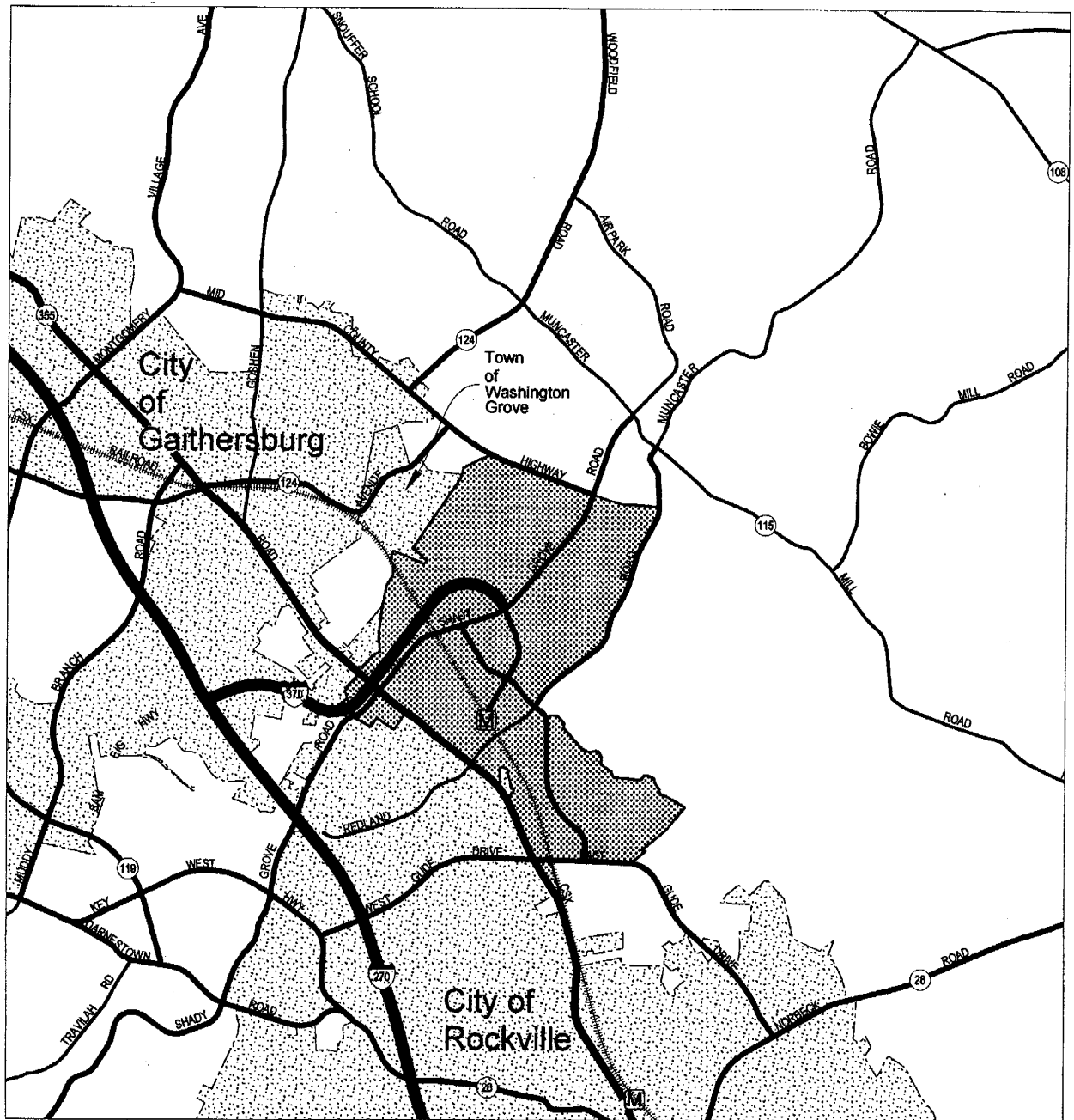








Diverse Housing Types

Roadway Network



-  Municipalities (City of Gaithersburg, City of Rockville, Town of Washington Grove)
-  Shady Grove Sector Plan Boundary
-  Freeways
-  Major Roads
-  Arterial Roads/Commercial Business Streets
-  Primary Roads



AREA-WIDE ELEMENTS

TRANSPORTATION

Shady Grove is a transportation hub with major highways, rail lines, and an end-of-the-line Metro station. Access to the Shady Grove Metro Station, provision of the future Corridor Cities Transitway (CCT) and countywide traffic all contribute to a complex transportation context. This Plan seeks to provide a safe, functional, and attractive multi-modal transportation system to serve the current and recommended land uses.

