate for the adoption of model codes and standards** for green building codes, infrastructure standards, and development practices by the City of Pittsburgh.
- .12 **Offer assistance to developers** in order to creatively and economically introduce green design features and elements into their projects.
- .13 **Establish an East Liberty/East End urban environmental center**—virtual and/or physical—to educate, organize and promote Green Vision activities.

Priority Indicators, Neighborhood Baselines and Targets

	Existing Condition Baseline	2008 to 2011	2011 to 2014	2014 to 2017	2017 to 2020	Strategic Initiatives
Energy Audits for Commercial Units	0%	25%	60%	85%	95%	Apartment building and individual unit energy audits
Percentage of Waste Diverted from Landfills for Recycling	0%	10%	25%	40%	60%	Building construction sites; neighborhood materials recycling facility; local and city-wide composting
Increase Amount of Renewable Energy Produced in East Liberty	0%	2%	4%	8%	15%	Renewable and alternative energy alternatives: solar; geothermal; co-generation; fuel cell central plants
Increased Funding for Neighborhood Arts Initiatives	0% of all East Liberty development costs	0.25%	0.50%	1.0%	2.0%	Streetscape infrastructure investments; regular youth arts programming in parks; artist studios/lofts
Locally Produced/Sold Streetscape Items and Landscape Materials	N/A	\$100,000	\$250,000	\$500,000	\$1,000,000	Farmers markets; restaurants contracting for local produce; local garden suppliers
East Liberty Environmental Center Membership	0	250	500	750	1,000	Environmental Center in former police station; coordinated neighborhood volunteer network
Number of Annual Neighborhood Green Special Events	0	4	6	8	12	Earth Day, Arbor Day, Spring and Fall Equinox; Summer and Winter Solstice; forums and workshops
Number of Organizational Green Events in East Liberty	4	8	12	18	24	Forums and workshops sponsored by local schools, churches, organizations with/without outside partners

Euclid Avenue: 700 Block Residential Stormwater Management Concepts – Retrofit

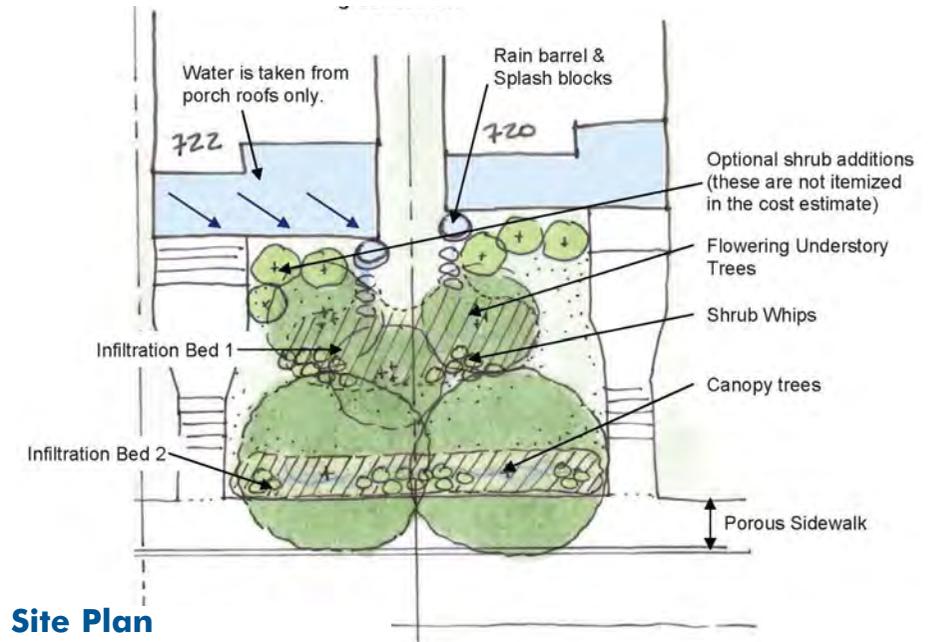
Retrofit for Existing Houses

The small combined infiltration bed (180 SF) in the yard between the houses includes small flowering trees, groundcover and shrub whips.

