Connections

The Plan's proposed density and use changes must be supported by connected systems of sidewalks, paths, bike routes, and streets to make Metro truly accessible. In this relatively small plan area, attention to detail will help create effective connections that are essential to making Twinbrook a functioning residential and commercial transit-oriented community.

Pedestrian System

A successful pedestrian environment is a collaboration of public and private design efforts and the accumulation of many decisions. The following recommendations are intended to focus attention on those details and identify improvements in the public and private realms to create streets to serve pedestrians, transit users, drivers, residents, shoppers, and employees.

This Plan recommends a local network of sidewalks lining Twinbrook streets, but also makes regional connections with paths and sidewalks to Metro and to regional park trails. Routes through the area can also connect residents in the Plan area and beyond it to commercial services along Rockville Pike.

- Construct streetscaped sidewalks throughout the Plan area. They should be eight to 10 feet wide, set off the curb, and buffered with street trees.

- Redevelopment projects should devise a streetscape plan that includes bicycle facilities, and coordinates all aspects of the street and building relationship to create pedestrian safety, comfort, and convenience.

- Buildings should be sited and designed to create clear streetfront entrances and active street facades.

- Sidewalks and bike routes should connect to open spaces in the Plan area, to Metro, and to regional trails, parks, and destinations.

- Safe and effective pedestrian crossing treatments should be provided at all street intersections. Design intersections to include pedestrian-supportive characteristics such as reduced corner radii, accessible crosswalks at all intersection approaches, and special visible or textured crosswalk treatments.

Bicycle System

A network of connected bikeways through Twinbrook has the potential to link the Plan area and surrounding neighborhoods with regional parks and transit service. The system proposed connects to the City of Rockville's proposed bike route plan.

- Support the 1992 Plan's recommendation for bike lanes along Twinbrook Parkway connecting Aspen Hill with Rockville and North Bethesda. This bike route is included in the *Countywide Bikeways Functional Master Plan*.

- Provide a connection north through the Plan area into parkland, Rock Creek Park, and to Veirs Mill Road.

- Establish a network of bikeways within the Plan area that connect to the regional bike route system, including access via the proposed shared use path from the north end of the Plan area connecting to Rock Creek Park and Veirs Mill Road.