This Plan views transportation facilities as an integral element of the community, accommodating not only traffic but also building community character. The network of major highways and arterials are designed to serve both cross-County commuters and local access. With the Shady Grove Metro station at its center, this Plan places a major emphasis upon transit service as a means to reduce future traffic congestion. A variety of means are recommended to increase transit ridership, ranging from a Transportation Management District to improving pedestrian access. Roadway character is addressed with streetscape recommendations designed to improve the visual character of all the area roadways.

Objectives

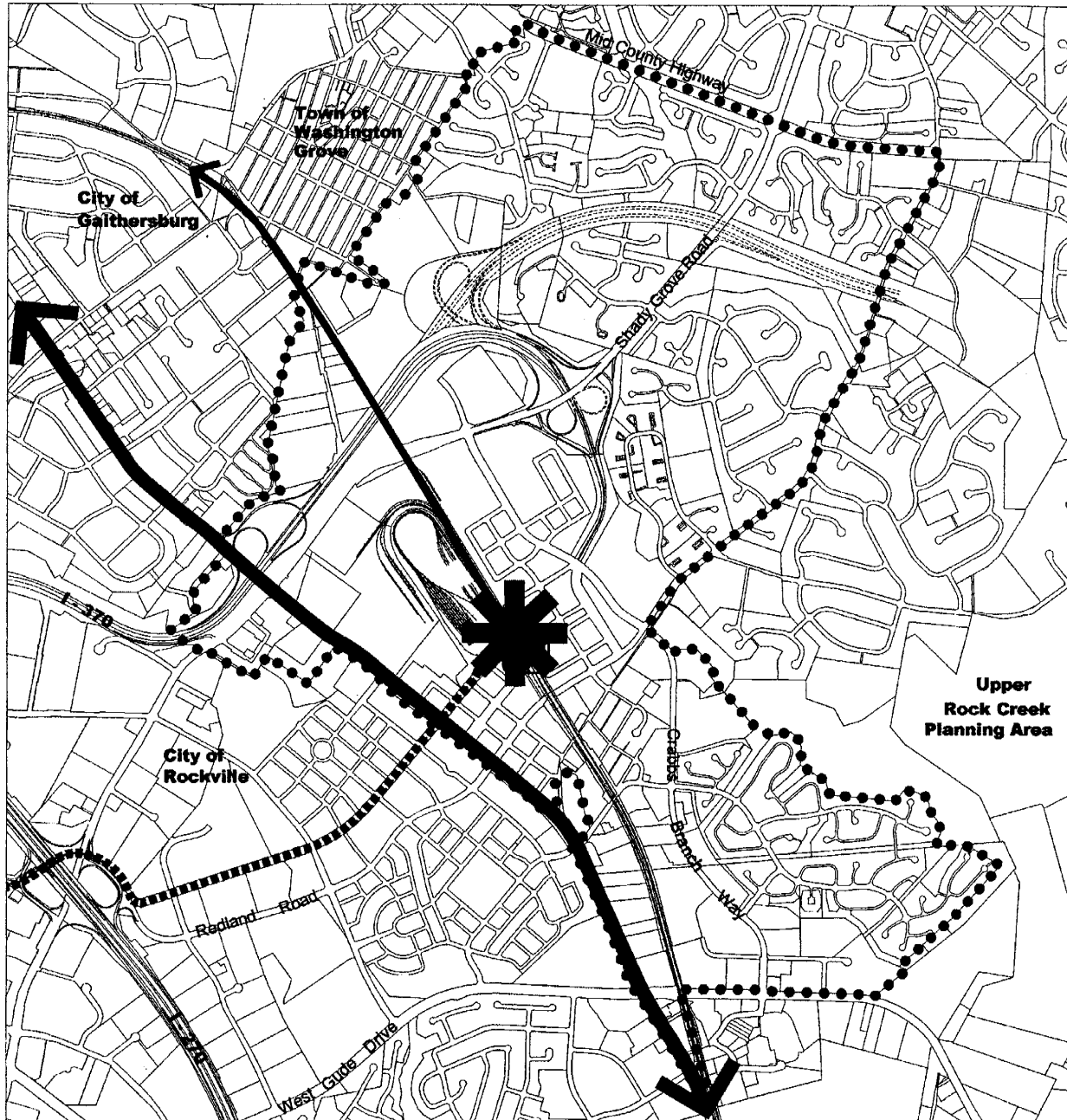
- Improve mobility, local access, and safety.
- Address traffic congestion with a variety of measures that emphasize increasing transit ridership and increasing road capacity where appropriate.
- Increase transit ridership with changes in land use and increased transit service.
- Create a network of local streets to serve the new Metro Neighborhoods.
- Improve pedestrian and bicycle access throughout the planning area and to the Metro station.
- Designate roadway classifications that serve not only through movement traffic but also provide local access to adjacent land uses.
- Design all roadways and intersections with pedestrian-friendly characteristics and improved signage.
- Incorporate the Corridor Cities Transitway into the Metro station to provide convenience for transit riders.
- Improve the streetscape and pedestrian character of all roadways to encourage transit use, enhance residential communities, and create an attractive setting for businesses.

