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**DRAFT**

# Twinbrook

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Urban Design Guidelines

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March 4, 2010

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## **Urban Design Guidelines**

### **Twinbrook Sector Plan**

#### ABSTRACT

These guidelines are intended to implement the recommendations in the Twinbrook Sector Plan. They are approved by the Planning Board for staff use in reviewing development proposals and should be used as well by developers in shaping their projects, and by citizens interested in the pattern and character of development in their community.

#### SOURCE OF COPIES

The Maryland-National Capital Park and Planning Commission

8787 Georgia Avenue

Silver Spring, MD 20910-3760

On line at: <http://www.montgomeryplanning.org/community/twinbrook/index.shtm>

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# Contents

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<b>Introduction</b>	<b>05</b>
Principles	06
Foreword	07
Conceptual Framework	08
Design Objectives	09
Opportunities Overview	10
<b>Case Studies: Adaptive Buildings</b>	<b>13</b>
Adaptive Reuse	14
Twinbrook Opportunities	16
Buildings	18
Blocks	21
Neighborhoods	24
<b>District Recommendations</b>	<b>27</b>
Metro Core Area	28
Technology Employment Area	30
Light industrial Area	32
<b>Urban Design Elements</b>	<b>35</b>
Streets	36
Open Space	38
Buildings	42



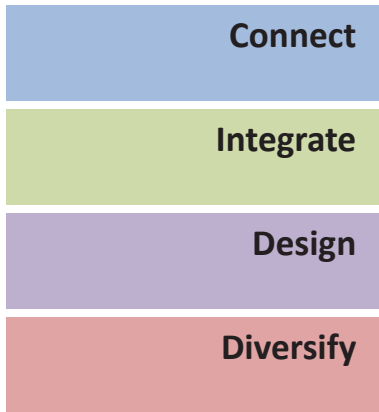
Reconfigure existing mobility networks to improve connectivity between neighborhoods and to provide alternatives for moving safely through the area.

Combine responsible natural resource management with public open space design to create integrated and sustainable urban forms.

Promote architectural excellence and encourage sustainable and efficient building design and construction practices.

Identify and incorporate distinctive local character into the development of new and vibrant urban centers.

## Principles



The Urban Design Guidelines are intended to assist in achieving design excellence in community building. They are part of a creative initiative by the Planning Department to assist in implementing the recommendations in approved and adopted Master Plans or Sector Plans. The structure of the planning process follows:

- Master Plans and Sector Plans – Provide the vision for a specific area
- Zoning Ordinance – Establishes the regulations and implementation tools
- Design Guidelines – Provide the inspiration and paint a graphic picture of the vision

The Design Guidelines are organized as follows:

- Principles – Identify the overarching urban design objectives in accordance with the vision established in the Plan
- Conceptual Framework – Establishes a design concept for each planning area
- Case Studies – Review examples of built projects that illustrate the basic ideas outlined in the Conceptual Framework
- Building Blocks of the Community:
  - Districts: Graphic and written descriptions of the recommended characteristics of each district in accordance with the vision of the Master Plan.
  - Elements: General design guidance for streets, spaces for public use, and buildings

The Guidelines are developed through work with property owners, residents, institutions, interest groups, and the County Executive. They are approved by the Planning Board for use in developing and evaluating proposed building

projects and other applications. They will be revised to reflect new technologies and field conditions, and updated comprehensively at least once every six years.

With the exception of street standards and other specific recommendations included in the Plan, the Guidelines are not regulations that mandate specific forms and locations for buildings and open space. They illustrate how Plan recommendations and principles might be met, and encourage applicants to propose designs that create an attractive and successful public realm by careful consideration of the following:

- Streets – These guidelines conform to the Road Code, and are binding unless a waiver is granted by the Planning Board to achieve context sensitive design. The layouts of local streets are illustrative and not mandated.
- Open Space – The guidelines are illustrative except for specific recommendations for open spaces
- Buildings – The guidelines are illustrative and are intended to create an urban environment.

To allow payment instead of onsite improvements, Section 59-D-2.31 of the Zoning Ordinance requires the Planning Board to issue guidelines. The guidelines establish the opportunity for a payment in lieu of on-site public use space and amenities.



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# Introduction

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## Conceptual Framework

Successful urban centers stitch together different neighborhoods by combining newly developed areas with older, more established communities. In up and coming areas, where densities are low and urban fabric is mostly non-existent, the energy introduced by new development and the efficiency associated with new systems and services are necessary to establish an attractive destination. Creating a synergy between these new enclaves and their older counterparts ensures their longevity.

In larger and more established cities, communities have a consistent urban fabric consolidated over time that often proves malleable enough to allow the city to reposition itself to weather development cycles. To ensure the long term success of any of the County's emerging centers, the creation of such an adaptable urban fabric must be fostered, in conjunction with newly constructed mixed-use development.

Several of the County's emerging centers have areas that can be encouraged to develop organically, to fulfill the role this base fabric plays in major centers. The creation of such urban fabric will be essential

for the endurance of the emerging Twinbrook urban center, and a priority for these Guidelines.

The Twinbrook Sector Plan recommends concentrating biotechnology and technology uses, adding residential uses to improve the balance of jobs and housing, while retaining and maximizing existing light industrial uses that support the advanced technology industry.

The Guidelines use these priorities to create neighborhood character based on encouraging a combination of attitudes toward development, instead of issuing specific design directives. The Twinbrook area will transition from street facing buildings and retail-oriented development near the Metro station, into the high-tech employment district, and then to the manufacturing community and mixed uses of the light industrial district.

Distinctive local character will be achieved by the creative reuse of many existing industrial structures, and by considering the long-term adaptability potential of any proposed construction.



*Twinbrook Station Development  
Rockville, MD*





## Design Objectives

Taking advantage of its proximity to the Metro station, the future Twinbrook will offer opportunities for meaningful social interaction through well designed spaces for public use. Aided by a more consolidated urban fabric, connected neighborhoods supported by a network of activities will promote interactions among the people who live, work, or visit the area. The priorities outlined in the Twinbrook Sector Plan can be summarized in four interconnected categories:

### Connectivity

Improve how people connect to transit, services, entertainment, and nature by:

- Using building facades to create a continuous building line along streets, to define and activate the public realm;
- Providing on-street parking wherever possible to reduce vehicular speeds and increase pedestrian safety;
- Providing closely-spaced trees along all pedestrian oriented streets;
- Minimizing the number of driveway cuts along major pedestrian routes;
- Encouraging the creation of active mid-block pedestrian connections to serve as alternatives to pedestrian travel;
- Improving safety at pedestrian crossings.

### Environment

Reduce our impact on the natural environment by:

- Improving air quality by creating walkable environments to reduce reliance on car usage;
- Requiring improved storm-water management techniques to minimize degradation of underground streams;
- Promoting energy conservation and generation as a primary building and public space design consideration;

- Encouraging building massing distribution that improves air flow and access to natural light;
- Requiring the integration of recognizable sustainable components into the design of buildings and public places (i.e. vegetated roofs, green walls, bio-swales, etc.).

### Design

Apply sustainable principles to the way we build and how we live by:

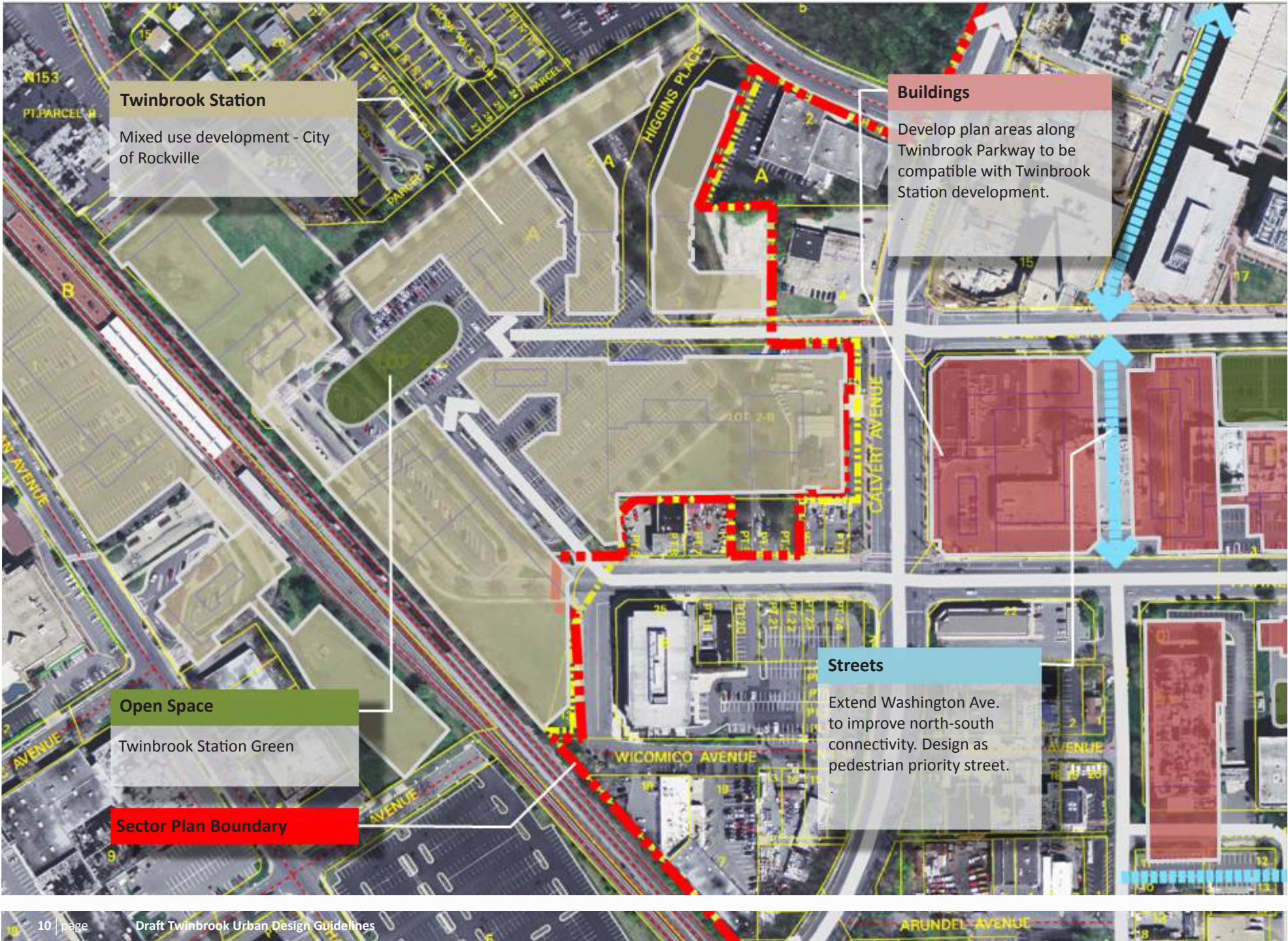
- Building smarter buildings;
- Promoting compact development patterns to reduce impact on the natural environment;
- Improving the quality of our social interactions and physical health by creating walkable communities;
- Encouraging pedestrian activity by enhancing the connections between local institutions, services, open spaces, and transit.