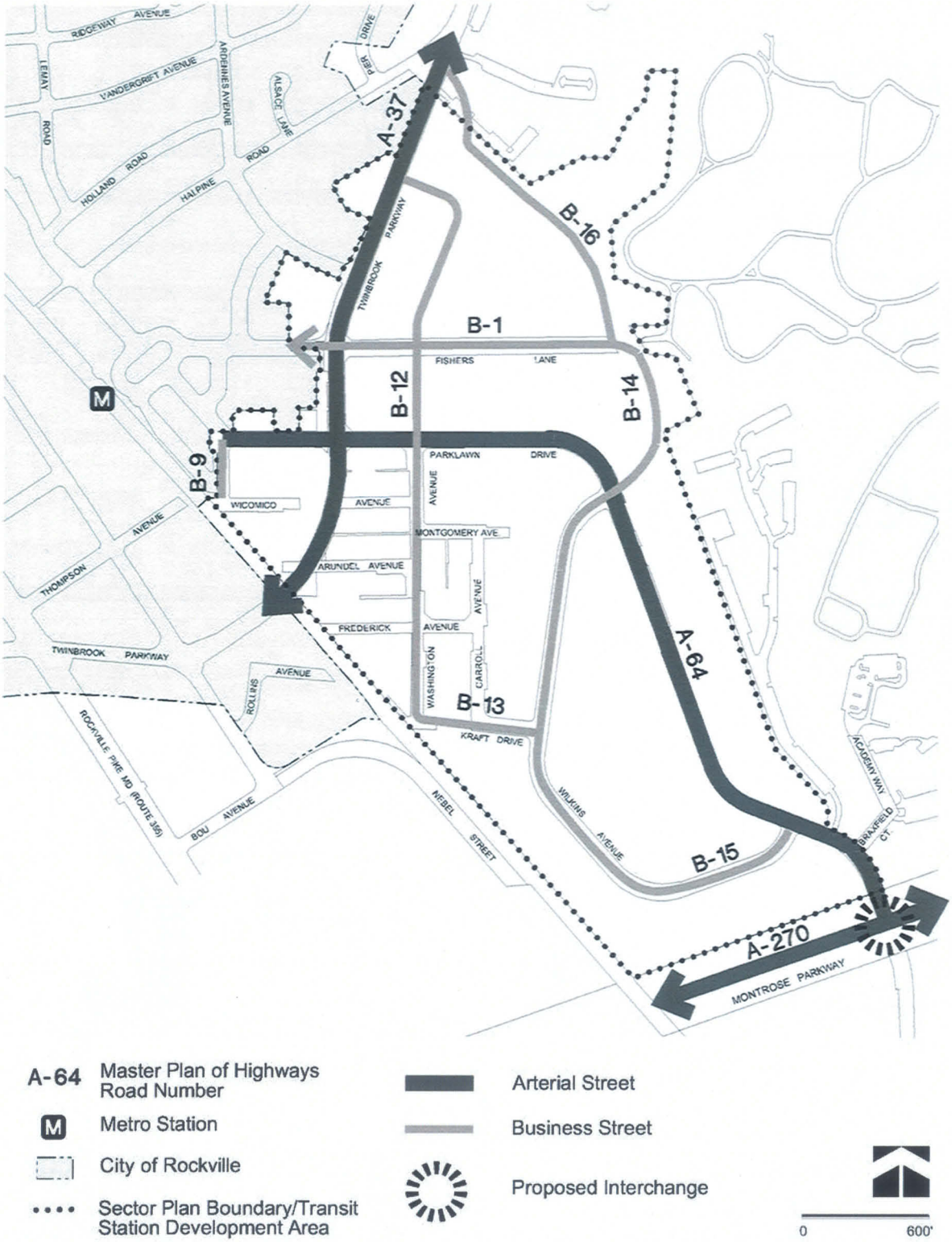
Street and Highway Classifications

Master Plan of Highways	Name	Limits	Travel Lanes*	Min. r.o.w.
arterial streets				
A-37	Twinbrook Parkway	Southern Rockville city limits to Ardennes Avenue	6, divided	120'
	Twinbrook Parkway	Ardennes Avenue to 950 feet north of Ardennes Avenue	4, divided	120'
A-64	Parklawn Drive	Rockville city limits to Montrose Parkway	4	80'
A-270	Montrose Parkway	MD 355 to Parklawn Drive	4, divided	300'
A-270	Montrose Parkway	Parklawn Drive to Rock Creek Park	4, divided	300'
business streets				
B-1	Fishers Lane	Rockville city limits to Wilkins Avenue Extended	2	80'
B-9	Wicomico Avenue	Wicomico Avenue to Parklawn Drive	2	70'
B-12	Washington Avenue	Fishers Lane to Kraft Drive Extended	2	70'
B-12	Washington Avenue	Fishers Lane to Twinbrook Parkway (existing private street – future public street)	2	60'
B-13	Kraft Drive Extended	Washington Avenue to Wilkins Avenue	2	70'
B-14	Wilkins Avenue Extended	Fishers Lane to Parklawn Drive	2	60'**
B-15	Wilkins Avenue	Parklawn Drive north to Parklawn Drive south	2	70'
B-16	Wilkins Avenue Extended	Fishers Lane north to Twinbrook Parkway	2	60'

* The planned through travel lanes for each segment, not including lanes and right-of-way for turning, parking, acceleration, deceleration, or other purposes auxiliary to through travel.

**The 60-foot right-of-way for B-14 could be reduced to accommodate federal security requirements.

Street Classifications



Environmental Resources

Rezoning and redevelopment in Twinbrook is an opportunity to improve environmental sustainability, both function—primarily air and water quality—and appearance by incorporating features such as pervious open spaces and tree-planting into land use, transportation, park, and urban design recommendations. Metro station locations such as Twinbrook already create environmental benefits by redeveloping built environments and using existing infrastructure with proximity to transit, thereby containing the impacts of development.

This Plan's environmental goal is to move beyond the benefits of location through green building and site design. Redevelopment of the area should create a recognizably green setting in function and appearance where residents and employees can walk between work and transit, and to community services and retail.

- Increase the amount of pervious surface to improve the quality and reduce the quantity of stormwater run-off, mitigate heat island effects, and contribute to a green and pedestrian-friendly environment.

- A significant portion of paved area should be shaded through trees within five years of occupancy or paved with reflective materials.