Existing Conditions

The planning area is served by a network of roadways, the CSX rail line that continues through the Sector Plan, and by Metro's red line that ends at the Shady Grove Metro Station. Traffic is heavily congested along the major roadways such as MD 355 and Shady Grove Road. In addition, the Metro station is a magnet for traffic. The limited street crossings of the CSX tracks constrain internal local access. Local access mingles with through traffic along MD 355. A major challenge for this Plan is to identify measures that address traffic congestion, increase transit use, and minimize additional traffic.

Pedestrian activity is increasing within the planning area as a result of the recently built King Farm, across MD 355 from the Metro station. Pedestrian access to the station from the east is less active due to lack of sidewalks and path connections within the existing communities. The existing major highways also create barriers to pedestrian access between communities.

Transit Improvements



-  Transit Center/Metro Station
-  Corridor Cities Transitway
-  Expanded Transit Service
-  Expanded Transit Improvements
-  Shady Grove Sector Plan Boundary

Note: Plan supports increasing transit service throughout the planning area.



Concept

This Plan views transportation improvements as serving a combination of traffic, transit, pedestrians, bicyclists, and community building objectives. It places a special emphasis on transit service and traffic management techniques rather than road widening. The Plan's transit centerpiece is the Metro station with its opportunities for land use changes and increased ridership. This Plan recommends the Metro station be redeveloped as an efficient and attractive transit center, offering a range of multi-modal travel options and featuring a "transit store" to promote and coordinate different transit options. The creation of walkable communities, improved pedestrian and bicycle access, and increased transit service to reduce future traffic congestion are key components of the Plan. The Plan also makes recommendations for the regional roadway network that are designed to reduce future traffic congestion.

Transit System

Increased transit ridership is a major transportation goal of this Plan. As the County continues to grow within established areas such as Shady Grove, easing traffic congestion by encouraging people to travel by transit rather than single occupancy cars is imperative. Reducing car usage within the Metro Neighborhoods can be achieved by various measures. The following recommendations are designed to achieve a goal of 35 percent transit ridership for new residential development.

Shady Grove Metro Station Access

- Limit the number of long-term park-and-ride spaces for Metro to 6,000 to discourage more traffic driving into the planning area and to provide development area for the mixed-use residential community.
- Maintain bus priority treatments, including consideration of an exclusive bus lane along the Metro access road (M-94, see Proposed Roadway Network).
- Consider providing a rental car program for residents of the Metro Neighborhoods as a convenience and to reduce the need to own a car. Other measures may include partnering with WMATA's ZIP Car Program that offers convenient rental cars to transit riders.
- Support countywide efforts to increase park-n-ride lots at appropriate locations to encourage Metro access via transit rather than via single-occupancy vehicles.

Corridor Cities Transitway (CCT)

- Implement the CCT as a light-rail facility (pending confirmation of mode preference by County Council) with a cross-platform connection to Metro that minimizes travel time delays and increases convenience.
- Support locating the CCT maintenance yard and shop outside the Shady Grove planning area at a location to be determined.
- Construct a grade-separated route to carry the CCT across MD 355 and incorporate a safe, at-grade pedestrian crossing.