### Diversity

Create a true mix of choices in how and where we live by:

- Implementing land use patterns that create a mix of homes, jobs, shopping, and public places;
- Recommending the creation of housing options that can accommodate a range of ages and family needs;
- Creating an attractive urban environment that will attract people of all ages, incomes and ethnicities.

The Design Guidelines will use these categories to organize the descriptions of the various planning areas, and the descriptions of the urban design elements that will shape the future of Twinbrook.



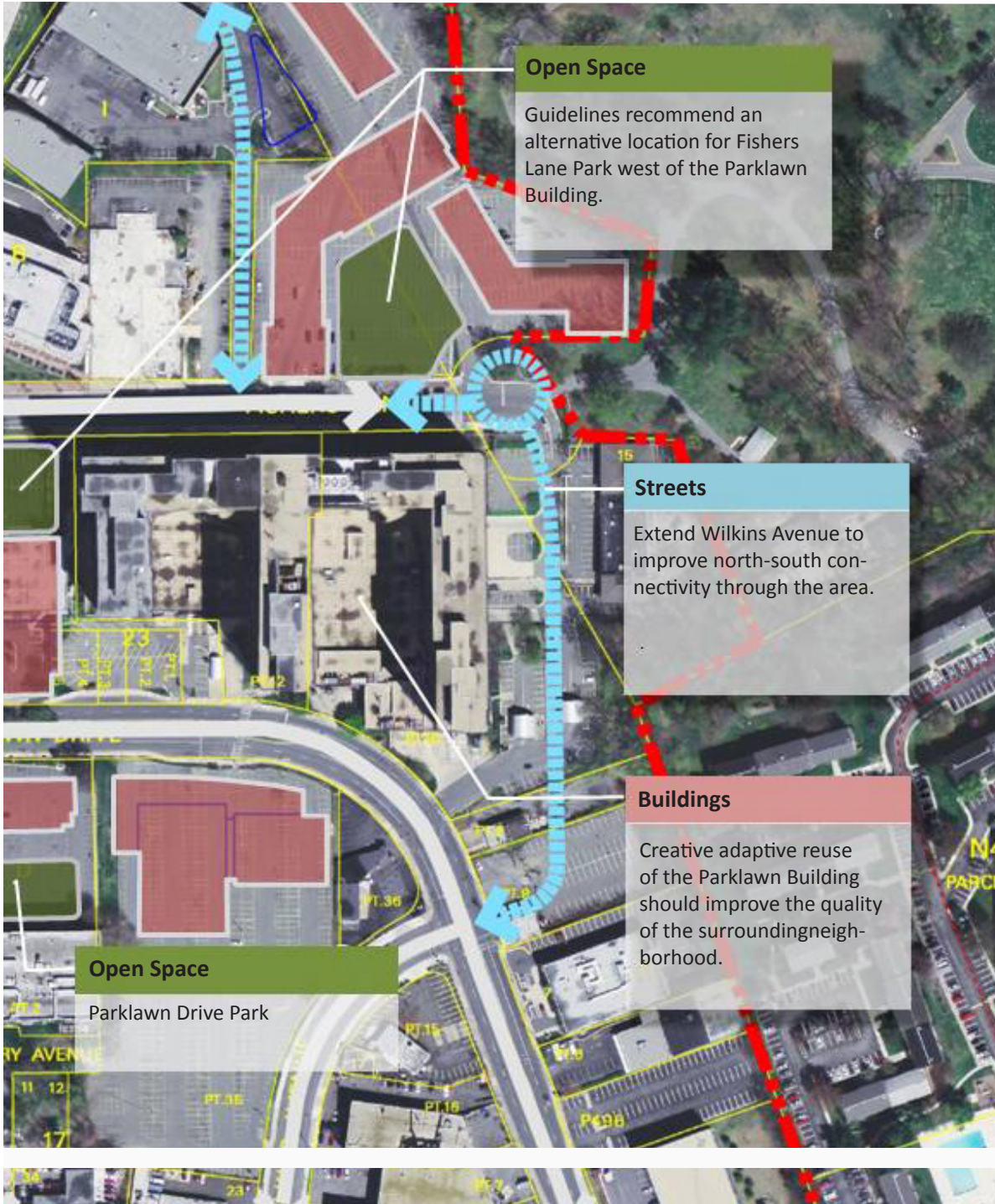
**Twinbrook Station**  
Mixed use development - City of Rockville

**Buildings**  
Develop plan areas along Twinbrook Parkway to be compatible with Twinbrook Station development.

**Open Space**  
Twinbrook Station Green

**Streets**  
Extend Washington Ave. to improve north-south connectivity. Design as pedestrian priority street.

**Sector Plan Boundary**



## Opportunities Overview

Twinbrook’s center of activity will be its central corridor, as illustrated on the graphic to the left. It will include the blocks between Fishers Lane and Parklawn Drive, running east and west to the Plan’s boundaries. These properties and streets will link the employment area with proposed development around the Twinbrook Metro Station, and will frame the connections serving as points on entry to the light industrial district to the south.

### Adjacent Development

The proposed redevelopment of areas around the Twinbrook Metro Station will play the primary role in establishing the character along the western edge of the planning area’s central corridor.

### Open Space

Twinbrook Station’s central green will serve as the western anchor for the Fisher’s Lane corridor. The Sector Plan includes recommendations for two additional public spaces (Fisher’s Lane Park and Parklawn Park).

### Streets

Streetscape improvements will be required along existing major roads (Fishers Lane, Parklawn Drive). These improvements will also be extended westward to meet new roads in the proposed development around Metro. In addition, new north-south business roads will complete a network that improves mobility within the area and alleviates congestion at Twinbrook Parkway.

### Buildings

A few key properties present possibilities for extending, improving, and re-establishing local neighborhood character. Recognizing each district has its own distinctive potential, the Design Guidelines use the case studies in the following chapter to illustrate development attitudes that can inform how key properties redevelop.



*Cady's Alley, Washington DC  
Macinturff Architects*

### Relationship to the Twinbrook Sector Plan

The Twinbrook Sector Plan specifically provides for the transformation of:

- Office Buildings - Rezone the Parklawn Building property to allow adaptive reuse that would keep the building viable and generate employees, residents, and street activity at an urban scale.
- Industrial Buildings - Amend industrial zoning to preserve the existing mix of light industrial and retail uses, and to encourage redevelopment on existing small sites, rather than assembled lots, with minimal improvements to the public realm.

A primary goal of the Guidelines is to support the Plan's recommendations for improving the existing urban environment by fostering the creation of sustainable urban fabric. The case studies are intended to expand the discussion on the possibilities of adaptive reuse, while strongly recommending consideration of reuse attitudes similar to those described in the Plan on other existing properties throughout the planning area, as they redevelop.

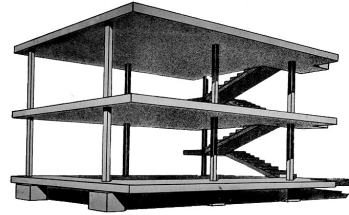
# Case Studies

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## Adaptive Buildings

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## Adaptive Reuse



*Dom-ino House, Le Corbusier*

Existing buildings offer good opportunities for community redevelopment through adaptive reuse. Older structures can be retrofitted for new purposes when original uses become outdated. Architects can change the structure's primary function, while retaining architectural details that make the building unique.

Adaptive reuse is driven by the demand to accommodate changing use, performance, and size requirements needed to maintain the utility of existing buildings. Often spurred by technological factors, fast growing industries in science, technology, and other research-driven fields require flexibility to evolve and expand operations to remain competitive. At the same time, rising energy costs have placed a premium on long-term investments in efficient building technologies and better quality building. Finally, changing lifestyle preferences and household demographics present opportunities to redevelop outmoded structures for previously unimagined uses.

Encouraging a philosophy of adaptive reuse avoids the polar extremes of preservation and demolition, and opposes stylistic imitations solely for the purpose of achieving contextual compatibility. Instead adaptive reuse allows most salient characteristics of existing buildings to be retained for future use while replacing undesirable aspects.



*Feria de Mataderos  
Buenos Aires, Argentina*

## Advantages of Adaptive Reuse

Depending on the structural integrity of an existing building, cost savings could be achieved by adapting and reusing or repurposing key building elements. For nonconforming buildings, renovation and reuse may be the only way to improve a property without sacrificing density on the site.

### *Reduce Construction Waste*

The EPA estimates that 170 million tons of building-related construction and demolition debris was generated in the U.S. in 2003, with 61 percent coming from non-residential sources. Adaptive reuse substantially reduces construction waste by salvaging existing materials while reducing demand for new ones. This process decreases the size of a building's carbon footprint in part by driving down its embodied energy – the energy required for raw material extraction, transport, manufacture, assembly, installation, disassembly, deconstruction and/or decomposition.

### *Build On Existing Character*

A neighborhood's personality is defined by its buildings. The adaptive reuse of buildings can help to anchor a neighborhood and community leading to a social and economic revitalization. Urban form is shaped over multiple generations of building and resident use. Through adaptive reuse there is an opportunity to extend the dialogue between old and new built forms, and to create neighborhoods that are vibrant and visually distinct.

GAS/SSA Teleservice Center, Auburn WA  
TVA Architects



## In Twinbrook



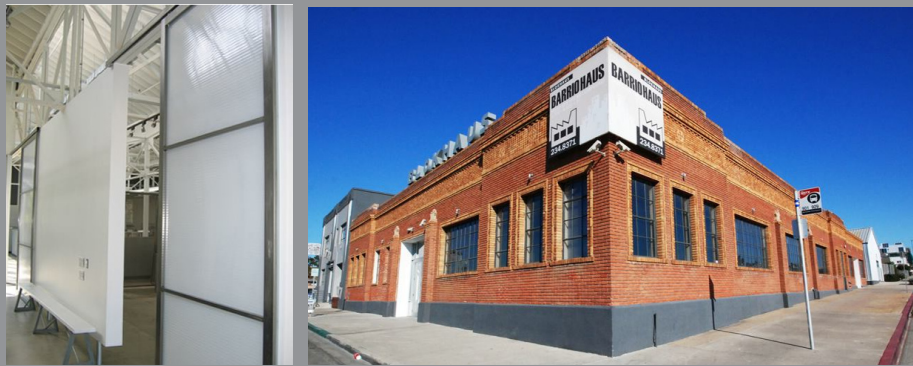
While adaptability could be an applicable principle for all new development in Montgomery County, it is particularly salient in the Twinbrook Sector Plan area where building functions – living, research, government employment, and small business and industrial uses – reflect a need for accommodating change. In the Technology Employment area, anticipated growth of laboratory functions calls for the implementation of adaptable design principles – high ceilings, flexible floor space arrangements, energy efficiency – to ensure the long-term viability of these buildings. At 40-years-old, the 935,000-square-foot Parklawn Building is also ripe for rehabilitation to attract new tenants. Meanwhile, the Twinbrook Sector Plan reaffirms its vision of the Light Industrial area as an incubator for crucial service and small business operations. Located in the oldest part of the Twinbrook neighborhood, development in this area can strengthen the urban fabric by linking and associating with the interspersed warehouses and industrial buildings.

