2013 Strategic Plan Technical Appendix



43rd Street Development District March 2013

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Overview of the Green Boulevard - Technical Appendices

Summary

In the 1800's, the Allegheny River became the birthplace of industry for Pittsburgh. The busy riverfronts housed steel mills, and accommodated transport—both via water and rail—of coal and steel. In the wake of industrial shifts and changing economies, Pittsburgh today seeks to transform its riverfronts, and the identity of the City. Pittsburgh's Allegheny Riverfront is transforming into a mixed use area of the City that provides unique business and development opportunities, riverfront living, recreation opportunities and connected trails, access to transportation choices, and a renewed riverfront environment and ecosystem.

The future Green Boulevard connects neighborhoods to the riverfront, unlocks the economic potential of the community, and re-imagines Pittsburgh as a river city. Imagine taking a ride on the Green Boulevard's new commuter rail or commuter bike path. The Green Boulevard connects from Downtown through a redeveloped Strip District with a significant new riverfront park and streets that are best practice demonstrations for stormwater management. It continues into bustling Lawrenceville where the neighborhood is integrated with its waterfront through infill housing, streetscapes, and new housing along the river's edge. It links further to Highland Park, where restored landscapes at Heth's Run and Negley Run provide access to the river. The future Green Boulevard makes all of this possible.

Elements of the Green Boulevard Plan

The Green Boulevard builds on the roadmap set out by the community in the 2011 Allegheny Riverfront Vision Plan, and furthers the technical details required to implement the project. As the Green Boulevard moves further toward implementation over the coming years, sustained support from the project partners and the community will be critical to its ultimate success.

The Allegheny Green Boulevard Plan focuses on a six mile stretch of corridor from downtown Pittsburgh to the eastern edge of the city. Four key tasks are addressed:

- Public outreach to engage the Pittsburgh community in realization of the Green Boulevard;
- Transportation improvements including a plan to transform an existing railroad ROW into a multi-modal green boulevard including integration of a commuter rail into the Allegheny Valley Railroad freight corridor, station area planning around the proposed station areas, station design and a shared multi-use path for pedestrians and cyclists;
- Creation of a new riverfront open space system with access points to the river, habitat and ecological enhancements, new community open space amenities, riverbank stabilization and stormwater technologies;
- A housing plan for mixed use and transit oriented development opportunities that create a live/work riverfront neighborhood for Lawrenceville's 43rd Street District.

Technical Appendices

The Green Boulevard Technical Appendices accompany the project Strategic Plan summary. The four technical appendices are organized to provide the detailed background information studied during the plan development process for the four project task areas: the Outreach Appendix, Open Space and Riverfront Access Appendix, Transportation Appendix, and 43rd Street District Development Appendix. Each technical appendix provides an introductory overview of the technical studies prepared during the plan process along with the full technical studies. The technical studies are organized to provide the background, conclusions, performance measures (where applicable), and potential future funding opportunities for implementation.

43rd Street Development District Appendix

Summary of 43rd Street Development District Plan

The Green Boulevard plan is an opportunity to repurpose the Allegheny Riverfront's underutilized land and rail corridor for improved mobility, new and improved riverfront parks and paths, and economic revitalization. While it is expected that investments in the Green Boulevard will spur economic development along the full corridor, a focus of this study has been creation of a new riverfront neighborhood for the district between 40th and 48th Streets in Lawrenceville.

With adjacency to bustling retail along Butler Street, a growing employment base at the National Robotics and Engineering Center (NREC) and Ice House Studios, and residential streets, the 43rd Street District is well positioned to anchor the river as a mixed use, vibrant district. The plan envisions just that: a neighborhood with 1.4 million square feet of new and renovated space located in the blocks along the river. This development can include nearly half a million square feet of urban flex space with a technology focus, 84,000 square feet of light industrial growth, and 6,300 square feet of retail. Additionally, six hundred new housing units are projected in the district.

Redevelopment in the 43rd Street Development District is guided by the following principles:

- Incorporate ecological restoration and open space programming along the riverfront
- Celebrate Lawrenceville's iconic industrial character
- Enhance open space connections, such as through restoration of the 47th Street drainage systems
- Restore the residential neighborhood fabric along Hatfield Street
- Promote a mix of transportation uses along the Green Boulevard, and
- Strengthen 43rd Street to better link Lawrenceville and the Allegheny Riverfront.

43rd Street District Development

Market Analysis [page 6]

The Green Boulevard Plan included a review of existing market conditions for the Study Area, with a focus on the 43rd to 48th Street Development District target zone. The market analysis evaluates Pittsburgh's current market trends and future development potential within the target zone (43rd and 48th Streets) and the broader study area. Beginning with a review of demographic trends, the competitive environment, and forecasts for future development potential, it analyzes residential and commercial options for reuse and retention of existing land uses.

Development and Phasing Plan [page 62]

With the advent of the Green Boulevard improvements, the 43rd Street District is well positioned to transform in the coming years and to anchor the river as a mixed use, vibrant district. The plan envisions a neighborhood with 1.4 million square feet of new and renovated space located in the blocks along the river. This development can include nearly half a million square feet of urban flex space with a technology focus, 84,000 square feet of light industrial growth, and 6,300 square feet of retail. Additionally, six hundred new housing units are projected in the district. This section contains the 43rd Street District illustrative plan, land use and massing plan, alternative development plan, development potential and recommended phasing.

Development of Massing Guidelines [page 76]

Building off of the framework of streets and opens spaces developed for the 43rd Street plan, individual parcels were studied to identify various building typologies for future development. The development massing study generated a proposed scenario based on the goal of establishing a denser, mixed-use neighborhood that builds on existing uses and presents a plan for future development. The illustrated guidelines are the basis for the Phasing and Funding Strategy. While these guidelines delineate appropriate massing of future development and locations for potential program uses, the plan can ultimately be flexible, to respond to changing market conditions and needs of individual landowners and developers.

43rd Street District Street Improvements [page 113]

The Green Boulevard plan examined ways to improve existing streets in the 43rd Street District to provide better mobility for all modes of transportation, support economic development, and integrate stormwater management best practices within the streets. At the Green Boulevard public forums, community members cited the lack of on-street parking and of a safe, pedestrian realm as challenges to traveling to and around the district. Future recommendations for streetscape improvements address these concerns by providing safe sidewalks and designated on-street parking lanes, as well as sustainable practices. Existing and proposed street sections, estimated costs and perspective renderings of future conditions are provided.

43rd Street District Development

Commuter Rail Station and Conceptual Design [page 144]

Locating a commuter rail station within the 43rd Street District will help unlock development potential of the district. The proposed location provides access at a critical point along 43rd Street (the key north/south link from the Lawrenceville neighborhood to the riverfront), is close to the existing concentration of research/office uses, and offers direct access to new open space and proposed development along the river. This section of the appendix contains a conceptual design study for future commuter rail stations.

Phasing and Funding Strategy [page 159]

The recommended phasing approach for the 43rd Street District reflects input from the various stakeholders, private owners' willingness to participate in the redevelopment, and market conditions. This section describes the phasing by parcel in three phases, as well as the minor zoning changes that are recommended for the district. The financial feasibility of development in the 43rd Street Target Zone was also tested, considering varying development programs, parking scenarios, mixes of uses and funding alternatives.

Performance Measures [page 182]

Total development capacity, job creation, additional revenues, and costs offer ways to measure performance of the 43rd Street District as it develops over time. The full development capacity of the 43rd Street District is 1.4 million square feet of new and renovated space. This development includes nearly half a million square feet of urban flex space with a technology focus, 84,000 square feet of light industrial growth, 6,300 square feet of retail, and six hundred new housing units. To account for future flexibility in implementation, performance measures were tested for two scenarios of development density: 950,000 square feet and 1.3 million square feet of new development. In total the new development would create create 793 to 973 construction-period jobs as well as 1,208 to 1,729 permanent, on-going jobs. It will generate \$2.3 to \$2.8 million in tax revenue for Pittsburgh annually.

Market Analysis

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Market Analysis

The analysis evaluates Pittsburgh's current market trends and future development potential within the target zone (43rd and 48th Streets) and the broader study area. The methodology was to begin with a review of demographic trends, the competitive environment, and forecasts for future development potential and follow with analysis of residential and commercial options for reuse and retention of existing land uses. A goal of the analysis was consideration of how to transition surrounding land uses, helping to reconnect the underutilized riverfront land along the Allegheny riverfront.

The analysis found that in Lawrenceville demand exists to support more than 500,000 square feet of new commercial development, approximately 90 percent of which consists of R&D/flex space. New residential development could include 40 to 50 renovated houses annually, 20 to 30 new for-sale townhouses, 15 to 20 condominiums in the Strip District, growing up to 30 total condominiums over time and 75 to 85 apartments annually. The projected growth would result in a total demand that splits 55 percent for owner-occupied units and 45 percent for new rental units in the Study Area.

The market analysis was used to shape a realistic development plan for the study area. Project densities, land uses, and phasing in the 43rd Street District plan reflect the recommendations and findings of the market analysis, ensuring that the plan is feasible and can be implemented. The plan includes recommendations for waterfront housing, tech-focused flex space, light industrial, and minimal retail uses, which is consistent with the market analysis. Allegheny Riverfront Green Boulevard Market Analysis

Submitted to: Urban Redevelopment Authority of Pittsburgh Pittsburgh, PA

February 27, 2013



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Market Summary

To advance implementation of the 2010 Vision Plan, RiverLife and the URA have hired a multi-disciplinary consultant team led by Sasaki Associates, Inc. to prepare a future plan for the target zone and a broader set of concepts for the entire study area. This work included a review of existing market conditions for the Study Area with a focus on the 43rd to 48th streets target zone.

Methodology

Partners for Economic Solutions, LLC, as a member of the consultant team, prepared the following market analysis to evaluate Pittsburgh's current market trends and future development potential within the target zone (43rd and 48th streets) and the broader study area. Beginning with a review of demographic trends, the competitive environment and forecasts for future development potential, PES analyzed residential and commercial options for reuse and retention of existing land uses. PES focused on the demand for residential alternatives and associated recreational and commercial uses in a variety of building forms that can transition to surrounding land uses, helping to reconnect the underutilized riverfront land along the Allegheny riverfront.

The analysis considered demographic and absorption trends and other demand indicators in light of existing and proposed competition and on-going activity in the corridor.

Overall Conclusions

Lawrenceville's commercial development along the riverfront segments itself between manufacturing users (both light and heavy) and research and development/ flex users in incubator space. In total, demand exists to support more than 500,000 square feet of new commercial development, approximately 90 percent of which consists of R&D/flex space.

New residential development could include 40 to 50 renovated houses annually, 20 to 30 new for-sale townhouses, 15 to 20 condominiums in the Strip District, growing up to 30 total condominiums with the creation of place in the target zone and 75 to 85 apartments annually. The projected growth would result in a total demand that splits 55 percent for owner-occupied units and 45 percent for new rental units in the Study Area.

Executive Summary

In 2010, the Allegheny Riverfront Visioning Plan, prepared by a multi-disciplinary consultant team, provided guidance for the future development from Pittsburgh's Strip District to Upper Lawrenceville along a six-mile stretch of the Allegheny Riverfront. The study initiated by Pittsburgh's Urban Redevelopment Authority (URA), RiverLife, AVR and the City created a cohesive vision along the waterfront and identified areas for further study and refinement.

The Federal government, through both the Department of Housing and Urban Development (HUD) and the Department of Transportation, directs funding to transit rich areas through a variety of programs, and the URA hopes to capitalize on Federal, State, City and private investment to spur further growth and make the best use of limited resources along the Allegheny waterfront. These funding sources, which include a HUD Sustainability grant and Tiger II grant, combine with in-kind and monetary contributions from area wide stakeholders including RiverLife.

To advance implementation of the 2010 Vision Plan, RiverLife and the URA have hired a multi-disciplinary consultant team led by Sasaki Associates, Inc. to prepare a future plan for the target zone and a broader set of concepts for the entire study area. Partners for Economic Solutions, LLC, as a member of the consultant team, prepared the following market analysis to evaluate Pittsburgh's current market trends and future development potential within the target zone (43rd and 48th streets) and the broader study area. PES reviewed a mix of uses focusing on the demand for residential alternatives and associated recreational and commercial uses in a variety of building forms that can transition to surrounding land uses, helping to reconnect the underutilized riverfront land along the Allegheny riverfront. This analysis focused on the potential integration of freight and commuter rail usage along the existing rail infrastructure. The plan will include design recommendations, density requirements, evaluation of preliminary environmental conditions, physical conditions assessment, market analysis and preliminary development build-out scenarios for those target zone sites, including preliminary financial feasibility analysis.

Market Context

Economic conditions in the national and regional marketplace are impacting spending and development opportunities. The Pittsburgh region, like much of the country, saw a decline in its manufacturing base, which now represents 3.7 percent of its jobs. Fortunately the Pittsburgh economy now consists of a diverse mix of industry, which helps it remain stable during trying economic times. Education and health services gained 5,300 jobs from March 2010 to March 2011. This sector of the economy for the Pittsburgh MSA has had uninterrupted gains year over year since October 1995.

For Pittsburgh, the Energy, Technology, Education and Health Services industries gained prominence as the number of jobs grew quickly. The Lawrenceville and Strip District neighborhoods benefit from the growth in these industries due primarily to the presence of the Carnegie Mellon University's National Robotics and Engineering Center (NREC) and the University of Pittsburgh Medical Campus Children's Hospital and general proximity to Oakland.

The anticipated growth in the Pittsburgh region continues to rely on the energy, technology and finance sectors. Prospects for growth in the study area will continue to target the emerging technology sector with affordable space in close proximity to key anchor institutions. This more affordable space reflects the significant work of both the Regional Industrial Development Corporation of Southern Pennsylvania (RIDC) and Lawrenceville Corporation in attracting and retaining businesses in the target zone (43rd and 48th streets). The strength of this market relies in part on the surrounding environment, which consists of residential, retail and service space.

The market analysis focuses on the study area and several submarket areas defined as primary and secondary trade areas.

Industrial and Office Potentials

The market for industrial space in Pittsburgh relies on the distribution and warehouse operations and light to heavy manufacturing. Lawrenceville demand is driven by proximity to Oakland, a growing base of amenities, affordable space and the ease of movement without bridges or tunnels. In recent years the growth of non-traditional industrial users locating throughout Lawrenceville reflects the reasonable rental rates and availability of land and space. These users, such as 31st Street Studios, represent a demand not captured by industry sector employment growth estimates.

Overall, the Pittsburgh regional office market continues to grow as the energy sector drives demand in the suburban market; the financial sector continues to support downtown office growth and the institutionally anchored and emerging technology sectors advance the CBD fringe office markets. The Strip District represents a fringe office market on the outskirts of downtown, presenting an opportunity for new traditional office development.

The office potential in Lawrenceville segments into two distinctive office markets: 1) the existing supportive neighborhood-serving office along Butler Street, Penn Avenue and side streets; and 2) offices related directly to the presence of institutional anchors such as NREC.

The majority of the Lawrenceville office tenants along Butler Street and Penn Avenue are neighborhood-related users (e.g., insurance agents, dentists, veterinarians) and light industrial and manufacturing tenants. These office tenants depend on good access to their primary clientele, are often more price sensitive than larger corporations and tend to remain at these locations for long periods of time. Growth projections for new residents and the built-out nature of Lawrenceville will support only small-scale infill neighborhood office development, estimated at less than 1,500 square feet per year.

The emerging technology sector in the lower Lawrenceville community relies on the anchor institutions in the area, as well as affordable spaces provided by the Lawrenceville Corporation and RIDC. The area is fairly well positioned to continue to grow this industry but a portion of this growth relies on attracting additional federal resources, such as grants.

The unreliable nature of grant awards means that when companies need to expand they need to move quickly. Many of these emerging companies also need assistance as their management has limited previous experience with real estate transactions.

The Cycle 9 growth projections from the Southwestern Pennsylvania Commission estimate an increase in jobs that support new commercial space. Based on the growth within these industry sectors, the Strip District and Lawrenceville areas could absorb between 800,000 and 900,000 square feet of industrial space by 2025. This represents the baseline development potential consisting of industrial, flex office /R&D/industrial and office space.

In general the commercial market conclusions indicate a healthy influx of new development over the near- to mid-term time period in the Study Area. The general office development will focus on locations in the Strip District closer to the downtown office market with higher visibility. Much of the new research and development space, approximately 90 percent, should be expected to locate in the target zone area between 43^{rd} and 48^{th} streets. While light and heavy manufacturing operations continue to struggle over the last two decades, Pittsburgh remains a location with advantages and deep history as a successful industrial location. New light and heavy industrial space users will continue to expand and fill in opportunities in upper Lawrenceville and some locations in central Lawrenceville and the Strip District.

Supportable Industrial & Office Space by 2025							
Type of Space	Strip District Lawrenceville Total						
Total Projected Demand							
Traditional Industrial	75,000	76,000	151,000				
Flex Office/ R&D/Industrial	171,000	408,000	579,000				
General Office	331,000	11,000	342,000				
Neighborhood Office	17,000	11,000	28,000				
Total 594,000 506,000 1,100,000							
Source: Southwestern Pennsylvania Commission, Cycle 9: Partners for Economic							
Solutions, 2011.							

It should be noted that small scale retail development focused along the 43^{rd} Street entrance to the waterfront would be supportable. It is likely the development would include food and beverage alternatives – a sit-down restaurant of 5,000 square feet with an additional 2,500 square foot café.

Niche Market Potentials

The cluster of commercial activities within the Study Area and potential expansion of the residential base will support a series of niche service providers either already in the area or new to the marketplace. Many of these businesses will help buffer the new residential development and may include dog grooming, fitness centers and recreational service providers. These users represent a total demand for between 50,000 to 70,000 square feet starting after the near-term development of more residential products.

Currently, Pittsburgh has a strong supply of hotels with existing occupancy levels suggesting a stable lodging market for hotels. However, the entry of new hotels in Downtown Pittsburgh and concepts to add one in the Strip District may crowd the hotel

market and provide little opportunity for additional hotel development in the Study Area in the near term.

In the near- to mid-term, there is no demonstrable need for additional hotels without the addition of new commercial office and retail activity. Over the longer term from 2016 to 2021, the target zone area may be able to support one new hotel developed along the Allegheny riverfront.

Residential Potentials

The Study Area's waterfront is dominated by heavy and light industrial users, residential infill in the Strip District and large tracts of industrial land with no residential context. Further away from the water and along Butler Street, the character of the neighborhood shifts with attached single-family homes and many amenities that support residential neighborhoods. Signs of new residential development suggest an influx of market-rate renters in both the Strip District and Lawrenceville. The many existing affordable housing products offer sufficient rental and for-sale housing options for low- to moderate- income households. While the need for affordable housing should never be underestimated, the existing neighborhood provides a strong market to add market-rate residential and create a more desirable mixed-income environment. Renovation of existing attached housing makes good financial sense and developers report more than 30 units annually renovating for higher resale value. Finally the proposed new townhouse development along Hatfield Street represents a strong offering to meet the pent-up residential demand for new construction. Any new residential development may be attracted to the emerging neighborhoods nearby to the Allegheny River, such as the proposed Cork Factory II project.

Our estimates suggest that new residential development could include 40 to 50 renovated houses annually, 20 to 30 new for-sale townhouses, 15 to 20 condominiums in the Strip District, growing up to 30 total condominiums with the creation of place in the target zone and 75 to 85 apartments annually. It is important to note that the higher density residential products along the riverfront may vary in tenure based on the market cycle at time of construction. The projected growth would result in a total demand of 55 percent owner-occupied units and 45 percent new rental units for the Study Area, allowing for vacancies of one percent among owner-occupied units and five percent among rental units.

Study Area Residential Demand							
	Near-Term	Mid-Term					
	2012 to 2016	2017 to 2021	Total				
For-Sale							
Townhouses (renovated)	207	202	409				
Townhouses (new)	175	175	350				
Condominiums	100	150	250				
Rental							
Townhouses (renovated)	23	23	46				
Apartments	405	380	785				
Total New Residential	910	930	1,840				
Source: Partners for Economic Solutions, 2011.							

I. Demographic Analysis

The demographic analysis section of the report provides a snapshot of recent information about the social and economic conditions in the target zone (43rd and 48th streets), study area, broader neighborhood, Pittsburgh and the region. This information relates to historical trends and expectations about future land use patterns.

Market Area Definition

The definitions of market areas represent the areas from which support will be generated for future uses. The boundaries extend beyond the Study Area boundaries to include nearby residents and to conform to census tract boundaries. For this particular study area the Primary Market Area (PMA) represents census tracts within the identified target area¹. The Secondary Market Area (SMA) surrounds this target zone but can be delineated into two distinct areas; Secondary Market Area A and B. Secondary Market Area A includes those census tracts within the Strip District neighborhood while Secondary Market Area B encompasses the Upper Lawrenceville neighborhood². The following map shows the delineation of the Primary Market Area and Secondary Market Area.



¹ Primary Market Area (PMA) includes census tracts: 603,901 and 902.

² Secondary Market Area (SMA) includes census tract 203 for SMA A and tracts 101.1 and 101.8 for SMA B.

The following section provides detailed information on local demographic and economic trends. For comparative purposes, the demographic makeup is provided for the Pittsburgh Metropolitan Area and the City of Pittsburgh. This definition offers a portrait of regional trends impacting the Market Areas. All data tables referred to in this section appear in Appendix A.

Population and Household Trends

Table 1 and Appendix Table A-1 show population trends and age distributions for the Primary and Secondary Market Areas (see map on previous page) as well as the City of Pittsburgh and the Pittsburgh Metropolitan Area. With the exception of the Strip District neighborhood (SMA-A), which started as an industrial area gaining new residents only in recent years, all areas saw an overall decline in population between 1990 and 2010, with the greatest losses occurring between 1990 and 2000. The City of Pittsburgh population decreased by 9.5 percent during the 1990s, losing an estimated 35,200 people, while the entire target zone area lost 9.7 percent of its population or 1,448 residents.

Table 1. Population Trends, 1990-2010									
	Primary Market Area	Secondary Market Area A	Secondary Market Area B	Pittsburgh	Pittsburgh Metro Area				
Population									
1990	8,517	275	6,254	369,809	2,468,289				
2000	7,691	266	5,641	334,563	2,431,087				
2010	6,819	616	5,191	305,704	2,356,285				
1990-2010 Change	-19.9%	124.0%	-17.0%	-17.3%	-4.5%				
1990-2000 Change	-9.7%	-3.3%	-9.8%	-9.5%	-1.5%				
2000-2010 Change	-11.3%	131.6%	-8.0%	-8.6%	-3.1%				
Median Age									
2010	38.9	34.7	37.7	33.5	42.6				
Source: ESRI, 2010; Par	tners for Econ	omic Solution	s, 2011.						

Appendix Table A-1 also shows the population by age in 2010. All areas have a large portion of residents under the age of 35, ranging from 41 to 46 percent with the notable exception of the Strip District neighborhood in which more than half of the population consists of residents under 35 years old. In the Strip District the age distribution shows that 17.9 percent of the total population are under 20 years while only one in 14 residents is considered elderly (65 or more years). Compared to the city's and metro area's elderly population of roughly 14 to 17 percent, respectively, the PMA population aged 65 or older was 18.5 percent in 2010.

Table 2 and Appendix Table A-2 show households by tenure, number of persons per household in 2010, as well as the average household size and estimated 2010 vehicle ownership. In the Primary Market Area, the data highlight a higher proportion of renter housing units compared to owner-occupied units. The City of Pittsburgh showed a similar trend, with 52 percent of its units owner-occupied. In terms of household size, the majority of households in all areas were either one- or two-person households. The Upper

Lawrenceville neighborhood (SMA-B) had 57.3 percent of its households with three or more persons, highlighting the larger household size in this neighborhood. This is reflected in the 2010 average household size of 2.38 persons in Upper Lawrenceville, while the rest of the study area ranged from 1.53 to 1.93 persons per household. The national trend indicates upticks in household size with the increase in multi-generational homes or young adults living with their parents for longer periods of time before forming their own households. Finally, Appendix Table A-2 shows that the majority of households in all areas own one or more vehicles. Perhaps unsurprisingly, the Upper Lawrenceville neighborhood mirrors more vehicles per household with over 79 percent owning one or more vehicles. Over 40 percent of the PMA households own no vehicle compared to only 12.8 percent of Pittsburgh Metro Area households.

Table 2. Household Size, Tenure and Vehicle Ownership, 2000								
	Primary Market Area	Secondary Market Area A	Secondary Market Area B	Pittsburgh	Pittsburgh Metro Area			
Percent of Households by Household Size								
One Person	46.7%	61.0%	32.5%	39.4%	31.9%			
Two People	31.1%	30.5%	33.2%	30.6%	34.7%			
Three to Four People	18.1%	6.9%	26.7%	23.5%	26.8%			
Five or More People	4.1%	1.5%	7.8%	6.5%	6.5%			
Average Household Size								
Average Household Size	1.93	1.53	2.38	1.92	1.94			
Household Tenure								
Percent Owner	43.6%	9.2%	66.3%	47.6%	69.6%			
Percent Renter	56.4%	90.8%	33.7%	52.4%	30.4%			
Vehicle Ownership								
Vehicles Owned per Household	0.9	0.9	1.2	1.1	1.6			
Source: ESRI, 2010; Partners for Eco	onomic Solutio	ons, 2011.						

To further illustrate these household characteristics, Appendix Table A-3 details householder age by tenure in 2000 for the PMA and the City of Pittsburgh. The PMA represented only 2.5 percent of all city households with 3,471 households in 2010. Still, both areas showed a similar distribution of householders by age and tenure, though a greater proportion of PMA householders were aged 65 or older (26 percent), compared to only 21.9 percent city-wide.

Appendix Table A-4 shows the household income distribution for each area in 2010. Although it includes a much smaller number of households, the Strip District's median household income was roughly \$62,600, significantly higher than the \$38,400 median income in Pittsburgh and \$49,500 in the Pittsburgh Metro Area. The Strip District's new household development has attracted a younger more affluent resident base compared to the rest of the Study Area.

Appendix Table A-5 shows geographic mobility for the City of Pittsburgh and the Metro Area in 2008 by tenure. Over 92 percent of owner households in both the city and metro area had not moved in the past year. The majority of those who had relocated moved from within the same county, or a different Pennsylvania county. The city attracted almost

3,900 new owners from beyond Pennsylvania in the year before the 2000 census. Renter households were significantly more mobile with 31 percent moving in the previous year in Pittsburgh. Though only 7.3 percent of city and 4.4 percent of metro area renter households moved to the area from a different state or abroad, they still represented a significant number of households – 9,198 households in the city and 24,462 in the metro area.

Regional Growth

After years of residential decline (with urban flight), initial counts indicated that Pittsburgh benefited from an influx of new households in the downtown during the last decade. Many of these new residents moved to the city's downtown neighborhoods in search of an urban housing alternative. The development of new high-end rental and condominium housing options drew new residents to the city. Pittsburgh has always served regional demand for affordable home ownership opportunities, attracting first-time home buyers.

Research shows that some segments of the Generation Y or Echo Boom population (born between 1982 and 2001) now forming new households prefer urban and first-ring suburbs with walkable communities, smaller housing units and easy access to transit. As this group enters the housing market, a home in emerging neighborhoods nearby to institutional anchors will continue to be appealing. This will create the same success for residential development as neighborhoods like Shady Side where home values continue to climb. Evidence of house purchases, renovations and value increases suggests these types of residents find the Study Area an appealing location.