At the bottom of the bank, the small 2 to 4 foot infiltration bed (130 SF) included two canopy trees, shrub whips and ground cover.

Stormwater Runoff Reduction

The annual stormwater runoff is reduced from 9,645 gallons to 674 gallons per house—a reduction of nearly 9,000 gallons per year.

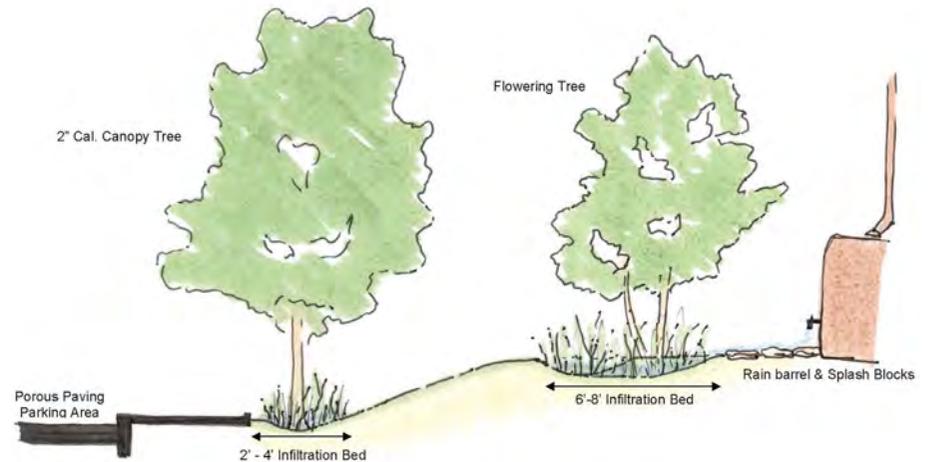


Site Plan

Stormwater Benefits

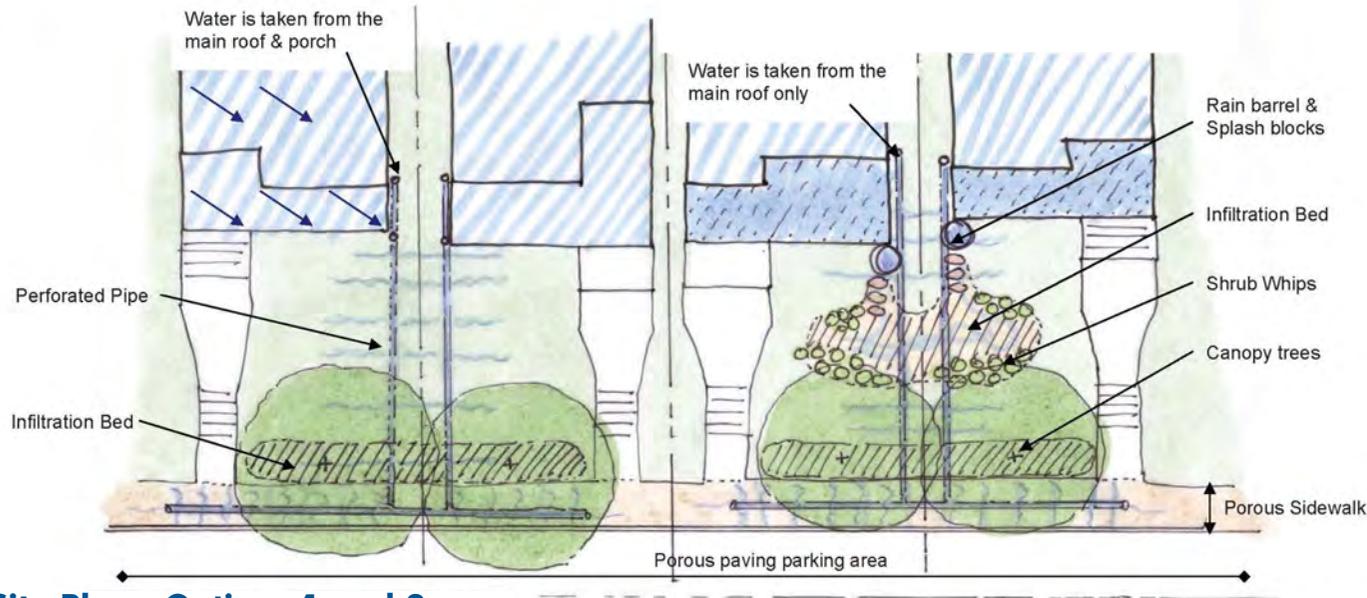
*Based on "Typical" year per PWSA CSO Modeling (represented by 2005 rainfall) for House & Front Yards (House to Curb)