### Adaptability Considerations

Convertible	Adaptable	Divisible	Expandable	Flexible
How can a building be designed to allow its use to change? How can a building accommodate new functions?	How can buildings be taken apart, in part or whole to allow for building expansion, new uses, and enhanced performance?	Can building materials be separated and recycled or repurposed?	How can buildings increase capacity and volume?	How is the building arranged to allow reconfiguration of interior space? How can the floor plan be made more efficient?



## Types of Adaptive Reuse



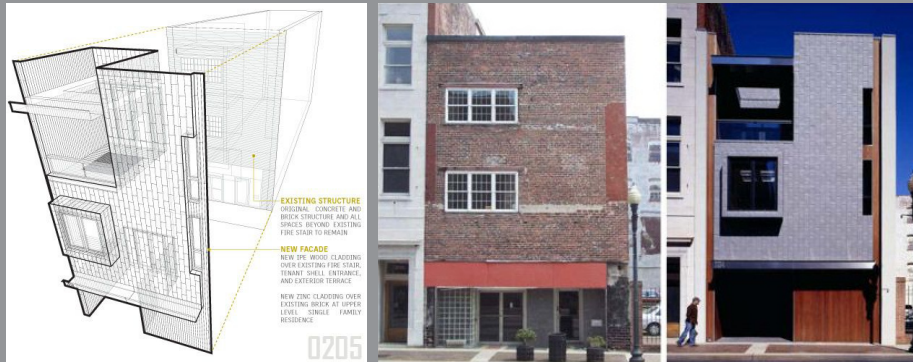
Multi-tenant Office, San Diego, CA  
Graham Downes Architecture

## Conversion

Building conversions result in a change of function, usually due to the obsolescence of the property use or the transition to a new building type.

## Refurbishment

Refurbishment projects result in an improvement of the building's performance, usually including upgrades to the exterior to improve energy efficiency and interior conditions.



304 South Gay Street, Knoxville, TN  
Sanders Pace Architecture

## Renovation / Expansion

Changes in size resulting from renovation and expansion are usually the result of an increasing demand for space to improve, expand or diversify the structure's use.



Porter House, New York, NY  
SHoP Architects

## Buildings



### Parking Garage Conversion

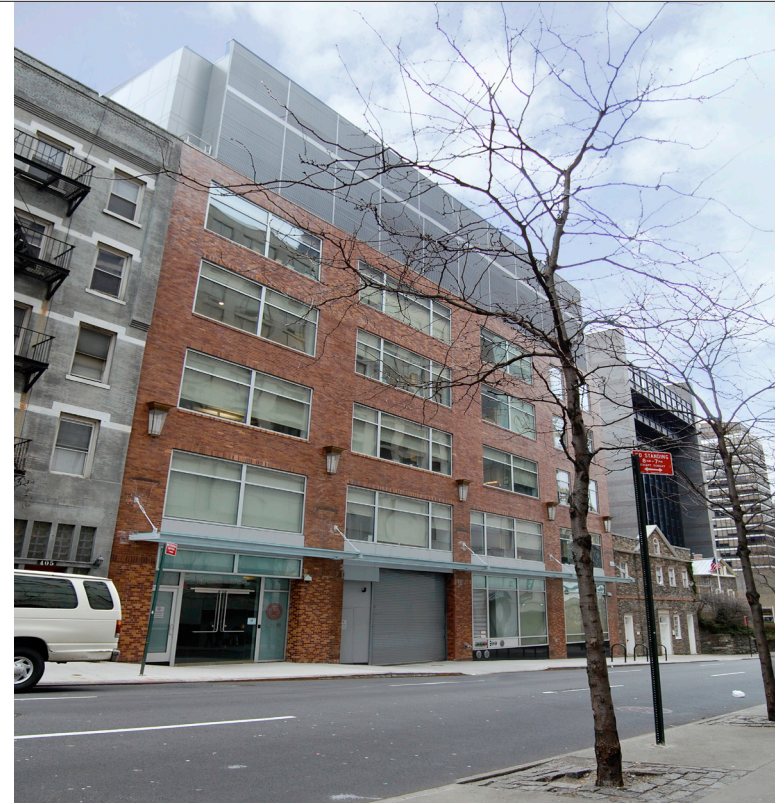
<b>Project:</b>	Weill Cornell Medical College Laboratories
<b>Architect:</b>	Stonehill & Taylor Architects and Planners
<b>Reuse Type:</b>	Building Conversion and Expansion
<b>Location:</b>	New York, NY

In seeking to expand their medical facilities on New York's Upper East Side, the Weill Cornell Medical College (WCMC) was constrained by both a lack of available land and leasable space that met their unique specifications. With few available locations in close proximity to the school's main campus, the college opted to purchase a parking garage located in a former Rolls Royce showroom to be home to a 65,300 square-foot laboratory and office building. Maintaining the century-old façade, Stonehill & Taylor Architects utilized the existing steel structure to accommodate new concrete floor slabs and an additional 26,300 square-feet, extending two-stories above the existing roofline. The first two floors of the building are used for administrative offices as well as videoconferencing and common facilities. The third through fifth floors are devoted to laboratory space.



To augment the existing structure, additional columns were added to ensure the building could withstand the additional load of a fifth floor and rooftop mechanical system. As a result, the basement was expanded by 7,000 square feet, requiring construction workers to dig through bedrock. Despite these challenges, the building was fast-tracked and completed in less than 18 months.

This type of construction exemplifies the versatility of existing structures to accommodate seemingly incompatible uses. Though Twinbrook has only one above ground parking structure, others have been proposed to consolidate existing parking on surface lots. As land availability in the Twinbrook area shrinks, the development potential of parking structures may become increasingly appealing, whether for partial conversion for ground floor uses, or wholesale renovation. How these structures are designed today has long-lasting implications for their future use.



## Buildings



### Energy Efficient Retrofit

<b>Project:</b>	Norwegian University of Science
<b>Designers:</b>	Oyvind Aschenhoug and Dagfinn Bell
<b>Reuse Type:</b>	Refurbishment
<b>Location:</b>	Trondheim, Norway

As part of a research effort sponsored by BP Solar, the University installed a second facade on the exterior of an existing laboratory to mitigate energy loss from leaky, inefficient windows. The double façade system created an additional layer of air between the outer skin and the main wall, improving the building's thermal insulation, while photovoltaic cells generated energy and regulated sunlight into the building.

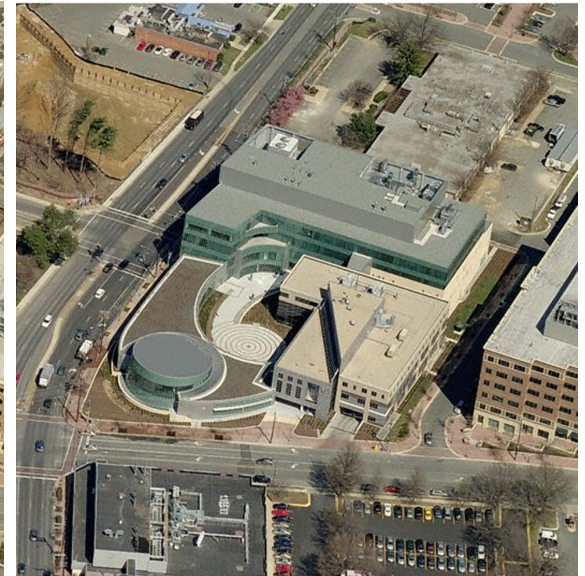
The double façade used on this building was constructed with glass panels mounted in a standard aluminum framing system with vertical steel frames bolted to the building's concrete floors to carry the skin's load. Temperature regulation in the air cavity is controlled by sensors that trigger motor-operated vents. Open-grate platforms are installed at each floor for monitoring, maintenance, and cleaning purposes.



Over the course of the trial year, the photovoltaic system generated 7200-kilowatt hours (kWh) while operating at about 16% efficiency. The façade installation reduced carbon emissions by about 0.7 tons/year and total heating demand by seven to eight percent. User response to the building's indoor air quality was resoundingly positive. During the winter, satisfaction rose from 54 percent pre-construction levels of 54 to 82 percent after the façade was installed. More importantly, less than 10 percent of respondents report being dissatisfied with the working environment.

In many areas, glass facades and curtain walls built during the second half of the 20th Century have had an unexpectedly short lifespan, either because rapid deterioration or poor performance in terms of energy efficiency. Complete façade replacements allow property owners to update the building's appearance and performance without investing in an entirely new building. Because these exterior skins are non-load bearing, replacement is relatively easy, and in some situations can be performed without first removing the existing façade. In situations that do not allow for a total façade replacement, a double façade can be implemented.

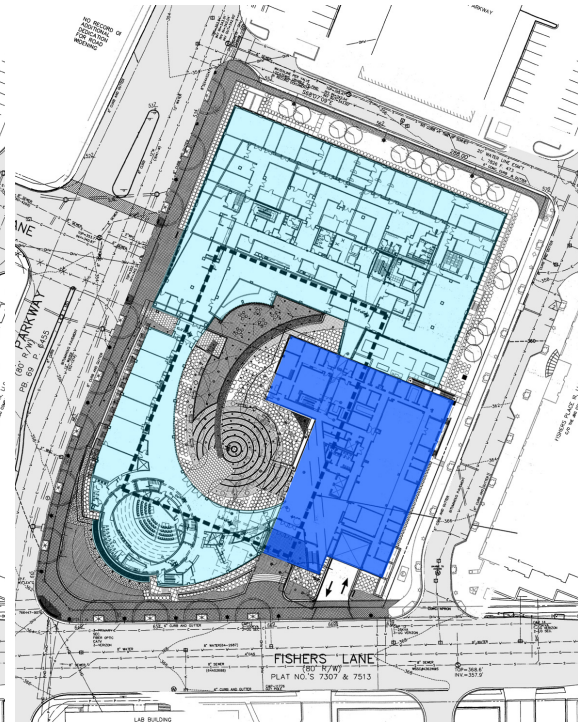
## Blocks



## Laboratory Adaptive Reuse

**Project:** US Pharmacopeia  
**Architect:** Hellmuth, Obata, Kasselbaum (HOK)  
**Reuse Type:** Renovation and Expansion  
**Location:** Rockville, MD

Underway while the Plan's recommendations were being developed and completed in 2006, the U.S. Pharmacopeia building is at a signature site in the plan area. The project comprises three separate functions: conference center, laboratory, and office building. Retaining the existing three-story brick structure, the design introduced two additional buildings of varying height to create a unified campus environment. This new building centers on a large private courtyard that is accessible both from the conference and meeting rooms housed in the Twinbrook Parkway wing, and also the staff cafeteria located on the ground floor of the laboratory expansion. The expansion added 79,173 square feet of laboratory space, 36,216 square feet for research and development, as well as 355 underground parking spaces. The building also features a partially vegetated rooftop.