Table 3. Projected Growth in Households, 2010-2025									
					Annua	l Percent (Change		
Area	2010	2015	2020	2025	2010-15	2015-20	2020-25		
Households	Households								
Strip District	313	356	375	388	2.6%	1.0%	0.7%		
Lawrenceville	5,590	5,634	5,723	5,872	0.2%	0.3%	0.5%		
Strip District's Share of City	0.2%	0.3%	0.3%	0.3%					
Lawrenceville's Share of City	4.0%	4.0%	3.9%	3.9%					
Pittsburgh	139,672	142,032	146,132	151,429	0.3%	0.6%	0.7%		
Sources: Cycle 9 Southwestern Pen	Sources: Cycle 9 Southwestern Pennsylvania Commission, 2011; Partners for Economic Solutions, 2011.								

The actual development projected by the Southwestern Pennsylvania Commission, suggests an addition of 350 to 400 households to the study area neighborhoods by 2025, representing only a modest 2.0-percent growth.

II. Industrial & Office Markets

This section of the report focuses on industrial and office conditions in the Pittsburgh region, City of Pittsburgh and the study area, including commercial development trends and the impact of future growth patterns on development potential.

Economic Conditions

Employment trends are key indicators for commercial and residential demand. Jobs are integral to where people reside, what they can afford, and they are willing and able to pay for housing. Traditionally, office and industrial demand relates directly to employment growth in industries that require office space. This section examines Pittsburgh employment by sector since 2000. It also considers how regional unemployment over the past several years and shifting journey to work patterns impact commercial and residential market trends.

Unemployment rates for Allegheny County and Pittsburgh remain stable and below the national average with a 6.8-percent average rate in the city, as compared with 8.8 percent in the U.S. in September 2011. Allegheny County's unemployment rate stood at 6.7 percent during the same period.

Resident-based employment by occupation and industry for the most recent year indicates that most residents work in white-collar professional jobs -65.7 percent of Pittsburgh's employed residents, as shown in Appendix Table A-6. The PMA shows fewer residents holding white-collar jobs at 56.4 percent, due to a higher number of blue-collar jobs compared to the city as a whole, particularly in construction and transportation occupations.

Pittsburgh MSA³ jobs continue to grow and outpace national average growth in every industry sector. Education and health services gained 5,300 jobs from March 2010 to March 2011. This sector of the economy for the Pittsburgh MSA has had uninterrupted gains year over year since October 1995. The professional and business services sector gained 4,300 jobs between 2010 and 2011, a 2.8-percent growth rate.

Industrial Conditions

This section evaluates the employment changes in economic sectors that typically require industrial facilities and tracks the absorption of industrial facilities and land in recent years, drawing on inputs from brokers and developers actively involved in the industrial market.

PES profiled the market conditions for industrial business growth in the City of Pittsburgh and the region. Within the region, the industrial market includes several submarkets: Pittsburgh; Northeast; Northwest; West; South; East; as well as those further-out submarkets in Beaver, Butler, Washington and Westmoreland counties.

³ Pittsburgh MSA includes Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland counties.

Industrial development tends to cluster around infrastructure-supported corridors with excellent access to rail and/or major truck routes. Many of the suburban markets and those with existing buildings sufficient for industrial users offer the most promise for additional industrial space. The Westmoreland submarket comprises more than 24 million square feet of space with a relatively high vacancy rate of 16.6 percent as of the second quarter of 2011. According to Grubb & Ellis, Westmoreland's industrial inventory represents one-fifth of all the industrial space in the Pittsburgh region. The City of Pittsburgh and West submarkets follow close behind with 13.2 and 14.7 million square feet, respectively. The City of Pittsburgh and the Butler submarket, with 5.7 million square feet of space, have the lowest vacancy rates below five percent. These two submarkets benefit from the historical manufacturing and heavy industrial base in Pittsburgh, the recent changes in industrial demand and access to the airport.

The industrial space market within Pittsburgh's suburbs serves distribution and warehouse operations as well as light to heavy manufacturing associated with construction. Industrial space within the city totals 40 million square feet, according to Cushman Wakefield, with a 9.5-percent vacancy rate. The amount of occupied industrial space increased with the positive direct absorption of 229,000 square feet in 2010 according to Cushman Wakefield, though RESI indicates a net gain of only 19,000 square feet. This difference reflects the categorization of types of industrial and office space, which shifts dramatically between the two companies.

Table 4. Industrial Space Trends, Pittsburgh 2005-2010							
Year	Total Square Feet	Vacant Square Feet	Occupied Square Feet	Occupancy Rate	Effective Rent		
Annual							
2005	209,146,000	23,006,000	186,140,000	89.0%	\$3.67		
2006	209,826,000	22,661,000	187,165,000	89.2%	\$3.74		
2007	210,716,000	22,336,000	188,380,000	89.4%	\$3.84		
2008	211,606,000	22,726,000	188,880,000	89.3%	\$3.86		
2009	212,240,000	23,771,000	188,469,000	88.8%	\$3.75		
2010	212,500,000	24,012,000	188,488,000	88.7%	\$3.76		
2005-2010 Chang	ge						
Amount	3,354,000	1,006,000	2,348,000	-0.30%	\$0.09		
Percent	1.6%	4.2%	1.2%		2.4%		
Note: Effective rents reflect the actual received rent for this time period.							
Sources: REIS; Partners for Economic Solutions, 2011.							

Information from Grubb & Ellis for the Pittsburgh region shows approximately 36.8 million square feet of distribution and warehouse space with a moderate vacancy rate of 13.2 percent and 168,700 square feet under construction in the second quarter of 2011. Commercial flex space in the Pittsburgh region includes an estimated 9 million square feet with a vacancy rate of 12.2 percent. The flex market is stabilizing but reflects the previous impacts of the economic downturn. It is important to note that flex/office space blurs the line between office and industrial land uses. Flex space is a single-story structure with a combination of office, warehouse and/or showroom space designed for flexibility to meet the

tenants' needs. It is typically equipped with truck docks to facilitate loading. The flex/office market does not provide Class A office space but rather offers lower rents, easy access and surface parking.

In addition to existing flex space, the market for industrial space in the Lawrenceville area reflects the strength of the existing highway infrastructure with easy on and off access for trucks traveling across the Allegheny River from the 62nd Street Bridge south to the 33rd Street connection. The rail access to the local rail line (AVRR) from the Norfolk Southern main line provides an advantage for industrial users.

The broader regional industrial market continues to change as demand from other types of firms commanding higher rents/prices absorb floor space that otherwise would have been used by manufacturers. The existing industrial sites located around the Pittsburgh region often serve long-time owners and operators of industrial operations that value easy access to rail, highways and other critical industry-specific location criteria. The Study Area was well-suited for these types of manufacturing operations due to the combination of the proximity to rail and highways, the availability of existing buildings and the price of available appropriately zoned land.

Retail businesses and services along Butler, new research and development flex space in Lower Lawrenceville and the shift of the Strip District to a destination for unique retail introduced a conflict with the existing industrial base. In some instances wholesalers and manufacturers left the city altogether, but for those that stay in the area, locations like those in Lawrenceville and the Strip District still represent a good opportunity. In addition to those private sector users, the City of Pittsburgh occupies land within the Study Area for purposes related to general water, sewer and waste management operations. This is typical of all municipalities, which require land for quasi-industrial functions like vehicle repair for police cars and storage of snow plows or road repair vehicles.

The scarcity of land in many urban jurisdictions requires careful consideration before changing the current zoning regulations. For an area like the Study Area where pressure exists to redevelop industrial property to capture the value of the land's proximity to the river, decisions about infill development with distinctly different uses from the historical industrial users need to be considered carefully. It is important to preserve sites to meet the potential future needs of today's industrial users while balancing the need for additional development as the area revitalizes. As redevelopment occurs and these existing business operators are surrounded by incompatible residential land uses, the new land users' nuisance complaints about noise, pollution and visual blight present challenges.

A careful review of industrial development and residential development in close proximity revealed that opportunities do exist for locating in close proximity with appropriately scaled buffers (including a street, fences, trees, walls, etc). While these users are not typically considered 'good neighbors', the pressures for redevelopment create an unlikely match. In some places unconventional live/work arrangements that combine residential with craft trades, other visual or performing arts space and compatible light industrial work well. For example, Baltimore has several emerging residential neighborhoods that surround formerly active industrial lands. Other examples of successful transitions between industrial and residential uses include neighborhoods in transition as the higher value return from residential development leads to land use changes.

- **Canton neighborhood in Baltimore, MD** This neighborhood along the Baltimore harbor's eastern edge has residential, retail and restaurants near to heavy industrial users. This neighborhood's old industrial roots, based on the proximity to both rail and deep port access and large block manufacturing buildings helped spur redevelopment and investment in the neighborhood. The remaining industrial activity is well buffered by a community park and street and stays active only blocks away from highly valued residential.
- The Flats neighborhood in Cleveland, OH- Cleveland's policies allow infill



residential development along the waterfront rather than protecting the city's industrially zoned land. The Live/Work Overlay district created in the early 2000's encourages review of new residential development on a caseby-case basis to eliminate conflicts before the project's development. The Flats neighborhood along Cleveland's

Cuyahoga River represents a good mix of industrial users and residential developments. In this neighborhood the residential development continues to pressure redevelopment of low-cost industrial land.

- **Del Ray neighborhood in Alexandria, VA-** The City of Alexandria developed along the western bank of the Potomac River. The Del Ray neighborhood west of U.S. 1 has long co-existed with heavy rail operations.
- **River West neighborhood in Chicago, IL-** This neighborhood, once included in River North, converted a former warehouse distribution area into lofts and condominiums. This neighborhood is located on

the North East side of the Chicago River in the heart of the north side of the river. The area still serves as the artery in the west side of Chicago's manufacturing corridor with ample truck access along Halsted Street and Grand Avenue. The shift to residential started with the artists attracted to the area for more affordable rents.



While some cities have been very successful at creating new infill residential development alongside existing industrial uses, all real estate is local and the value of the underlying land and existing conditions in the local market as well as the nature and location of the sites available for redevelopment greatly impact the potential for residential and industrial to locate in close proximity. The impact of existing industrial users on newly developed residential projects typically constrains prices, and may impose additional construction costs to mitigate noise and potential pollution.

Recent activity in the Lawrenceville submarket suggests stable demand for industrial property. In the first quarter of 2011, Restaurant Depot purchased a 14-acre riverfront

parcel from Pitt-Ohio Express and may build as much as 100,000 square feet in the near- to mid-term. Other less traditional users, including 31st Street Studios, moved to the Strip District and central Lawrenceville area in recent years increasing demand for industrial property. Expansion plans for the existing McConway & Torley manufacturing plant shows the need for many of the viable industrial users to stay in place within the Study Area.

Office Conditions

This section reviews the existing office market conditions. The analysis considers the market support for office space based on review of historic absorption and development data for the region, Pittsburgh and the study area. As previously discussed, the study area consists of a broadly defined six-mile stretch along the Allegheny River to encompass the Strip District and Lawrenceville. This assessment considers both the city and study area's ability to compete for office development based on its competitive advantages and disadvantages including access, proximity to major employment centers, workforce, office environment, cost, support services and other factors.

The office market does not consist of one type of office space; rather, distinct users create the need for space which varies greatly in character and construction type, impacting the rents and location. For the purpose of this analysis, the office market assessment includes general office market insights and review of research and development office space and neighborhood-serving office. Office space also exists in industrial and flex/office buildings, as mentioned in the preceding section.

The Greater Pittsburgh submarket⁴ has a total inventory of 10.4 million square feet of office space, with average annual rents ranging from \$18.00 to \$19.50 per square foot. Since 2006 the vacancy rate for office space in the Greater Pittsburgh submarket lingers just below 20 percent, reflecting the national economic downturn and its impact on the suburban office market. In the second quarter of this year, rents stabilized at \$19.00 per square foot and the occupancy rate continued to inch upwards to 81.1 percent, according to data from REIS shown in Table 5 below.





⁴ Greater Pittsburgh submarket as defined by REIS, a national data provider, is bounded by Hoffman Road, State Highway 8, Monongahela River, Allegheny River, Highland Park Boundary, Pittsburgh Boundary, Mount Troy Road, Stanton Avenue, Shady Avenue, Brownshill Road and Frick Park Boundary.

Table 5. Office Space Trends, Greater Pittsburgh 2006- Second Quarter 2011								
Year	Total Square Feet	Vacant Square Feet	Occupied Square Feet	Occupancy Rate	Average Rent			
Annual								
2006	10,286,000	2,119,000	8,167,000	79.4%	\$18.20			
2007	10,302,000	1,926,000	8,376,000	81.3%	\$17.94			
2008	10,302,000	1,896,000	8,406,000	81.6%	\$18.28			
2009	10,244,000	1,885,000	8,359,000	81.6%	\$18.46			
2010	10,439,000	1,994,000	8,445,000	80.9%	\$19.07			
1Q, 2011	10,439,000	2,036,000	8,403,000	80.5%	\$19.01			
2Q, 2011	10,439,000	1,973,000	8,466,000	81.1%	\$19.00			
2006-2011 Chang	;e							
Amount	153,000	-146,000	299,000	1.7%	\$0.80			
Percent	1.5%	-7.4%	3.5%		4.2%			
Note: Full service average rent, including taxes, utilities and janitorial. Sources: REIS; Partners for Economic Solutions, 2011.								

Within the City of Pittsburgh, the vacancy rate for office space ranged from 16.5 to 17 percent. In the first quarter of 2010, the Wall Street Journal compared Pittsburgh's office market favorably to New York and San Francisco, touting rental rate increase and decline in vacancy rates for nine consecutive quarters. According to Grubb and Ellis, Pittsburgh's Central Business District (CBD) continues to add to its 21.5 million square feet of office space with rents between \$20 and \$25 per square foot. While these reflect the average rents across all classes of building inventory, Class A office space remains the bright spot in the CBD, Oakland and Cranberry submarkets within the city. Class A office space in Pittsburgh's CBD has a 6.3-percent vacancy rate with rents climbing by an estimated \$0.10 per square foot in the second quarter of 2011. In fact, CB Richard Ellis recently suggested that the downtown office market will add seven percent to rent prices annually for the next five years because the vacancy rate does not accurately represent the office market conditions. A large portion of the existing vacant office space, estimated by Rugby Realty Company at almost 1 million square feet, is unavailable for rental due to legal constraints and financial limitations (e.g., landlords unable to provide the necessary tenant fit-out costs).





Table 6. Office Space Trends, Pittsburgh CBD 2006- Third Quarter 2011							
Year	Total Square Feet	Vacant Square Feet	Occupied Square Feet	Occupancy Rate	Average Rent		
Annual							
2006	22,787,000	4,710,000	18,617,000	81.7%	\$20.27		
2007	22,967,000	3,790,000	19,177,000	83.5%	\$21.05		
2008	22,836,000	3,425,000	19,441,000	85.0%	\$21.93		
2009	22,685,000	3,244,000	19,411,000	85.7%	\$21.96		
2010	22,638,000	3,160,000	19,478,000	86.0%	\$22.68		
1Q, 2011	22,638,000	3,237,000	19,401,000	85.7%	\$22.46		
2Q, 2011	22,638,000	3,283,000	19,355,000	85.5%	\$22.53		
3Q, 2011	22,638,000	3,260,000	19,378,000	85.6%	\$22.60		
2006-2011 Chang	;e						
Amount	-149,000	-1,450,000	738,000	3.9%	\$2.26		
Note: Full service average rent, including taxes, utilities and janitorial.							
Sources: REIS; Par	tners for Econor	nic Solutions, 2	011.				

Outside the CBD (see Map 3), the office market on the fringe of this positive absorption and rent growth has stabilized but not rebounded as quickly over the last four years. The CBD fringe office market consists of 6.3 million square feet of space with an 18-percent vacancy rate. As would be expected, offices in this market command lower rents between \$18 to \$22 per square foot and are dominated by existing Class B space.

The Strip District area within the CBD Fringe submarket offers two different office product types: typical Class A or B office space and flex/warehouse office alternatives. Research and development (R&D) space offers rents from \$14 to \$22 per square foot, depending greatly on amenities and features of each space, and is more often located further along the river in Lawrenceville.

More price-sensitive office users or those in need of office space close to the neighborhood customers they serve find office spaces along Butler Street, which serves as the area's main commercial corridor, or in spaces within the Strip District. Rents average \$12 per square foot for neighborhood-serving office space along Butler Street up to \$22 for newly constructed space in the Strip District. However, these rents do not support the cost of constructing new office space.

The Lawrenceville target zone between 43^{rd} and 48^{th} streets along the Allegheny River provides a niche location for research operations associated with Carnegie Mellon University's National Robotics and Engineering Center (NREC), government and private businesses. The Chocolate Factory, located at 43^{rd} Street, provides 71,000 square feet of business incubator space for start-up businesses with below-market rents, technical assistance and facilities for new venture tech firms, meeting the economic development mission of its owner, the Regional Industrial Development Corporation of Southern Pennsylvania (RIDC). Across 43^{rd} Street, the Lawrenceville Corporation has renovated the Ice House for artist studios and offices. Both the Ice House and Chocolate Factory provide similar types of affordable incubator space and free parking that support new and emerging tech firms.

Future Industrial and Office Potential

For this analysis, office and industrial demand splits among traditional industrial space for light and heavy industrial users with more traditional industrial office space within industrial buildings, including space in flex/R&D space. In addition to these primarily industrial types of space, within the actual demand, demand exists for more typical office space and neighborhood-serving office space. Projecting demand for each of the five broad categories of space is challenging given the ability of tenants to shift among space types depending on location, rent and space availability.

Within the Study Area, the character of each neighborhood and existing users play a role in shaping the type of supportable space. Along Lawrenceville's riverfront segments, light and heavy manufacturing users and R&D/ flex users in incubator space have focused around the target zone from 43^{rd} to 48^{th} streets. In the Strip District, the mix of industrial and office users offers a different market orientation with more general office space and industrial distribution or warehouse operations. Determining future demand for both industrial and office potential typically begins with a review of employment projections.

Industrial

Industrial space users choose business sites based on accessibility (both truck and rail access), adequate utilities, acceptance of industrial operating conditions (impact of noise, odor and frequently outdoor storage) and the ability to get workers and customers to their business. These types of businesses consider the potential operating costs associated with a particular location, the land, building, taxes and other costs. In the Pittsburgh market the traditionally lower operating costs in industrial flex space compared to standard office space shifts the market dynamics, creating an option for emerging high-tech companies.

Specific building needs depend heavily on the nature of the business and its operations. However, most manufacturers and distribution companies prefer modern industrial buildings on one floor with ample truck docks, clear-span construction space, redundant sources of power and telecommunications and the flexibility to expand at the current location.

The demand for industrial space in the Study Area reflects both the historical absorption trends and the industry patterns for manufacturing, transportation and warehousing, and wholesale trade.

Office

Traditional office demand forecasts rely on the expected growth in the number of employees who need a place to work. Industries that use office space most heavily include Information; Finance and Insurance; Professional, Scientific and Technical Services; Health Care and Social Assistance; Other Services; and Government. Typically the first three are most important for the general occupancy office market. It should be noted that service sector employment continues to grow as manufacturing declines, requiring different space demands.

In the Pittsburgh region, office demand reflects the growth in energy (particularly for the suburban market growth), technology and finance sectors. Pittsburgh continues to offer an amenity-rich environment for corporate headquarters, attracting American Eagle Outfitters and Dick's Sporting Goods. In fact, Pittsburgh has eight Fortune 500 companies.

In general, office development provides better returns to property owners/ developers. Throughout the nation there are examples of office development crowding out light industrial users.

To project future employment growth and both office and industrial demand for this existing base, PES used the Cycle 9 forecast projections from the Southwestern Pennsylvania Commission, using its defined neighborhood clusters to match the defined Primary Market Area and Secondary Market Area as a base, and extending the projections to 2025. The Cycle 9 growth projections estimate an increase of 1,387 jobs for the Strip District and 1,003 new jobs in Lawrenceville by 2025. These employee projections include expansion of existing businesses which may in some instances have capacity in their current space, not resulting in demand for new space.

Table 7. Projected Growth in Employment, 2010-2025							
				Annua	Annual Percent Change		
	2010	2015	2020	2025	2010-15	2015-20	2020-25
Employment							
Strip District	10,287	11,060	11,408	11,674	1.5%	0.6%	0.5%
Lawrenceville	9,877	10,738	10,884	10,880	1.7%	0.3%	N/A
Strip District's Share of City	2.9%	2.9%	2.9%	2.9%			
Lawrenceville's Share of City	2.8%	2.8%	2.7%	2.7%			
Pittsburgh	357,008	384,820	398,926	409,092	1.5%	0.7%	0.5%
Sources: Cycle 9 Southwestern Pe	ennsylvania	Commission, 2	2011; Partno	ers for Ecor	nomic Solutio	ns, 2011.	

The mix of jobs by industry heavily impacts the demand for future industrial and office space. The Strip District is projected to gain 1,300 new service jobs, which results in demand for traditional office, flex/warehouse offices and a smaller portion of R&D space by 2025. By comparison, the Lawrenceville neighborhood will gain approximately 1,000 new service jobs. The mix of these jobs is more heavily weighted to research and development jobs, which will range from 600 to 630 net new employees by 2025. Approximately 10 percent of the other service jobs will locate in traditional office spaces, the remainder will be associated with industrial/flex/R&D space. Our estimates of the future mix of jobs reflect a review of recent trends and expected growth within specific industry subsectors of the service industry as well as emerging growth in the technology sector.

Table 8. Projected Distribution of Jobs						
Percent of Mix						
	Strip District Lawrenceville					
Type of Space						
Traditional Industrial	10%	15%				
Flex Industrial	20%	30%				
R&D Office	5%	45%				
General Office	60%	5%				
Neighborhood Office 5% 5%						
Source: Partners for Economic Solutions, 2011.						

Depending on the specific industry, the ratio of jobs to square feet of office and industrial space varies greatly. By applying industry standards⁵ for the amount of building space per employee specific to each subsector, we determined the need for new industrial and office space. This effort balances the average of 230 square feet per employee for the Strip District's service industry growth expected in more traditional office space with the employee densities estimated at one manufacturing employee per 400 to 450 square feet, one transportation/warehousing employee per 2,500 square feet and one wholesale trade employee per 1,000 square feet. In Lawrenceville the research and development space varies greatly depending on the scale of the prototype development and stage of the firm. R&D space requires slightly more space per employee (estimated as 360 square feet), although local examples associated with the robotics industry tend to occupy less space due to the availability of shared spaces in incubator buildings. Some R& D firms require substantially more space up to 700 square feet per employee to accommodate prototype production. In Lawrenceville our estimate of 650 square feet per employee for the flex office

⁵ National Association of Industrial and Office Properties Research Foundation, 2011.

space represents those firms likely to expand or new firms in R&D manufacturing growth stage. Trends suggest a decline in the amount of office space per employee for general office space as a result of several factors including the increasing popularity of telecommuting, decreasing need for paper records storage and improved efficiency of space layout. Finally the demand for neighborhood-serving office space represents users that require less space per employee and are willing to fit in second-floor or more conventional ground-level retail space in mixed-use buildings.

Table 9. Square Feet of Space per Employee Estimates forIndustrial and Office Uses						
	Range Er	of Spa nploy	Average Square Feet			
Type of Space						
Traditional Industrial	400	-	625	510		
Flex Industrial	400	-	475	440		
R&D Office	300	-	425	360		
General Office	200	-	250	230		
Neighborhood Office	175	-	200	190		
Source: National Association of Industrial and Office Properties;						
Partners for Economic Solutions, 2011.						

Beyond establishing the total amount of space each employee occupies, PES reviewed information on occupancy levels by comparison across industries. The future demand includes a stabilized occupancy rate of 95 percent across industry sectors. For more traditional office space, the jobs data were adjusted further by estimating the share of jobs in each industry that require office space as opposed to hospital or retail space.

Future Growth

The City of Pittsburgh has a relatively small inventory of competitive, available industrial buildings and development sites with sufficient land area and appropriate zoning for an industrial use. In particular, there are few sites with good access to Route 28 and other major truck routes heading west of the city, which is one focus of new industrial activity in the region. Many of the industrial sites south of 50th Street are constrained by daily congestion during peak travel periods, making the areas less competitive for warehouse and distribution users. Upper Lawrenceville sites represent valuable industrial land for warehouse distribution because trucks can avoid the congestion and delays associated with sites closer into the Strip District and CBD. Large sites with access to major truck routes and rail without the need for travel through the Squirrel Hill tunnel or across congested bridges are almost impossible to find in the city. The demand would likely split more favorably toward warehouse/distribution further east within the study area with flex industrial space close in to NREC.

Lawrenceville has particular opportunities based on its continued gains in popularity as a location for technology companies tied directly to the hub of educational institutions. NREC's presence provides an anchor for technology companies. Carnegie Mellon University (CMU), the University of Pittsburgh and, to a lesser extent, other educational institutions (Duquesne University) foster the development of new digital and robotics

technologies, which increases the demand for office and R&D space. The partnership among CMU and the University of Pittsburgh has accounted for more than 450 joint research projects since 2006, attracting over \$57 million in federal and private funding for these joint projects. The partnership between CMU and University of Pittsburgh created an innovative technology transfer agreement that fosters collaboration. Jones Lang LaSalle recently published the *High-Technology Industry US Office Outlook Fall 2011*, which names Pittsburgh as an emerging high-tech market.

Though the technology industry is expanding around the world, it has shown great propensity for clustering in a select set of geographic locations. This clustering is driven largely by the need for a specialized labor pool, advanced science, industry experience and financing. Human capital is the most critical resource; it is important to be in a location that can attract the talent, offering a good quality of life, good employment opportunities among other similar firms, continuing education opportunities and other amenities. Most competitive clusters of technology companies have developed near major research universities for access to researchers, graduate students and specialized equipment.

Over the last decade, four to five private companies that began at NREC moved up or graduated to larger spaces within the Chocolate Factory, Ice House studios or private space within the target zone. Examples of this success includes Re² and Redzone, before it was purchased by another company. In the future, the target zone within Lawrenceville has the opportunity for additional technology firm development. It is constrained primarily by the limited inventory of suitable and affordable spaces.

The presence of companies drawn to the area shows the attractiveness of Lawrenceville. Ever Power, which employs 75 people, grew to 10,000 square feet of space in the Chocolate Factory. EverPower, headquartered in New York City, is a developer of utility grade wind projects. In 2009, when EverPower selected the target zone area for its technical operations the company founder emphasized the importance of the employee base of engineering talent from CMU and the University of Pittsburgh. Companies spun off from Pittsburgh educational anchors include Aquion, which opened its operations in 2010 after receiving \$5 million from the Department of Energy to match private investment funding of the CMU spin-off. Over time, other similar technology companies will emerge.

The technology industry's locational patterns reflect the critical life cycle stages for technology companies. In the initial stages of development, the company's efforts typically focus on research. Their staffing is relatively small and heavily oriented to research with staff consisting of faculty and students from local institutions or recent graduates. At this stage, proximity to universities and institutes is highly valued. Access to expensive equipment is also important to start-ups that cannot afford to buy their own. In this sense a location within NREC itself or the nearby Chocolate Factory or Ice House attracts a large number of companies. Facilities are smaller and company requirements change quickly. Incubator facilities which offer inexpensive, flexible space and business support services can be very important to companies at this stage.

As these new technology companies mature and move beyond the start-up stage, company founders who often come from local universities, build on ties to the university to further develop new innovations with potential commercial value. At this stage, proximity to their institutional laboratory provides major time savings while also providing access to a valuable workforce of highly trained graduate students.

At maturity, technology firms change ownership and frequently are bought out by large companies able to commercialize and manufacture the products. Acquisition by a major technology company does not necessarily mean that the company leaves its original location. The importance of retaining the technologically savvy talent in an environment that encourages further innovation leads many companies to remain in place after acquisition rather than being absorbed into the major corporation and a corporate environment that could stultify innovation and entrepreneurial thinking. This example held true for Redzone, which remained in the target zone area even after acquisition. One issue for Lawrenceville companies is the limited supply of larger facilities suitable for company expansion into manufacturing.