Existing Condition	Proposed Condition	Area (SF)	Existing Runoff Volume* (gal)	Proposed Runoff Volume* (gal)
Front Porch Connected to Sewer	Disconnected Front Porch	571	10,287	427
Sidewalk Slope to Street	Sidewalk Sloped to Infiltration Bed	493	8,390	369
Conventional Path/Stairway	Path Sloped to Infiltration Bed	514	7,722	384
Conventional Front Yard	Landscaped, Graded Front Yard	2,026	12,181	1,516
TOTAL	n/a	3,604	35,580	2,696
Average Per House	n/a	901	9,645	674

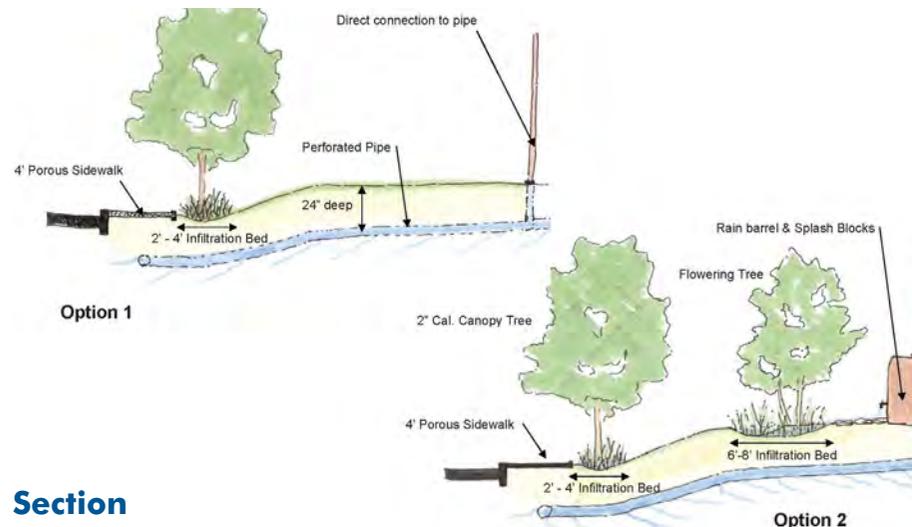


Section

Euclid Avenue: 700 Block Residential Stormwater Management Concepts – New Construction



Site Plan—Options 1 and 2



Section

New Construction Option 1

Both the main roof and the porch roof are directed into a shallow, perforated pipe that is 24 inches below grade. This pipe allows water to infiltrate into the soil and recharge groundwater. The pipe ends beneath the porous sidewalk where water is also allowed to infiltrate.

New Construction Option 2

The main roof is directed into a shallow, perforated pipe that is 24 inches below grade. This pipe allows water to infiltrate into the soil and recharge groundwater. The pipe ends beneath the porous sidewalk where water is also allowed to infiltrate. The porch roof is directed into a rain barrel, which is allowed to overflow into an infiltration bed.

Stormwater Runoff Reduction

The annual stormwater runoff is reduced from 28,327 gallons to 1,450 gallons per house—a reduction of 26,877 per year.