## Blocks



### Warehouse Adaptive Reuse

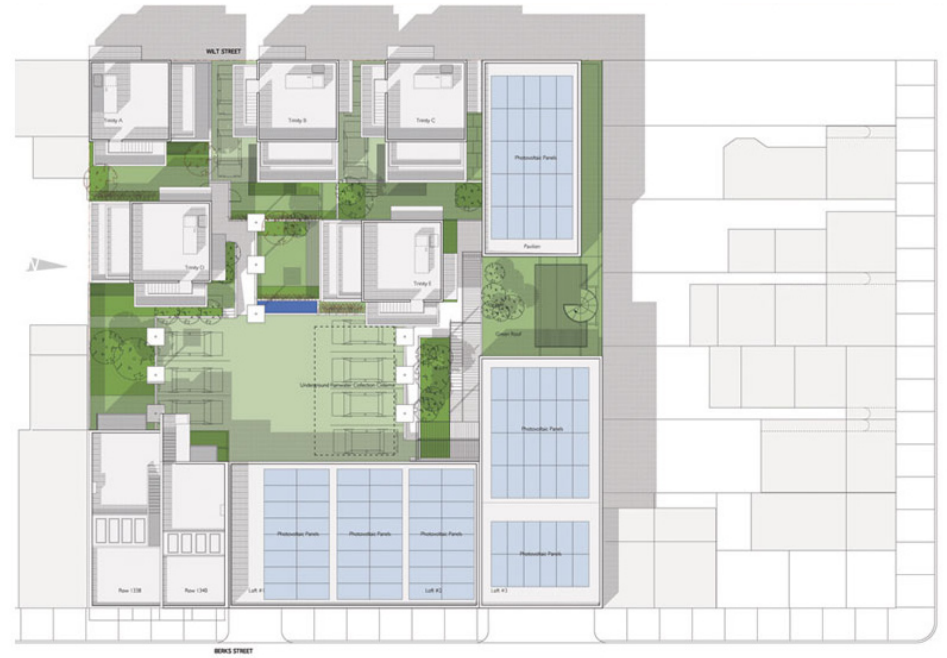
**Project:** Rag Flats  
**Architect:** Onion Flats  
**Reuse Type:** Conversion and Expansion  
**Location:** Philadelphia, PA

Rag Flats is an 11-unit residential renovation and expansion of a former factory in Philadelphia's Fishtown neighborhood. Designed by a small team of architects that took responsibility for all aspects of the project, Rag Flats displays a vibrant eclecticism that is artfully woven into the existing urban fabric, creating a development that both complements its neighbors and differentiates between them. At the front of the site, new construction fills a gap between the existing warehouse and a neighboring lot, unifying the street front. With access from the side alley, five 400-square foot new stand-alone units rise three stories and enclose the courtyard, which provides parking and access to the interior units.



Rag Flats incorporates numerous sustainability features. The courtyard is constructed of permeable pavement that filters stormwater to reduce stormwater runoff, while a 6,000-gallon rain cistern collects rooftop water. A 32-kilovolt photovoltaic system is located on top of the retrofitted warehouse. The remaining roof area accommodates an 8" deep green roof.

In Twinbrook's Light Industrial area, the I-4 zone allows accessory residential units to occupy up to 40 percent of the site. This provision was created during the development of Twinbrook Sector Plan process to encourage a community where business owners and employees live near or above their place of work. Much like Philadelphia's Fishtown neighborhood, the industrial area is composed of small lots, and numerous individual landholders. Rag Flats provides an excellent example of how adaptive reuse can strengthen neighborhood character, and creatively provide housing in industrial contexts.



## Neighborhoods



## Neighborhood Revitalization

**Project:** Arlington Road District  
**Architect:** Various Architects and Designers  
**Reuse Type:** Renovation/Expansion/New Construction  
**Location:** Bethesda, MD

The southwest area of the Bethesda CBD was formerly a light industrial area with surface parking, free standing buildings, a concrete mixing plant, and strip retail centers. Over twenty years, new uses and the conversion of existing buildings and streets have transformed the area into a lively urban area. New buildings surround an existing public parking structure to create the Bethesda Row development. A free-standing grocery store and surface parking were relocated, replaced with retail, housing, and open space. Buildings located across Bethesda Avenue and Hampden Avenue has been converted to retail space. New housing units oriented to the streets have been added to improve the balance of housing and commercial space and increase daily pedestrian activity. The existing blocks have been transformed by eliminating surface parking and orienting buildings to activate the streets. New street lighting, wide sidewalks and streetscaping support the area's character as a distinct urban neighborhood.





Right: Bethesda Lane



Above: Bethesda Row



Above Right: Apple Store



Right: Bethesda Cinema

Right: proposed Woodmont Avenue Apartments





### **Twinbrook Sector Plan**

The Twinbrook Sector Plan makes recommendations for three districts:

1. Metro Core Area
2. Technology Employment Area
3. Light Industrial Area

Sector Plan recommendations include specific standards for density, percentage of housing and commercial use, and written descriptions of the desired character of development for each district.

The Design Guidelines assist the implementation of these recommendations by illustrating ways to improve the design quality and character of the development in each of the districts.

The area diagrams included in the Guidelines illustrate and refine the standards for building height recommended by the Sector Plan; text and images are used to illustrate recommendations for the streets, and to help visualize the neighborhood character envisioned by the Sector Plan.

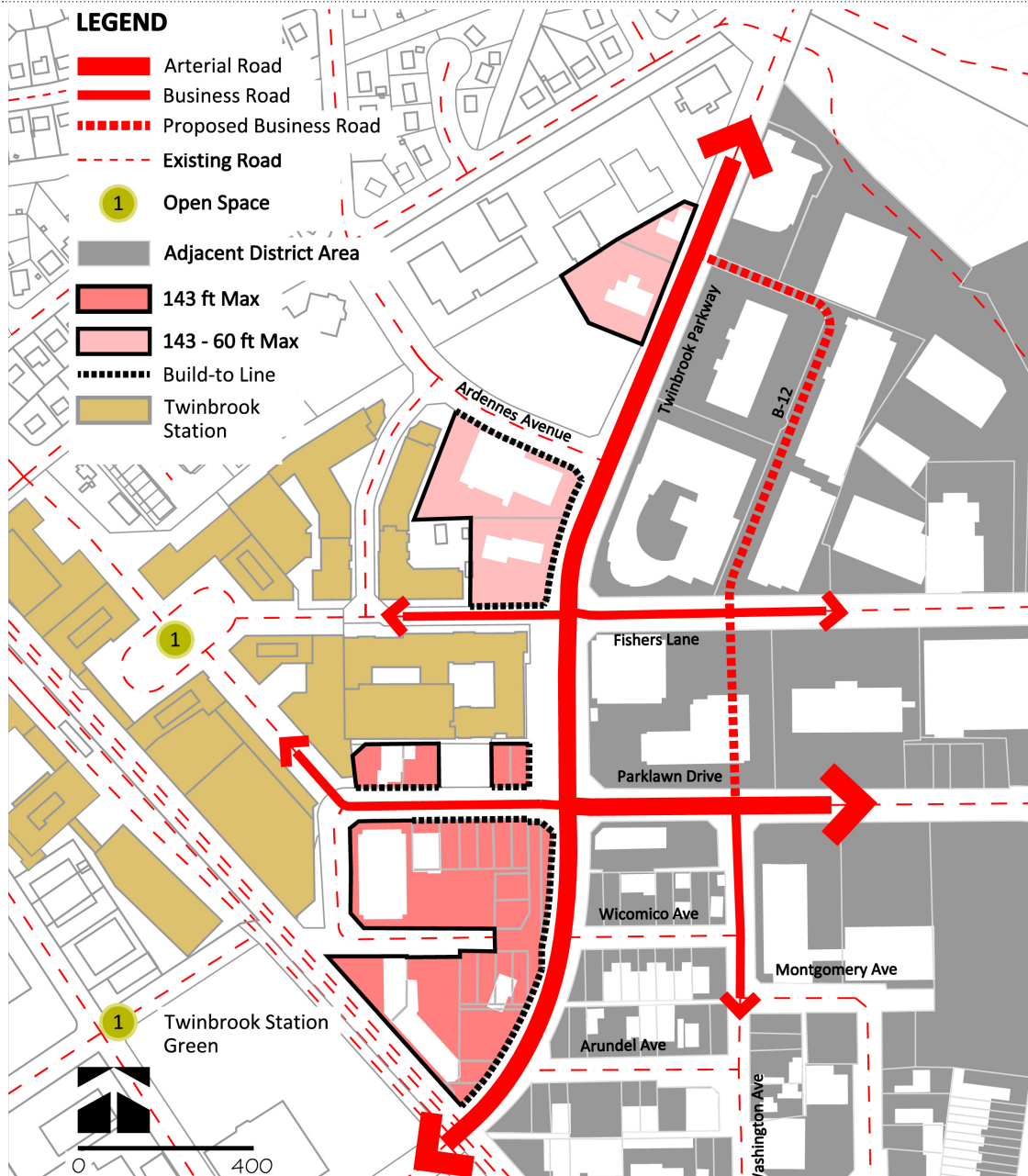
# Districts

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## Area Recommendations

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## Metro Core District



The Metro Core District includes three blocks located along the western edge of Twinbrook Parkway near the Twinbrook Metro Station. This district is adjacent to the Twinbrook Station development presently under construction

The Twinbrook Sector Plan states, “The Metro Core District will be an area of mixed uses focused on the Twinbrook Metro Station and its emerging neighborhood.” The Design Guidelines assist the implementation of the Vision in the Sector Plan by serving as a visualization aid for the Plan’s recommendations. The design of the three blocks in this neighborhood will extend the pattern of pedestrian oriented streets, open spaces, and buildings established in the Twinbrook Station development.

## Achieving the Vision

The Twinbrook Metro Core District of today will be transformed from an area of large surface parking lots, bus waiting areas, and small-scale service industrial buildings into a new neighborhood of housing, neighborhood serving retail, employment uses, and active public spaces. The following urban design objectives apply:

*Connectivity* - Fishers Lane and Parklawn Drive will be transformed into pedestrian oriented, tree-lined streets providing connectivity to the Twinbrook Metro Station. The entire area will emerge as a multi-modal transit hub that provides connectivity of vehicles, bicycles, and pedestrians to the Metro Red Line.

*Design* - The three parcels in the Metro Core Area will be designed in compatibility with the Twinbrook Station development. The tallest buildings will be located near the Twinbrook Metro Station with the lowest buildings located along Twinbrook Parkway and adjacent to the City of Rockville. The streets, open spaces and buildings will be designed to enhance the pedestrian experience.