With the potential for business expansions of existing tech-based firms securing additional federal grant awards, the mid-term pace of flex office/R&D/industrial demand will likely reflect a positive net absorption averaging 35,000 to 45,000 square feet per year, spurred by further expansion of the existing NREC and related operations. The area will continue to appeal to a wide variety of companies serving primarily this technology development enclave and, to a lesser extent, the local community. ⁶

Along the Allegheny riverfront some older industrial space has converted to office space as the pressure for one-story flex office has grown. This trend is most significant in the southern section of Lawrenceville closest to NREC.

Based on the growth within industry sectors and the projected job mix, the Lawrenceville and Strip District could absorb between 125,000 and 175,000 square feet of industrial space by 2025. This development potential consists of both manufacturing and distribution industrial space.

Based on the estimates of employment growth from the Southwestern Pennsylvania Commission, Lawrenceville and Strip District could be expected to capture 800,000 to 900,000 square feet of new office and industrial space by 2025, shown in Table 10. However, absorption trends and growth from the emerging technology sector provides additional potential demand. Potential absorption is projected to total 1 to 1.2 million square feet of space in the Strip District and Lawrenceville.

⁶ It is important to note that the office market for medical office space associated with the presence of University of Pittsburgh Medical Center (UPMC) exists near the hospital itself but has not spilled over to the surrounding commercial community or the Study Area.

Table 10. Supportable Industrial & Office Space by 2025			
Type of Space	Strip District	Lawrenceville	Total
Based on Job Growth			
Traditional Industrial	74,700	75,800	150,500
Flex Industrial	128,900	130,800	259,700
R&D Office	26,400	160,500	186,900
General Office	200,900	11,200	212,100
Neighborhood Office	13,900	9,400	23,300
Total	444,800	387,700	832,500
Total Projected Demand			
Traditional Industrial	74,700	75,800	150,500
Flex Office/ R&D/Industrial	171,000	408,000	579,000
General Office	331,000	11,000	342,000
Neighborhood Office	17,000	11,000	28,000
Total	593,700	505,800	1,099,500
Source: Southwestern Pennsylvania Commission, Cycle 9: Partners for Economic Solutions,			
2011.			

III. Niche Markets

Many neighborhoods throughout Pittsburgh search for unique ways to brand their retail districts and build on distinct commercial users. These efforts reflect the principles that highly-specialized and clustered stores and possibly restaurants can attract customers from wider trade areas and/or attract residents from a broader market area to live, work and stay in the target area. Essentially, a niche market becomes a destination for customers, residents and employers.

The niche market section of this report describes existing conditions and the potential for new development for specific uses related directly to the riverfront access. These uses would not be viable in the Pittsburgh study area without the Allegheny riverfront. This unique asset cultivates the destination appeal and drives further market potential.

Maritime Recreation Market

According to the U.S. Recreational Boat Registration Statistics report prepared by the National Marine Manufacturers Association, boating continues to gain momentum as a recreational activity with an estimated 65.9 million boat users nationwide, with more than 16.74 million boats. In 2010, NMMA estimated that 14 percent of US households owned a boat. Trends in boating indicate a desire for larger and more expensive boats, although 95 percent of registered mechanically propelled boats were less than 26 feet in length. Additionally, the growth in non-motorized recreational water-related activities continues to climb, even as time constraints and the current economy impacted the habits of boat owners in 2009.⁷

The study area waterfront land is home to industrial users and one marina. On the river's opposite shore several marinas/boat houses or rowing facilities exist as well as community open space. The availability or shortage of certain types of maritime uses can dictate price points, occupancy levels, and importantly, an area's competitive position for future maritime uses.

In the City of Pittsburgh, the Allegheny River, which flows from the north east and the Monongahela River, flowing from the south east, meet to form the Ohio River. These two dominant rivers served as corridors of commercial commerce for decades, shaping the landside activity along these waterways. Now as the market shifts away from traditional industrial activity with the use of trucks and rail, interest in using the Allegheny River for recreational purposes increases and the stretch of riverfront within the study area gains new significance.

PES surveyed a select number of the marinas, yacht clubs and boat houses accessible along the Allegheny River to gain an understanding of the choices boaters face when looking to dock their boats and those that non-propelled recreational water users, such as rowers, face when searching for land side space for boat storage.

⁷ National Marine Manufacturers Association, "2009 Statistical Abstract (Table 6.8), and 2010 US Recreational Boat Registration Statistics Report, 2010.

Boaters in the Pittsburgh metro area have many choices when it comes to choosing a facility to dock their boat. Interviews with Pittsburgh marinas and yacht clubs indicated that boat owners are willing to drive up to an hour to access their boat, with most patrons coming from Pittsburgh, Murrysville, Johnstown and Wexford. When distance from home is not the biggest deciding factor, boat owners typically consider the distance of the marina or club to open waters for recreational activities, the proximity to boat-accessible goods and services, the availability of on-site services and/or the security of the marina or club facilities, as well as countless other individual preferences.

Within the competitive market along the Allegheny River many of the competitive marinas reported availability of additional slip rentals with occupancy rates ranging from 50 to 90 percent. None of the marinas interviewed had waiting lists. In fact many of the owners detailed the recent economic downturn as a problem and a reason for the decline in boating throughout the Pittsburgh region. According to the NMMA boat registration declined nationally by 2.2 percent nationwide in 2010.

The two most competitive marina operations, Fox Chapel and Aspinwall Boat Club offer nearly all the services that a boater would look for, though there are limited restaurants or public docks along this stretch of the Allegheny River. As the largest marina Fox Chapel Sea Ray Marina has approximately 360 slips with electric hook up, pump out and general repair and maintenance services. Both Fox Chapel and Aspinwall Boat Club provide standard land side amenities, including general store, showers, telephone. Along the Allegheny River, Fox Chapel, Aspinwall and Brilliant Boat Club all offer dry dock storage, allowing boat owners an alternative to moving their vessel off-site during winter months. Many operators reported little demand for transient slip usage.

More specifically, monthly slip fees along the Allegheny River can range from \$25 to upwards of \$75 per month, varying based on the size of the vessel and services bundled into the fees (e.g., electric). These rates can increase dramatically for larger slips, from 70 to 100 feet, as they are generally charged at least \$1 or \$2 more per foot, but only Fox Chapel has the capacity for these large vessels.

Non-motorized vessels, which include kayaks, canoes, and rowing vessels, present a new opportunity for outdoor recreation. According to the Outdoor Industry Association, watersports continued to gain in popularity as white water kayaking increased by 35 percent and sea/touring kayaking gained an impressive 21 percent over 2009 levels.⁸ The Pennsylvania Fish and Boat Commission designated the Allegheny River Trail as a modern water trail which provides safe non-motorized boat launches and easy shore access for water enthusiasts.

The Three Rivers Rowing Association (TRRA) founded in 1984 offers a community-based rowing and paddling club with access to rowing, dragon boating and kayaking programs. TRRA members include 15 high school and five local college teams as well as individual community members and teams. TRRA facilities include its recently expanded operation at Washington's Landing and the Millvale Training Center. The boathouses all contain

⁸ The Outdoor Foundation, 2011 Outdoor Recreation Participation Report, Boulder CO, <u>www.outdoorfoundation.org</u>.

training facilities and locker rooms. TRRA was named US Rowing Club of the Year in 2010 an honor first received in 2002. TRRA's membership includes an estimated 400 active rowers and paddlers that participate year round. These members are predominantly female (57 percent) and 55.4 percent are between the ages of 41 to 60 years old. TRRA estimates that 15.3 percent are more than 60 years old. TRRA's junior members, which include participants that do not have their own school rowing team, travel well over 15 miles to participate in water-related recreation. In total TRRA estimates more than 2,590 individuals participate from throughout the Pittsburgh region, which does not account for the more than 4,000 competitors attending the annual Head of the Ohio Regatta and Dragon Boat Challenge. Even with the recent additions to the Washington Landing's Operations facility, representatives from TRRA would be happy to explore the potential of an additional location along the Allegheny River.

From that review, PES determined the existing market conditions and potential demand for additional maritime-related facilities. Unfortunately, locating a new marina or yacht club may be challenging in the current economic climate and likely to be a better use in the long-term. The expansion of non-motorized operations such as a new boat house may provide a better alternative along the Allegheny River considering the popularity of the TRRA operations and demand for additional space. An example of the potential opportunities is the investment of Oklahoma City in the OKC Riversport along the Oklahoma River, which resulted in the construction of the white water river course for competitive rowing. This investment resulted in a rich recreation attraction adjacent to downtown Oklahoma City for college competitions and national regattas. The new river course allows for Olympic training opportunities. This investment including the construction of the Chesapeake boathouse complex and full scale spectator facilities with necessary parking and gathering spots designed to watch competitions. A similar type of

facility or a smaller scale expansion could open opportunities for the Allegheny River and the Pittsburgh region. These new maritime-related facilities may include kiosk operations or small retail stations (less than 3,000 square feet) for the rental of kayaks or canoes.



Recreation-Related Uses

Outdoor recreation continues to grow in popularity as the new generations of households seek ways to remain fit and healthy with outdoor activity. Over the last four years the economic recession has not damped the level of recreation activity, according to data from the Outdoor Industry Association, 60 percent of all recreation participants spent about the same amount on indoor and outdoor sports and recreation as in previous years. While outdoor recreation continues to fuel businesses, Pittsburgh's cold climate encourages many individuals to supplement their outdoor recreation and fitness activities with access to indoor fitness clubs. First-class fitness facilities attract health-conscious residents and daytime employees in the Golden Triangle, which boasts more than 12 different fitness alternatives. LA Fitness plans to open first location in Bloomfield in 2012 with a 65,000 square-foot facility.

A review of fitness and sports clubs throughout the Lawrenceville and Strip District neighborhood suggests a strong supply of existing operations, ranging from standard sports clubs to elite weight training facilities.

This type of use might provide a strong anchor for the riverfront recreation activity and connect well with the employee base and residents for the target area. Although a large-scale fitness center may be less well suited for the area, other small scale operators of health and fitness clubs may work well as an additional non-residential user that can fit into adaptive warehouse space.

Pet Services

Pet ownership and the pet products and services industry continue to grow nation-wide. The American Pet Products Association (APPA) performs an annual national pet owner survey. In 1988, 56 percent of US households owned a pet, compared to 62 percent in the 2011-2012 survey results. This increasing pet ownership rate accounted for approximately \$48.35 billion in spending annually for food, services and veterinarian care for these pets. Statistics on pet ownership vary based on the survey methodology and particular criteria. According to Experian Simmons, half of all US households owned dogs or cats in 2010. The burgeoning pet products and services industry often locates in neighborhoods near to their customers. Grooming and boarding services consisted of \$3.15 billion in 2010 and is estimated to add another \$50 million this year, based on data from APPA⁹.

According to pet owner data published by Packaged Facts in 2005, one in three pet owners could be categorized as affluent¹⁰. These households consist of single individuals with incomes of more than \$50,000, two-person households with incomes of \$75,000 or more and three-person households with incomes of \$100,000 or more. Demographics suggest that this trend in more wealthy households owning pets persists today with empty-nesters, single professionals and childless couples increasingly choosing to own animals. As a nation the popularity of telecommuting or working from home is growing, enabling pet ownership for new households.

Increasingly pet owners branch out from standard product offerings embracing many of the same consumer trends for high quality products, unique and stimulating environments, and exemplary services for pets. Emerging trends in pet products include locally sourced organic meat, vegan snacks, and gourmet meals with nutritional supplements in an effort to support longevity in pets. Pet stores now offer a variety of apparel items for all shapes and sizes of animals with prices similar to human apparel costs. Beyond the spending on high-end food and apparel products, many pet owners pay top dollar for medication to treat depression as well as high-tech cancer and cosmetic surgery. Many pet owners think of their pet as a member of the family; a poll by Harris Interactive conducted online in May of

⁹American Pet Products Association (APPA) website, Industry Trends and Stats; Pet Owners Survey: www.americanpetproducts.org October, 2011.

¹⁰ Market Research, Packaged Facts, "Market Trends Premium Pet Demographics and Product Purchasing Preferences", 2006 report.
2011 showed that 91 percent of pet owners think of their animal companion as family members. $^{\rm 11}$

Day care and kennel facilities for dogs, cats and other pets work well as transitional users in industrial space. Within the Lawrenceville and Strip District community there are only a few doggie day care providers and veterinarians. A brief survey of local operators suggests the ability to add a stable business with the potential to utilize the trail and park facilities along the Allegheny riverfront would be viable. The scale of this operation would depend on the independent provider's capacity to reach a broader market and consideration of accessibility to the specific location within the Study Area. We would anticipate that a veterinarian facility could account for 10,000 to 15,000 square feet depending on overnight kennel facilities and that a pet day care operation for dogs could range from 5,000 to 7,500 square feet, varying based on access to outside open space.

In conclusion these niche users, maritime/recreation-related, fitness and pet facilities represent a total demand for between 50,000 to 70,000 square feet starting after the near-term development of more residential products.

Hotel Market

As an industry, lodging began to serve long distance travelers unable to return home within one day and in need of a place to stay. This travel typically relates to business but also includes visitors to a region for a variety of reasons (e.g., passing through, visiting family, tourism, visiting higher education facilities). The hospitality industry links closely with the economy and follows its highs and lows, especially as it relates to business travel.

Hotel development needs easy access by its customer base and tends to locate on well traveled routes or near employment centers and tourist attractions, depending on the market segment of the particular hotel. Visibility from the highway, aesthetics of the area and perceived safety rank top in factors considered by hotel operators when selecting a location. Collocation with retail, restaurants and entertainment enhances a hotel's appeal to potential customers.

Within the broader Pittsburgh area hotels center on visitors (business and tourists) and employment clusters. Visitors attracted to downtown Pittsburgh as a tourist location or for business travel purposes find a range of hotel options from upscale inns offering a boutique experience with less than 100 rooms to new high-end hotels. Other sections of Pittsburgh attract hotel patrons based on the existing employment base, which might include large institutional users (such as hospitals or educational institutions). Pittsburgh's hotel inventory includes a series of hotel clusters in either business activity centers or tourist destinations including the Central Business District (CBD) or Golden Triangle, Shady Side/ Oakland, Pittsburgh's South Side and North Shore.

The Allegheny Riverfront Green Boulevard Study Area includes the Lawrenceville neighborhood and Strip District. Lawrenceville has an industrial business base, Main

¹¹ Harris Interactive, "Pets Really Area Members of the Family", May 2011,

www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articlesID.

street commercial district along Butler and a moderate- to low-density residential neighborhood. Lawrenceville is an attractive business location and a great residential location but has no strong base to attract hotel customers. The Strip District and surrounding neighborhood are located only a short distance from the downtown activity center with a stable business base and upcoming residences.

The following map depicts the center of hotel activity in close proximity to the Study Area for the Shady Side/ Oakland neighborhood, downtown Pittsburgh, North Shore and South Shore areas:





The existing inventory of more than 4,880 hotel rooms within the broader market area consists of upscale hotels with food and beverage service and a few independent hotel options. The inventory includes those hotels in downtown Pittsburgh and Shady Side/Oakland as the market context for those hotels relates to the Strip District's potential for new hotel development. The inventory also includes those hotels on the North Shore and Southside which relate to specific tourist attractions.

Table 11. Selected Hotel Inver	ntory for Pi	ittsburgh,	2011
	Number	Year	
Property Name	of Rooms	Opened	Туре
Downtown Pittsburgh			
Doubletree Hotel Pittsburgh Downtown	308	1952	Upscale
Westin Convention Center Pittsburgh	616	2005	Upper Upscale
Renaissance Pittsburgh Hotel	300	2001	Upper Upscale
Hampton Inn Suites Pittsburgh Downtown	143	2005	Upper Midscale
Blush Edison Hotel	72	2000	Independent
Fairmont Pittsburgh	185	2010	Luxury
Omni William Penn Hotel	596	1916	Upper Upscale
Wyndham Grand Pittsburgh Downtown	712	1959	Upper Upscale
Courtyard Pittsburgh Downtown	182	2005	Upscale
Cambria Suites Pittsburgh @ Consol Energy Center	142	2005	Upscale
Marriott Pittsburgh City Center	402	2005	Upper Upscale
Shadyside, Oakland Area Hotels			
Springhill Suites Pittsburgh Bakery Square	110	2010	Upscale
Quality Inn University Center Pittsburgh	119	1964	Midscale
Hampton Inn Pittsburgh University Center	132	1991	Upper Midscale
Holiday Inn Pittsburgh @ University Center	251	1988	Upper Midscale
Residence Inn Pittsburgh University Medical Center	174	2000	Upscale
Wyndham Pittsburgh University Place	198	1970	Upper Upscale
Courtyard Pittsburgh Shadyside	132	2003	Upscale
Mansions On 5th Hotel	13	2011	Independent
Shadyside Inn & Suites	100	1951	Independent
North Shore Hotels			
Hyatt Place Pittsburgh North Shore	178	2010	Upscale
The Priory Hotel	42	2005	Independent
Springhill Suites Pittsburgh North Shore	198	2005	Upscale
Residence Inn Pittsburgh North Shore	180	2010	Upscale
Southside			
Springhill Suites Pittsburgh Southside Works	115	2010	Upscale
Holiday Inn Express & Suites Pittsburgh South	125	2003	Upper Midscale
Source: STR Global, 2011; Partners for Economic Solutio	ns, 2011.		

Future Hotel Potential

Hotel demand relates directly to demand drivers such as employment centers, tourist attractions or large multi-modal transportation hubs (airports). The target zone area and broader study area will begin to create a cluster of activity with infill development from residential and commercial users over the near term (2012 to 2017). The existing and future planned development concentrated in the Strip District along with the existing amenities and neighborhood environment would accommodate the development of an additional boutique hotel operation in close proximity to the water. Within the Lawrenceville submarket, a new hotel will need an even wider draw to attract sufficient hotel guests. On average, hotels require an annual occupancy rate above 68 percent to return a profit.

The Strip Center activity and potential expansion of residential products in the next five years certainly provide an additional market for hotels. This new market source would support the construction of a new hotel with between 150 to 175 rooms.

In the near to mid-term, there is no demonstrable need for additional hotels in the Lawrenceville submarket. Over the longer term from 2018 to 2028, Lawrenceville may be able to support one new hotel developed within a walkable environment with easy access to the Allegheny riverfront.

IV. Residential Market

The following section provides data on the housing characteristics in Lawrenceville, the Strip District and the City of Pittsburgh. Internet research and direct interviews with residential real estate professionals (including brokers/agents, housing builders and developers) on current housing market characteristics augments information from the 2010 Census and the U.S. Department of Housing and Urban Development to provide a comprehensive characterization of current, local housing trends.

As defined in the previous market sections, the residential market analysis considered the characteristics of Lawrenceville and the Strip District separately. In some instances aggregated information provides more detail and insight into housing conditions. At times information available for a larger geography or neighborhood segment provides market insight even when the boundaries exceed the Allegheny Riverfront Green Boulevard study area.

Housing Stock

The 2000 U.S. Census breaks down the number of housing units in each of the market areas by the number of units within each structure, as shown in Appendix Table A-7. In total the entire study area contains an estimated 7,230 housing units. Most of the units are located in the Upper Lawrenceville area with 2,718 units. The majority of housing units are single-family attached units representing approximately 40 percent of the housing stock, with less than one percent in multi-family structures. In the Strip District market area, the smaller neighborhood has 197 units with a more even distribution between single-family and multi-family units. In the Strip District approximately 27 percent of units are in buildings that contain 10 or more units, compared to 15 percent in the target area (PMA) and 17 percent in the entire City of Pittsburgh.

The following figure shows a breakdown of Study Area housing by the number of units in each structure, demonstrating that single-family attached housing units dominated the Lawrenceville area and showing the larger percentage of multi-family units in the PMA.



Appendix Table A-8 shows housing units by the year they were built up until the year 2000. The vast majority of market area housing is older stock, built at least 45 years ago. In fact, the median year in which PMA housing was built is 1930, according to the 2000 Census. This compares to the Upper Lawrenceville (SMA-B), whose median year built was 1933, and the larger metro area median year built of 1954. Pittsburgh's modest growth in the number of housing units built between 2000 and 2010, is reflected in the Market Areas which contain newly built units in the Strip District such as the Otto Milk building and Cork Factory, capitalizing on the historic industrial fabric by converting former commercial buildings to chic residential enclaves. In Lawrenceville some of this new residential development included infill opportunities for new townhouse development.

Appendix Table A-9 shows owner-occupied housing stock by value in 2010. Overall, the Pittsburgh housing stock tends to have much lower values than in the larger region. This is reflected in its median housing value of \$92,037, compared with \$131,028 in the Pittsburgh Metro Area. In the PMA the housing stock is smaller, largely historic employee housing for the nearby industrial waterfront with predominantly low owner-occupied housing value of \$61,195. This existing supply of affordable housing stock already present within the PMA suggest a need to add more affluent housing products to create a more mixed-income environment. In addition, the renovation of existing properties for current low- to moderate-income households may further enhance the neighborhood while maintaining a critical supply of affordable for-sale housing. Reflecting the emergence of a hip residential market in the Strip District, more than one in four housing units is valued at \$350,000 or more and the median housing value is well above the region at \$156,250. In the traditional residential section of Upper Lawrenceville (SMA-B) built in the late 1930s, 93.3 percent of housing is valued below \$150,000.



The U.S. Bureau of the Census provides data on the new housing units authorized by annual building permits issued by the number of units in the structure. Citywide, Pittsburgh saw more than 2,000 new housing units authorized by building permits from 2000 through 2010, slightly less than one-third of which were multi-family units. As in most markets, new construction slowed from peak records but in Pittsburgh the highest level for permits was in 2002 with 641 units permitted and the low point for permit activity reached 65 units in 2005. These data only reflect those residential building permits issued for new construction. In Pittsburgh much of the residential resurgence resulted from rehab of existing housing stock.

National media and several residential rating entities promote Pittsburgh as a highlydesirable residential address. In June of 2010, *Forbes.com* named Pittsburgh as a top ten city to raise a family. Several neighborhoods attracted new households drawn by the appeal of major institutional anchors (Shady Side, Oakland, Southside works), access to the riverfront, the city's emerging downtown and proximity to jobs. The affordability of Pittsburgh's housing relative to much higher prices in the suburban market attracted homebuyers who could enjoy the city's urban neighborhoods and downtown amenities. In fact, Pittsburgh's Downtown Partnership organization markets the low cost of housing in the city, which it estimates at 30 percent below the national average.

Data from the Pittsburgh Downtown Partnership suggest there are 5,000 residents currently residing in downtown. The surge in new residents moving into the downtown triangle has grown steadily during the last decade. Projects like Piatt Place, The Carlyle, L'Enfant Lofts and 3 PNC Place were able to pre-lease many of their new units while still under construction. L'Enfant Lofts, a condominium project, sold out only months after construction began. The City continues to promote homeownership with a tax credit for condominium owners and other incentives to keep new residents investing for the long term by becoming owners.

When reporting these favorable market conditions for Pittsburgh's housing stock the needs of existing low- to moderate-income households should be profiled as well. The U.S. Department of Housing and Urban Development (HUD) detail housing needs in brackets of extremely low, very low, low and moderate incomes defined in terms of percentages of area median income (AMI) and adjusted by household size. Extremely low income is defined at the 30-percent level with a family of four making up to \$19,500 and a family of two up to \$15,600. Maximum incomes for very-low income households at 50 percent of AMI are \$32,450 for a family of four. Low-income households at 80 percent of AMI can make up to \$51,900 for a family of four and \$41,500 for a family of two. Many individuals and families have incomes much lower than this, subsisting on Supplemental Security Income (SSI).

For-Sale Housing

Recent residential sales activity data were compiled using both Internet research and a new homes database, RealStats, a local real estate information service, to profile the sales activity.

A review of home sales across the Pittsburgh Region¹² shows a drop of approximately two to three percent in sales volume for existing homes from approximately 1,710 units in March 2010 to 1,663 units in March 2011. The average sales price for homes rose over the course of the last year, with an average price of \$160,368 in August of 2010 compared to \$173,359 just 12 months later. It is important to note that the federal tax credit incentives for firsttime home buyers dramatically increased the number of homes sold for less than \$150,000, decreasing the average price of homes in 2010. While sales volume decreased in 2011, the drop off was not as dramatic in Pittsburgh as in other similarly sized cities. In fact, a comparison of March 2010 to March 2011 shows only a 3.3-percent drop in sales volume. 44

As of the second quarter of 2011, there were approximately 161 condominium units under construction with an additional 19 units permitted for construction in upcoming months. This reflects the stable demand for condominium units in the downtown area.

The number of home sales shows not only the balance between supply and demand in any given market, but the ability of individuals to purchase new homes. Of the 181 units sold in the Study Area from May to October 2011, data on the number of bedrooms per unit were available for only 76 percent (or 138 sale records), 46 percent contained two bedrooms or less, followed by three-bedroom units with 41 percent of units sold.

As homeowners across the country struggle with high unemployment rates, economic displacement, and the recent housing crisis, the neighborhoods examined in Pittsburgh are not immune. Current information on home foreclosures was obtained from Realtytrac for zip codes 15224, 15222, 15219 and 15201, which surround the Study Area. In total there are currently 112 foreclosed homes in the four zip codes compared to the city of Pittsburgh with 1,465 homes foreclosed with an average sales price of \$84,002. When comparing the foreclosure rate – the percentage of foreclosed units by area – Table 12 shows that the individual zip code areas have a higher current rate than the city or the state, but still below the foreclosure rate seen nationally. Foreclosure activity appears to be falling over the past six months in all areas, unlike trends in other major U.S. cities.

Table 12. H	Foreclosure Data	a, 2011							
	Number of Foreclosures in October 2011	Foreclosure Rate							
Geography									
15224	24	0.00%							
15222	21	0.05%							
15219	18	0.19%							
15201	49	0.08%							
Pittsburgh	n/a	0.05%							
Pennsylvania	n/a	0.07%							
National	n/a	0.18%							
Source: Partners for Economic Solutions, 2011.									

¹² Pittsburgh Region includes: Allegheny, Beaver, Butler, Washington and Westmoreland counties.

Pittsburgh's affordable housing used to be an attractive draw for first-time homebuyers and others in the ownership market. Because the larger region suddenly has a lot more affordable housing, the competition for this market has increased. With such low base prices for a property in the Study Area, homeowners can purchase a property, gut the home and renovate for the same cost as purchasing a newly constructed townhouse. Private investors are able to purchase and resell homes in the Lawrenceville community with regular success. Demand for renovated townhouses with high end finishes results in sales between \$200,000 to \$325,000, varying based on the size and location.

In many instances this affordable housing stock needs significant investment and repair. The renovation of these housing units highlights more promise for continued reinvestment in Lawrenceville but should be balanced against the potential displacement of low- to moderate-income households. To preserve the existing supply of affordable housing, consideration must be given to a series of programs and public interventions that would stabilize the supply of affordable housing. These programs could include homebuyer assistance and renovation programs targeted to both the for-sale and rental housing stock in Lawrenceville.

The condominium market continues to struggle for market penetration. The city's stock of affordable townhouses make it more challenging to market condominium apartments. Pittsburgh does not have a long history with condominium development and many real estate professionals doubt the depth of this market in Pittsburgh. However, sales of condominiums close in to the downtown reflect demand. The successful examples of condominium developments in the Study Area are located primarily in Strip District. The Otto Milk building represents a strong example of an adaptive reuse converted to for-sale condominium units with sales averaging \$250,000. The building also offers high end penthouse units that sell for slightly less than \$1 million.

Competitive Residential Projects

Overall economic conditions in the national and regional marketplace are impacting local development and real estate investment. There are limited residential construction projects in this section of Pittsburgh and Allegheny County. The majority of new residential projects consists of infill development in popular nearby city neighborhoods. A number of planned and proposed developments are currently underway in these areas, or will be on line over the next 12 months.