- Street trees should be spaced and sized to create 30 percent canopy coverage on redeveloped areas, and open space should be planted and substantially pervious.

- Improve air quality through development decisions that increase tree canopy and pervious surfaces, and the use of reflective materials.

- Encourage public and private projects to use emerging technologies in building, site, and road design that incorporate stormwater treatment features into urban design and streetscape options. They can include, but not be limited to green streets (as defined in the County Road Code), water features that buffer noise and capture stormwater, graywater cisterns, and open spaces that can capture, filter and reuse stormwater.

- Encourage redevelopment that creates connected street patterns that contribute to a safe and pleasant pedestrian and bicycle network that encourages residents and employees to replace auto trips with walking and bicycling options.

- Support a shuttle bus system that encourages residents and employees to replace short auto trips.

- Encourage site and building design that locates public and other occupied spaces away from noise sources. Encourage new development to integrate noise mitigation measures at the earliest possible stage.

Metro Core Area 2

These properties contain a gas station and office building next to the Twinbrook Station project. The 1992 Plan recommended this site for the O-M floating zone on an I-4 base zone, but the floating zone was never applied. Redevelopment density and mixed uses should continue the Twinbrook Station pattern of buildings oriented to the street and create pedestrian connections. The full 2.0 FAR is appropriate in this area, but any development above 1.5 must be applied to residential uses. The site could also redevelop completely with residential uses at 2.0 FAR, and provide MPDUs and workforce housing.

Recommendations

- Rezone from I-4 to TMX-2, continuing the pattern established by Twinbrook Station.
- Limit development to 2.0 FAR with a requirement that at least 25 percent of any optional method development is residential.
- Development should continue the neighborhood street pattern of buildings oriented to the street, streetscaping, and small urban open spaces.
- Provide pedestrian connections to the Twinbrook Station project.
- Building heights should be compatible with adjacent redevelopment in the City of Rockville.

Metro Core Area 3

This site is farther north along Twinbrook Parkway and contains a mix of office and retail uses. An adjacent site on the southern portion of this block was annexed by the City of Rockville in 2003 and though currently vacant, is approved for an office building. The western side of this block, in the City of Rockville, is under consideration for garden apartment development. Because the County sites are within easy walking distance of Metro, and because they are adjacent to proposed development of increasing density, the Plan recommends them for moderate intensity mixed-use.

Recommendations

- Rezone from O-M to TMX-2 with a 1.5 FAR cap, consistent with uses and densities proposed for adjacent sites in the City of Rockville.
- Limit development to 1.5 FAR with a requirement that at least 25 percent of any optional method development is residential.
- Encourage development to continue the neighborhood street pattern of buildings oriented to the street with streetscaping and small urban open spaces.
- Ensure pedestrian connections to the Twinbrook Station project.
- Building heights should step down from Twinbrook Parkway to be compatible with adjacent redevelopment in the City of Rockville.

- Provide the opportunity to establish a high quality entrance to the Twinbrook area that includes public use space and streetscape amenities.
- Encourage assemblage of these properties to contribute to establishing a high quality mixed-use, pedestrian environment along Twinbrook Parkway.
- Rezone from R-90, I-1, and I-4 to TMX-2.
- Limit commercial development to 1.5 FAR and allow additional residential development up to 2.0 FAR.
- Provide stream restoration or off-site mitigation to minimize the impact of development.
- Contribute to a new urban park along Parklawn Drive, east of Twinbrook Parkway.
- Buildings along this southern frontage of Parklawn Drive should be oriented to the street, with parking to the rear or side. Street frontage should include pedestrian amenities and streetscape.
- Redevelopment in this area should make street and landscaping connections with the proposed northern extension of Washington Avenue.
- Consider adding a pedestrian crossing on the south side of the intersection of Parklawn Drive and Twinbrook Parkway.

Light Industrial Area

(Washington Avenue and Wilkins Avenue)

Of the County's nearly 2,500 acres of industrial land, approximately 109 acres (zoned I-1 and I-4) are located in Twinbrook. Because the County has a limited and decreasing amount of industrial land, this Plan seeks to preserve a portion of Twinbrook's industrial potential, as did the 1992 Plan. This land provides important services to the Twinbrook area and the central part of Montgomery County. The I-4 Zone's development standards should be amended for Transit Station Development Areas to recognize the realities of these small lots, and allow businesses to evolve without relocating.