*Diversity* - Twenty five percent of the entire development must be housing suitable for a diversity of incomes and ages. In addition to the public streets and sidewalks, the design of the public spaces will accommodate a variety of civic activities that will become the focus of community life.

*Environment* - The Twinbrook Station development has already become one of the first LEED Certified neighborhoods in the United States. The three blocks in the Metro Core area will be expected to extend the attention to the environment already established in the Twinbrook Station development. In addition to changing the land-use patterns, the use of green building technologies will be an integral part of the neighborhood and building design.



## Open Space

Proposed development around the Metro station will include a central civic green, which will be the main public gathering space for this area, located just outside the Plan's boundaries. Individual projects must satisfy the public use space requirements in the Zoning Ordinance, while avoiding large open spaces between buildings and significant setbacks from the street.

## Streets

Twinbrook Parkway is the eastern edge of the district. Streetscape improvements are required along its length and will be implemented incrementally, on a project-by-project basis. Fishers Lane and Parklawn Drive extend as business streets west through the district, connecting to the Twinbrook Station development. All roads shall be constructed to business district standards, following the requirements of the County's Road Code. Significant intersection improvements will be required at both Fishers Lane and Parklawn Drive, to improve connectivity and pedestrian safety between the western and eastern sides of Twinbrook Parkway.

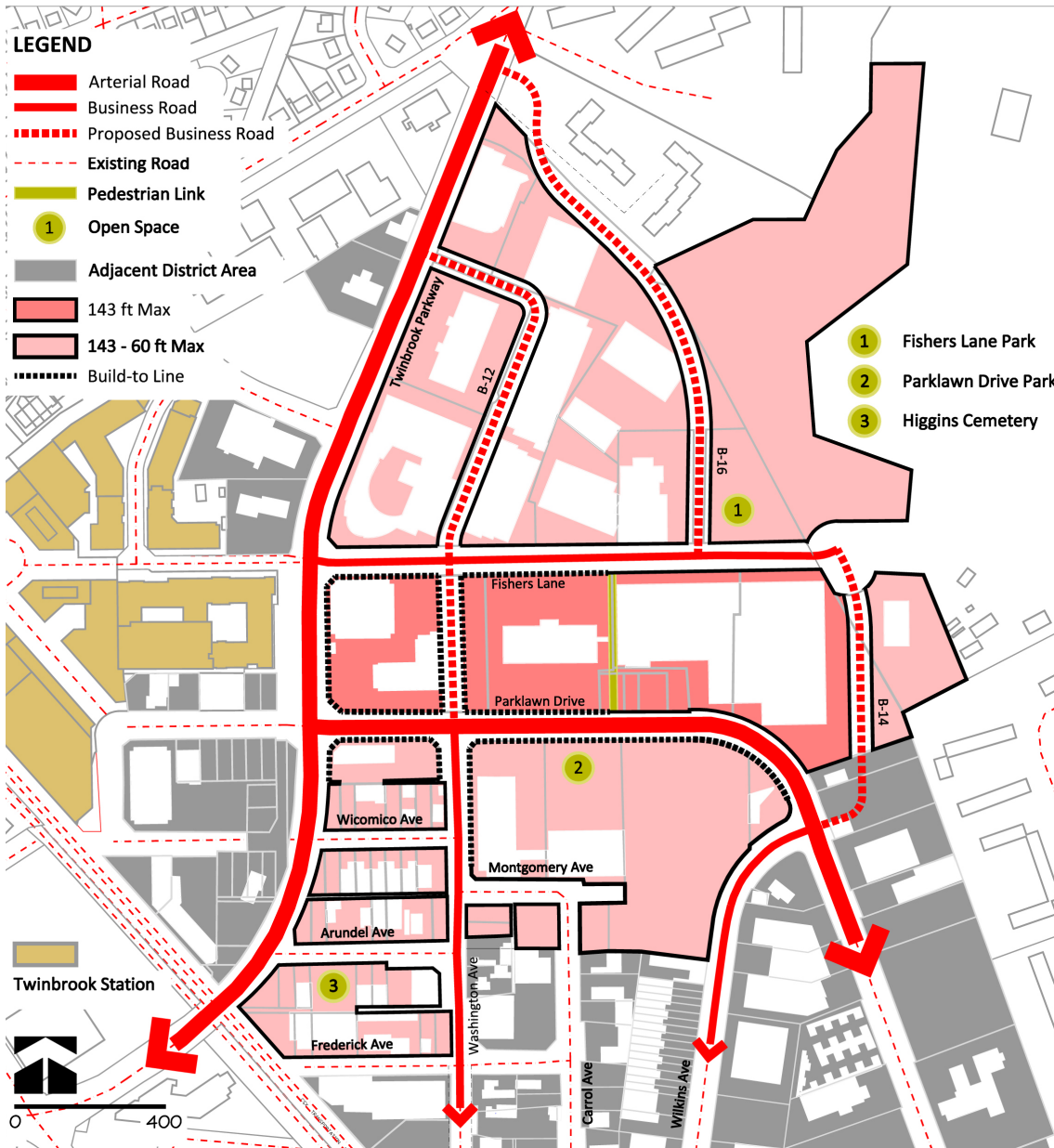
## Buildings

Buildings shall have street-defining facades, extending the character of the Twinbrook Station development. Parking should be shared and located in the rear or center of the block.

Building heights shall be a maximum of 143 feet, to be increased only as permitted to accommodate MPDU's or workforce housing bonus. Building height should step down to a maximum of 60 feet next to residential neighborhoods to the north, adjacent to the city of Rockville.

A minimum of 25 percent of the total building area in the district must be residential.

# Technology Employment District



The Technology Employment Area is located east of Twinbrook Parkway along both sides of Fishers Lane and Parklawn Drive. This area includes a mix of national headquarters for biotechnology companies, laboratory buildings, large government employers, low-rise industrial buildings, retail spaces, and large surface parking lots.

The Twinbrook Sector Plan states that the Technology Employment Area will be transformed into “an area with mixed uses featuring advanced technology and biotechnology activities in an area of high quality public design.” The Design Guidelines will serve as visual aid to assist in the implementation of the Vision outlined in the Sector Plan.

## Achieving the Vision

The Technology Employment Area will be a new neighborhood with an emphasis on useful open spaces for civic use, pedestrian oriented streets, and flexible buildings to serve the needs of biotechnology and advanced technology employers. To achieve this vision, the following urban design principles apply:

*Connectivity* - Fishers Lane and Parklawn Drive will be designed as active, pedestrian oriented streets that provide connectivity to the Twinbrook Metro Station. A system of bikeways, trails and sidewalks will provide connectivity to the active recreation areas and stream valley parks located to the east of Twinbrook.

*Design* - Buildings will be designed to allow the rapid change in use needed by the advanced technology and biotechnology industries. The owners of the Parklawn Building will be encouraged to renovate and significantly enhance the existing structure. In addition to the public streets and sidewalks, public spaces will be designed to accommodate a variety of civic activities. The mix of uses and the development standards will foster the design of a lively pedestrian oriented environment that will attract high technology employees to the area.

*Diversity* - In addition to the advanced technology and biotechnology uses, residential and hotel spaces are encouraged to create a lively neighborhood for a variety of users. Retail will be concentrated along the eastern portion of Fishers Lane.

*Environment* - Development will be expected to use green building technologies as an integral part of the neighborhood and building design. Streetscape will be required, including a pattern of closely spaced street trees. New open spaces will provide opportunities to reduce the extensive imperviousness in the area and will significantly expand the existing tree canopy.



## Open Space

*Fishers Lane Park* - Located near the eastern end of Fishers Place, this public space is designated in the Sector Plan, and is intended to balance the central green proposed adjacent to Metro Station.

*Parklawn Drive Park and Public Use Space* - This approximately ¼ acre open space is designated in the Sector Plan. It will be located on the south side of Parklawn Drive, and coordinated with the location of the pedestrian connections between Fishers Lane and Parklawn Drive designated in the Plan.

*Higgins Cemetery* - This existing open space has been designated on the Master Plan of Historic Sites.

## Streets

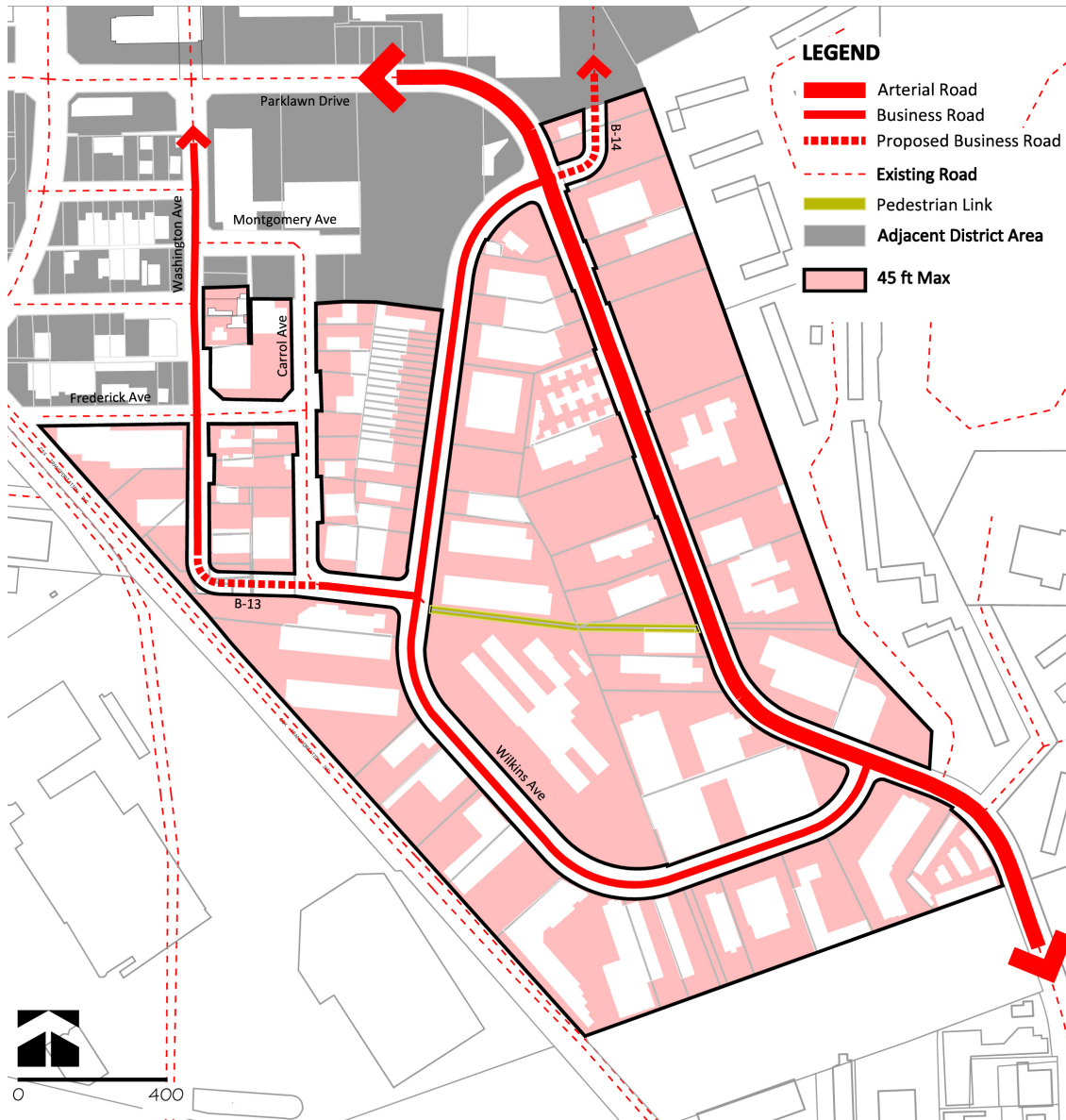
Streetscape improvements are recommended for Fishers Lane and Parklawn Drive, to be implemented incrementally, as individual properties redevelop. Both streets shall include provisions for off-peak parallel parking. New local streets include an extension of Washington Avenue northward between Parklawn Drive and Fishers Lane, continuing north of Fishers Lane connecting to the upper reaches of Twinbrook Parkway. Wilkins Avenue will also be extended north in two segments.