- 1. **Oxbridge at South Side** This new provincial-style townhouse development on Pittsburgh's South Side offers two- or three-bedroom homes with prices starting at \$349,000. The project started in 2008 with six new townhouses averaging 1,800 square feet in four stories.
- 2. **Market House** This five-story 54-unit condominium project in the Shady Side neighborhood of Pittsburgh draws on the strength of the adjacent anchor institutions (colleges and hospitals). Opened in 2006, the project offers one- and two-bedroom units ranging from 830 to 1,826 square feet. While the condominium market continues to stabilize, this project's convenient location has strengthened sales volume.

3. **171 South 15th Street- Former St. Adalbert School**. This redeveloped school in the South Side neighborhood of Pittsburgh, includes 14 condominiums built in 1996. The units range from a one-story 1,600 square-foot unit to a two-story loft unit with 2,600 square feet.

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4. Summerset at Frisk Park. This project represents a development outside Pittsburgh's central core that offers several different residential products in a planned development community. The development offers townhouses with two to three bedrooms, averaging \$215 per square foot for 1,700 to 2,200 square-foot homes. The larger single-family homes range in price from approximately \$430,000 to \$600,000. The development phasing has slowed in response to the economic downturn.

Rental Housing

Data on apartment trends from 2^{nd} and 3^{rd} quarter 2011 were obtained from REIS, Inc. for the Bellefield/Shady Side submarket in Pittsburgh. This submarket, in close proximity to the Study Area, reflects the nature of the apartment housing in this broader community. The majority of the apartment complexes in the area are older stock – 71 percent were built prior to 1980. In terms of unit mix, nearly half are one-bedroom units, followed by 36.8 percent two-bedroom units, 9.9 percent efficiency/studios units, and only 3.3 percent threebedroom units. See map below for rental apartment statistic boundaries:



Map 6. Bellefield / Shady Side submarket

Table 13 shows recent rent information for the profiled rental apartment complexes in Pittsburgh that represent a series of apartment products: renovated historic warehouses; older mid-rise apartment buildings; and garden apartment buildings. Average rents in the submarket were roughly 30 to 40 percent higher than rents in Pittsburgh as a whole. When calculated as rent per square foot, a two-bedroom unit in the submarket rented for \$1.06 per square foot as compared to \$0.90 per square foot in Pittsburgh, an approximate 20-percent difference.

Table 13. Unit Mix Rental Details, 3rd Quarter, 2011										
	В	ellefield/Shady	vside	Pittsburgh						
Unit Mix	Average Rent	Average Square Feet	Average Rent/ Square Foot	Average Rent	Average Rent/ Square Foot					
Studio	\$651	486	\$1.34	\$608	\$1.26					
1 Bedroom	\$862	723	\$1.19	\$754	\$1.06					
2 Bedrooms	\$1,174	1,111	\$1.06	\$922	\$0.90					
3 or more Bedrooms \$1,706 1,485 \$1.15 \$1,198 \$0.90										
Source: REIS, Inc, 2011; Partners for Economic Solutions										

Appendix Table A-11 reports information available for individually selected apartment complexes in and near the Study Area. Overall, rents for these particular complexes range from \$0.90 to \$1.30 per square foot depending on the size of the unit and the amenities offered by the community. The more affordable rental properties tend to be older with fewer amenities and offer a valuable supply of rental product for the low- to moderate-income households in the area.

Occupancy rates are well over 95 percent at all of the selected apartment complexes with vacancy rates below three percent. While many leasing agents report that they do not currently have a waiting list, the newer complexes in the Study Area, such as the Cork Factory, have waiting lists. The high occupancy rates, despite slight differences in amenities offered based on year built, demonstrate a continuous demand for rental units in the area.

There are a few examples of rental housing products that may work well for the target zone area:

- Heinz Lofts⁻ These apartment complexes on the North Side consist of five historic H. J. Heinz company buildings, built in 2005. The project has 267 residential units in 67 floor plans. The unique layout of each unit provides one-, two- and three-bedroom units ranging from 573 to 2,020 square feet and rents of \$1.49 to \$1.87 per square feet.
- 2. **Fifth Avenue High School Apartments** The former 110,000 square-foot building was placed on the National Register of Historic Place in 1985. This project includes 65 new apartment loft units with two-bedroom units averaging 1,200 square feet and renting for \$2,000 per month.
- 3. **The New Kenmawr Apartments-** This apartment building on Shady Avenue has approximately 200 units with a 24-hour fitness center and new amenities in renovated units. The apartment building is in the process of renovating units, and the rents vary between \$1.25 and \$2.25 per square foot with higher rents for those renovated units.
- 4. **PMC Property Apartments in former Verizon Building-** The Fortis Property Group plans to complete the renovation of two buildings along Penn Avenue into a single

29-unit residential apartment building with units ranging from 700 to 1,500 square feet. There are four penthouse units with significantly more space, up to 2,400 square feet.

Residential Market Conclusions

Demand for new residential development relates to the projected growth for Pittsburgh households and the existing supply of homes. In Pittsburgh the existing supply of homes includes homes available through resale, foreclosures, and newly built homes. The Southwestern Pennsylvania Commission prepares population and household projections for member jurisdictions. Its projections for Pittsburgh call for a modest gain of less than one percent (0.8 percent) from 2010 to 2015 and a gain of 0.4 percent for the next five years reaching approximately 282,200 households in 2020.

Residential real estate values increased rapidly from 2001 to 2008 nationally. With historically low mortgage interest rates and strong economic performance, housing prices increased more rapidly than general inflation. National indicators show that the housing market overheated with households paying significantly more than affordable prices for housing. The rising foreclosure rates and the use of interest only and other more risky types of mortgages further accelerated the housing market crash. These factors along with the uptick in investor speculations helped widening the gap between rental and ownership housing costs. This over pricing of real estate represented a "bubble effect" for the housing market. When the bubble burst the sudden reductions in housing prices resulted in a slow down for new housing production. Pittsburgh was generally buffered from this market overheating with a more modest increase in values and little decline following the bursting of the housing bubble.

In the first six months of 2010, the federal tax credit spurred home purchases for first-time homebuyers, revealing pent-up demand for new single-family housing in the Pittsburgh Region. Developers believe the slowing of absorption across all product types after the tax credit ended will stabilize in 2012 as the economy's recovery continues at a slower than anticipated pace. Certainly there is always pent up demand for affordable housing products including those available for low-income families and suitable for seniors wishing to age in place.

In the Study Area neighborhoods homebuyers currently have only a few choices when purchasing a newly constructed home, which results in a steady pace of sales for new developments. For-sale demand appears strongest for single-family attached homes due to the built-out nature of these urban neighborhoods.

Using projected growth rates from the Cycle 9 growth projections from the Southwestern Pennsylvania Commission suggests an addition of 350 households to the study area neighborhoods by 2025, representing only a modest 2.0-percent growth. Unfortunately these estimates do not account for the creation of place likely to occur in the Study Area along the Allegheny riverfront. There are likely to be other new households replacing existing households as the renovation of existing attached housing stock continues. This trend will increase and eventually dissipate as the available stock available for renovation decreases. Target clientele for new residential development in the Study Area include several potential customer types including, but not limited to, young singles and couples, beginner families with one child, university affiliates and members of the medical community. The recommended unit mix and tenure for the target zone between 43rd and 48th streets shows a wide divergence from common product sizing in the marketplace. In fact the nature of recent residential activity of new and existing developments in the local area includes redevelopment of existing structures resulting in irregularly shaped floor plans. The best mix of floor plans given current demographic trends, prevailing household incomes and neighborhood attributes unique to the broader community (e.g., proximity to other neighborhoods, accessibility, level of crime, nature of retail and social services, etc.) suggests predominantly one- and two-bedroom units. Because of the success of rental communities in the local area and the limited supply of newly constructed rental options, PES recommends a mixture with only slightly less rental as the optimum tenure for the Study Area. Given the success of renovated townhouses and plans for new projects within the Study Area, single-family attached homes are recommended for any new for-sale construction in the near-term. Once the creation of place is complete and residential infill started, the for-sale market for more risky ventures like condominium products may emerge.

50

Our estimates suggest that new residential development could include 40 to 50 renovated houses annually, 20 to 30 new for-sale townhouses, 15 to 20 condominiums in the Strip District, growing up to 30 total with the creation of place in the target zone and 75 to 85 apartments annually. It is important to note that the higher density residential products along the riverfront may vary in tenure based on the market cycle at time of construction. The projected growth would result in a total demand of 55 percent owner-occupied units and 45 percent new rental units for the Study Area, allowing for vacancies of one percent among owner-occupied units and five percent among rental units. Many of these residential products in the target zone area should incorporate new product offerings not currently provided in the marketplace and discussed in other national examples of former industrial riverfront neighborhoods that transitioned to incorporate residential development. The target audience for these products represents a strong mix of residents from outside the region, including a small percentage of international residents, approximately 5 percent of total demand. These audiences tend to be less risk averse and more willing to accept new residential products in emerging markets. Table 14 details the demand for residential products based on tenure and product type.

Table	e 14. Residential	Demand								
	Near-Term	Mid-Term								
	2012 to 2016	2017 to 2021	Total							
For-Sale										
Townhouses (renovated)	207	202	409							
Townhouses (new)	175	175	350							
Condominiums	100	150	250							
Rental										
Townhouses (renovated)	23	23	46							
Apartments	405	380	785							
Total New Residential	705	560	1,265							
Source: Partners for Econom	Source: Partners for Economic Solutions, 2011.									

Achieving the full level of development supported by the market demand will require the creation of a true neighborhood place, including recreational opportunities and making a connection to the Allegheny Riverfront. In 2005, a study of a Philadelphia neighborhood authored at the Wharton School of Business reported that cleaning and greening of vacant lots can increase adjacent property values by as much as 30 percent and that houses within 0.25 mile (roughly 1,300 feet) of a park exhibit 10 percent higher values than those located further from the park. Building on the architecture of the existing industrial waterfront may create unique environment for residential infill development.

While much of the new residential units will be built to take advantage of the riverfront, the new development of housing on sites formerly used for commercial development and renovation of existing townhouses allow for residential development away from the waterfront. The following table provides a snapshot of the residential development potential for the target zone area from 43^{rd} to 48^{th} streets in Central Lawrenceville.

Table 15. Ta	rget Area Resi	dential Demar	nd							
	Near-Term	Mid-Term								
	2012 to 2016	2017 to 2021	Total							
For-Sale										
Townhouses (renovated)	110	110	220							
Townhouses (new)	150	130	280							
Condominiums	40	75	115							
Rental										
Townhouses (renovated)	10	10	20							
Apartments	180	220	400							
Total New Residential	490	545	1,035							
Source: Partners for Econom	Source: Partners for Economic Solutions, 2011.									

However, not all of the study area will be suitable for new residential development as many locations are surrounded by heavy industrial property. While the private rail line's industrial activity may be limited to business hours and late night activity, coupling and uncoupling creates loud noises. Certainly the uncoupling and storage of any hazardous materials or flammable materials would increase the risk for residential land owners and

reasonable distances would be necessary between these uses. Noise attenuation techniques would need to be incorporated into the construction of new infill residential development. The proximity to these industrial activities should be minimized whenever possible. There are options to build in the noise attenuation of each residential project. The new water amenities will help new riverfront housing and overcome the burden of the industrial activities.

The upper Lawrenceville section of the riverfront east of 60th Street presents a more ideal location for industrial users and does not represent an ideal location for infill residential development.

Appendix Tables

	Table A-1. Population and Age Distribution, and Households by Type, 2010												
	Primary	Market	Secor	ndary	Seco	ndary			Cit	y of	Pittsburg	h Metro	
	Ar	ea	Market	Area A	Market	Area B	Study	Area	Pitts	burgh	Are	a	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Population Trends													
1990	8,517		275		6,254		15,046		369,809		2,468,289		
2000	7,691		266		5,641		13,598		334,563		2,431,087		
2010	6,819		616		5,191		12,626		305,704		2,356,285		
1990-2010 Change	(1,698)	-19.9%	341	124.0%	(1,063)	-17.0%	(2,420)	-16.1%	(64,105)	-17.3%	(112,004)	-4.5%	
1990-2000 Change	(826)	-9.7%	(9)	-3.3%	(613)	-9.8%	(1,448)	-9.6%	(35, 246)	-9.5%	(37, 202)	-1.5%	
2000-2010 Change	(872)	-11.3%	350	131.6%	(450)	-8.0%	(972)	-7.1%	(28, 859)	-8.6%	(74,802)	-3.1%	
Household Trends													
1990	3,899		118		2,572		6,589		153,452		975,557		
2000	3,754		128		2,431		6,313		143,739		995,505		
2010	3,471		403		2,241		6,115		136,217		1,001,627		
1990-2010 Change	(428)	-11.0%	285	241.5%	(331)	-12.9%	(474)	-7.2%	(17, 235)	-11.2%	26,070	2.7%	
1990-2000 Change	(145)	-3.7%	10	8.5%	(141)	-5.5%	(276)	-4.2%	(9,713)	-6.3%	19,948	2.0%	
2000-2010 Change	(283)	-7.5%	275	214.8%	(190)	-7.8%	(198)	-3.1%	(7, 522)	-5.2%	6,122	0.6%	
Population by Age	(2010)												
Under 20 Years	1,024	15.0%	51	8.3%	1,123	21.6%	2,198	17.4%	65,332	21.4%	539,176	22.9%	
20 to 24 Years	615	9.0%	59	9.6%	397	7.6%	1,071	8.5%	42,212	13.8%	150,910	6.4%	
25 to 34 Years	1,472	21.6%	203	33.0%	897	17.3%	2,572	20.4%	51,740	16.9%	273,022	11.6%	
35 to 44 Years	773	11.3%	116	18.8%	613	11.8%	1,502	11.9%	31,990	10.5%	289,655	12.3%	
45 to 54 Years	891	13.1%	70	11.4%	776	14.9%	1,737	13.8%	37,894	12.4%	371,719	15.8%	
55 to 64 Years	786	11.5%	73	11.9%	671	12.9%	1,530	12.1%	34,385	11.2%	324,721	13.8%	
65 to 74 Years	546	8.0%	27	4.4%	347	6.7%	920	7.3%	19,689	6.4%	195,259	8.3%	
75 to 84 Years	434	6.4%	14	2.3%	255	4.9%	703	5.6%	15,115	4.9%	144,874	6.1%	
85 Years and Over	278	4.1%	3	0.5%	112	2.2%	393	3.1%	7,347	2.4%	66,949	2.8%	
Total Population	6,819	100.0%	616	100.0%	5,191	100.0%	12,626	100.0%	305,704	100.0%	2,356,285	100.0%	
Median Age	38.9		34.7		37.7		38.0		33.5		42.6		

Note: Each area contains the following Census Tracts in Alleghany County: Primary Market Area: 603, 901 & 902; Secondary Market Area A: 203; Secondary Market Area B: 1011 & 1018; Study Area: 203, 603, 901, 902, 1011, 1018. Source: ESRI, 2010; Partners for Economic Solutions, 2011.

	Primary Ar	Market ea	Secondary Market Area A		Secondary Market Area B		City of Pittsburgh		Pittsburgh Metro Area	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Tenure, 2010										
Owner	1,514	43.6%	37	9.2%	1,557	66.3%	64,807	47.6%	697,151	69.6%
Renter	1,957	56.4%	366	90.8%	793	33.7%	71,410	52.4%	304,476	30.4%
Total	3,471		403		2,350		136,217		1,001,627	
Households by Size, 20	10									
1 Person Household	1,621	46.7%	246	61.0%	764	32.5%	56,823	39.4%	319,961	31.9%
2 Person Household	1,079	31.1%	123	30.5%	780	33.2%	43,209	30.6%	348,010	34.7%
3-4 Person Household	628	18.1%	28	6.9%	627	26.7%	29,074	23.5%	268,307	26.8%
5+ Person Household	143	4.1%	6	1.5%	183	7.8%	7,111	6.5%	65,349	6.5%
Households, 2010										
Average Household Size	1.93		1.53		2.38		1.92		1.94	
Vehicle Ownership,										
2010 estimate	3,743		142		2,391		143,739		995,505	
None	1,546	41.3%	1,265	33.8%	771	20.6%	1,100	29.4%	479	12.8%
Owns 1 vehicle	1,460	39.0%	1,714	45.8%	1,774	47.4%	1,598	42.7%	1,381	36.9%
Owns 2 or more vehicles	737	19.7%	764	20.4%	1,198	32.0%	1,044	27.9%	1,883	50.3%
Average Vehicles	0.90		0.90		1.20		1.10		1.60	

203; Secondary Market Area B: 1011 & 1018. Source: ESRI, 2010: Partners for Economic Solutions, 2011.

	Table A-3. Tenure by Age of Householder, 2000															
	P	rimary M	arket Are	a	Sec	ondary M	ary Market Area A			ondary M	arket Are	a B		City of Pittsburgh		
	Ow	ner	Rer	ter	Ow	ner	Ren	ter	Ow	ner	Rei	nter	Ow	ner	Renter	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Age of Household	ler															
15 to 24 years	21	1.4%	195	10.0%	1	2.7%	27	7.4%	18	1.2%	104	13.1%	856	1.3%	14,300	20.0%
25 to 34 years	206	13.6%	578	29.5%	-	0.0%	146	39.9%	221	14.2%	259	32.7%	7,313	11.3%	20,647	28.9%
35 to 44 years	207	13.7%	248	12.7%	10	27.0%	83	22.7%	197	12.7%	146	18.4%	9,073	14.0%	9,254	13.0%
45 to 54 years	299	19.7%	261	13.3%	-	0.0%	54	14.8%	327	21.0%	132	16.6%	13,238	20.4%	9,411	13.2%
55 to 64 years	305	20.1%	234	12.0%	15	40.5%	39	10.7%	334	21.5%	91	11.5%	14,659	22.6%	7,660	10.7%
65 to 74 years	223	14.7%	190	9.7%	5	13.5%	10	2.7%	206	13.2%	31	3.9%	9,001	13.9%	4,598	6.4%
75 to 84 years	169	11.2%	137	7.0%	5	13.5%	6	1.6%	174	11.2%	21	2.6%	7,516	11.6%	3,480	4.9%
85 years and over	84	5.5%	114	5.8%	1	2.7%	1	0.3%	80	5.1%	9	1.1%	3,151	4.9%	2,060	2.9%
Total	1,514		1,957		37		366		1,557		793		64,807		71,410	
Note: Each area contains the following Census Tracts in Alleghany County: Primary Market Area: 603, 901 & 902; Secondary Market Area A: 203; Secondary Market Area B: 1011 &																
Source: 2000 U.S. Census: Partners for Economic Solutions, 2011.																

	Table A-4. Households by Income, 2010 Estimates											
	Primary Market Area		Secondary Market Area A		Secondary Are	y Market a B	Pittsb	urgh	Pittsburgh Metro Area			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Household Incomes												
Less than \$10,000	586	16.7%	9	2.3%	206	9.2%	18,634	13.7%	73,916	7.5%		
\$10,000 to \$14,999	297	8.5%	16	4.1%	158	7.1%	8,816	6.5%	46,370	4.7%		
\$15,000 to \$24,999	773	22.0%	82	20.8%	271	12.1%	19,592	14.4%	119,987	12.2%		
\$25,000 to \$34,999	401	11.4%	26	6.6%	292	13.0%	16,430	12.1%	111,617	11.3%		
\$35,000 to \$49,999	416	11.8%	5	1.3%	317	14.1%	18,445	13.6%	145,392	14.7%		
\$50,000 to \$74,999	599	17.1%	152	38.6%	460	20.5%	23,894	17.6%	204,267	20.7%		
\$75,000 to \$99,999	293	8.3%	66	16.8%	354	15.8%	17,146	12.6%	155,923	15.8%		
\$100,000 to \$149,999	112	3.2%	26	6.6%	124	5.5%	7,719	5.7%	82,809	8.4%		
\$150,000 to \$199,999	12	0.3%	11	2.8%	24	1.1%	2,445	1.8%	22,706	2.3%		
\$200,000 or More	23	0.7%	1	0.3%	35	1.6%	2,765	2.0%	22,990	2.3%		
Total Households	3,512		394		2,241		135,886		985,977			
Median Household Income	\$26,964		\$62,608		\$42,838		\$38,437		\$49,505			
Mean Household Income	\$39,243		\$61,066		\$54,080		\$52,533		\$61,949			

 Note: Each area contains the following Census Tracts in Alleghany County: Primary Market Area: 603, 901 & 902; Secondary Market Area

 A: 203; Secondary Market Area B: 1011 & 1018.

 Source: ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-5. 2008 Geographic Mobility in the Past Year by Tenure											
		City of Pi	ttsburgh			Pittsburgh	MSA				
	Own	ner	Ren	ter	Owner		Rent	er			
Number Percent Number Percent Number Percent Number											
Geographic Mobility											
Same house 1 year ago	146,133	92.6%	86,330	68.2%	1,616,504	94.5%	392,829	71.4%			
Moved within same county	7,779	4.9%	$26,\!674$	21.1%	61,222	3.6%	108,004	19.6%			
Moved from different											
county within same state	1,015	0.6%	4,443	3.5%	16,526	1.0%	25,065	4.6%			
Moved from different state	2,551	1.6%	6,205	4.9%	13,816	0.8%	19,613	3.6%			
Moved from abroad	326	0.2%	2,993	2.4%	2,999	0.2%	4,849	0.9%			
Total	157,804	100.0%	126,645	100.0%	1,711,067	100.0%	550,360	100.0%			
Source: American Community Survey, 2009: Partners for Economic Solutions, 2011											

	Table A-6. Employed Population Aged 16 and Over by Industry and Occupation, 2010												
	Primary M	rimary Market Area Seco		arket Area A	Secondary M	arket Area B	City of Pittsburgh		Pittsburgh MSA				
Industry/ Occupation	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Total	2,808	100%	328	100%	2,353	100%	141,203	100%	1,124,913	100%			
Agriculture, Mining	-	0.0%	-	0.0%	-	0.0%	282	0.2%	12,374	1.1%			
Construction	143	5.1%	13	4.0%	118	5.0%	5,366	3.8%	66,370	5.9%			
Manufacturing	140	5.0%	20	6.1%	78	3.3%	5,225	3.7%	92,243	8.2%			
Wholesale Trade	22	0.8%	12	3.7%	61	2.6%	2,683	1.9%	37,122	3.3%			
Retail Trade	368	13.1%	33	10.1%	332	14.1%	13,273	9.4%	136,114	12.1%			
Transportation, Utilities	129	4.6%	17	5.2%	174	7.4%	6,213	4.4%	73,119	6.5%			
Information	73	2.6%	4	1.2%	35	1.5%	3,248	2.3%	21,373	1.9%			
Finance, Insurance, Real Estate	112	4.0%	28	8.5%	202	8.6%	10,590	7.5%	75,369	6.7%			
Services	1,704	60.7%	195	59.5%	1,217	51.7%	87,263	61.8%	571,456	50.8%			
Public Administration	118	4.2%	6	1.8%	134	5.7%	7,060	5.0%	40,497	3.6%			
Total	2,808	100%	328	100%	2,353	100%	141,203	100%	1,124,913	100%			
White Collar	1,584	56.4%	229	69.8%	1,459	62.0%	92,770	65.7%	712,070	63.3%			
Management, Business, Financial	247	8.8%	45	13.7%	256	10.9%	15,956	11.3%	149,613	13.3%			
Professional	663	23.6%	80	24.4%	520	22.1%	40,666	28.8%	266,604	23.7%			
Sales	194	6.9%	30	9.1%	219	9.3%	13,132	9.3%	128,240	11.4%			
Administrative Support	480	17.1%	74	22.6%	464	19.7%	22,875	16.2%	166,487	14.8%			
Services	691	24.6%	64	19.5%	508	21.6%	30,217	21.4%	195,735	17.4%			
Blue Collar	534	19.0%	35	10.7%	386	16.4%	18,215	12.9%	217,108	19.3%			
Farming, Forestry, Fishing	-	0.0%	-	0.0%	-	0.0%	141	0.1%	2,250	0.2%			
Construction, Extraction	146	5.2%	11	3.4%	85	3.6%	5,225	3.7%	56,246	5.0%			
Installation, Maintenance, Repair	73	2.6%	5	1.5%	89	3.8%	2,824	2.0%	41,622	3.7%			
Production	146	5.2%	8	2.4%	49	2.1%	3,671	2.6%	51,746	4.6%			
Transportation, Material Moving	171	6.1%	11	3.4%	162	6.9%	6,354	4.5%	<u>66,</u> 370	5.9%			
Source: ESRI, 2010; Partners for Econ	omic Solution	s, 2011.											