Stormwater Benefits

*Based on "Typical" year per PWSA CSO Modeling (represented by 2005 rainfall) for House & Front Yards (House to Curb)

Existing Condition	Proposed Condition	Area (SF)	Existing Runoff Volume* (gal)	Proposed Runoff Volume* (gal)	Annual Stormwater Runoff Reduction* (gal)
Front Porch Connected to Sewer	Disconnected Front Porch	571	10,287	427	9,860
Sidewalk Slope to Street	Porous Sidewalk	493	8,390	369	8,021
Conventional Path/ Stairway	Path Sloped to Infiltration Bed	514	7,722	384	7,337
Conventional Front Yard	Landscaped, Graded Front Yard	2,026	12,181	1,516	10,666
Main Roof Connected to Sewer	Roof Connected to Infiltration Trench	4,148	74,728	3,103	71,626
TOTAL	n/a	7,752	113,308	5,799	107,510
Average Per House	n/a	1,938	28,327	1,450	26,877

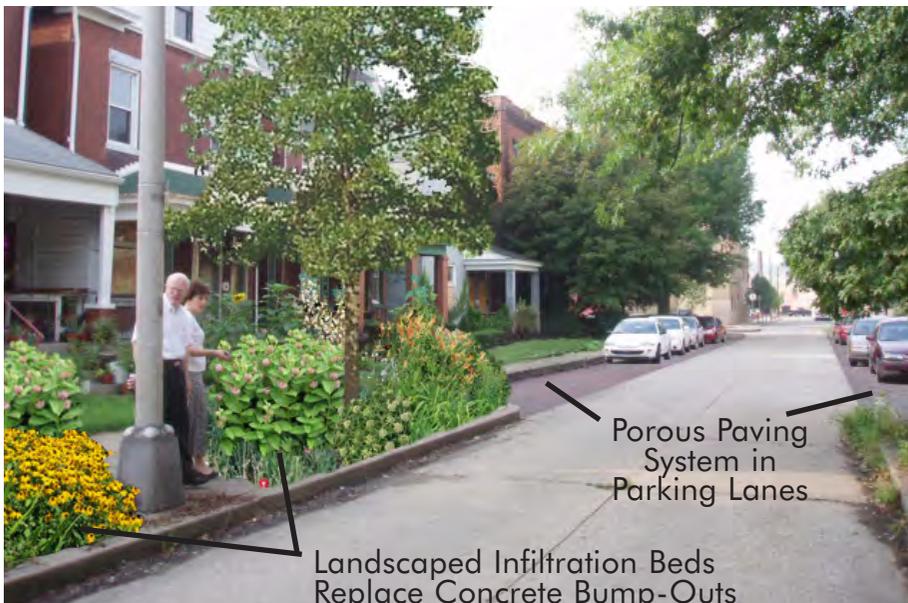
Highland Avenue Porous Paving System in Parking Lanes and St. Clair Street Porous Pavement System and Infiltration Beds