## Buildings

This district will serve as the primary location for advanced technology and biotechnology uses, but some residential uses are permitted.

The tallest buildings (143 feet) are located along Fishers Lane and Parklawn Drive. The remaining sites should provide a transition between Fishers Lane and the adjacent residential areas located along the northern boundary of the district.

## Light Industrial District



The Light Industrial Area is located east of Twinbrook Parkway and south of Parklawn Drive. Approximately, 109 acres of the 2,500 total acres of industrial land in Montgomery County are located in Twinbrook.

The Twinbrook Sector Plan states that the Light Industrial District will be an “area for thriving goods and service businesses.” The Light Industrial Area will provide complementary science and technology resources.

Following the Plan’s recommendation to preserve and enhance the existing mix of uses, the Guidelines support the adaptive reuse of existing buildings alongside new building construction.



## Achieving the Vision

The Light Industrial Area will provide significant science and technology resources for the Twinbrook Sector Plan area. The Guidelines focus on adaptive reuse will create an environment where a variety of facilities for research and technology as well as service commercial uses can emerge. To achieve the vision in the Sector Plan, the following design objectives apply:

*Connectivity* - Connectivity to the future Montrose Parkway will be provided from Wilkins Avenue and Parklawn Drive. Pedestrian connections along Washington Avenue will link this area to the other two districts in the Twinbrook area. Additional emphasis on completing the sidewalks system and a new mid-block pedestrian link will improve the connections within the district and to the Metro stations. The bikeway and trail system will provide connectivity to the regional trail system along Montrose Parkway.

*Design* - The Guidelines support the adaptive reuse of existing buildings along with new construction to preserve and enhance existing and potential light industrial uses. The Design Guidelines will also support the emphasis on creating an appropriate pedestrian oriented environment.

*Diversity* - The design of buildings, streets and open spaces will focus on the diverse needs of light industrial businesses that are complementary to the two other districts. A limited amount of housing for the on-site workforce and retail space will also add to the diversity of land uses permitted in this district. New development will accommodate a diversity of large and small businesses.

*Environment* - Development will be expected to incorporate green building technologies as an integral part of the neighborhood design. Adaptive reuse of existing buildings is encouraged to reduce the carbon footprint of the development in the area.



## Open Space

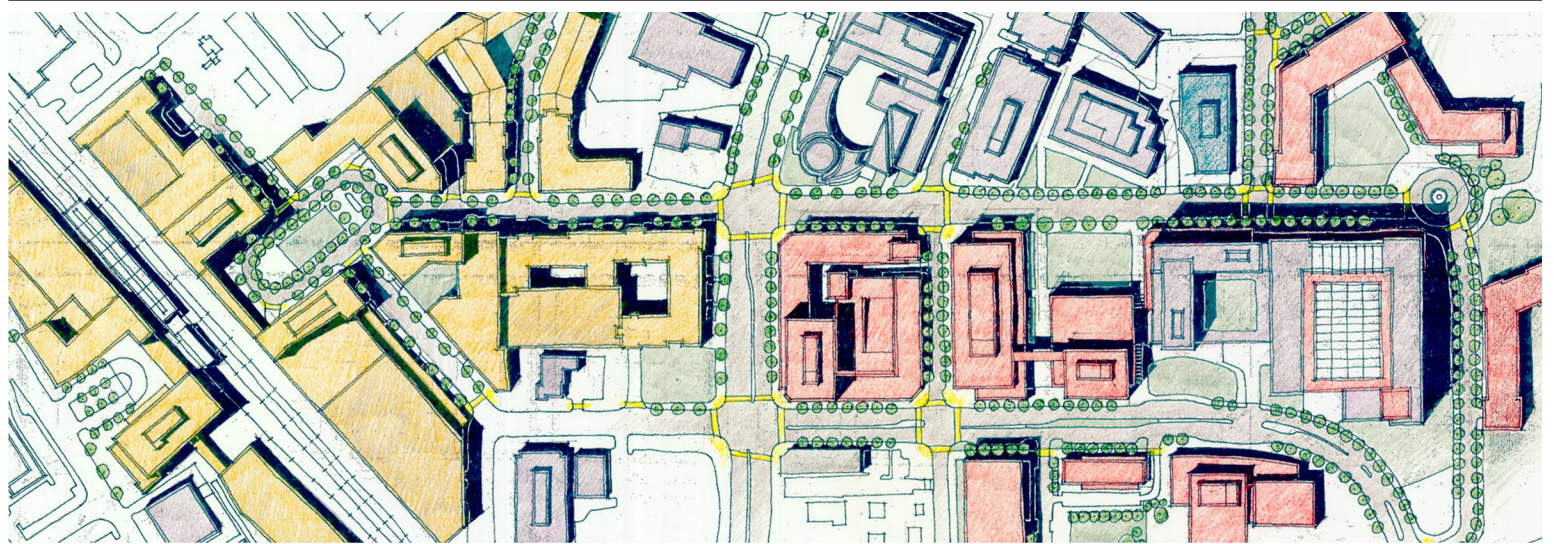
**Green Area** - The I-4 Zone requires 10 to 20 percent of the net lot area to be green. This space should enhance redevelopment by providing landscape features for the benefit of the building's occupants. Given the zone's modified requirements, and the Guidelines' recommendation to retain existing viable structures as part of redevelopment, options for the location of the required green area can be explored during the plan review process.

## Streets

Several streets are built to standards that pre-date the current road code. Given the Plan's recommendations to preserve the area's existing mix, these roads shall remain with minimal improvements, if their performance is adequate.

## Buildings

The design guidelines do not recommend extensive building and parking setbacks in the Light Industrial Area. The minimum one-acre lot size does not apply in this area. The purpose is to provide a more urban setting for this industrial area and to encourage its continued availability for light industrial uses. The Guidelines encourage retaining small lots, constructing smaller buildings, and renovating and expanding existing buildings. Adaptive reuse of the existing buildings should be a hallmark of the building form in this area. Streetscape should focus on improving access for pedestrians and safety.



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# Elements

Specific Recommendations

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# Guidelines for Streets

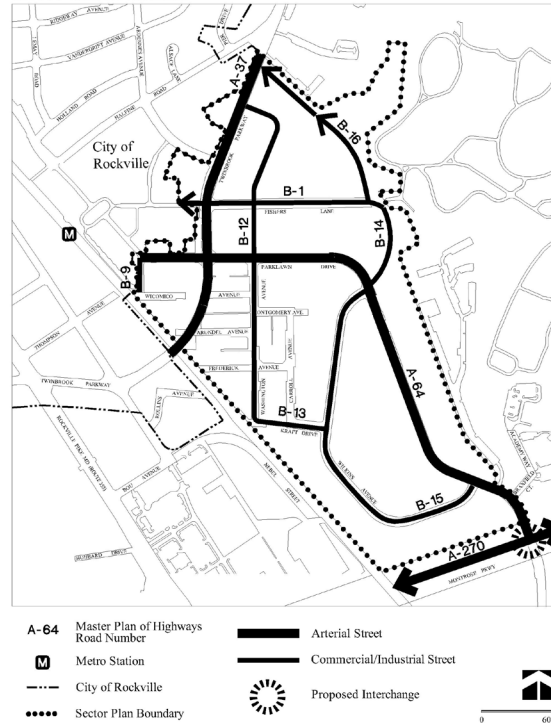
## Twinbrook Sector Plan

The Approved and Adopted Twinbrook Sector Plan includes recommendations for all of the streets in the Twinbrook area. The Transportation Chapter includes recommendations for each of the following:

1. Classification of each Street
2. Width of the Right-of-Way for each Classification
3. Number of Lanes for each Street
4. Design Speed for each Street

Chapter 49 of the Montgomery County Code (Road Code) includes written recommendations for each street classification, the standard width of the right-of-way, and the standard width of paving. In addition, construction standards are provided for each street classification. The Road Code places significant emphasis on context sensitive design of streets to allow the standards to be customized to meet the needs of an existing street pattern in locations such as the Twinbrook Sector Plan area.

To assist in visualizing the recommendations in the Twinbrook Sector Plan, the Design Guidelines include street diagrams that combine Plan recommendations, Road Code information, and Guidelines recommendations with the intent of illustrating the street character envisioned by the Sector plan. The Guidelines also include additional recommendations for pedestrian oriented streets, including a discussion of on-street parking, spacing and location of street trees, location of utilities, and building setbacks. The standards shown in the guidelines are intended to be flexible, but are important to establish context sensitive design in the Twinbrook area.



### Intersections

Improving the intersection of Twinbrook Parkway and Fishers Lane and Twinbrook Parkway and Parklawn Drive is a priority to establish an east-west pedestrian connection from the Twinbrook Metro Station to the Technology Employment and the Light Industrial Areas. Improvements should include:

- Special crosswalk paving
- Raised and/or planted medians
- Pedestrian priority signal timing
- Extensions of Washington Avenue and Wilkins Avenue to reduce traffic at the intersections at Fishers Lane and Parklawn Drive

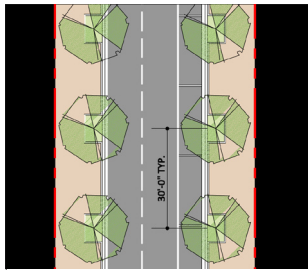
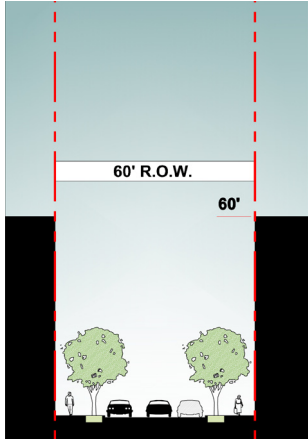
### Utilities

All utilities should be accommodated underneath sidewalk paving within the ROW limits, to be coordinated by MCDOT and utility companies.