CSX Corridor Transit Services

- Support expanded frequency for MARC rail service.
- Retain the 50-foot transit easement on the west side of the CSX right-of-way, north of the Metro station. Conduct further study of an additional mode (such as expanded Metro service or monorail) after the first phase of the CCT has been in operation for at least two years.

Transportation Management District (TMD)

A Transportation Management District is a public/private partnership organized to reduce single-occupancy driving by various means including carpooling, subsidizing transit costs, and improving transit service. This Plan recommends:

- Creating a TMD before new development can be approved. (See Implementation section for further discussion.) The TMD should include all businesses and residents in the Shady Grove Policy Area including, if feasible, a larger area such as the Life Sciences Center and the municipalities.
- Reducing peak period vehicle trips in the Shady Grove Policy Area in accordance with AGP Alternative Review Procedures. Strive for a transit ridership goal of 35 percent for residents and employees of new development traveling to work.
- Establishing a “transit store” in a central storefront location to dispense route and schedule information, sell fare media, promote transit use, and provide meeting space for coordinating TMD activities.
- Using minimum parking standards as the maximum allowable parking for development in proximity to Metro to support transit use, to lower development costs, and to constrain the amount of new traffic in the planning area.
- Increasing opportunities for shared vehicle parking, employee and residential incentives, and bicycle parking.

Bus Service

- Improve pedestrian access from neighborhoods to bus stops.
- Improve all bus stops with shelters, seating, and route information.
- Support shifting the MD 355 bus stop located just north of Shady Grove Road farther north, past the I-370 on-ramp, to avoid intersection back-ups.
- Support increased Ride-On bus service within a five-mile radius of the Metro station to increase transit convenience and ridership, especially to community destinations such as local shopping and schools, and particularly Magruder High School. Consider private/public shuttle bus service to meet local access needs.
- Explore the feasibility of MD 355 transit improvements to connect activity centers with development and to better serve transit needs.

Transit Center at the Metro Station

The number of different travel modes serving the Metro station, and the addition of a substantial number of new residents and businesses, warrants the creation of a well-coordinated, multi-modal transit center. The mix of uses and transportation functions are complex and will require on-going management and maintenance to benefit all users.

Within the transit center, a “transit store” should be provided with meeting space to support efficient coordination between transit services and the TMD programs. The “transit store” should also distribute transit information and actively promote transit ridership. Coordinating transit functions, managing transit programs, and promoting transit use would be primary activities at the “transit store.” Size and program needs should be determined through County facility planning. The “transit store’s” location should be integrated with proposed retail shops on the Metro station’s east side.

The existing Metro Station Bus, Kiss-n-Ride, and Parking Facilities will need to be redeveloped in conjunction with the creation of a mixed-use residential community. The following recommendations are transportation related. Urban design recommendations are provided in the Land Use section.

- Increase the number of bus bays serving the Metro station in coordination with WMATA’s required program needs.
- Redesign access to bus facilities to minimize walking distances, ensure pedestrian safety, and minimize traffic and pedestrian conflicts.
- Provide kiss-n-ride facilities on the east side of the station in garages to provide shelter and avoid conflicts with the bus facilities.
- Expand and improve the pedestrian connection between the east and west side of the station.