	Table A-7. Housing Units by Number of Units in Structure, 2000											
	Primary Market Area		Secondary Market Area A		Secondar Are	y Market a B	City of Pi	ttsburgh	Pittsburgh Metro Area			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Units in Structure												
1, Detached	914	21.2%	32	16.7%	1,700	62.5%	71,570	43.8%	719,583	66.7%		
1, Attached	1,757	40.7%	65	33.9%	684	25.2%	24,277	14.9%	71,549	6.6%		
2	501	11.6%	15	7.8%	231	8.5%	15,894	9.7%	56,004	5.2%		
3 to 4	311	7.2%	21	10.9%	70	2.6%	12,749	7.8%	46,832	4.3%		
5 to 9	157	3.6%	6	3.1%	18	0.7%	10,818	6.6%	41,246	3.8%		
10 to 19	41	0.9%	-	0.0%	12	0.4%	7,794	4.8%	31,789	2.9%		
20 to 49	147	3.4%	34	17.7%	-	0.0%	5,499	3.4%	23,270	2.2%		
50 or More	479	11.1%	19	9.9%	-	0.0%	14,382	8.8%	39,257	3.6%		
Mobile Home	7	0.2%	-	0.0%	3	0.1%	354	0.2%	48,288	4.5%		
Other	6	0.1%	-	0.0%	-	0.0%	29	0.0%	663	0.1%		
Total	4,320		192		2,718		163,366		1,078,481			

Note: Each area contains the following Census Tracts in Alleghany County: Primary Market Area: 603, 901 & 902; Secondary Market Area A: 203; Secondary Market Area B: 1011 & 1018. Source: ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-8. Housing Units by Year Built, 2000													
	Primary Market Area		Secondary Market Area A		Secondar Are	y Market a B	City of Pi	ttsburgh	Pittsburgh Metro Area				
	Number	Percent	Number	Percent	Number	Jumber Percent		Number Percent		Percent			
Year Built													
1999 to March 2000	9	0.2%	-	0.0%	-	0.0%	653	0.4%	10,785	1.0%			
1995 to 1998	69	1.6%	-	0.0%	-	0.0%	1,634	1.0%	33,433	3.1%			
1990 to 1994	48	1.1%	-	0.0%	-	0.0%	1,634	1.0%	39,904	3.7%			
1980 to 1989	212	4.9%	-	0.0%	-	0.0%	5,881	3.6%	80,886	7.5%			
1970 to 1979	324	7.5%	35	18.2%	68	2.5%	10,292	6.3%	138,046	12.8%			
1969 or Earlier	3,663	84.8%	157	81.8%	2,650	97.5%	143,272	87.7%	775,428	71.9%			
Median Year Built	1930		1936		1933		1939		1954				

Note: Each area contains the following Census Tracts in Alleghany County: Primary Market Area: 603, 901 & 902; Secondary Market Area A: 203; Secondary Market Area B: 1011 & 1018. Source: ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-9. Owner-Occupied Housing Units by Value, 2010												
	Primary Market Area		Secondary Market Area A		Secondar Are	y Market a B	City of Pittsburgh		Pittsburgh Metro Area			
	Number	Percent	Number Percent		Number	Percent	Number	Percent	Number	Percent		
Housing Units by Value												
Under \$20,000	59	3.6%	2	1.2%	74	4.4%	1,724	2.5%	19,568	2.8%		
\$20,000 to \$39,999	256	15.6%	10	6.0%	216	12.9%	5,307	7.7%	32,983	4.7%		
\$40,000 to \$49,999	201	12.2%	4	2.4%	92	5.5%	4,140	6.0%	21,899	3.1%		
\$50,000 to \$69,999	486	29.6%	11	6.5%	314	18.8%	11,541	16.7%	58,377	8.3%		
\$70,000 to \$99,999	410	25.0%	21	12.5%	388	23.2%	16,237	23.5%	107,720	15.4%		
\$100,000 to \$149,999	173	10.5%	33	19.6%	475	28.4%	16,478	23.9%	182,508	26.1%		
\$150,000 to \$199,999	29	1.8%	22	13.1%	68	4.1%	4,961	7.2%	105,855	15.1%		
\$200,000 to \$299,999	12	0.7%	19	11.3%	33	2.0%	3,898	5.6%	99,474	14.2%		
\$300,000 to \$499,999	17	1.0%	36	21.4%	11	0.7%	2,602	3.8%	50,261	7.2%		
\$500,000 and Over	-	0.0%	10	6.0%	-	0.0%	2,144	3.1%	20,583	2.9%		
Total	1,643	100.0%	168	100.0%	1,671	100.0%	69,032	100.0%	699,228	100.0%		
Median Value	n Value \$61,195 \$156,250 \$81,880 \$92,037							\$131,028				
Source: ESRI 2010; Part	tners for Ec	conomic So ¹	lutions 201	1								

			Table A-	10. Jourr	ney to Work,	2000					
	Primary Ma	Primary Market Area		Secondary Market Area A		arket Area	City of Pit	tsburgh	Pittsburgh Metro Area		
	Employed Residents	Percent	Employed Residents	Percent	Employed Residents	Percent	Employed Residents	Percent	Employed Residents	Percent	
Commute Time											
Less than 5 minutes	65	2%	0	0%	59	2%	3,087	2%	33,345	3%	
5 to 9 minutes	328	12%	7	6%	137	6%	13,265	9%	109,045	10%	
10 to 14 minutes	577	20%	25	20%	443	18%	21,152	15%	149,219	14%	
15 to 19 minutes	599	21%	16	13%	554	23%	26,612	19%	154,951	15%	
20 to 24 minutes	439	15%	13	10%	416	17%	24,953	18%	153,978	15%	
25 to 29 minutes	186	7%	10	8%	157	6%	8,626	6%	66,544	6%	
30 to 34 minutes	271	10%	25	20%	361	15%	20,286	14%	135,813	13%	
35 to 39 minutes	70	2%	0	0%	48	2%	2,970	2%	32,632	3%	
40 to 44 minutes	68	2%	9	7%	122	5%	3,832	3%	40,001	4%	
45 to 59 minutes	94	3%	6	5%	110	4%	7,016	5%	85,306	8%	
60 to 89 minutes	86	3%	10	8%	30	1%	4,479	3%	50,238	5%	
90 or more minutes	14	0%	0	0%	15	1%	2,207	2%	20,540	2%	
Work from Home	54	2%	6	5%	7	0%	3,359	2%	25,742	2%	
Total	2,851	100%	127	100%	2,459	100%	141,844	100%	1,057,354	100%	
Commuting 30 Minutes or More 219				39%		28%		29%		34%	

Table A-11. Select Rental Apartment Comparables											
	Unit Type	F	Rental Prices (monthly)			Rental Prices (monthly)			Rental Prices (monthly)		
The Flats at Southside Works	1BD	\$	1,150	\$	1,375	705	845	\$	1.63	\$	1.63
2835 E. Carson St. Suite 209 Pittsburgh, PA 15203	1BD	\$	1,475	\$	1,775	916	1099	\$	1.61	\$	1.62
(412) 567-6659	1BD	\$	1,700	\$	2,400	956	1436	\$	1.78	\$	1.67
	2BD	\$	1,850	\$	2,850	1108	1754	\$	1.67	\$	1.62
Carson Street Commons Apartments	1BD	\$	1,409	\$	1,459	575	583	\$	2.45	\$	2.50
2529 East Carson Street Pittsburgh, PA 15203	1BD	\$	1,474	\$	1,594	863	895	\$	1.71	\$	1.78
866-805-9681	2BD	\$	1,694	\$	1,794	1027	1027	\$	1.65	\$	1.75
	2BD	\$	1,769	\$	1,844	1120	1153	\$	1.58	\$	1.60
	2BD	\$	1,849	\$	1,959	1404	1435	\$	1.32	\$	1.37
	2BD	\$	1,989	\$	2,039	1440	1440	\$	1.38	\$	1.42
The Pennsylvania	Studio	\$	895	\$	955	450	450	\$	1.99	\$	2.12
1100 Liberty Ave. Pittsburgh, PA 15222	1BD	\$	965	\$	1,295	600	800	\$	1.61	\$	1.62
	2BD	\$	1,430	\$	1,460	900	900	\$	1.59	\$	1.62
	2BD	\$	1,800	\$	2,165	1100	1150	\$	1.64	\$	1.88
Royal York	Studio	\$	650	\$	715	530	560	\$	1.23	\$	1.28
3955 Bigelow Blvd. Pittsburgh, PA 15213	1BD	\$	825	\$	1,100	805	868	\$	1.02	\$	1.27
(866) 229-0371	2BD	\$	1,250	\$	1,650	870	1665	\$	1.44	\$	0.99
	3BD	\$	1,800	\$	2,200	1864	2394	\$	0.97	\$	0.92
Shady Side Commons	Studio	\$	650	\$	715	530	560	\$	1.23	\$	1.28
401 Amberson Avenue, Pittsburgh, PA 15232	1BD	\$	825	\$	1,100	805	868	\$	1.02	\$	1.27
412-226-6122	2BD	\$	1,250	\$	1,650	870	1665	\$	1.44	\$	0.99
	3BD	\$	1,800	\$	2,200	1864	2394	\$	0.97	\$	0.92
Source: Partners for Economic Solutions, 2011.											

349 Cedar Street, NW Washington, DC 20012 www.PESconsult.com **Development and Phasing Plan**

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Development and Phasing Plan

During the 1800's, the 43rd Street District housed numerous steel mills, and accommodated transport—both via water and rail—of coal and steel. Despite the changing times, the industrial character is still evident with the current major property owners of IDSI, McConway & Torley Corporation, an industrial park, and 43rd Street Concrete. This industrial character is both a challenge for current redevelopment and an opportunity for the future. Current property ownership, limited connectivity, one-way streets, parking, and existing land uses have contributed to a lack of access to the Allegheny River and challenges to redevelopment. To compound the issues, truck traffic for local industries is commingled with access for pedestrians, bikers, and residents. However, with the advent of the Green Boulevard improvements, the 43rd Street District is well positioned to transform in the coming years and to anchor the river as a mixed use, vibrant district.

The plan envisions a neighborhood with 1.4 million square feet of new and renovated space located in the blocks along the river. Feedback from community meetings and the market analysis done at the beginning of the planning process (and described in the previous section) aided in the creation of framework principles for redevelopment of the 43rd Street District. The community helped establish a set of redevelopment principles that provide a framework for development and guide the plan. They are:

- Incorporate ecological restoration and open space programming along the riverfront.
- Celebrate Lawrenceville's iconic industrial character.
- Enhance open space connections, such as through restoration of the 47th Street drainage systems.
- Improve the residential neighborhood fabric along Hatfield and Willow Streets.
- Promote a mix of transportation uses along the Green Boulevard.
- Strengthen 43rd Street to better link Lawrenceville and the Allegheny Riverfront.

The future development will include nearly half a million square feet of urban flex space with a technology focus, 84,000 square feet of light industrial growth, and 6,300 square feet of retail. Additionally, approximately six hundred new housing units and up to 1,700 new jobs are projected in the district. In tribute to the existing industrial character and to community input, several existing architectural and industrial artifacts should be preserved to protect the historic narrative of the 43rd Street District. The community feedback called for a neighborhood that supports existing community character and heritage, and provides new amenities. The plan recommends preservation of the steel crane structure at 43rd Street Concrete and the metal-clad Heppenstall building with its iconic rooftop sign. The future land uses are consistent with the market analysis.

Phasing of public investments will be paramount to the success of the 43rd Street District Development, and must go hand in hand with development investments. Initial infrastructure investments in the 43rd Street District must reinforce connections to the Allegheny River, such as the 43rd Street Landing waterfront park and improvements to 43rd Street. The ultimate implementation of the Green Boulevard multi-use path will also be a catalyst for development. An in depth discussion of the phasing strategy for development parcels can be found in the Phasing and Funding Strategy.

43rd Street District Redevelopment

Existing Conditions



43rd Street District Redevelopment

Future Development Plan



43rd Street District Framework Plan



Future development of the 43rd Street District is based on a series of framing principles



43rd Street District Redevelopment



43rd Street District Redevelopment

Future Development Plan



Development Potential

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3RD STREET DISTRICT RE	EDEVELOPMENT - DI	EVELOPMENT BLOC	ĸs							
Building / Parking	Levels / Stories	Square Footage	Retail	Residential DU	Housing Type	R & D	Light Industrial	Parking Demand	Parking Supply	Parking Designations
1	2	52,384	-	-	-	-	52,384	131	-	-
2	1	31,219	-	-	-	-	31,219	78	-	-
3	1	28,321	-	-	-	28,321	-	71	-	-
4	2	36,339	-	-	-	36,339	-	91	-	-
5 [Heppenstall]	1	31,698	-	-	-	31,698	-	79	-	-
Parking Structure A	2	106,400	-	-	-	-	-	-	304	Building 1,2,3 and 4
Parking Lot B	-	56,350	-	-	-	-	-	-	161	Building 4, and 5
6 [Chocolate Factory]	2	74.581	-	-	-	74.581	-	186	-	-
7 [Ice House]	2	54.418	-	-	-	54,418	-	136	-	-
8 [IDSI]	1	62,631	-	-	-	62,631	-	157	-	-
9	2	19,309	-	-	-	19,309	-	48	-	-
10 [NREC]	2	93,823	-	-	-	93,823	-	235	-	-
11 [NREC ADDITION]	2	25,164	-	-	-	25,164	-	63	-	-
Parking Structure C	4	249,434	-	-	-	-	-	-	767	Buildings 6,7,8,9 and 10
Parking Lot D		12,600	-		-	-	-		36	Buildings 10, 11
Parking Lot E	-	29,750	-	-	-	-	-	-	85	Buildings 10, 11
12	4	67,984	-	42	Duplex [1600]	-	-	63		-
	-	24,050	-	-	-	-	-	-	74	Parking within Massing
13	4	94,400	-	56	Townhouse [2100]	-	-	83	-	-
	-	32,000	-	-	-	-	-	-	98	Parking within Massing
14	3	10,500	-	5	Townhouse [2100]	-	-	10	-	-
	-	-	-	-	-	-	-	-	10	Parking within Massing
15	3	25,200	-	12	Townhouse [2100]	-	-	24	-	-
	-	-	-	-	-	-	-		24	Parking within Massing
16	4	200,000	-	154	Apartment [1300]	-	-	192	-	-
	2	53,200	-	25	Townhouse [2100]	-	-	32	-	-
	2	52,000	-	25	Live / Work [2100]		-	31	-	-
	1	6,300	6,300	-	-	-	-	32	-	-
Parking Structure F	2	98,419	-	-	-	-	-		303	Parking within Massing
17	4	292,400	-	225	Apartment [1300]	-	-	281	-	-
	2	65,132	-	31	Townhouse [2100]	-	-	39	-	-
	2	59,600	-	28	Live / Work [2100]		-	35	-	-
Parking Structure G	2	142,260	-	-	-	-	-		438	Parking within Massing
otals		2,155,866	6,300	603		426,283	83,603	2.097	2,301	

Parking ratios were determined through consideration of the zoning ordinance requirements,

discussions with the Steering Committee, market requirements, and discussions with property owners.

Alternative Plan for the 43rd Street District

The 43rd Street District plan will be implemented over time, and must be flexible to adapt to changing policies and needs of property owners. To address some immediate concerns, an alternate plan for the district was also developed. This plan maintains a similar development program and open space framework; however, it makes modifications to circulation and parking. Specifically, in the alternative plan the proposed Riverfront Drive is shown as only spanning from 47th to 43rd Street, rather than continuing to encircle the NREC facility. Additionally, the proposed parking garage between 41st and 42nd Streets also has the option to be a surface parking lot, rather than a garage, re-locating the garage to west of 45th Street.

43rd Street District Redevelopment

Future Development Plan – Alternate Option with Parking Between 44th and 45th St.



43rd Street District Redevelopment

Development Parcels


43rd Street District Redevelopment

Phasing Strategy



43rd Street District Redevelopment

Infrastructure investment needs to reinforce waterfront connections •Phase I Waterfront Park (43rd St. Landing) •Green Boulevard



43rd Street District Redevelopment – Bird's Eye View



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The urban and architectural context of Lawrenceville is primarily characterized by 19th century two to three story brick row houses and brick industrial buildings. The neighborhood's residential streets are defined by repetitive vertically proportioned facades with vertical punched openings, punctuated by a regular rhythm of porches, entry canopies, and roof dormers. These facades typically have a vertical proportion with vertical openings. Buildings in the district are also characterized by a juxtaposition of materials including brick, stone, wood, steel, metal panel, and glass.

Development Typologies

Building off of the framework of streets and opens spaces developed for the 43rd Street Redevelopment Plan, individual parcels were studied to identify various building typologies for future development. The following are a series of goals and recommendations emerging from this exploration and illustrated as development massing guidelines:

North Side of Hatfield Street Hatfield Street and 44th Street RIDC Parcels IDSI Parcel Waterfront Development

Lawrenceville Infill Housing: Utilize existing vacant building sites for infill development within the neighborhood to increase density and create consistent street walls.

Conclusion

The development massing study resulted in a proposed scenario based on the goal of establishing a denser, mixed-use neighborhood that builds on existing uses and presents a plan for future development. The illustrated guidelines are the basis for the Phasing and Funding Strategy generated by Partners for Economic Solutions. While these guidelines delineate appropriate massing of future development and locations for potential program uses, the plan can ultimately be flexible, to respond to changing market conditions and needs of individual landowners and developmers.

North Side of Hatfield Street

Goal: Extend the residential fabric of the existing neighborhood by lining Hatfield with appropriately scaled row houses and multi-family buildings.

Options were studied for development parcels to understand how various residential typologies work on each site, including traditional row houses, and a variety of stacked duplexes and flats.

Options were studied for dimensions, number of units, combination of unit types, number of stories, and various configurations of parking, to understand the range of development opportunities to meet zoning requirements and market demand.

Recommendations: There are numerous viable options for blocks along Hatfield Street, including individual row houses (with individual garage parking) and multifamily buildings with multiple entrances along the street and double-loaded corridor configuration at upper floors (over one level of structured parking).



Development Guidelines - 43rd Street District Redevelopment

Development Potential – Hatfield Street Townhomes / Parking



Development Typologies: North Hatfield Street

PREFERRED OPTION







Development Typologies: North Hatfield Street



Development Typologies: North Hatfield Street





Development Typologies: North Hatfield Street





Hatfield Street and 44th Street

Goal: Utilize the full footprint of site to maximize parking and accommodate multiple uses in a building or buildings that respond to the varying scales and uses of adjacent buildings.

Recommendations: Develop a single level of structured parking with a taller multi-family building facing the Green Boulevard and lower row houses with individual entrances along Hatfield Street. The taller portion of the building could alternately be R&D/office space, which would be compatible with adjacent uses.



Development Guidelines - 43rd Street District Redevelopment

Development Potential – Residential Flats & Townhomes / Parking Structure

- Different unit types at each side of the block
- Residential units over 1 level structure parking
- Reinforce existing residential fabric along Hatfield Street.



Development Typologies: Hatfield Street and 44th Street PREFERRED OPTION





1 LEVEL PARKING = 80 SPACES [UP TO 64 UNITS @ 1.25 SPACES PER UNIT]

Development Typologies: Hatfield Street and 44th Street

OPTION



OFFICE/RESEARCH BUILDING: FOOTPRINT = 33,300 SF/FLOOR



1 LEVEL PARKING = 80 SPACES [SUPPORTS 26,600 SF OF OFFICE @ 3 SPACES PER 1,000 SF]



RIDC Parcels - between 45th and 48th Streets along the Green Boulevard

Goals: Designate sites for Light Industrial and R&D/Office uses, located relative to compatible uses. Provide adequate on-site parking and consider future development of structured parking and additional spaces.

Recommendations: Locate new buildings for light industrial uses between 47th and 48th for McConway Torley, adjacent to existing facilities and less connected to the residential part of Lawrenceville. Locate new R&D/office space between 45th & 47th Streets, compatible with adjacent residential uses. Designate the existing Heppenstall Building for adaptive reuse and preserve its iconic sign.

Recommendations: Line the north side of Willow Street and the adjacent parcel on 43rd Street with infill townhouses with individual entrances and individual garage parking. Develop a multi-level parking structure on the site of the existing vacant IDSI building. This structure could be phased, adding levels vertically as neighborhood density and parking demand increases.



Development Typologies: RIDC



Development Typologies: RIDC

PREFERRED OPTION





IDSI Parcel - between 40th and 41st Streets at Willow Street

Goals: Extend the residential fabric of the existing neighborhood along Willow Street. Provide structured, centrally located parking to support proposed new development.

Recommendations: Line the north side of Willow Street and the adjacent parcel on 43rd Street with infill townhouses with individual entrances and individual garage parking. Develop a multi-level parking structure on the site of the existing vacant IDSI building. This structure could be phased, adding levels vertically as neighborhood density and parking demand increases.



Development Typologies: IDSI



Development Typologies: IDSI



Development Typologies: IDSI

PREFERRED OPTION 69 666 69 8 _____

Development Typologies: IDSI

OPTION



Note: This drawing depicts an early study for the parking garage. The preferred development plan on page 65 and 67 shows the preferred footprint and massing for the garage.

Development Typologies: IDSI

OPTION



Note: This drawing depicts an early study for the parking garage. The preferred development plan on page 65 and 67 shows the preferred footprint and massing for the garage.

Development Typologies: IDSI

OPTION



Note: This drawing depicts an early study for the parking garage. The preferred development plan on page 65 and 67 shows the preferred footprint and massing for the garage.

Waterfront Development - including the existing properties currently occupied by 43rd Street Concrete and The Buncher Company

Goal: Create a mixed-use development that takes full advantage of its location between the Green Boulevard and the Allegheny River, capitalizing on river views, access to future open space, and proximity to future transportation options.

Schemes were studied for development parcels to test how various multi-family building configurations work on each site, with regards to building dimensions, unit count, unit types, number of stories, and configuration of parking.

Recommendations:

- 1. Develop mixed-use buildings with a combination of residential, live/work, and retail space.
- 2. Sub-divide the parcels into smaller scale building volumes that relate back to the existing blocks and preserve view corridors from the streets up the hill in Lawrenceville.
- 3. Create two levels of structured parking at the center of each block.
- 4. Line the Green Boulevard with lower scale (two-story) live/work lofts to relate to the scale of existing Lawrenceville row houses and to conceal the parking structures.
- 5. Develop larger scale (five-story) multi-family residential buildings facing the river, with multiple private entrances for Ground Floor units to extend the traditional repetitive pattern of the existing Lawrenceville row houses.
- 6. Provide a restaurant space at the end of 43rd street to anchor the proposed riverfront development and new open space.
- 7. Develop a multi-story extension of NREC facilities to meet their need for expansion of R&D/office space and to create a connection to the proposed riverfront development and new open space.



Development Guidelines - 43rd Street District Redevelopment

Development Potential – Waterfront Residential and Live/Work Buildings

• Mixed-use with retail corner at 43rd Street & riverfront.



Development Typologies: Waterfront Development

PREFERRED OPTION



Development Typologies: Waterfront Development PREFERRED OPTION





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Development Typologies: Waterfront Development





Development Typologies: Waterfront Development


Development Typologies: Waterfront Development

OPTION



R&D: 1 FLOOR = 17,000 SF

Development Typologies: Waterfront Development OPTION



Development Typologies: Waterfront Development OPTION: RENOVATING BUNCHER FOR R&D



Existing Buncher Building





Development Typologies: Waterfront Development OPTION: RENOVATING BUNCHER FOR RESIDENTIAL



Existing Buncher Building





Residential

43rd Street District Street Improvements

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43rd Street District Street Improvements

The Green Boulevard plan examined ways to improve existing streets in the 43rd Street District to provide better mobility for all modes of transportation, support economic development, and integrate stormwater management best practices within the streets. Today, streets in this sub-area of Lawrenceville range from a 32 foot to an 85 foot right of way, with corresponding variations in use within the street. At the Green Boulevard public forums, community members cited the lack of on-street parking and of a safe, pedestrian realm as challenges to traveling to and around the district. Future recommendations for streetscape improvements attempt to address these concerns by providing sidewalks that are separated from the street by street trees and a planting verge where possible, such as along 40th Street, 43rd Street, 46th Street, 47th Street, Willow Street and a future Riverfront Drive.

Similarly, on-street parking lanes are added when possible to provide more front-door parking for businesses, residences, and retail establishments. Onstreet parking in a designated lane with permeable paving is incorporated into 40th, 42nd, 43rd, 46th, 47th, Willow Streets, as well as the future Riverfront Drive. Stormwater cells and a regenerative stormwater conveyance are designed into the street sections of 42nd Street and 47th Street, respectively, to bring stormwater best practices to the district. Permeable paving will be used for parking lanes and lots throughout the district. These sustainable practices have been successfully implemented in cities such as Cleveland and Chicago, which have similar winter maintenance demands to Pittsburgh for snow clearing.

The following pages contain existing and proposed street sections for the 43rd Street District, as well as estimated costs and perspective renderings of future conditions. Street sections are shown for typical existing conditions, although road rights-of-way vary slightly over the length of the street due to adjacent development or other variables. In this case, "pinch points" may occur, and the sections should be adapted accordingly with subtle adjustments, such as a narrower sidewalk or tree verge if needed.

Cost estimates (budgets) were created for the streetscape improvements. The estimates were generated by calculating site area and length take-offs for the

plans. Unit prices for improvements were developed utilizing bid tabulations from awarded projects provided by Riverlife, RIDC, and URA. Unit prices were compared to other Sasaki projects and RS Means cost estimating. Cost estimates were reviewed by team members, including Cosmos to confirm unit prices. Overall contingencies were provided at 40%, which allowed for a 15% design contingency, 10% construction contingency, 10% for soft costs (survey, geotech, permitting, and owner administration), and 5% for inflation, not knowing when the projects would be bid, but allowing for roughly 2 years project development time. 40% contingency is comparable to other estimates that we have been developing at the concept level.

43rd Street District Redevelopment

Existing ROW



43rd Street District Redevelopment

Proposed ROW



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Integrated Approach to Streets











Proposed 46th Street with new development



Existing 42rd Street



Proposed 42rd Street







Existing 47th Street







Proposed 47th Street with new development







43rd Street District Redevelopment - 47th Street View



Proposed Green Boulevard with new development





43rd Street District Redevelopment – 43rd Street View



Sasaki Associates December 19, 2012

Statement of Estimated Probable Construction Cost Allegheny Riverfront Park - 43rd St. Redevelopment Concept Design Summary of Costs

Item				
No.	Item			Total
2	Roadways			
Α.	40th Street (Willow to AVR)		\$	562,875
В.	40th Street (AVR to Terminus)		\$	739,150
C.	41st Street (Willow to Green Blvd)		\$	549,375
D.	42nd Street (Willow to Green Blvd)		\$	640,250
Ε.	43.5 Street (Willow to Green Blvd)		\$	842,000
F.	Willow Street (40th to 43rd)		\$	1,311,525
G.	Willow Street (43rd to 44th)		\$	512,125
Н.	Hatfield Street (44th to 46th)		\$	865,900
I.	Hatfield Street (46th to 47th)		\$	735,050
J.	Plum Way (47th to 48th)		\$	772,850
Κ.	43rd Street (Willow to AVR)		\$	997,780
L.	43rd Street (AVR to Terminus)		\$	708,700
М.	44th Street (Willow to AVR)		\$	910,550
Ν.	45th Street (Hatfield to AVR)		\$	666,700
О.	45th Street (AVR to Riverfront)		\$	832,800
Ρ.	47th Street (Hatfield to AVR)	Incluc	led in oper	n space costs
Q.	48th Street (Plum Way to AVR)		\$	764,975
R.	48th Street (AVR to Terminus)		\$	907,350
S.	Riverfront Drive (41st to 43rd)		\$	2,268,450
Т.	Riverfront Drive (43rd to 45th)		\$	1,079,600
U.	Riverfront Drive (45th to 47th)		\$	1,854,370
	Sub-Total			\$18,522,375
	Design Contingency	40.00%		\$7,408,950
	Total			\$25,931,325

Statement of Estimated Probable Construction Cost Allegheny Riverfront Park - 43rd St. Redevelopment Concept Design Public ROW Street Improvements

ltem No. Item Quantity Unit Unit Cost Subtotal Total Remarks 40th Street (Willow to AVR) 325 LF \$ 1,731.92 ROW = 60' 1 Demolition 11,800 SF \$ 5.00 \$ 59,000 Remove and dispose everything from saw cut line to ROW, both sides Sawcut Pavement 100 LF \$ 5.00 \$ 500 6" concrete curb and gutter, 24" wide Curb and Gutter 650 LF 20.00 \$ 13,000 \$ 6' wide CIP concrete, one side of the street Sidewalk 325 LF 25.00 \$ 8,125 \$ Layout and Grading 325 LF \$ 200.00 \$ 65,000 9.200 SF 10.00 \$ 92.000 Mill down & overlay entire street (depth varies 2"-8") Asphalt paving \$ 30' O.C. **Tree Planting** 10 ΕA \$ 1,200.00 \$ 12,000 50' O.C. Lighting 12 ΕA \$ 4,000.00 \$ 48,000 Signage 1 LS \$ 15,000.00 \$ 15,000 Electrical 325 LF 30.00 \$ 9,750 Includes street light upgrades only \$ 325 LF 400.00 \$ Includes inlet modification, manhole replacement and pipe upgrades Drainage Upgrade \$ 130,000 325 LF 260.00 \$ Assume 10" PVC SDR with lateral connections Sewer Upgrade \$ 84,500 Water Upgrade 325 LF \$ 80.00 \$ 26,000 Assume 8" D.I. w/gate valves 325 LF \$ Not Included \$ Gas -40th Street (AVR to Terminus) 430 1,718.95 ROW = 60' 2 LF \$ Demolition 15.480 SF 5.00 \$ 77.400 Remove and dispose everything from saw cut line to ROW, both sides \$ Sawcut Pavement 1 F 5.00 \$ 500 100 \$ 6" concrete curb and gutter, 24" wide Curb and Gutter 860 LF \$ 20.00 \$ 17,200 Sidewalk 430 LF \$ 25.00 \$ 10,750 6' wide CIP concrete, one side of the street Layout and Grading 430 LF \$ 200.00 \$ 86,000 10.00 \$ Asphalt paving 12,040 SF \$ 120,400 Mill down & overlay entire street (depth varies 2"-8") 30' O.C. Tree Planting 14 1,200.00 \$ 16,800 EA \$ 16 4,000.00 \$ 50' O.C. Lighting EA \$ 64,000 1 LS \$ 15,000.00 \$ 15,000 Signage 30.00 \$ Electrical 430 LF 12,900 Includes street light upgrades only \$ 400.00 \$ 172.000 430 LF Includes inlet modification, manhole replacement and pipe upgrades Drainage Upgrade \$ 430 Assume 10" PVC SDR with lateral connections Sewer Upgrade LF 260.00 \$ 111,800 \$ 430 LF 80.00 \$ Assume 8" D.I. w/gate valves Water Upgrade 34,400 \$ 430 LF Not Included Gas \$ \$ -3 41st Street (Willow to Green Blvd) 375 LF \$ 1,465.00 **Right of Way Varies** Demolition 11,250 SF \$ 5.00 \$ 56,250 Remove and dispose everything from saw cut line to ROW, both sides Sawcut Pavement 50 LF \$ 5.00 \$ 250 Curb and Gutter 750 LF \$ 20.00 \$ 15,000 6" concrete curb and gutter, 24" wide Sidewalk 375 LF \$ 50.00 \$ 18,750 6' wide CIP concrete, both sides of the street 375 LF 200.00 \$ 75,000 Layout and Grading \$ Asphalt paving 9,000 SF \$ 10.00 \$ 90,000 Mill down & overlay entire street (depth varies 2"-8") Tree Planting 0 ΕA 1,200.00 \$ 30' O.C. \$ -Lighting 14 ΕA \$ 4,000.00 \$ 56,000 50' O.C. LS 15,000 Signage 1 \$ 15,000.00 \$ 375 1 F \$ 30.00 \$ 11,250 Includes street light upgrades only Electrical Drainage Upgrade 375 LF \$ 225.00 \$ 84,375 Includes inlet modification, manhole replacement and pipe upgrades 260.00 \$ Sewer Upgrade 375 LF \$ 97,500 Assume 10" PVC SDR with lateral connections Water Upgrade 375 LF \$ 80.00 \$ 30,000 Assume 8" D.I. w/gate valves Gas 375 LF \$ \$ Not Included -_ 42nd Street (Willow to Green Blvd) 440 LF 1,455.11 **Right of Way Varies** 4 \$ Demolition SF 5.00 \$ 66,000 Remove and dispose everything from saw cut line to ROW, both sides 13,200 \$ Sawcut Pavement 50 LF 5.00 \$ 250 \$ 20.00 \$ Curb and Gutter 880 LF \$ 17,600 6" concrete curb and gutter, 24" wide 440 LF 50.00 \$ 22,000 6' wide CIP concrete, both sides of the street Sidewalk \$ 440 LF 200.00 \$ Layout and Grading 88,000 \$ Mill down & overlay entire street (depth varies 2"-8") Asphalt paving 10.00 \$ 10,560 SF \$ 105,600 Tree Planting 1,200.00 \$ 30' O.C. 0 EA \$ 50' O.C. Lighting 16 EΑ 4,000.00 \$ 64,000 \$ Signage 1 LS \$ 15,000.00 \$ 15,000 Electrical 440 LF \$ 30.00 \$ 13,200 Includes street light upgrades only