Light Industrial Area 9

This area surrounding Carroll Avenue, Wilkins Avenue, and Parklawn Drive includes a mix of light industrial uses, some that serve technology businesses, others traditional light industrial and service commercial uses. It is also an area that can meet the needs of start-up businesses. The predominance of small lots in the areas surrounding Carroll Avenue reflects the area's prior residential development. The residential Spring Lake neighborhood was subdivided in 1892. While the 1978 Plan noted 13 remaining residential units, these have all since evolved into commercial and light industrial uses that provide jobs and services to neighboring businesses and residents.

Similar commercial and industrial uses continue in the area around Wilkins Avenue, but on generally larger sites, oriented and connected to Randolph Road and the future Montrose Parkway. The area includes light industrial uses, construction companies, and wholesale businesses. These industrial areas are some of the few remaining in the County and provide useful jobs and services. As in the 1992 Plan, this Plan recognizes the value of these uses and the limited options they have for relocation in the County.

To help preserve them, the 1992 Plan rezoned the area south of Parklawn Drive from I-1 to I-4, which successfully limited office encroachment. But owners of smaller properties have found that the I-4 Zone's development standards limit their ability to upgrade and even modestly expand their businesses. The I-4 Zone's requirement for a minimum one-acre lot size is oriented to creating a pattern of large lots in an "Industrial Park" setting. The setbacks, green space, and parking requirements further limit building potential in this area. Without development standards suitable for industrial uses on small sites, these light industrial uses may be forced to relocate.

Design Guidelines

The mix of light industrial and retail uses in the area around Washington and Wilkins Avenues should be maintained with an opportunity for businesses to evolve in place. Redevelopment is intended to be on the existing small sites, not on assembled lots and accordingly improvements to the public realm will be minimal. Vehicle and pedestrian connections should follow the existing street grid pattern and cross-section. Connections across this area to the Metro station will be incremental, but vital to linking residents and employees to transit, shopping, and park facilities.

Washington Avenue runs from the southern end of the Plan area through the Light Industrial Area and into the Technology Employment Area. Improvements should recognize the changing character of the land uses along the road and its importance as a pedestrian link.

- Work with business and property owners through the CIP to determine an appropriate route and character for a sidewalk.
- Extend Kraft Drive to Washington Avenue. This route would also eventually
- connect a pedestrian crossing of rail tracks at Bou Avenue extended.

Recommendations

- Amend the I-4 Zone to allow urban development patterns and small business development.
- Allow parking waivers in this area, recognizing its proximity to transit.
- Create a pedestrian connection to the Metro station beneath Twinbrook Parkway along the east side of the railroad tracks. Work with the County-owned outlots and private owners to create a safe and feasible route.
- Establish CIP projects for sidewalks along Washington Avenue and a sidewalk connection from Parklawn Drive to the Montrose Parkway shared use trail.
- Encourage redevelopment projects to contribute to the area's environmental and urban design goals, including accommodating stormwater management.
- Ensure a pedestrian and bicycle connection at the southern end of Washington Avenue across the CSX tracks.
- Through redevelopment, consider a pedestrian route through the large block created by Wilkins Avenue and Parklawn Drive, to conveniently connect pedestrians to the bus routes along Parklawn Drive.

Development Areas to support the existing service and retail businesses by allowing smaller lot sizes and ancillary housing. These changes allow the dense, more urban character of transit station industrial development that can flourish on smaller lots and be supported by complementary residential uses. The Transit Station Development Area includes all of the properties within the Twinbrook Sector Plan Boundary.

TMX-2 Zone

The TMX-2 Zone is intended to create "distinct and compact mixed-use centers for housing and employment," in accordance with guidelines in master and sector plans. The modifications allow greater flexibility for redevelopment, but in return, higher development standards will be required. To ensure that new development in Twinbrook reflects the level of quality anticipated by this Plan, all development under the optional method must follow the guidelines established for the zones.

The standards and incentives in the TMX-2 Zone create a mix of uses that includes housing, office space for advanced technology and biotechnology uses, and retail that offers jobs and meets the service needs of residents and employees ranging from a FAR of 1.5 to 2.0. The zone encourages an urban pattern through development standards, and ensures that mixed-use development is served by appropriate public facilities and amenities.