### Streetscape

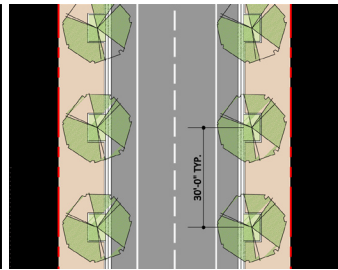
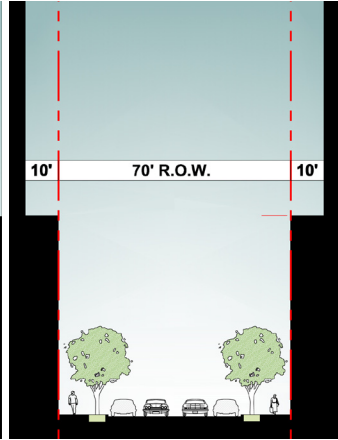
The Twinbrook area will have a Streetscape Plan that specifies the different tree types for each street. Closely-spaced street trees will be included along all streets. The above detail specifies the spacing and location of street trees for Business Streets.

**B-16 / Unclassified  
Business District Streets**



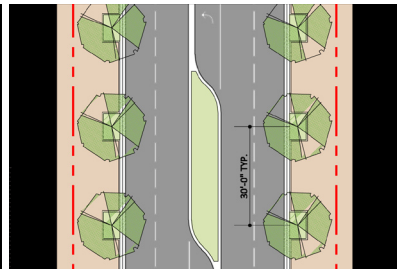
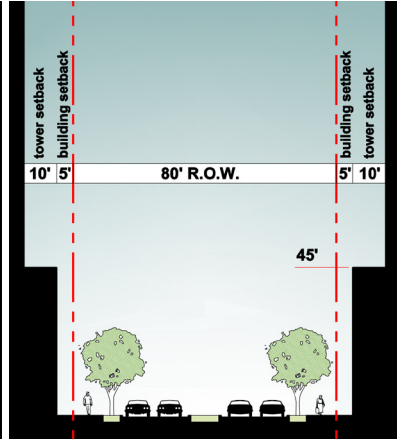
**Lanes:** 2 - Two way travel  
**Parking:** One Side  
**Trees:** 30-35' o.c.  
**Sidewalk :** Per road code  
**Building setback:** None  
**Street wall:** 60' high max  
**Median:** None  
**Security:** Wilkins Avenue extended may require a private street and a minor change in location and width of paving

**B-12 / B-14  
Business District Streets**



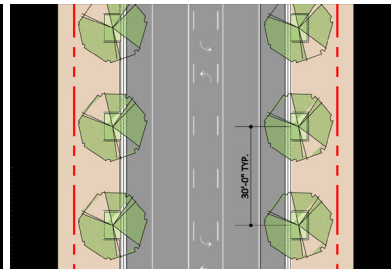
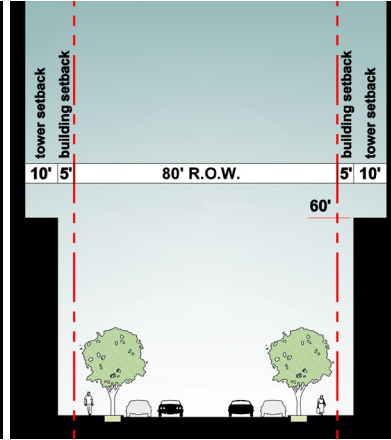
**Lanes:** 2 - Two way travel  
**Parking:** Both sides  
**Trees:** 30-35' o.c.  
**Sidewalk :** Per road code  
**Building setback:** None  
**Street wall:** 60' high max  
**Median:** None

**Fishers Lane  
Business District Street**



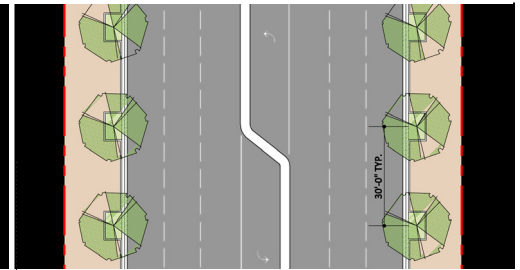
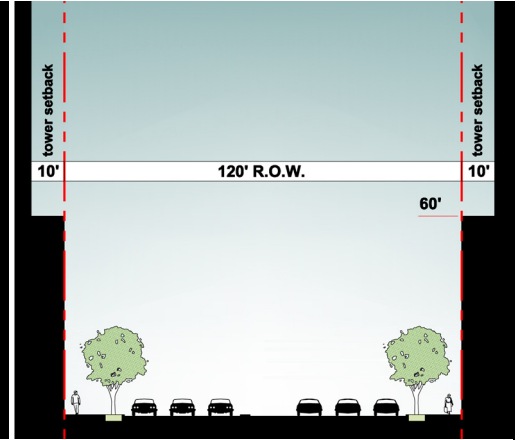
**Lanes:** 4 - Two way travel  
**Parking:** Off-Peak  
**Trees:** 30-35' o.c.  
**Sidewalk :** Per road code  
**Building setback:** 5' from ROW  
**Street wall:** 45' high max  
**Median:** Planted with turn lanes

**Parklawn Drive  
Arterial Street**



**Lanes:** 4 - Two way travel  
**Parking:** Both sides  
**Trees:** 30-35' o.c.  
**Sidewalk :** 20' wide  
**Building setback:** 5' from ROW  
**Street wall:** 60' high max  
**Median:** Left turn lane

**Twinbrook Parkway  
Arterial Street**



**Lanes:** 4/6 - Two way travel  
**Parking:** Both sides between Halpine Drive and Parklawn Drive  
**Trees:** 30-35' o.c.  
**Sidewalk :** Per road code  
**Building setback:** None  
**Street wall:** 60' high max  
**Median:** Left turn lanes

## Guidelines for Open Space

### Relationship to the Twinbrook Sector Plan

The Approved and Adopted Twinbrook Sector Plan includes recommendations for the following open spaces:

1. Designated Open Space
2. Public Use Space
3. Pedestrian Links
4. Historic Site

The Twinbrook Sector Plan designates two open spaces. It also identifies two pedestrian links, and recommends the historic designation of the Higgins Family Cemetery as open space. The Sector Plan relies on the future regulatory process for recommendations for the location and design of public use space.

The Design Guidelines assist in visualizing the recommendations in the Sector Plan for all open spaces. The locations of the designated open spaces, pedestrian links and the Higgins Family Cemetery are shown on the maps in the Guidelines, and are part of the text in the Sector Plan. The text and graphics in the Design Guidelines provide additional detail to describe the important design features of the designated open spaces. The descriptions of the designated open spaces provide a more flexible approach to implementing the recommendations in the approved Sector Plan.

Specific locations for public use space have not been provided in the Sector Plan. The Design Guidelines provide additional detail for the general location and design of public use space. This detail expands the recommendations in the Sector Plan in accordance with the requirements in the TMX-2 Zone.



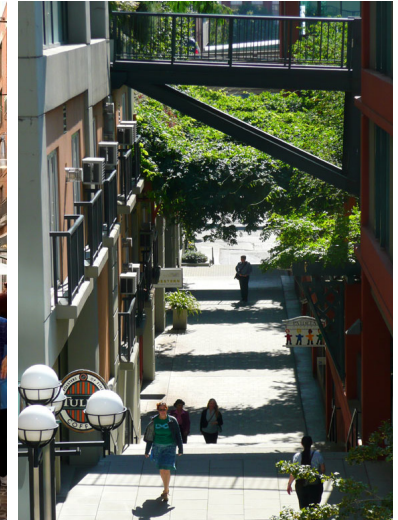
### Designated Open Space

Twinbrook Station Green is under construction in the City of Rockville. In addition to this space, two other open spaces have been designated in the Twinbrook Sector Plan area. These additional spaces provide important open spaces to support activities in the Technology Employment Area.



### Public Use Space

These small public open spaces will be created during the review of specific projects for public use. These spaces are specifically not designated in the Twinbrook Sector Plan. They will be important outdoor areas for public gathering.



### Pedestrian Links

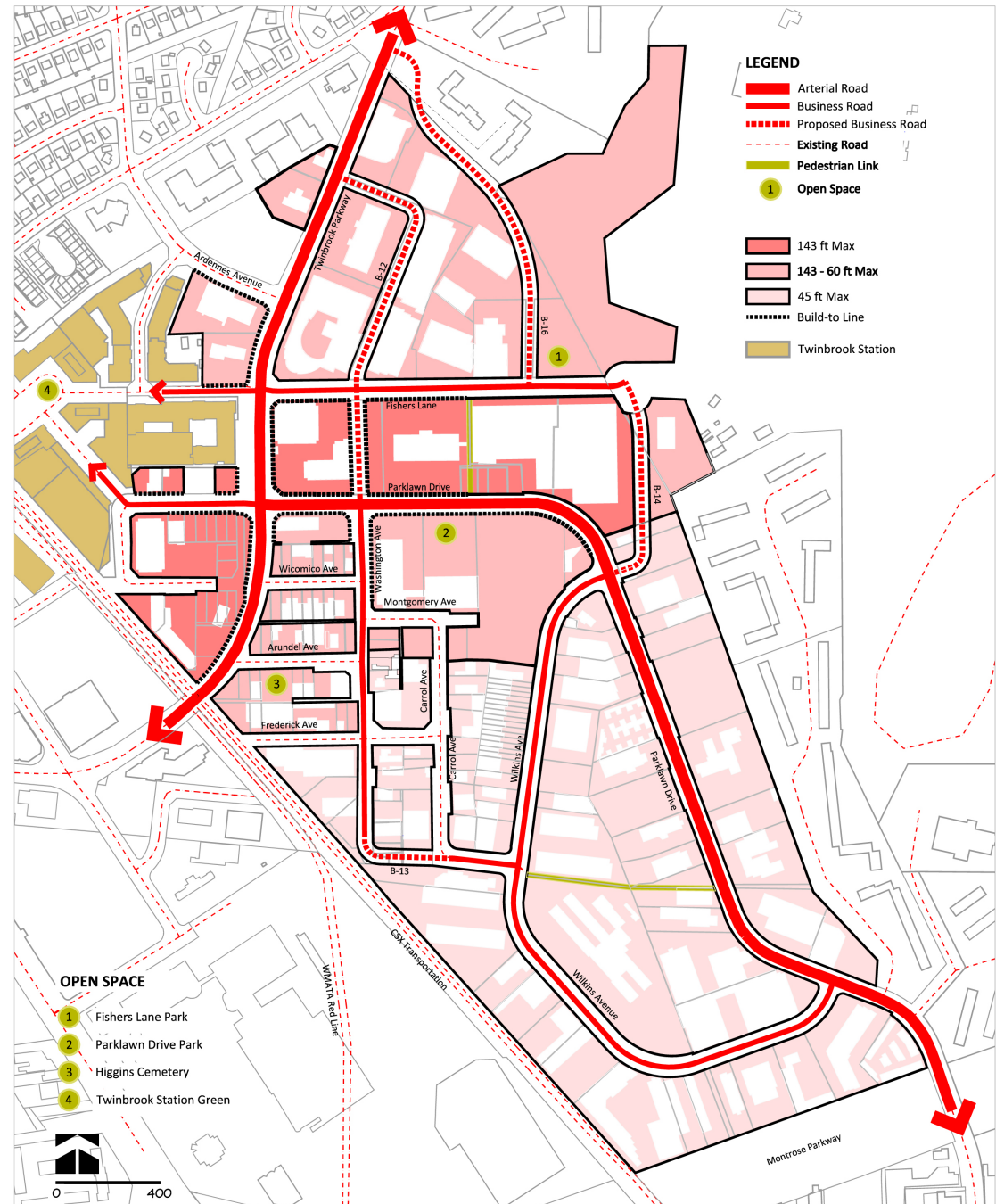
Two areas have been recommended as through block connections in the Twinbrook area. Both connections provide important access for pedestrians between designated streets.