**Highland Avenue
between Penn Circle
North and Stanton**

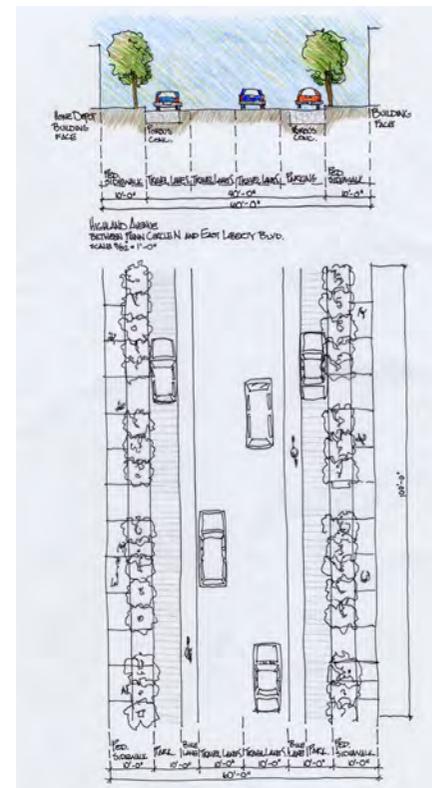


**St. Clair Street
between Baum Boulevard
and Enright Park**

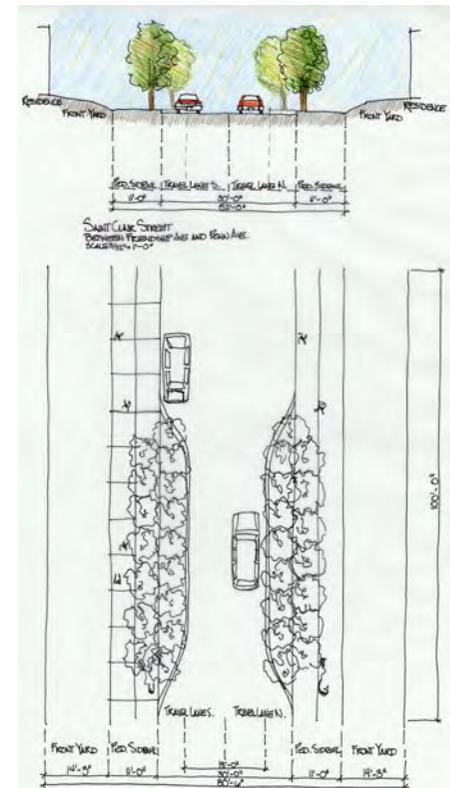


Porous Paving System in Parking Lanes

Landscaped Infiltration Beds Replace Concrete Bump-Outs



The 40-foot curb to curb width of Highland Avenue allows for a shared parking/bike lane.



Existing concrete bump-outs could be converted to landscaped infiltration beds with volunteer plantings.

Step Green: Enable Change. Enlarge Your Wallet. Expand Your Community.

	Initial Cost	Annual Cost Savings	Simple Payback Period	Annual Energy Savings	Annual CO ₂ Savings
Wrap water heater in an insulated blanket	\$20.00	\$24.00	10 Months	1.8 kilowatt hrs.	232 lbs.
Set home computer to automatically hibernate/sleep	\$0.00	\$44.56	Instant	452.9 kilowatt hrs.	615 lbs.
Lower the thermostat on your water heater to 120 degrees	\$0.00	\$89.95	Instant	913.5 kilowatt hrs.	1,242 lbs.
Turn off room AC when you leave the room for more than 10 minutes.	\$0.00	\$46.24	Instant	469 kilowatt hrs.	638 lbs.
Replace six (6) incandescent light bulbs with CFL bulbs	\$24.00	\$37.26	8 Months	386 kilowatt hrs.	524 lbs.
Buy a push mower and use it instead of a gas or electric mower.	\$154.00	\$20.09	7.6 Years	-	265 lbs.
Install a programmable thermostat for heating and cooling	\$60.00	\$138.43	5.2 Months	302 kilowatt hrs.	1,447 lbs.
Walk 3 times/week for trips less than 1-mile instead of driving	\$0.00	\$42.08	Instant	12 gallons of fuel	264 lbs.
Recycle newspapers	\$0.00	\$0.00	-	-	29,440 lbs.
Recycle glass	\$0.00	\$0.00	-	-	1,352 lbs.

*Source: www.stepgreen.org

Step Green is a community of people working to step lightly with goals that range from saving money to sustainable living.

StepGreen.org was created by a large group of faculty and students at Carnegie Mellon University, Cornell University and University of Massachusetts at Boston.

More information about Step Green's research efforts, project members, publications, and recent news articles can be found at <http://research.stepgreen.org>

Inspire Local Opportunities by Creating Green Jobs and Enhancing Education, Environmental Art and Individual Community-Based Actions

Public Infrastructure Functions

- Cistern “building blocks” for stormwater management at a public library
- Rain garden bio-swale next to a bus stop shelter
- Artistically painted residential intersection for unique traffic calming



Artist Commissioned Projects

- Custom fence for a residential front yard
- Sculptural mural adds visual relief from a blank brick wall
- Urban school garden replaces concrete plaza and incorporates the reuse of the broken concrete



DIY — Volunteer Efforts

- Reuse of broken concrete sidewalk sections for rear yard patio
- Reclaiming impervious school ground space with raised planting beds
- Incorporating artistic columns in a community-built playground



Incorporating Traffic-Calming Strategies along Penn Avenue with Artistic Elements



Local Impact and Individual Community Actions

They always say time changes things, but you actually have to change them yourself.

Andy Warhol



Relatively low-cost infrastructure improvements such as accented crosswalks (stamped asphalt, stamped concrete, thermoplastic insets) accompanied by urban streetscape lighting improves pedestrian safety by accenting the presence of people on foot.

Images from East Liberty Town Square Project.

Perkins Eastman