Guidelines for Optional Method Development

To ensure that new development in Twinbrook reflects the level of quality anticipated by this Plan and achieves the other policy objectives of this Plan, development in the TMX-2 Zone must meet certain expectations. To qualify for the optional method in the TMX-2 Zone, projects must demonstrate to the Planning Board, at time of Project Plan review, how they achieve the following elements:

- the highest feasible amount of MPDUs and workforce housing
- superior design
- significant public amenities and facilities
- sustainable design.

Application

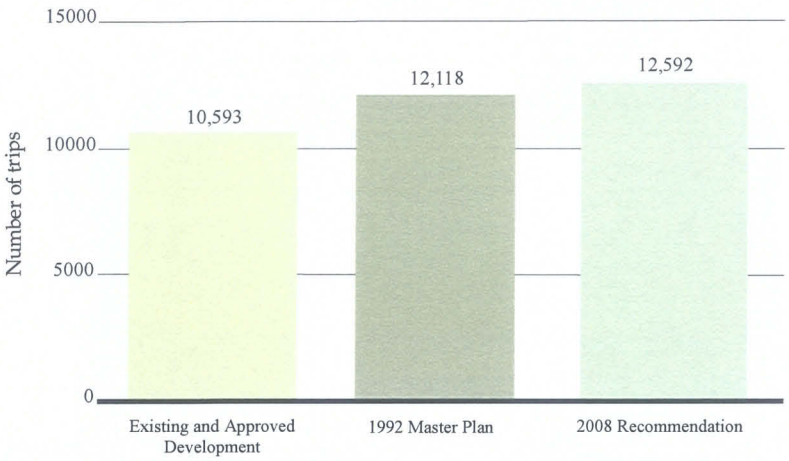
The TMX-2 Zone is applied throughout the Metro Core Area and the Technology Employment Area. The map of Proposed Zoning and the table of Proposed Zoning identify the limits of development in the TMX-2 Zones for each Analysis Area.

I-4 Zone

The Plan proposes modifying the I-4 Zone to increase development flexibility and provide an accessory residential use option in this area of urban oriented light industrial uses. The Plan's goal to maintain the area's existing character is supported by modifications, applicable in Transit Station Development Areas, which allow the Planning Board to waive or reduce development requirements related to lot size, setbacks, green area, and parking.

The proximity to transit also supports the potential for limited live-work structures, providing housing, if clearly subordinate to the main business. This type of dwelling is intended to support the primary economic function of the area, not create significant housing resources. These live-work units would be authorized by the Planning Board under additional standards that address compatibility, parking, and the units' size and location in a given building.

Estimated Trip Generation



Environment

Existing Conditions and Analysis

Twinbrook has changed significantly from its original natural state and from its early development as a 19th century railroad village to become a center of office and light industrial uses along a busy rail line. Its continuing evolution with mixed-use redevelopment should contribute to restoring portions of natural function and appearance as sites are redeveloped.

The Plan area is approximately 80 percent impervious with a majority of the imperviousness devoted to automobile use (42 percent surface parking lots and 11 percent roads). This imperviousness has allowed uncontrolled run-off that contributes to poor water quality in the Rock Creek watershed. Between 1951 and 1970, the area's streams were buried and piped to accommodate development. This left no open streams in the Plan's area and contributed to erosion and poor water quality in the nearby Rock Creek mainstem.

Precursors of ozone and fine particles are declining in the Washington Metropolitan area and will probably continue to do so until 2030. This is due to a combination of better emission controls on new automobiles and 2004 federal regulations placed on power plants in the mid-west. The State Implementation Plan (SIP) to bring this region into compliance with EPA eight-hour ozone air quality standards is under review by EPA. The Washington Metropolitan Council of Governments (WMCOG) is currently working on a SIP to meet annual and daily particulate matter standards.

Although the region has improved air quality with respect to ozone, carbon dioxide emissions are still of great concern. WMCOG believes that unless action is taken, carbon dioxide emissions from added population will increase 48 percent by 2030.

Twinbrook also has significant noise volumes from a variety of sources including Twinbrook Parkway and other roads, and from the Metro and CSX service on the rail tracks. Once built, the Montrose Parkway East will be another source of noise. Although a certain level of noise is inevitable in urban locations, targeted mitigation can reduce overall noise levels.

The pedestrian system proposed in this Plan is intended to have a transportation function—connecting to Metro and other parts of the planning area, and a design function—creating and connecting public spaces. The pedestrian system also has an environmental