## Open Space Locations

Open space contributes to the quality of place. The best urban places incorporate substantial green elements as well as paved areas. Open space provides opportunities for recreation, socializing outdoors, collaborating, and maintaining a connection to nature. They include trees and plants for shade, cooling, and cleansing of water and air. Open space also contributes to a community's identity, character, and civic pride. The compact development pattern in Twinbrook will include a system of comfortable, attractive open spaces that provide a range of experiences.

The open spaces include:

- Twinbrook Station Green, City of Rockville
- Fishers Lane Park and Parklawn Drive Park, two designated open spaces in the Technology Employment Area
- Public Use Open Space
- Higgins Cemetery, historic site
- Pedestrian Links



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## Guidelines for Designated Open Space

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### Recommended Open Space

Two large open spaces have been designated in the Twinbrook Area. These spaces provide important open areas to support the Technology Employment Area. Fishers Lane Park located at the eastern end of Fishers Lane near the Parklawn Building will mirror the similar Twinbrook Station Green located at the western end of Fishers Lane. Parklawn Drive Park will be located approximately halfway between Fishers Lane Park and the Twinbrook Station Green along Parklawn Drive.

Each of these open spaces should include the following:

- Approximately  $\frac{1}{4}$  to  $\frac{1}{2}$  acre
- Substantial grass area
- Substantial pervious area
- Tree canopy of over 50 percent
- Variety of seating locations, orientations and arrangements
- Pedestrian access and visibility.



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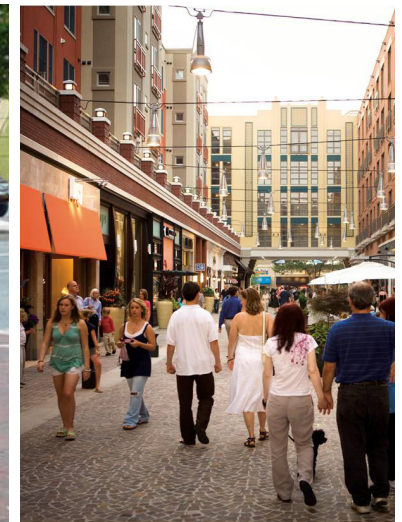
### Public Use Space

These spaces can be active or passive and should be included as part of each development. Public use open space is part of the requirement for the approval of a Project Plan in the TMX-2 Zone.

These outdoor public spaces will often be smaller than the designated spaces. Locating these spaces to separate buildings from public streets is discouraged. They must be visible and designed to invite people of various ages and mobility. Outdoor public use spaces can be combined from several projects to create a larger public use area.

These spaces should include:

- Variety of seating locations, orientations and arrangements
- Special lighting and electric outlets
- Visibility from adjacent streets
- Tree canopy of 50 percent
- Public art







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### **Pedestrian Links**

These spaces can be active or passive and should be included as part of each development. Two pedestrian connections have been designated in the Twinbrook Sector Plan. One space connects Fishers Lane with Parklawn Drive adjacent to the Parklawn Building. The other pedestrian space connects Wilkins Avenue to Parklawn Drive. In both examples, these pedestrian connections are designed to reduce the size of the existing blocks and improve pedestrian access.

These spaces should include:

- Retail activity that complements street-oriented retail without compromising retail located along public streets
- Windows overlooking the connections for safety
- Special lighting
- Opportunities for public art

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### **Higgins Cemetery**

Historic Site (Higgins Family Cemetery) -This space is located in the 5700 block of Arundel Avenue. The plot holds 11 known burials of Higgins family members important in state and local history. A grass-roots community project led to the incorporation of the Higgins Cemetery Preservation Association.

Future plans should include:

- Removal of invasive plants and debris
- Reconstructed Higgins monument
- Repair of gravestones
- Recreating a fence
- Installing appropriate landscaping
- Interpretive signs for future generations

## Guidelines for Buildings

The Approved and Adopted Twinbrook Sector Plan includes more limited recommendations for buildings in each of the three districts. The recommendations in the Sector Plan focus on the following:

1. Maximum Building Height
2. Establishing street oriented buildings in the Metro Core and Technology Employment Areas
3. Extending the design specifications in the Twinbrook Station project into the remaining portions of the Metro Core Area
4. Locating retail space along portions of Fisher's Place

The Sector Plan provides specific recommendations for building height, and provides a limited range of other recommendations for buildings.

The Design Guidelines help visualize the recommendations for building height in the Sector Plan by providing examples of buildings with similar building heights for each district. The Guidelines make building recommendations that distinguish between the design of buildings in the Metro Core area, the Technology Employment area, and the Light Industrial area. These distinctions include building form, building transparency, and orientation. The use of examples is intended to frame the discussion regarding the design of buildings in a flexible way, without prescribing specific standards.

### Building Height, Form, and Mass

- Accommodate the tallest buildings with a maximum of 143' along Twinbrook Parkway at Parklawn Drive and Fishers Lane
- Step-down building heights from Twinbrook Parkway at Fishers Lane from 143' to 60' at the northern and eastern boundary of the Planning area to establish compatibility with the adjacent garden apartments.

### Building Transparency

- Incorporate transparent material on at least 60 percent of the ground floor on priority retail streets such as Fishers Lane

### Sustainability

Reduce heat island effect

- Minimize surface parking
- Use open grid or permeable paving materials for any surface parking
- Use green roof technology
- Reference LEED standards

Increase building water efficiency

- Utilize low-flow, and water conserving plumbing and appliances
- Use graywater cisterns and stormwater reuse for non-potable uses such as irrigation, toilet flushing, and custodial uses.

Increase building energy efficiency

- Orient building and include architectural features that maximize natural lighting of interior spaces.
- Orient building, articulate floor plans, and include architectural features to allow for temperature control and natural ventilation such as operable windows.
- Use energy-generating technologies to reduce grid energy consumption

## Metro Core Area

The buildings in the Metro Core Area provide a mix of residential, retail and office uses. Development in the Metro Core Area requires a minimum of 25 percent residential space.

### Elements include:

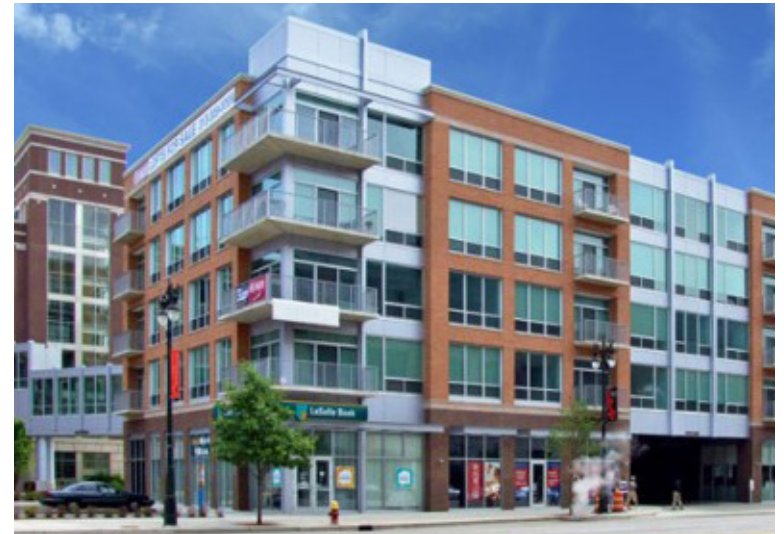
- Retail activation at the street level of Fishers Lane and Parklawn Drive with office and residential uses above
- Variety of residential unit types
- Two to five story base for buildings
- Retail for corner buildings at the intersection of Fishers Lane and Parklawn Drive
- Vary building heights
- Buildings entrances along all streets with significant glass
- Establish compatibility with the Twinbrook Station project through use of a similar material palette and building mass.
- Wrap parking garages behind buildings



Above:  
City Vista, Washington, D.C.  
*Torti Gallas and Partners*

Below left:  
Q14 Condominium, Washington, D.C.  
*Bonstra Haresign Architects*

Below right:  
Langston Lofts, Detroit, Michigan





## Technology Employment Area

Buildings will be designed to meet the needs of the advanced technology industries. These buildings will accommodate the mix of uses needed to create a dynamic world class, public-private area. Guidelines for buildings in this area include:

- Public buildings - Renovation for the existing Parklawn Building by the General Services Administration or as a private development
- Private buildings - For innovation in the advanced technology industries including restaurants and services
- Access to transit and to high quality outdoor open space is critical to the employees in these industries
- High-quality interior and exterior space
- Mix of uses including laboratories, offices, conference space, and light manufacturing of prototype.

### Building Height, Form, and Mass

- Accommodate the tallest buildings with a maximum of 143' along Parklawn Drive at Fishers Lane
- Step down building heights from Twinbrook Parkway Drive at Fishers Lane from 143' to 60' at the north boundary of the Planning area to establish compatibility with the adjacent garden apartments.



Above:  
Biomedical Science Research Building, Ann Arbor, MI  
*Polshek Partnership*

Below left:  
Peter L. and Clara M. Scott Laboratory, Columbus, OH  
*Polshek Partnership*

Below right:  
Leslie Dan Faculty of Pharmacy, Toronto, ON  
*Norman Foster + Partners*

## Light Industrial Area

Buildings in the Light Industrial Area will be designed to provide space for service industries and supplies for advanced technology companies, storage buildings for residential and commercial users, and small-scale stores. New construction should take advantage of opportunities to adapt and reuse existing structures, and to strengthen the contextual relationship with surrounding buildings. Guidelines include:

- Control runoff through permeable pavers
- Use a minimum setback from streets and between buildings
- Orient buildings to streets
- Inclusion of accessory residential units is encouraged.

Below left:  
Rag Flats, Philadelphia, PA  
*Onion Flats*

Below right:  
Cady's Alley Building, Washington, D.C.  
*McInturff Architects*