Sasaki Associates December 19, 2012

	440	L1	Ψ	220.00	Ψ	55,000
Sewer Upgrade	440	LF	\$	260.00	\$	114,400
Water Upgrade	440	LF	\$	80.00	\$	35,200
Gas	440	LF	\$	-	\$	-

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includes infer modification, maintole replacement and pipe upgrades
Assume 10" PVC SDR with lateral connections
Assume 8" D.I. w/gate valves
Not Included

Itom				T					
No	Itom	Quantitu	Unit		Unit Coot		Subtotal	Total	Bomarka
_ NO.	42.5 Street (Willow to Green Blud)	EAE		- -	4 624 05		Subtotal		insht of Mou Vorice
5	43.5 Street (Willow to Green Bivd)	515		\$	1,634.95			RI	light of way varies
	Demolition	15,450	SF	\$	5.00	\$	77,250	Re	emove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	50	LF	\$	5.00	\$	250		
	Curb and Gutter	1,030	LF	\$	20.00	\$	20,600	6"	" concrete curb and gutter, 24" wide
	Sidewalk	515	LF	\$	50.00	\$	25,750	6'	wide CIP concrete, both sides of the street
	Layout and Grading	515	LF	\$	200.00	\$	103,000		
	Asphalt paving	12.360	SF	\$	10.00	\$	123.600	M	lill down & overlay entire street (depth varies 2"-8")
	Tree Planting	0	FA	\$	1 200 00	\$	-	30	0'00
	Lighting	20		¢	4 000 00	¢	80.000	50	
		20		φ	4,000.00	φ	45,000	50	0.0.0
	Signage	1	LS	\$	15,000.00	\$	15,000		
	Electrical	515	LF	\$	30.00	\$	15,450	In	ncludes street light upgrades only
	Drainage Upgrade	515	LF	\$	400.00	\$	206,000	In	cludes inlet modification, manhole replacement and pipe upgrades
	Sewer Upgrade	515	LF	\$	260.00	\$	133,900	As	ssume 10" PVC SDR with lateral connections
	Water Upgrade	515	LF	\$	80.00	\$	41,200	As	ssume 8" D.I. w/gate valves
	Gas	515	LF	\$	-	\$	-	No	lot Included
6	Willow Street (40th to 43rd)	815	LF	\$	1.609.23			R	OW = 50'
•	Demolition	31 970	SE	÷ ¢	5.00	\$	159 850	R	emove and dispose everything from saw cut line to ROW, both sides
	Server and Ser	100	15	φ	5.00	φ ¢	500		entove and dispose everything norm saw cut line to 1.010, both sides
		100		φ Φ	5.00	φ	500		
	Curb and Gutter	1,630	LF	\$	20.00	\$	32,600	p	" concrete curb and gutter, 24" wide
	Sidewalk	815	LF	\$	25.00	\$	20,375	6'	wide CIP concrete, one side of the street
	Layout and Grading	815	LF	\$	200.00	\$	163,000		
	Asphalt paving	25,450	SF	\$	10.00	\$	254,500	M	lill down & overlay entire street (depth varies 2"-8")
	Tree Planting	27	EA	\$	1,200.00	\$	32,400	30	0' O.C.
	Lighting	32	EA	\$	4.000.00	\$	128.000	50	0' O.C.
	Signage	1	15	\$	15 000 00	\$	15 000		
	Electrical	915		¢	30.00	¢	24,450	In	poludos stroot light upgrados only
		010		¢ ¢	30.00	φ ¢	24,400		nuado succi nyni upyrauco uniy
	Drainage Upgrade	815	LF	\$	250.00	\$	203,750	In	icilides inlet modification, mannole replacement and pipe upgrades
	Sewer Upgrade	815	LF	\$	260.00	\$	211,900	As	ssume 10" PVC SDR with lateral connections
	Water Upgrade	815	LF	\$	80.00	\$	65,200	As	ssume 8" D.I. w/gate valves
	Gas	815	LF	\$	-	\$	-	No	lot Included
7	Willow Street (43rd to 44th)	320	LF	\$	1,600.39			R	OW = 50'
	Demolition	11 935	SF	\$	5.00	\$	59 675	R	emove and dispose everything from saw cut line to ROW both sides
	Sawout Bayomont	100		¢	5.00	¢	500		
	Sawcut r avennent	640		φ r	30.00	φ	12 900	C"	" concrete outh and outton 04" wide
	Curb and Gutter	640		\$	20.00	\$	12,800	0	concrete curb and gutter, 24 wide
	Sidewalk	320	LF	\$	25.00	\$	8,000	6'	wide CIP concrete, one side of the street
	Layout and Grading	320	LF	\$	200.00	\$	64,000		
	Asphalt paving	9,375	SF	\$	10.00	\$	93,750	M	lill down & overlay entire street (depth varies 2"-8")
	Tree Planting	10	EA	\$	1,200.00	\$	12,000	30	0' O.C.
	Lighting	12	EA	\$	4,000.00	\$	48,000	50	0' O.C.
	Signage	1	LS	\$	15.000.00	\$	15.000		
	Electrical	320	LE LE	¢ ¢	30.00	ç	9 600	In	actudes street light upgrades only
	Droipago Upgrado	220		φ	250.00	φ	80,000	in: In:	voludes sheet light upgrades only
		320		φ	230.00	φ	80,000		
	Sewer Upgrade	320		\$	260.00	\$	83,200	As	ssume 10" PVC SDR with lateral connections
	Water Upgrade	320	LF	\$	80.00	\$	25,600	As	ssume 8" D.I. w/gate valves
	Gas	320	LF	\$	-	\$	-	No	lot Included
8	Hatfield Street (44th to 46th)	540	LF	\$	1,603.52			R	OW = 50'
	Demolition	20,940	SF	\$	5.00	\$	104,700	Re	emove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	100	LF	\$	5.00	\$	500		
	Curb and Gutter	1 080	١F	\$	20.00	\$	21 600	6"	concrete curb and gutter 24" wide
	Sidewalk	540	IF	¢	25.00	¢	13 500	6'	wide CIP concrete, one side of the street
		540		ψ	20.00	φ	10,000	0	wide off concrete, one side of the street
		040		¢	200.00	¢	108,000		
	Aspnait paving	16,620	5F 	\$	10.00	\$	166,200	M	ini down & overlay entire street (depth varies 2"-8")
	Tree Planting	18	EA	\$	1,200.00	\$	21,600	30	0 [.] O.C.
	Lighting	20	EA	\$	4,000.00	\$	80,000	50	0' O.C.
	Signage	1	LS	\$	15,000.00	\$	15,000		
	Electrical	540	LF	\$	30.00	\$	16,200	In	cludes street light upgrades only
	Drainage Upgrade	540	LF	\$	250.00	\$	135.000	In	includes inlet modification, manhole replacement and nine upgrades
	Sewer Upgrade	540	IF	\$	260.00	ŝ	140 400	As	ssume 10" PVC SDR with lateral connections
	Water Llograde	540		¢	80.00	¢	43 200	Λ.	ssume 8" D L w/gate valves
		540		φ Φ	80.00	φ ¢	43,200	A	
	Gas	540	LF	\$	-	\$	-	INC	lot included
		_	-						
9	Hatfield Street (46th to 47th)	450	LF	\$	1,633.44			R	OW = 50'
	Demolition	17,820	SF	\$	5.00	\$	89,100	Re	emove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	100	LF	\$	5.00	\$	500		
	Curb and Gutter	900	LF	\$	20.00	\$	18,000	6"	" concrete curb and gutter, 24" wide
	Sidewalk	450	LF	\$	25.00	\$	11.250	6'	wide CIP concrete, one side of the street
	Lavout and Grading	450	IF	\$	200.00	\$	90 000	·	
	Asnhalt naving	1/ 220	 95	φ	10.00	φ	142 200	к л:	lill down & overlav entire street (denth varias 2" 9")
	Asphal paving	14,220	55	¢	10.00	¢	142,200	M	nn down a ovenay entile street (deptil valles 2 -0)
		15	EA	\$	1,200.00	\$	18,000	30	
	Lighting	18	EA	\$	4,000.00	\$	72,000	50	0 [.] O.C.
	Signage	1	LS	\$	15,000.00	\$	15,000		
	Electrical	450	LF	\$	30.00	\$	13,500	In	ncludes street light upgrades only
	Drainage Upgrade	450	LF	\$	250.00	\$	112,500	In	cludes inlet modification, manhole replacement and pipe upgrades
	Sewer Upgrade	450	LF	\$	260.00	\$	117,000	As	ssume 10" PVC SDR with lateral connections
	Water Upgrade	450	LF	\$	80.00	\$	36 000	Δα	ssume 8" D.I. w/gate valves
	Gas	450	LF	÷	-	\$	-	Ni	lot Included

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No.	Item	Quantity	Unit	Ļ	Unit Cost		Subtotal	Total	Remarks
10	Plum Way (47th to 48th)	565	LF	\$ ¢	1,367.88	¢	96 F7F		ROW = 20'
	Sawcut Pavement	100	SF F	¢ ?	5.00	ф ,	5/5,00 500		remove and dispose everything from saw cut line to ROW, both sides
	Curb and Gutter	1,130	LF	\$	20.00	↓ \$	22,600		6" concrete curb and gutter, 24" wide
	Sidewalk	565	LF	\$	25.00	\$	14,125		6' wide CIP concrete, one side of the street
	Layout and Grading	565	LF	\$	200.00	\$	113,000		
	Asphalt paving	8,275	SF	\$	10.00	\$	82,750		Mill down & overlay entire street (depth varies 2"-8")
	Tree Planting	0	EA	\$ ¢	1,200.00	\$	-		30' O.C.
	Lighting Signage	22	LS	ծ Տ	4,000.00	ֆ Տ	88,000 15,000		50 0.0.
	Electrical	565	LF	Ψ \$	30.00	Ψ \$	16,950		Includes street light upgrades only
	Drainage Upgrade	565	LF	\$	250.00	\$	141,250		Includes inlet modification, manhole replacement and pipe upgrades
	Sewer Upgrade	565	LF	\$	260.00	\$	146,900		Assume 10" PVC SDR with lateral connections
	Water Upgrade	565	LF	\$	80.00	\$	45,200		Assume 8" D.I. w/gate valves
	Gas	565	LF	\$	-	\$	-		Not Included
11	43rd Street (Willow to AVR)	512	LF	\$	1,948.79				ROW = 50'
	Demolition	28,072	SF	\$	5.00	\$	140,360		Remove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	100	LF	\$	5.00	\$	500		
	Curb and Gutter	1,024	LF	\$	20.00	\$	20,480		6" concrete curb and gutter, 24" wide
	Sidewalk	512 512		\$ ¢	50.00 200.00	\$ ¢	25,600		6' wide CIP concrete, one side of the street
	Asphalt paving	19.880	SF	φ \$	10.00	φ \$	198.800		Mill down & overlay entire street (depth varies 2"-8")
	Tree Planting	17	EA	\$	1,200.00	\$	20,400		30' O.C.
	Lighting	20	EA	\$	4,000.00	\$	80,000		50' O.C.
	Signage	1	LS	\$	15,000.00	\$	15,000		
	Electrical	512	LF	\$	30.00	\$	15,360		Includes street light upgrades only
	Drainage Upgrade	512	LF	\$	400.00	\$	204,800		Includes inlet modification, manhole replacement and pipe upgrades
	Sewer Upgrade Water Upgrade	512		ծ Տ	260.00	ֆ Տ	40.960		Assume 8" D L w/gate valves
	Gas	512	LF	Ψ \$	-	Ψ \$	- +0,000		Not Included
				•		•			
12	43rd Street (AVR to Terminus)	350	LF	\$	2,024.86				ROW =50'
	Demolition	19,720	SF	\$	5.00	\$	98,600		Remove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	100 700		\$ ¢	5.00 20.00	\$ ¢	500 14 000		6" concrete curb and gutter. 24" wide
	Sidewalk	350	LF	Ψ \$	50.00	Ψ \$	17,500		6' wide CIP concrete, both sides of the street
	Layout and Grading	350	LF	\$	200.00	\$	70,000		
	Asphalt paving	14,120	SF	\$	10.00	\$	141,200		Mill down & overlay entire street (depth varies 2"-8")
	Tree Planting	22	EA	\$	1,200.00	\$	26,400		30' O.C.
	Lighting	14	EA	\$	4,000.00	\$	56,000		50' O.C.
	Signage	1 350		\$ ¢	15,000.00	\$ ¢	15,000		Includes street light ungrades only
	Drainage Upgrade	350	LF	φ \$	400.00	φ \$	140.000		Includes sheet light upgrades only Includes inlet modification, manhole replacement and pipe upgrades
	Sewer Upgrade	350	LF	\$	260.00	\$	91,000		Assume 10" PVC SDR with lateral connections
	Water Upgrade	350	LF	\$	80.00	\$	28,000		Assume 8" D.I. w/gate valves
	Gas	350	LF	\$	-	\$	-		Not Included
13	44th Street (Willow to AVR)	500	LF	\$	1,821.10				ROW = 50'
	Demolition	19,750	SF	\$	5.00	\$	98,750		Remove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	100	LF	\$	5.00	\$	500		
	Curb and Gutter	1,000	LF	\$	20.00	\$	20,000		6" concrete curb and gutter, 24" wide
	Sidewalk	500	LF	\$	50.00	\$	25,000		6' wide CIP concrete, both sides of the street
	Layout and Grading	500 15 750	LF SF	\$ \$	200.00	\$ \$	100,000		Mill down & overlay entire street (denth varies 2"-8")
	Tree Planting	24	EA	Ψ \$	1.200.00	Ψ \$	28.800		30' O.C.
	Lighting	20	EA	\$	4,000.00	\$	80,000		50' O.C.
	Signage	1	LS	\$	15,000.00	\$	15,000		
	Electrical	500	LF	\$	30.00	\$	15,000		Includes street light upgrades only
	Drainage Upgrade	500	LF	\$	400.00	\$	200,000		Includes inlet modification, manhole replacement and pipe upgrades
	Sewer Upgrade	500		\$ ¢	260.00	\$ ¢	130,000		Assume 10" PVC SDR with lateral connections
	Gas	500 500	LF	ъ \$	- 00.00	ъ \$	40,000		Not Included
14	45th Street (Hatfield to AVR)	400	LF	\$	1,666.75	~			ROW = 48'
	Demolition	19,200	SF	\$ ¢	5.00	\$ ¢	96,000		Remove and dispose everything from saw cut line to ROW, both sides
	Sawour Pavement	100 800		¢ \$	5.00 20.00	¢	500 16.000		6" concrete curb and outter 24" wide
	Sidewalk	400	LF	Ψ \$	50.00	Ψ \$	20,000		6' wide CIP concrete, both sides of the street
	Layout and Grading	400	LF	\$	200.00	\$	80,000		
	Asphalt paving	9,600	SF	\$	10.00	\$	96,000		Mill down & overlay entire street (depth varies 2"-8")
	Tree Planting	26	EA	\$	1,200.00	\$	31,200		30' O.C.
	Lighting	16	EA	\$	4,000.00	\$	64,000		50' O.C.
	Signage Electrical	1 400		\$ ¢	15,000.00	\$ ¢	15,000		Includes street light upgrades only
	Drainage Upgrade	400	LF LF	φ \$	250.00	φ \$	100 000		Includes inlet modification, manhole replacement and nine unorades
	Sewer Upgrade	400	 LF	\$	260.00	\$	104,000		Assume 10" PVC SDR with lateral connections
	Water Upgrade	400	LF	\$	80.00	\$	32,000		Assume 8" D.I. w/gate valves
	Gas	400	LF	\$	-	\$	-		Not Included

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No	Itom	Quantity	Unit		Unit Cost		Subtotal	Total	Pomarke
45		400	1.5	¢	2 092 00		Subtotal	Total	
15	45th Street (AVR to Riverfront)	400		Þ	2,082.00	•			ROW = 48
	Demolition	19,200	SF	\$	5.00	\$	96,000		Remove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	100	LF	\$	5.00	\$	500		
	Curb and Gutter	1,000	LF	\$	20.00	\$	20,000		6" concrete curb and gutter, 24" wide
	Sidewalk	500	LF	\$	50.00	\$	25,000		6' wide CIP concrete, both sides of the street
	Layout and Grading	500	LF	\$	200.00	\$	100,000		
	Asphalt paving	15.750	SF	\$	10.00	\$	157.500		Mill down & overlay entire street (depth varies 2"-8")
	Tree Planting	24	FA	\$	1 200 00	\$	28 800		30' O C
	Lighting	20	EA	¢	4 000 00	¢	80,000		50' 0 0
	Cignore	20		Ψ	4,000.00	φ	15,000		50 0.0.
	Signage	1	L3	¢	15,000.00	¢	15,000		Lesladar alexal Palet an and a sector
	Electrical	500	LF	\$	30.00	\$	15,000		Includes street light upgrades only
	Drainage Upgrade	500	LF	\$	250.00	\$	125,000		Includes inlet modification, manhole replacement and pipe upgrades
	Sewer Upgrade	500	LF	\$	260.00	\$	130,000		Assume 10" PVC SDR with lateral connections
	Water Upgrade	500	LF	\$	80.00	\$	40,000		Assume 8" D.I. w/gate valves
	Gas	500	LF	\$	-	\$	-		Not Included
16	47th Street (Hatfield to AVR)	465	LF	\$	-				ROW = 48' BY OTHERS
	Demolition	20.010	SE	¢	_	\$	_		Remove and dispose everything from saw cut line to ROW both sides
	Soweut Boyomont	100		φ		φ			The nove and dispose everything norm saw out line to reow, both sides
		100		φ	-	φ	-		
	Curb and Gutter	930	LF	\$	-	\$	-		6" concrete curb and gutter, 24" wide
	Sidewalk	465	LF	\$	-	\$	-		6' wide CIP concrete, one side of the street
	Layout and Grading	465	LF	\$	-	\$	-		
	Asphalt paving	12,570	SF	\$	-	\$	-		Mill down & overlay entire street (depth varies 2"-8")
	Tree Planting	30	EA	\$	-	\$	-		30' O.C.
	Lighting	18	EA	\$	-	\$	-		50' O.C.
	Signage		EA	\$	-	\$	-		
	Flectrical	465		÷ \$	_	÷ ₽	-		Includes street light upgrades only
		405		φ ¢	-	φ Φ	-		Includes inlat modification, manhale replacement and time waves the
		405		\$	-	\$	-		includes inlet modification, mannole replacement and pipe upgrades
	Sewer Upgrade	465	LF	\$	-	\$	-		Assume 10" PVC SDR with lateral connections
	Water Upgrade	465	LF	\$	-	\$	-		Assume 8" D.I. w/gate valves
	Gas	465	LF	\$	-	\$	-		Not Included
17	48th Street (Plum Way to AVR)	450	LF	\$	1,699.94				ROW = 42'
	Demolition	17.715	SF	\$	5.00	\$	88.575		Remove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	100	I F	¢ ¢	5.00	÷ ¢	500		
	Curb and Cuttor	000		φ	20.00	φ	18 000		6" concrete outb and gutter 04" wide
		900		φ	20.00	φ	10,000		o concrete curb and gutter, 24 wide
	Sidewalk	450		\$	25.00	\$	11,250		6' wide CIP concrete, one side of the street
	Layout and Grading	450	LF	\$	200.00	\$	90,000		
	Asphalt paving	10,515	SF	\$	10.00	\$	105,150		Mill down & overlay entire street (depth varies 2"-8")
	Tree Planting	15	EA	\$	1,200.00	\$	18,000		30' O.C.
	Lighting	18	EA	\$	4,000.00	\$	72,000		50' O.C.
	Signage	1	LS	\$	15,000.00	\$	15,000		
	Flectrical	450	١F	\$	30.00	\$	13 500		Includes street light upgrades only
		450		¢	400.00	φ Φ	180,000		Includes inlet modification, manhole replacement and pine upgrades
	Sower Lingrada	450		φ	260.00	φ	117,000		Assume 10" BVC SDB with lateral connections
	Sewer Opgrade	450		ф Ф	200.00	φ	117,000		
	Water Upgrade	450		\$	80.00	\$	36,000		Assume 8" D.I. w/gate valves
	Gas	450	LF	\$	-	\$	-		Not Included
18	48th Street (AVR to Terminus)	625	LF	\$	1,451.76				ROW = 40'
	Demolition	23,890	SF	\$	5.00	\$	119,450		Remove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	100	LF	\$	5.00	\$	500		
	Curb and Gutter	1.250	LF	\$	20.00	\$	25.000		6" concrete curb and gutter. 24" wide
	Sidewalk	0	LE	\$	50.00	\$	_		6' wide CIP concrete both sides of the street
	Lavout and Grading	625	 E	¢	200.00	¢	125 000		
		12 000	<u>сг</u>	φ Φ	200.00	φ Φ	120,000		Mill down & overlaw entire street (death verice 0" 0")
	Asphalt paving	13,890	51	\$	10.00	\$	138,900		will down a overlay entire street (depth varies $2^{\circ}-8^{\circ}$)
		0	ЕA	\$	1,200.00	\$	-		30 0.0.
	Lighting	24	EA	\$	4,000.00	\$	96,000		50' O.C.
	Signage	1	LS	\$	15,000.00	\$	15,000		
	Electrical	625	LF	\$	30.00	\$	18,750		Includes street light upgrades only
	Drainage Upgrade	625	LF	\$	250.00	\$	156,250		Includes inlet modification, manhole replacement and pipe upgrades
	Sewer Upgrade	625	LF	\$	260.00	\$	162.500		Assume 10" PVC SDR with lateral connections
	Water Upgrade	625	١F	\$	80.00	\$	50 000		Assume 8" D.I. w/gate valves
	Gas	625		¢ ¢	-	φ ¢	-		Not Included
	240	020	-1	Ψ	-	Ψ	-		
40	Disentent Daise (44-44-40-1)	000		^	0.005 -0				DOW Veries
19	Riverironit Drive (41st to 43rd)	UUU CO CO -		\$	2,835.56	~	100		
	Demolition	36,000	SF	\$	5.00	\$	180,000		Remove and dispose everything from saw cut line to ROW, both sides
	Sawcut Pavement	250	LF	\$	5.00	\$	1,250		
	Curb and Gutter	1,600	LF	\$	20.00	\$	32,000		6" concrete curb and gutter, 24" wide
	Sidewalk	800	LF	\$	50.00	\$	40,000		6' wide CIP concrete, both sides of the street
	Parallel Parking	20	SP	\$	-	\$	-		
	Lavout and Grading	800	LF	\$	200.00	\$	160 000		Mill down & overlay entire street (depth varies 2"-8")
	Asphalt paving	47 400	SE	÷	25.00	Ψ \$	1 185 000		30' O C
		200 20		Ψ Φ	1 200 00	Ψ Φ	24 000		50' 0 0
		20		ф Ф	1,200.00	ф Ф	31,200		JU U.U.
	Lighting	32	ΕA	\$	4,000.00	\$	128,000		
	Signage	1	LS	\$	15,000.00	\$	15,000		Includes street light upgrades only
	Electrical	800	LF	\$	30.00	\$	24,000		Includes inlet modification, manhole replacement and pipe upgrades
	Drainage Upgrade	800	LF	\$	250.00	\$	200,000		Assume 10" PVC SDR with lateral connections
	Sewer Upgrade	800	LF	\$	260.00	\$	208,000		Assume 8" D.I. w/gate valves
	Water Upgrade	800	LΕ	\$	80.00	\$	64 000		Not Included
	Gas	800	 F	ŝ	-	÷ \$	-		
				÷		Ψ			

Item		Г		<u> </u>				1
No.	Item	Quantity	Unit		Unit Cost	Subtotal	Total	Remarks
20	Riverfront Drive (43rd to 45th)	550	LF	\$	1,962.91			ROW Varies
	Demolition	24,750	SF	\$	5.00	\$ 123,750		Remove and dispose everything
	Sawcut Pavement	150	LF	\$	5.00	\$ 750		
	Curb and Gutter	1,100	LF	\$	20.00	\$ 22,000		6" concrete curb and gutter, 24" wide
	Sidewalk	550	LF	\$	50.00	\$ 27,500		6' wide CIP concrete, both sides of the street
	Layout and Grading	550	LF	\$	200.00	\$ 110,000		
	Asphalt paving	13,200	SF	\$	25.00	\$ 330,000		Two-way, full road construction
	Tree Planting	18	EA	\$	1,200.00	\$ 21,600		30' O.C.
	Lighting	22	EA	\$	4,000.00	\$ 88,000		50' O.C.
	Signage	1	LS	\$	15,000.00	\$ 15,000		
	Electrical	550	LF	\$	30.00	\$ 16,500		
	Drainage Upgrade	550	LF	\$	250.00	\$ 137,500		
	Sewer Upgrade	550	LF	\$	260.00	\$ 143,000		
	Water Upgrade	550	LF	\$	80.00	\$ 44,000		
	Gas	550	LF	\$	-	\$ -		
21	Riverfront Drive (45th to 47th)	850	LF	\$	2,181.61			ROW Varies
	Demolition	40,800	SF	\$	5.00	\$ 204,000		Remove and dispose everything
	Sawcut Pavement	250	LF	\$	5.00	\$ 1,250		
	Curb and Gutter	1,700	LF	\$	20.00	\$ 34,000		6" concrete curb and gutter, 24" wide
	Sidewalk	850	LF	\$	50.00	\$ 42,500		6' wide CIP concrete, both sides of the street
	Parallel Parking	20	EA	\$	51.00	\$ 1,020		
	Layout and Grading	850	LF	\$	200.00	\$ 170,000		
	Asphalt paving	27,600	SF	\$	25.00	\$ 690,000		Two-way, full road construction
	Tree Planting	28	EA	\$	1,200.00	\$ 33,600		30' O.C.
	Lighting	34	EA	\$	4,000.00	\$ 136,000		50' O.C.
	Signage	1	EA	\$	15,000.00	\$ 15,000		
	Electrical	850	LF	\$	30.00	\$ 25,500		
	Drainage Upgrade	850	LF	\$	250.00	\$ 212,500		
	Sewer Upgrade	850	LF	\$	260.00	\$ 221,000		
	Water Upgrade	850	LF	\$	80.00	\$ 68,000		
	Gas	850	LF	\$	-	\$ -		

ltem No.	ltem	Quantity	Unit	ι	Jnit Cost		Subtotal	Total	Remarks
1	Green Boulevard (39th to 40th)	600	IF	\$	1 525 00				
•	Demolition	31.000	SF	\$	5.00	\$	155.000		R&D everything from saw cut line to ROW, both sides
	Sawcut Pavement	100	LF	\$	5.00	\$	500		
	Curb and Gutter	1,200	LF	\$	20.00	\$	24,000		6" concrete curb and gutter, 24" wide
	Sidewalk	600	LF	\$	25.00	\$	15,000		6' wide, one side of the street
	Layout and Grading	600	LF	\$	200.00	\$	120,000		
	I hermoplastic Bike Lane Paint	3,600	SF	\$	-	\$	-		
	Asphalt paving	1,200 14 400	LF SF	ф Ф	-	ф Ф	-		Mill down & overlay entire street (denth varies 2"-8")
	Security Fence	1 200	IF	Ψ \$	50.00	\$	60 000		will down a overlay entire street (depth valies 2 -0)
	Benches	10	EA	\$	-	\$	-		
	Lawns	9,000	SF	\$	-	\$	-		Assume 15' width
	Tree Planting	20	EA	\$	1,200.00	\$	24,000		30' O.C.
	Biofilter	1,200	LF	\$	-	\$	-		
	Lighting	30	EA	\$	3,500.00	\$	105,000		50' O.C.
	I rash Receptacle	5	EA	\$	3,500.00	\$	17,500		
	Signage	600		¢ 2	10,000.00	ф Ф	10,000		
	Drainage Ungrade	600	LI	Ψ \$	250.00	Ψ S	150,000		
	Sewer Upgrade	600	LF	\$	-	\$	-		
	Water Upgrade	600	LF	\$	50.00	\$	30,000		
	Gas	600	LF	\$	-	\$	-		
•	Crear Devilayand (404b to 42nd)	775		¢	4 402 52				
2	Demolition	7/5 31.000	SF	С Ф	1,493.52 5.00	¢	155 000		R&D eventhing from saw cut line to ROW both sides
	Sawcut Pavement	100	IF	Ψ \$	5.00	Ψ S	500		TRAD everything from saw cut line to TCOV, both sides
	Curb and Gutter	1.550	LF	\$	20.00	\$	31.000		6" concrete curb and outter. 24" wide
	Sidewalk	775	LF	\$	25.00	\$	19,375		6' wide, one side of the street
	Layout and Grading	775	LF	\$	200.00	\$	155,000		
	Thermoplastic Bike Lane Paint	4,650	SF	\$	-	\$	-		
	Dedicated Bike Lanes	1,550	LF	\$	-	\$	-		
	Asphalt paving	18,600	SF	\$	10.00	\$	186,000		Mill down & overlay entire street (depth varies 2"-8")
	Security Fence Benches	1,550		ф Ф	50.00	ф Ф	77,500		
		11 625	SE	φ \$	_	φ \$	-		Assume 15' width
	Tree Planting	23	EA	\$	1.200.00	\$	27.600		30' O.C.
	Biofilter	1,550	LF	\$	-	\$			
	Lighting	45	EA	\$	3,500.00	\$	157,500		50' O.C.
	Trash Receptacle	8	EA	\$	3,500.00	\$	28,000		
	Signage	1	LS	\$	10,000.00	\$	10,000		
	Electrical	775		\$	100.00	\$	77,500		
	Drainage Upgrade	//5 775		¢ ¢	250.00	¢ ¢	193,750		
	Water Ungrade	775	LI	φ \$	50.00	Ψ S	38 750		
	Gas	775	LF	\$	-	\$	-		
2	Groop Boulovard (43rd to 47th)	1 350	1 6	¢	2 601 56				
5	Demolition	54.000	SF	₽ \$	2,001.00 5.00	\$	270 000		R&D everything from saw cut line to ROW both sides
	Sawcut Pavement	100	LF	\$	2.00	\$	200		
	Curb and Gutter	2,700	LF	\$	17.00	\$	45,900		6" concrete curb and gutter, 24" wide
	Sidewalk	1,350	LF	\$	25.00	\$	33,750		6' wide, one side of the street
	Layout and Grading	1,350	LF	\$	200.00	\$	270,000		
	Asphalt paving	32,400	SF	\$	10.00	\$	324,000		Mill down & overlay entire street (depth varies 2"-8")
	I hermoplastic Bike Lane Paint	16,200	SF	\$	-	\$	-		
	Dedicated Bike Lanes	2,700		¢ ¢	- 175.00	ф Ф	- 236 250		
	Road Crossings	3	FA	Ψ \$ 1	250 000 00	Ψ S	750,000		
	Security Fence	2.700	LF	\$	50.00	\$	135.000		
	Benches	15	EA	\$	-	\$	-		
	Lawns	20,250	SF	\$	-	\$	-		Assume 15' width
	Tree Planting	60	EA	\$	1,200.00	\$	72,000		30' O.C.
	Biofilter	2,700	LF	\$	-	\$	-		
	Lighting	60	EA	\$	3,500.00	\$	210,000		50° O.C.
	nash Receptacie Signage	10	EA E∆	¢ \$	3,500.00	ф Ф	35,000		
	Electrical	1.350	LF	Ψ \$	-	Ψ \$	135.000		
	Drainage Upgrade	1,350	LF	\$	250.00	\$	337.500		
	Sewer Upgrade	1,350	LF	\$	-	\$	-		
	Water I Ingrade	13 150	IE	¢	50.00	¢	657 500		

Water Upgrade	13,150	LF	\$ 50.00 \$	657,500
Gas	1,350	LF	\$ - \$	-

4 Green Boulevard (47th to 48th)	550	LF	\$ 818.09		
Demolition	550	SF	\$ 5.00	\$ 2,750	R&D everything from saw cut line to ROW, both sides
Sawcut Pavement	50	LF	\$ 2.00	\$ 100	
Dedicated Bike Lanes	1,100	LF	\$ -	\$ -	
Thermoplastic Bike Lane Paint	6,600	SF	\$ -	\$ -	
Road Crossing	1	EA	\$ 250,000.00	\$ 250,000	
Security Fence	1,100	LF	\$ 50.00	\$ 55,000	
Benches	15	EA	\$ -	\$ -	
Lawns	8,250	SF	\$ -	\$ -	Assume 15' width
Tree Planting	28	EA	\$ 1,200.00	\$ 33,600	30' O.C.
Biofilter	1,100	LF	\$ -	\$ -	
Lighting	25	EA	\$ 3,500.00	\$ 87,500	50' O.C.
Trash Receptacle	6	EA	\$ 3,500.00	\$ 21,000	
Signage		EA	\$ -	\$ -	
Electrical		LF	\$ 100.00	\$ -	Construction Completed
Drainage Upgrade		LF	\$ 250.00	\$ -	Construction Completed
Sewer Upgrade		LF	\$ -	\$ -	Construction Completed
Water Upgrade		LF	\$ 50.00	\$ -	Construction Completed
Gas		LF	\$ -	\$ -	Construction Completed
Street Improvements Subtotal				\$ 5,119,	525

5	Additional Rail Improvements 39th - 48th					
	Rail Line Configuration	3,275	LF	\$ 175.00	\$ 573,125	
	Commuter Rail Platform	1	LF	\$ 750,000.00	\$ 750,000	
	Additional Rail Improvements 39th - 48th S	ubtotal			\$ 1,323,125	

Commuter Rail Station and Conceptual Design

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Commuter Rail Station and Conceptual Design

Locating a commuter rail station within the 43rd Street District is a key component of the Allegheny Riverfront Green Boulevard Plan due to the proximity of the rail line to the riverfront, the existing residential neighborhood of Lawrenceville, and numerous underutilized development parcels. The proposed location provides access at a critical point along 43rd Street, the key north/south link from the Lawrenceville neighborhood to the riverfront, is close to the existing concentration of research/office uses, and offers direct access to new open space and proposed development along the river. This provides the best location to facilitate economic development in the 43rd Street District.

Design Principles

The design concept for the new commuter rail stations emerged from studying other transportation infrastructure within the City of Pittsburgh—namely, the iconic bridges along the Allegheny River. The repetition of these bridges along the river, with their distinctive yellow color and expressed steel structure, creates a memorable visual identity for the city. The design goal is to create a family of structures that similarly establish a strong identity for the new commuter rail line, using a modern language of steel and glass that relates to the expressed steel structure of the historic bridges and allows for multiple configurations in the unique context of each individual station. The basic program for the commuter rail station study included the following:

- 1. Provide a safe, accessible, attractive facility for waiting and boarding commuter rail cars.
- 2. Provide passengers with shelter/protection from precipitation, and sun exposure.

- 3. Provide way finding/informational signage, ticket vending machines, seating, trash receptacles, and lighting.
- 4. Incorporate sustainable elements where feasible:

Rain water collection for irrigation of planted areas adjacent to stations.

Potential green roofs at selected stations.

- Solar or wind powered LED lighting.
- Sustainable materials.

Design Options

Three station prototypes were explored:

- 1. Center platform with tracks on either side.
- 2. Two sided platform with tracks between.
- 3. Covered/elevated station with center platform with stair and elevator access from street level below.

Multiple design studies for the center platform prototype were generated to convey the idea of developing a "kit of parts," a single language of steel and glass elements to be configured in a variety of ways for different canopy shapes. These design concepts were then re-interpreted for the side platform and covered/ elevated center platform configurations. The intent is that stations would be closely related, but have variations to allow for individual station identity.



Transit Station Design Criteria

Principles:

- Develop a consistent, but flexible design approach to stations along the Green Boulevard
- Ensure integration of appropriate programmatic elements
- Design to mitigate climate impacts and provide shelter and shade from the weather

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- Design for comfort
- Create a safe and secure station environment

Programmatic elements:

- Passenger shelters
- Fare vending machines
- Benches / seating
- Signage
 - o Station name
 - o Transit System map
 - Variable message signage
- Trash/recycling receptacles
- Lighting
- Safety: detectable warning strip, audible warning
- ADA accessibility: ramp to platform, clearance
- Additional considerations:
 - \circ Neighborhood and Green Boulevard information / signage
 - \circ Bicycle racks / bike sharing stations / bike repair kits
 - o Public art
 - o Advertising
 - o Trees / landscaping
 - o Wifi connectivity / hotspot

Dimensional criteria:

•	Platform Length:	1 car = 135' Total length for 3 cars = 405'
•	Platform Width:	Center platform = min. 15' (min. 20' for elevated station)

Side platforms = min. 12'

- Platform Height: 15" above top of track rails
- Ramp: 1:20 slope
 25' length (for 15" rise)
- Canopy Height: Over tracks = 22' above top of track rails Over platform = 10' - 12' min.
- Coverage: 2/3 of platform length = 270' (or 90' per car) Ramp always covered
- Windbreak: 2/3 of platform length = 270' Full platform length where adjacent to street Intermittent at center platform configuration

Environmental considerations:

- Sun:
 - Consider sun angles to provide shade during summer months and sun exposure during winter months
- Precipitation:
 - Provide passengers with overhead protection from rain/snow
- Wind:
 - o Provide wind breaks at side and center platforms for passenger comfort
- Potential sustainable elements:
 - o Divert water from roof structures to adjacent landscape elements
 - o Solar/wind powered LED lighting
 - o Green roof

Design considerations:

- Identity of Green Boulevard line:
 - o Architectural language
 - o Color
 - o Materials
 - o Signage / graphics
 - o Paving / landscaping
- Continuous canopy/roof structure vs. multiple structures
- Covered platform vs. covered platform and tracks (option at larger station)
- Future expansion of platforms and shelter structures

• Pedestrian connection to adjacent street, sidewalk, and multi-use path

Design concepts:

- Bridges: relate platform structures to existing Pittsburgh infrastructure
 - Diagonal trusses
 - o Layering of steel members
 - o Connection details
 - Distinctive color
- Topography of hills/valley: profile of canopy roofs relates to undulating landscape
- Canopy design precedents:
 - Fayetteville Festival Park Performance Pavilion [Pearce Brinkely Cease + Lee]
 - Hoboken Light Rail Station [FXFOWLE]

Design options:

- Prototype configurations for platforms:
 - 1 center platform
 - 2 side platforms
- System of steel and glass with multiple configurations to accommodate local site conditions and different station layouts
- Variable length of canopy structure for ridership at each station
- Large scale version to fully cover tracks at major station

Commuter Rail Station Conceptual Design - Environmental Factors



Commuter Rail Station Conceptual Design - Two-sided Platform Critical Dimensions



Commuter Rail Station Conceptual Design - Central Platform Overall Dimensions



Commuter Rail Station Conceptual Design - Central Canopy Structure Configurations



Commuter Rail Station Conceptual Design - Structural Canopy for Central Platform Option 1



Commuter Rail Station Conceptual Design - Structural Canopy for Central Platform Option 2



Commuter Rail Station Conceptual Design - Structural Canopy for Central Platform Option 3



Commuter Rail Station Conceptual Design - Structural Canopy for Two-sided Platform



Commuter Rail Station Conceptual Design - Continuous Structural Canopy for Central Platform



Phasing and Funding Strategy

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Phasing and Funding Strategy

The Green Boulevard planning process has focused on realistic funding strategies for redevelopment and infrastructure. The financial feasibility of development in the 43rd Street Target Zone was tested, considering varying development programs, parking scenarios, mixes of uses, and funding alternatives. Static pro formas by product type outlined the cost to develop, the private investment justified by the future returns, and the resulting surplus or deficit, based on current market conditions for new development. The models estimated the development dollars available to assist in funding the infrastructure improvements and public open space recommended through the planning process, including substantial riverfront recreation amenities. In some instances the difference between the total development costs and the amount of supportable private investment results in a financial gap.

During the planning process, the community and area stakeholders reviewed alternatives for phasing the redevelopment along the waterfront. The assumptions about the timing of particular elements of the redevelopment reflect input from the various stakeholders, private owners' willingness to participate in the redevelopment, and market conditions impacting the near- and long-term financial viability of specific parcel redevelopment. The initial phase of redevelopment promotes those redevelopment plans already in progress and due to be completed during the first three years (present to 2015). The second phase of activity expected from 2015 to 2019 consists of infill residential development and supportive parking for additional commercial development. The final phase of redevelopment includes properties less likely to be procured and/or available for near-term changes in land use. A few of the parcels in the last phase of development reflect more pioneering product types adjacent to projects planned for earlier phases.

The public investment required to complete the initial phase of development in the 43rd Street District target area totals approximately \$19.7 to \$22.1 million. This does not include site acquisition or specific incentives for loans or other subsidies provided for individual projects. There are a variety of federal, state and city programs available to assist with these high infrastructure costs. District zoning was assessed for compatibility with the plan. The permissive nature of the UI zone is supportive of the land use plan. The City should consider extending the UI zone further west to 40th Street and adjusting the boundary of the GI zoning. The residential zone will need to permit laboratory/research, office, restaurant, retail sales or service to achieve the mix of uses envisioned in the plan.



Phasing & Funding

Methodology

Throughout the Allegheny Riverfront Green Boulevard (ARGB) planning process, PES has focused on providing realistic funding strategies for redevelopment and infrastructure. PES tested the financial feasibility of development in the 43rd Street Target Zone, considering varying development programs, parking scenarios, mixes of uses and funding alternatives. Static pro formas by product type outlined the cost to develop, the private investment justified by the future returns and the resulting surplus or deficit, based on current market conditions for new development. The models estimated the dollars available to assist in funding the infrastructure improvements and public open space recommended through the planning process, including substantial riverfront recreation opportunities. In some instances the difference between the total development costs and the amount of supportable private investment results in a financial gap.

PES estimated the total project value for new development by product type for residential, commercial research and development, industrial and retail development as suggested per the concept plans. These development programs are based on the best available data and information collected from a variety of local, regional and national sources, reflecting recent trends and current market conditions. However, changes in national and regional economic conditions and in the regulatory environment could significantly impact the feasibility conclusions.

Overall Phasing Conclusions

The following section explains funding options based on an initial phasing approach for public infrastructure needs.

During the planning process, the community and area stakeholders reviewed alternatives for phasing the redevelopment along the waterfront. The assumptions about the timing of particular elements of the redevelopment reflect input from the various stakeholders, private owners' willingness to participate in the redevelopment, and market conditions impacting the near- and long-term financial viability of specific parcel redevelopment.

The following figure presents the assumed phasing approach to redevelopment within the ARGB Target Zone. The initial phase of redevelopment promotes those redevelopment plans already in progress to completion during the first three years (present to 2015). The second phase of activity expected from 2015 to 2019 consists of infill residential development and supportive parking for additional commercial development. These two



phases of activity require significant infrastructure investment to improve the Target Zone and create a new destination for the Allegheny riverfront. A series of infrastructure investment projects should coincide with the redevelopment efforts in Phases 1 and 2. The final phase of redevelopment includes those properties less likely to be procured and/or available for near-term changes in land use. Also, a few of the parcels in the last phase of development reflect more pioneering product types adjacent to projects planned for earlier phases. In these instances the market does not exist now, but a new market dynamic should develop with the introduction of other large-scale redevelopment efforts. For example, the potential for live/work units relies heavily on other components.





Implications for Funding

Sasaki Associates prepared preliminary cost estimates for the infrastructure alternatives including portions of the roadway, streetscape, stormwater, green features, and new parks and recreation improvements. Isolating those costs necessary for near-term transformation in the Target Area shows a need for approximately \$19.7 to \$22.1 million. Changing the current environment along the riverfront will require investment in a new landing that allows access to the water. Plans for 43^{rd} Street, which serves as the central roadway connection to the riverfront, include both streetscape upgrades costing \$2.1 to \$2.4 million and the creation of a new landing estimated to cost between \$3.3 and \$3.7 million. The showcase for the rail to riverfront destination area includes both a green boulevard and riverfront roadway (Riverfront Drive). Certainly these roads may not be completed for the entire length of the Target Zone but a small portion from 43^{rd} to 45^{th} streets would cost between \$6.5 to \$7.3 million. The following table highlights these projects and associated project costs:

Table1. ARBG Near-Term Project Estimates								
Projects	Estimated Proje	ct Costs						
Phase I Waterfront Park (43rd St. Landing)	\$3,280,000 -	\$3,670,000						
Green Boulevard	\$7,800,000 -	\$8,730,000						
Riverfront Drive (43rd to 45th St.)	\$6,500,000 -	\$7,280,000						
43 rd Street- Butler to riverfront	\$2,132,500 -	\$2,388,400						
Subtotal	\$19,712,500 -	\$22,068,400						
Course: Coastri Associatos, Dartmars fan Essenamia Salutions, 2012								

Source: Sasaki Associates, Partners for Economic Solutions, 2012

The public investment required to complete the initial phase of development totals approximately \$19.7 to \$22.1 million. It should be noted that this does not include site acquisition or specific incentives for loans or other subsidies provided for individual projects.

There are a variety of federal, state and city programs available to assist with these high infrastructure costs. PES reviewed these different programs and created a source table to highlight the potential sources for each of the near-term projects. The matrix does not specify an amount of funding but rather offers options for each public investment other than general obligation bonds or other direct set-asides from the City budget.

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Sources of Infrastructure Funding

The alternatives to offer funding assistance for the estimated public infrastructure in the near-term Target Zone redevelopment include the following options:

Tax Increment Financing (TIF) & Transit Revitalization Investment Districts (TRID) Funding for public investments to close the financial gap between what the project costs and the amount a private developer/investor can pay can come from different sources. One key tool to consider along the Allegheny Riverfront with implementation of commuter rail is the Transit Revitalization Investment District (TRID)¹. Authorized by the Pennsylvania Legislature, TRID allows a jurisdiction to devote the incremental new property taxes generated by new development within one-half mile of any rail station to pay for public infrastructure, community facilities and transit-related improvements to support transitoriented development.

The legislation calls for definition of the TRID within the one-half-mile radius of the station. The current value of existing land and improvements is calculated within the district and then "frozen" at its value as of January 1. The jurisdiction continues to receive the taxes generated by that base assessed value. Future incremental taxes generated by the increased value are earmarked and diverted into a separate fund for public investment within the TRID. The revenues can be spent annually or pledged to support bonds to fund the up-front improvements. TRID funds can be used for infrastructure, parking and community facilities. The amount of supportable bonds depends on interest rates, debt service coverage ratios and the cost of issuance. Once the bonds are repaid, the full amount of property taxes again flows to the taxing entities. Included are taxes of each jurisdiction or taxing entity.

The following graphic depicts the basic logic and functioning of Tax-Increment Financing (TIF) and TRID funding.

The use of TIF is particularly appropriate for projects with high infrastructure costs or projects that create significant public benefit; this funding source is recommended as the primary method to support the programming in the Target Zone because the potential to use TRID will depend on the proposed commuter rail, which may be delayed in implementation.

¹ House Bill No. 994 Session of 2003. Accessed at

http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2003&sessInd=0&bil IBody=H&billTyp=B&billnbr=0994&pn=4760



One key variation in Pennsylvania as compared with other states results from the infrequency of reassessments. In most states, properties are reassessed on a regular periodic basis, typically every one to five years. Maryland, for example, reassesses each property every three years. Historically, this has resulted in steady periodic increases that varied in size according to conditions in the economy and the local real estate market. Nominal property tax rates may remain steady or even decrease depending on the value of the total tax roll. In those cases, the TIF revenues include both taxes generated by new development and taxes generated by existing development where values have increased.



Allegheny County has not reassessed since 2002, meaning that the assessed values of existing development have not increased since that time. New development is valued at its current market value, which is then reduced by the Equalization Rate to determine its assessed value as of the 2002 base year. Currently, Pittsburgh assessed values are 85 percent of market values. Existing development is reassessed only when it is significantly modified or replaced. A sale of the property is not sufficient to trigger reassessment. Therefore, until county-wide reassessment, there is no adjustment to a property's assessed value to reflect the fact that its market value has been enhanced by public investments in streetscape and other infrastructure. The incremental value available to TIF and TRID is



almost exclusively the value of the new development. Table 2 estimates the pace of development in the Target Zone and the associated value:

Table 2. ARGB Alternative Development Program Phasing Options											
	Years										
Type of Use	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Building Program											
Commercial											
Office (R&D)		25,164	68,037	28,321	31,316				37,316		190,153
Retail		6,300									6,300
Industrial	83,603										83,603
Residential											
Residential			253,200	67,984	94,400			357,532	111,600	35,700	920,416
Residential (units)			200	47	56			311	53	17	684
Market Value of Property	Improveme	nts (in tho	usands)								
Total Development	\$7,500	\$3,700	\$42,300	\$12,600	\$16,500	\$0	\$0	\$48,300	\$19,500	\$4,800	\$155,200
Assessed Value of Property Improvements (Adjusted for 85.8-Percent Equalization Ratio) (in thousands)											
Total Development	\$6,500	\$3,200	\$36,300	\$10,800	\$14,200	\$0	\$0	\$41,400	\$16,800	\$4,100	\$133,300
Source: Sasaki Associates;	Partners for	r Economic	Solutions,	2012.							

For future years, PES has assumed that values would stabilize in 2013 and then increase 1.0 percent annually beginning in 2014. PES allowed one year for new development to reach the tax rolls and generate additional tax revenue. The overall development program will yield new development with a total assessed value of roughly \$133 million. This new tax base will generate an estimated \$3.2 million per year in tax revenues and could support up to \$16.6 million in TIF bonds to meet the first-phase financial gap by the year 2017. These calculations assume a debt coverage ratio of 1.30, using a 20-year term with semi-annual payments, a 4.5-percent interest rate, and underwriting and issuance fees of 5 percent. This represents approximately 75 percent of the total costs associated with the near-term infrastructure improvements for the Target Zone.

The infrastructure improvements planned for the near term help create the market dynamics that will encourage the new investment that will support these TIF bonds. To generate the required TIF revenues, several of these projects need to be completed before the full TIF funding is available, so other forward-funding mechanisms and sources will be needed.

Philanthropic Funding

Foundation funding – financial support from small to large foundations for development of new open space, parks and sustainable green alternatives for stormwater management as a mission-driven investment or in response to a request – may provide an excellent source for the Green Boulevard and 43rd Street landing public investments. The variety of foundation funds and opportunities ranges from monies available for local governments to expand capacity or support from area educational institutions interested in expanding students' activity along the Allegheny riverfront. Many of the private foundations fund direct

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assistance to improve and clean up former industrial properties into thriving public open spaces.

Crowd Funding

The potential to tap sources outside of conventional financing alternatives has become more popular over the last five years. Crowd funding offers a quick option to raise money for a variety of projects. The 2012 Jumpstart Our Business Startups (JOBS) act removed a ban against public solicitation for private companies to raise funds. More regulation from the Securities Exchange Commission is expected regarding rules for equity crowdfunding companies. Neighbor.ly, the civic crowd funding site, allows both individuals and companies to invest in civic projects throughout the country. Essentially, these crowd funding options give citizens and corporations an opportunity to sponsor public infrastructure. In Kansas City the Kickstarter website hopes to raise sufficient funding for a down payment on the Kansas streetcar line. The amount of funding available from these sources ranges from 10 percent to upwards of 50 percent but vary greatly depending on the scale of the project and interest of the public at large. Recent experience suggests these sources are more consistently a source for company investment as opposed to private individuals' contributions.

State Infrastructure Banks

Established in 1995, through the National Highway System Act section 350², State Infrastructure Banks (SIBs) create a mechanism to fund transportation improvement projects through loans and credit enhancement. The intent of the legislation was to promote flexibility for financing and allow for diverse repayment streams, establishing a revolving fund mechanism. The program sought to accelerate projects, enhance private investment while linking to economic development opportunities, and further encourage state and private investment. SIBs act as the lender or guarantor of infrastructure loans and prioritize funding based on the predictability of revenue streams for repayment. The creation of the SIB allows public-private partnerships by attracting capital from private investors. In these instances project-based revenues (such as tolls) or general revenues (such as dedicated taxes) generate the funds to repay the loans with interest.

The Pennsylvania Infrastructure Bank (PIB) leverages both federal and state funds for lowinterest loans to promote economic development and accelerate priority transportation projects. PIB divides funding sources into three broad categories including highway/bridge, transit and aviation. The program allows private entities to borrow but does not allow for the refinancing of existing debt. The infrastructure bank covered \$300,000 in construction costs for the multi-modal renovation to the Harrisburg Union

² Section 350 of the National Highway System Designation Act of 1995, Public Law 104-59



Station into the Harrisburg Transportation Center. This project resulted in not only new transportation connections but also retail, restaurants and infill development including rehab of Class B Office space and Harrisburg University incubator^{. 3}

In April of 2012, the Chicago City Council approved the Mayor's proposal to create an Infrastructure Trust, unprecedented in the US at the city level. With a low city credit rating and scare funding available for the federal government, Chicago searches for new options to leverage private funds for city infrastructure projects. Under this new approach, Chicago will continue to use bond backing and will create a new pool supported with investor funds, who in turn expect stable returns. The previous separation of public and private funds reflects critics' concerns, but with the cost of public infrastructure rising, local governments continue to innovate.

The following two funding matrices detail the sources of potential funding (Table 3), timing and availability by project for each source described above and those mentioned in Appendix Table A-1 Funding Sources. While additional gap financing may be appropriate for specific development projects, these funds represent those available for the public infrastructure component of the project but do not represent fund raising from the philanthropic community or the public at large.

³ Christman Anastasia and Riordan, Christine, National Employment Law Project. "State Infrastructure Banks: Old Idea Yields New Opportunities for Job Creation, December 2011, pg. 5.



Table 3. Near-Term Funding Matrix								
	Near Term Projects (Uses)							
Funding Sources	Phase I Waterfront Park (43rd St. Landing)	Green Boulevard	Riverfront Drive (43rd to 45th St.)	43 rd Street- Butler to Riverfront				
Tax Increment Financing		$\star\star\star\star$	$\star\star\star$	$\star \star \star$				
Federal Land & Water Conservation Fund	$\star\star$							
Brownfields Economic Development Initiative	**	$\star\star$						
Boating Infrastructure Grant	**							
Coldwater Heritage Partnership	*	$\star\star$						
Heritage Park Grants	*							
Community Grants	*		$\star \star$					
River Conservation Grants	$\star\star$							
Rails to Trails Grants	*							
PA Recreational Trails Program Grants	$\star\star$							
Transportation Community &System Preservation		***	***	$\star \star \star$				
Corporate Sponsorships	**							
Note: Scale represents Easy= 3 stars, Moderate= 2 stars and	d Difficult= 1 star for	access to funding	by project type					
Source: Partners for Economic Solutions, 2012.								



These sources represent those most likely to be obtained after an application for funding with support from the local stakeholders and community. Table 4 highlights the amount of funding available from each source and timing for these funds. Many of the sources require additional funding to be included in the next federal budget, but the amounts shown below reflect the nature of the project and its ability to meet current criteria for acceptance. Currently, the sources listed do not cover the full estimated costs leaving between \$980,000 to \$3.3 million to be financed with direct funding from the City of Pittsburgh's General Fund, the Urban Redevelopment Authority, philanthropic sources or new funds created for the purpose of the infrastructure improvements in the Target Zone. Another option would be to fund only a portion of these improvements and allow market dynamics to improve, creating a longer phased build-out with access to additional TIF bonds after 2019.

Table 4. Near-Term Sources & Uses Alternative									
Uses	Funding	Year							
Tax Increment Financing	\$16,600,000	2018							
Federal Land & Water Conservation Fund	\$25,000	2014							
Brownfields Economic Development Initiative	\$1,000,000	2015							
Boating Infrastructure Grant Tier II	\$500,000	2014							
Coldwater Heritage Partnership	\$5,000	2015							
Community Grants	\$20,000	2014							
Rails to Trails Grants	\$80,000	2027							
PA Recreational Trails Program Grants	\$50,000	2016							
US DOT TCSP	\$450,000	2018							
Subtot	al \$18,730,000								
Uses	Estimated Pr	oject Costs							
Phase I Waterfront Park (43rd St. Landing)	\$3,280,000	- \$3,670,000							
Green Boulevard	\$7,800,000	- \$8,730,000							
Riverfront Drive (43rd to 45th St.)	\$6,500,000	- \$7,280,000							
43 rd Street- Butler to Riverfront	\$2,132,500	- \$2,388,400							
Subtot	al \$19,712,500	- \$22,068,400							
Source: Partners for Economic Solutions, 2012.									

Sources of Project Specific Funding

For each phased of redevelopment specific projects may require gap financing resulting in the need to use incentives such as low-interest loans, payments in lieu of taxes or conditional loans/grants for specific projects. The Urban Redevelopment Authority has a series of financial tools to meet these gaps. The following recommendation includes those not frequently used in Pittsburgh. 170



New Markets Tax Credits

A key potential source of subsidy financing, New Markets Tax Credits (NMTC) provide equity through Community Development Entities (CDE) to assist on commercial development projects in low-income communities. NMTCs attract investors willing to make an equity investment in a CDE. The annual dollar volume of New Markets Tax Credits allocated by the U.S. government is capped, creating a competitive process for receiving the allocation of credits during each annual funding round. The mixed-use (residential/commercial) product suggested in the Target Zone redevelopment projects can qualify as long as more than 20 percent of the gross revenue in the seven-year compliance period comes from commercial rents.

The most common model used by non-profits for New Market Tax Credits allows up to 95 percent of a project's cost to be financed, with favorable debt coverage ratios as low as 1.1 times net operating income, and interest-only loans at rates as low as three percent. Loans can also be structured so that debt service is tied to available cash flow. An essential requirement for NMTC-derived financing is that it must involve debt (unlike other tax credit programs) in order to meet Internal Revenue Service requirements. This debt must be structured so that it will be repaid after a certain period (i.e. write-down or forgiveness provisions are not acceptable). It might be best to structure the retail and office space as a condominium separate from the residential component within several buildings. Allowing separate financing and operating the commercial component as its own entity that leases space to individual office and retail tenants could expand the potential for condominiums in the residential development program, particularly for riverfront townhouses and potential expansion of R&D space.

Enterprise- Green Communities Initiative

The Enterprise Community Loan Fund offers additional financial resources for "green" developments. The Green Communities Initiative provides funding for redevelopment of existing residential developments for both planning and construction. Planning funds may be used for architectural work, engineering, site surveys, energy use studies and environmental reviews. Construction funds may be applied to green construction items including green materials and energy-efficient appliances. Any community-based housing developer may apply for these funds and receive up to \$3 million at 6.5-percent for up to 36 months. These funds require that rental housing projects serve households with incomes at or below 60 percent of the area median income. For homeownership units, households with incomes at or below 80 percent of area median income are eligible for assistance. As a competitive process, it is important that projects meet green standards set out by the Enterprise Foundation.



Green Communities provides resources for developers and communities to build welllocated green affordable homes. Enterprise's TOD work includes financing, research and policy advocacy with charrette grants, sustainable training grants and offset funding alternatives. The offset funding alternative allows developers to build green housing and offset a community's current carbon footprint. This type of alternative funding program helps to value the more environmentally-friendly building options and incentivize a more green redevelopment effort.

Pooled Investment Fund

Many municipalities and jurisdictions search for additional funds and seek to leverage a larger pool of foundation and private lender capital. Denver, San Francisco and other localities use a commitment of local public funds to fund the most risky portion of affordable housing development. If a project's cash flow is not sufficient to repay the total loan, it is the City's loan that is not repaid. Foundations provide additional funding that is at risk of not being repaid if the shortfall exceeds the City's share of the fund. This reduces the risk to cooperating private lenders, who are assured that their loans will be repaid in full. This tool would be combined with other tools to acquire and make available sites for preservation or creation of affordable housing at a reduced cost.

In one example, Enterprise Foundation is currently seeking support for its regional Green Preservation of Affordable Transit-Oriented Housing (Green PATH) initiative to acquire existing apartment buildings near transit stations and preserve them as long-term affordable housing. Its first investments have been in Southeast Washington, DC.

Given the Study Area's vast reservoir of market affordable housing and the need to preserve affordable housing, effective incentives like a Pooled Investment Fund for Affordable Housing should be considered for Lawrenceville.

Based on current market conditions, the likely outcome of the existing residential zoning within the Target Zone would be for the development of townhouses and a few multi-family market rate structures. While these two residential product types can be an important element in a mixed-income redevelopment, setting aside a nominal amount of affordable housing within the multi-family structures may help to stabilize the affordable housing stock available in Lawrenceville.



Zoning Section

The Study Area is currently zoned Urban Industrial (UI) and General Industrial (GI) along the river and the railroad with residential zoning (R1A-VH) generally south of Willow Street, Hatfield Street and Plum Way.

The Urban Industrial District is intended to:

- 1. Allow mid-sized to large industries with lower external impacts on surrounding properties and districts;
- 2. Provide a flexible district that addresses the growing need for easily adaptable and flexible spaces, including office parks, incubator spaces, high technology and service sector industries;
- 3. Allow multi-use buildings that permit assembly, inventory, sales and business functions within the same space; and
- 4. Encourage adaptive reuse of manufacturing buildings and allow the development of high density multi-unit residential buildings.

Permitted uses include multi-unit residential, public assembly, basic industry, laboratory/research activities, manufacturing and assembly, office, parking structure, parks and recreation, indoor and outdoor recreation and entertainment, restaurant and retail sales or services. These uses allow for much of the planned development and for this reason existing zoning is not viewed as an obstacle to redevelopment.

The General Industrial District is intended to:

- 1. Accommodate a full range of industrial, manufacturing, warehouse, and similar uses which are incompatible with lower intensity land uses;
- 2. Preserve land for manufacturing uses to maintain the diversity of the City's economic base;
- 3. Allow limited commercial development to support industrial uses without competing for land value; and
- 4. Encourage appropriate multi-unit residential development in the adaptive reuse of older industrial buildings.

Permitted uses include basic industry, laboratory/research, office, parking structure, parks and recreation, outdoor recreation and entertainment, restaurant and retail sales or service. No residential use is allowed.



The permissive nature of the UI zone is supportive of the land use plan. The City should consider extending the UI zone further west to 40th Street from its current limit at 43rd Street. The boundary of the GI zoning for McConway & Torley will need to be adjusted with changes in ownership and use of the parking lot at 48th Street.

The residential zone will need to permit laboratory/research, office, restaurant, retail sales or service to achieve the mix of uses envisioned in the plan.



Performance Measures Section

The economic impact analyses for the Central Lawrenceville target zone reflect the potential changes to the existing land use patterns and the potential to expanded train operations allowing for passenger rail service. PES estimated the number of new jobs created under two different development scenarios. This estimate of jobs included both construction-period and on-going employment. Economic multipliers estimated by the U.S. Bureau of Economic Analysis were used to estimate the potential spin off jobs created by the development activity under each development scenarios. These employment estimates included the total number of full-time equivalent jobs, estimating total hours and average wage based on industry standards.

The economic impact analysis compares the revenues and costs associated with the new development.

The new development would create 793 to 973 construction-period jobs as well as 1,208 to 1,729 permanent, on-going jobs.

City of Pittsburgh Tax Structure

On the revenue side, the City's General Fund would benefit from five primary taxes:

- Real property taxes levied at \$10.80 per \$1,000 of assessed property value;
- Business Privilege taxes equal to 0.1 percent of gross receipts for service businesses, rentals and contractors;
- Sales taxes equal to 1.0 percent of the total 6.75 percent tax.
- Earned Income taxes equal to 1.0 percent of employee wages; and
- Local Services taxes levied at \$52 per employee.

The School District collects real property taxes at the rate of \$13.92 per \$1,000 of assessed property value and Earned Income taxes at 2.0 percent of employee wages.

Impacts on Pittsburgh's Revenues and Costs

As shown in Table 4, new development would generate \$2.3 to \$2.8 million in total annual revenues for Pittsburgh. The variations reflect the different program elements between the two development build-out options.

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Table 4. City of Pittsburgh Revenues Generated By CentralLawrencevilleRedevelopment Alternatives									
Central Lawrenceville									
Revenue Source	Option 1	Option 2							
Annual City Revenues									
Retail Sales Taxes	\$1,800	\$1,800							
Business Privilege Tax	\$8,700	\$11,900							
Employees' Personal Sales Taxes	\$4,000	\$5,000							
Real Property Taxes ¹	\$2,235,000	\$1,526,000							
Employees' Earned Income Taxes	\$444,200	\$635,800							
Local Service Tax	\$62,900	\$89,600							
Total Annual City Revenues	\$2,756,600	\$2,270,100							
City Construction-Period Revenues									
Construction Workers Sales Tax Revenues	\$2,800	\$2,300							
Sales Taxes on Construction Materials	\$37,000	\$31,000							
Real Property Taxes ¹	\$0	\$0							
Construction Workers Earned Income Taxes	\$422,300	\$344,000							
Total Construction-Period Revenues	\$462,100	\$377,300							
Note: ¹ Real property tax revenues exclude current taxes on land values.									
Sources: Sasaki Associates; Allegheny Count	y tax rates: U.S. Bure	eau of Economic							
Analysis; Partners for Economic Solutions, 20	012.								



Appendix Tables



	Table A-1. Federal & State Funds										
Program Name	Agency / Dept	General Use	Eligible Recipients	Maximum Amount	Program Description	Requirements - General	Requirements - Matching Funds				
Brownfields Economic Development Initiative (BEDI)	US Department of Housing and Urban Development	For properties burdened by real or potential environment contamination	Entitlement communities, may be given to private sector entities		Competitive grant program to stimulate and promote economic and community development. Must be used in conjunction with Community Development Block Grant Section 108 Loan Guarantee funds.	Proof of contamination and plan for redevelopment or returning the land to productive use.					
Environmental Education Grants	U.S. EPA	Environmental Education Programs / Media	Local or state education and environmental agencies; college or university; a 501(c)(3) non-profit	Up to \$50,000 from a Regional Office; or \$125,000 from Headquarters (more competitive); most grants \$15,000-\$20,000	Funds environmental ⁻ and public ⁻ health focused educational programming, media, school programs/trips, awareness campaign, website development, etc. Could help "market" an environmental education center.	Grant Application: budget proposal; performance metrics	At least 25% of total project cost from non-federal sources				
Public Works & Economic Development Program	Economic Development Administration, US DOC	Construction / rehab funds that expand & upgrade infrastructure to attract new industry, support technology-led development, redevelop brownfield sites and provide eco-industrial development	State or municipal government or agency; higher-education institution; 501(c)(3) non-profit	No set limit. Project grants ranged from \$12,500 to \$3M	Characteristic projects include investments in facilities such as water and sewer systems, industrial access roads, industrial and business parks, port facilities, ralivada sidings, distance learning facilities, skill- training facilities, business incubator facilities, brownfield redevelopment, eco-industrial facilities, and telecommunications and broadband infrastructure improvements necessary for business creation, retention and expansion.	Must: meet a pressing regional need: improve opportunities for industrial / commercial facilities: help create long-term employment opportunities: OR benefit unemployed / low	Generally EDA funds cannot exceed 50% of project cost				
Brownfields Economic Development Initiative (BEDI)	US Housing and Urban Development	BEDI provides funding for redevelopment efforts on abandoned, idled and underused industrial and commercial facilities contaminated and hampered by environmental contamination	Local government and private parties may apply for Section 108 Loan Guarantees & BEDI funds.		Projects must increase economic opportunity for persons of low- and moderate-income or stimulate and retain businesses and jobs. The competitive basis of the funding requires diligent planning not simply 'land banking' options but actually returning property to productive use. The Section 108 funds are noncompetitive and available throughout the year.		No matching requirements expect for Section 108 Loan Guarantee must be used in conjunction with a dollar for dollar match				
Clean Water State Revolving Fund (see PA programs)	US EPA	Provides grants on a revolving loan basis to fund water quality protection projects	Partners with nonprofits, local governments and banks to allow municipalities, communities and even small businesses.	Low-interest loans, flexible terms	Projects many include traditional municipal wastewater treatment projects, nonpoint source, watershed protection or restoration and estuary management projects.						
Community Action for a Renewed Environment	US EPA	A competitive grant program to help communities reduce toxic pollution in the local environment	Local, public non-profit institutions, private non-profits, local government and colleges and universities may apply for the grant funding.	Efforts to create self- sustaining, community- based partners that improve the local environment and reduce exposures to toxic pollutants	The EPS support includes tools, technical support and funding to enable voluntary programs.						



	Table A-1. Federal & State Funds (continued)										
Program Name	Agency / Dept	General Use	Eligible Recipients	Maximum Amount	Program Description	Requirements • General	Requirements - Matching Funds				
Bank Enterprise Award (BEA) Program	US Department of Treasury CDFI Fund	Provides access to additional funding for community development activities of insured depository insitutations	Banks, thrifts and other insured depository institutions	Amounts vary based on capacity of CDFI activities	Funds may be used for equity investments, equity-like loans, grants, deposits/shares. Most often these funds are used in low-income or distressed communities to fund affordable housing development, small business loans, and commercial real estate loans. Additionally, these funds may be used to provide technical assistance to qualified CDFI partners.	Application process requires completing detailed CDFI Fund programs.					
Bankf of America Charitable Foundation Funding	Funding for Community Development	Bank of America's Charitable Foundation offers financial support to revitalize communites by supporting organizations and initiatives that contribute to the vitality and livability of communities	To support economic and cultural vibrancy for communities, large infrastructure nonprofits and institutions that provide economic opportunity will be supported.	Annual applications in response to Requests for Proposals offer applicants an opportunity to gain funding.							
Boating Infrastructure Grant	Pennsylvania Fish and Boating Commission	Provides grants for transient moorage (tie·ups) serving recreational motorboats 26 feet and longer	General public, recreational boaters, municipalities, state agencies and private marinas	Tier 1 grants up to \$100,000 per State for smaller awards; Tier 2 grants range up to \$1.5 M and average \$500,000 federal competition	Prohibited uses: law enforcement; facilities for boats less than 26'; any activity that does not provide public benefits. Examples of funded projects: construction of transient slips, day docks, floating docks and fixed piers: navigational aids: and dockside utilities including electric, water, and pumpout stations.	Grant Application; budget proposal; performance metrics	Federal share of project costs cannot exceed 75%				
Clean Vessel Act (Pumpout Grant)	Pennsylvania Fish and Boating Commission	Fund the construction, renovation, and maintenance of pumpout and dump stations to service pleasure boats	General public, recreational boaters, municipalities, and private marinas	Up to \$1.5 M; average grant c. \$400,000	Funds up to 75% of the cost for construction, renovation, operation, and maintenance of sewage pumpout stations, waste reception facilities & pumpout boats for recreational boaters: educational programs that inform boaters of the importance of proper disposal of their sewage.	Grant Application; budget proposal; performance metrics	Federal share of project costs cannot exceed 75%				
Coldwater Heritage Partnership	Pennsylvania Fish and Boating Commission	Funding support for the evaluation, conservation and protection of Pennsylvania's coldwater streams	Non-profit organizations such as watershed groups, conservation districts, municipalities	Awards grants of up to \$5,000 annually	Funds used to develop Coldwater Conservation Plans, which build local awareness and support for the long term stewardship of coldwater streams and their surrounding watersheds. The plans are meant to identify potential problems and opportunities for stream conservation, and may often also lead to more detailed watershed studies or projects, ultimately improving the health of coldwater ecosystems.	Grant Application;					
Heritage Park Grants	Pennsylvania Department of Conservation and Natural Resources	funding for feasibility studies: development of management action plans for heritage park areas: specialized studies: implementation projects: and hiring of state heritage park managers	municipalities, nonprofit organizations or federally designated commissions acting on behalf of the municipalities in a heritage park area		These grants may be challenging as they tend to be tied to Heritage requirements for which the Target Zone may not qualify or earn as many points in the competition		Requires 25% to 50% local match				



Table A-1. Federal & State Funds (continued)									
Program Name	Agency / Dept	General Use	Eligible Recipients	Maximum Amount	Program Description	Requirements • General	Requirements • Matching Funds		
Community Grants	Pennsylvania Department of Conservation and Natural Resources	Funding recreation, park and conservation acquisition and development	Municipalities	Initial Grant of \$20,000 or less, Maximum Grant \$40,000	Funds for recreation, park and conservation projects. These include the rehabilitation and development of parks and recreation facilities: acquisition of land for park and conservation purposes: and technical assistance for feasibility studies, ratil studies, and site development planning. Grants require a 50% match except for some technical assistance grants.		Requires 50% local match, except tech assitance		
River Conservation Grants	Pennsylvania Department of Conservation and Natural Resources	Fund conservation and enhance existing river resources	Municipalities, counties, intermunicipal authorities, river support groups (non- profits)		Funds both planning grants to identify natural/cultural resources and conservation plans or implementation grants.		Grants require 50% match		
Rails to Trails Grants	Pennsylvania Department of Conservation and Natural Resources	Funding for the planning, acquisition or development of rail-trail corridors	Municipalities, nonprofit organizations	A maximum of \$100,000, and 20% project applicant money	Funds used to create new non-motorized trails predominately used for hiking and biking.		Grants require 50% match fo acquisition and 20 % for all other project costs		
Pennsylvania Recreational Trails Program Grants	Pennsylvania Department of Conservation and Natural Resources	Funds to develop/maintain recreation trails for nonmotorized recreation trail use	Federal and state agencies, local governments and private organizations	Maximum of \$100,000	Funding for maintenance and restoration of existing recreational trails; development and rehabilitation of trailside and trailhead facilities and trail linkages; purchase and lease of recreational trail construction and maintenance equipment; construction of new recreational trails (with restrictions on new trails on Federal land); and acquisition of easements or property for recreational trails or recreational trail corridors.		Grants require 20% match except for acquisition which requires 50% match, credit received for ROW donations and other contributions		
Innovation Works, Inc.	Pennsylvania Department of Community & Economic Development	Funds to create loan programs at Innovation Works, to support innovation, econome growth in high technology sector			Funds from the US Treasury's State Small Business Credit Initiative create the loan programs at Innovation Works, to support innovation, econome growth in high technology sector.				
PA First	PA Department of Community & Economic Development	Financing for businesses interested in capital improvement costs, large infrastructure projects and job training.	Private companies and municipalities on behalf of businesses may apply	Funding cap of \$1.25 million	Offers grant and low-interest loans to finance public and private infrastructure projects.	Must create aor retain full- time jobs and keep wages stable (see criterion)	Requires to make a \$10 private investment for every public dollar invested		
Industrial Site Reuse Program	PA Department of Community & Economic Development	Provides grants and low-interest loan financing for enivronmental assessment and remediation (Phase 1, 2, &3) at former industrial sites	Public entities, private nonprofit economic development entities and private companies may apply	Grants/loans up to \$200,000 environmental assessment, \$ 1 million for remeidation with 2 percent interest.	Funding may be used to determine extend of remediation required and begin remediation. Reciepent may not be associated with contamination or responsible. The program requires a letter of intent.	Requires a previously industrial site with no liability concerns and intend for reuse	No matching requirement		
Sources: Pennsyl	vania Department o	f Community & Economic Development	Partners for Economic	Solutions, 2012.					


Table A-2. Federal Funding Programs for the Research and Development Business Sector								
Program Name	Agency / Dept	General Use	Eligible Recipients	Maximum Amount	Program Description			
Keystone Innovation Zones (KIZ)	Pennsylvania Deparmtnet of Community & Economic Development	Funding for communities that host insistuations of higher education to promote entrepreneurial opportunities.	KIZ Tax Credits eligible for technology-based and enterpreneurial compaies in operation for less than 8 yrs under the industry specified category	Credit equalt to 50% of increase in gross revenues in precedding 2 years, limit of \$100,000 annually but tradable for capital monies.	Establish local partnerships to support start-ups as they move through development process.			
R&D Tax Credit	Pennsylvania Deparmtnet of Community & Economic Development	Statewide tax credit that's tradability option as part of the Economic Stimulus Program	Tax credits awarded for a minimum of 1 year and may sell or assign the R&D tax credits to a buyer	Credit equalt to 50% of increase in gross revenues in precedding 2 years, limit of \$100,000 annually but tradable for capital monies.	Tecnology-based companies that are not yet profitable convert the R7D tax credits into cash by selling and assigning those credits to companies or individuals who need the credits to offset tax liability.			
i6 Challenge	U.S. Department of Commerce's Office of Innovation and Entrepreneurship	Funding for the commercializationa dn enterpreheurship of green technology	Targets educational institutions and associated research entities	\$1 million maximum award	A multi-agency grant that encourages and rewards innovative, groundbreaking ideas that accelerate technology commercialization, new venture formation, job creation, and economic growth. Pittsburgh's Innovation Works received grant funds to expand opportunities of entreprenuers by connecting to general business systems			
Source: Federal Economic Development Authority; Partners for Economic Solutions, 2012.								

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Performance Measures

Performance Measures

Job Creation

The economic impact analyses for the Central Lawrenceville target zone reflect the potential changes to the existing land use patterns and the potential to expanded train operations allowing for passenger rail service. An estimate of new jobs created under two different development scenarios was created. This estimate of jobs included both construction-period and on-going employment. Economic multipliers developed by the U.S. Bureau of Economic Analysis were used to estimate the potential spin off jobs created by the development activity under each scenario. These employment estimates included the total number of full-time equivalent jobs, estimating total hours and average wage based on industry standards. In total the new development would create create 793 to 973 construction-period jobs as well as 1,208 to 1,729 permanent, on-going jobs.

Development Capacity

The full development capacity of the 43rd Street District is 1.4 million square feet of new and renovated space. This development includes nearly half a million square feet of urban flex space with a technology focus, 84,000 square feet of light industrial growth, 6,300 square feet of retail, and six hundred new housing units. To account for future flexibility in implementation, performance measures were tested for two ranges of development density: 950,000 square feet to 1.3 million square feet of new development.

Increased City Revenues

The economic impact analysis also compares the revenues and costs associated with the new development. Redevelopment of the district is estimated to generate \$2.3 to \$2.8 million in tax revenue for Pittsburgh annually. As redevelopment occurs the ability to meet these target employment and potential revenue projections will serve as initial performance measures. These numbers are based on new development; however estimates of future property values vary and are difficult to confidently predict.

Total Investment required

Static pro formas by product type outlined the cost to develop, the private investment justified by the future returns, and the resulting surplus or deficit, based on current market conditions for new development. Through this analysis, the target area in the 43rd Street District plan projects an estimated total of \$155,229,100 in private investment, at full build out.

Public investment in open space and street improvements totals \$120,390,686, based on the cost estimates included in these appendices and applied over the full length of the study area. This investment does not include future public subsidies in land, public parking, or other incentives that are negotiated. This number includes:

- Riverfront Trail \$1,744,845
- Green Boulevard \$17,764,451
- Strip District open space \$31,710,843
- 43rd Street District open space \$27,222,312
- 43rd Street District roadways \$25,931,325
- Highland Park \$16,016,910

Renovations and Rehabilitation

The market analysis suggests that the market can absorb renovation of approximately 240 townhomes (for sale or rental) in the 43rd Street District target area from today through 2021. Absorption of retail units will vary with the general economy.



Performance Measure: Projected City of Pittsburgh Increase in Revenues

Table 4. City of Pittsburgh Revenues Generated By CentralLawrencevilleRedevelopment Alternatives						
	Central Lawrenceville					
Revenue Source	Option 1	Option 2				
Annual City Revenues						
Retail Sales Taxes	\$1,800	\$1,800				
Business Privilege Tax	\$8,700	\$11,900				
Employees' Personal Sales Taxes	\$4,000	\$5,000				
Real Property Taxes ¹	\$2,235,000	\$1,526,000				
Employees' Earned Income Taxes	\$444,200	\$635,800				
Local Service Tax	\$62,900	\$89,600				
Total Annual City Revenues	\$2,756,600	\$2,270,100				
City Construction-Period Revenues						
Construction Workers Sales Tax Revenues	\$2,800	\$2,300				
Sales Taxes on Construction Materials	\$37,000	\$31,000				
Real Property Taxes ¹	\$0	\$0				
Construction Workers Earned Income Taxes	\$422,300	\$344,000				
Total Construction-Period Revenues	\$462,100	\$377,300				
Note: ¹ Real property tax revenues exclude current taxes on land values. Sources: Sasaki Associates; Allegheny County tax rates: U.S. Bureau of Economic Analysis; Partners for Economic Solutions, 2012.						