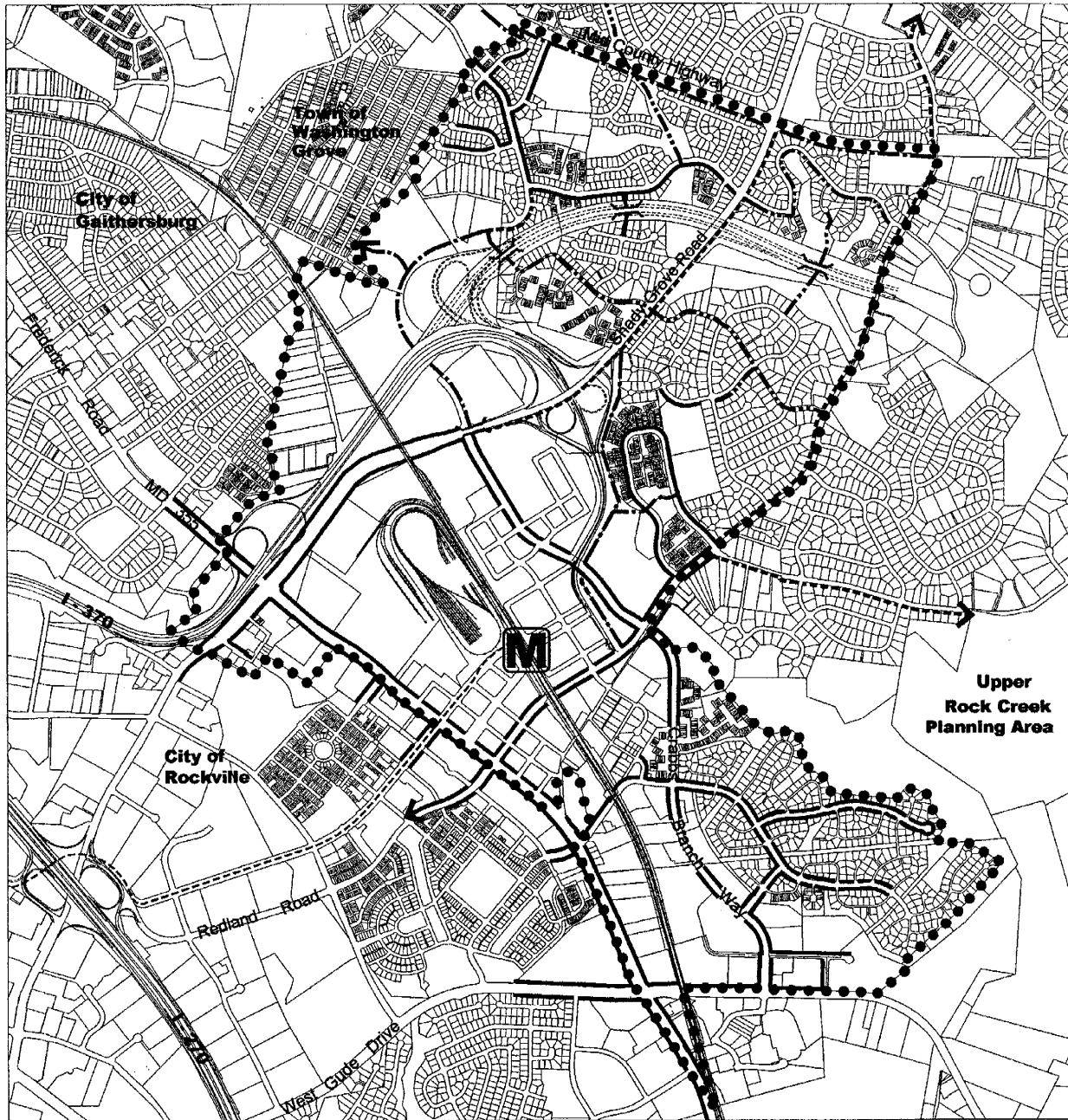
- Replace Metro surface parking with new multi-level parking garages in locations that minimize walking distance to Metro and mitigate rail noise. New garage locations on the station's west side may be located adjacent to the existing entry road to the maintenance yard and partially on County-owned land behind the Solid Waste Transfer Station. On the east side, new garage sites may be located parallel to the rail lines to achieve adequate area for residential development.

Bikeway and Pedestrian System (See Pedestrian Network, Existing and Proposed Bikeways, and Table of Bikeway Classifications)

Bike and pedestrian routes support the goal of increased transit use by providing convenient connections and encouraging walking. The Bikeway Classifications table lists the recommended bikeway and sidewalk connections needed to create an interconnected system. Sidewalk and bikeway connections should also meet the following recommendations.

- Place sidewalks back sufficiently from curbs and travel lanes to separate pedestrians from moving traffic.
- Provide four-way crosswalks at all intersections.
- Provide sidewalks on both sides of public streets in the Metro Neighborhoods.
- Provide special crosswalk treatments in the Metro Neighborhoods such as raised crosswalks to emphasize pedestrian movements.
- Include grade-separated pedestrian and bicycle crossings under the ICC to connect Mill Creek to Redland Station and Founder's Mill to Parkside Estates. Specific locations will be determined during ICC project planning.
- Construct a shared use path, Class I underpass at Crabbs Branch Way and Shady Grove Road to ensure a safe and convenient pedestrian and bike path connection to Metro, the future local park, and north to The Grove shopping center.

Pedestrian Network

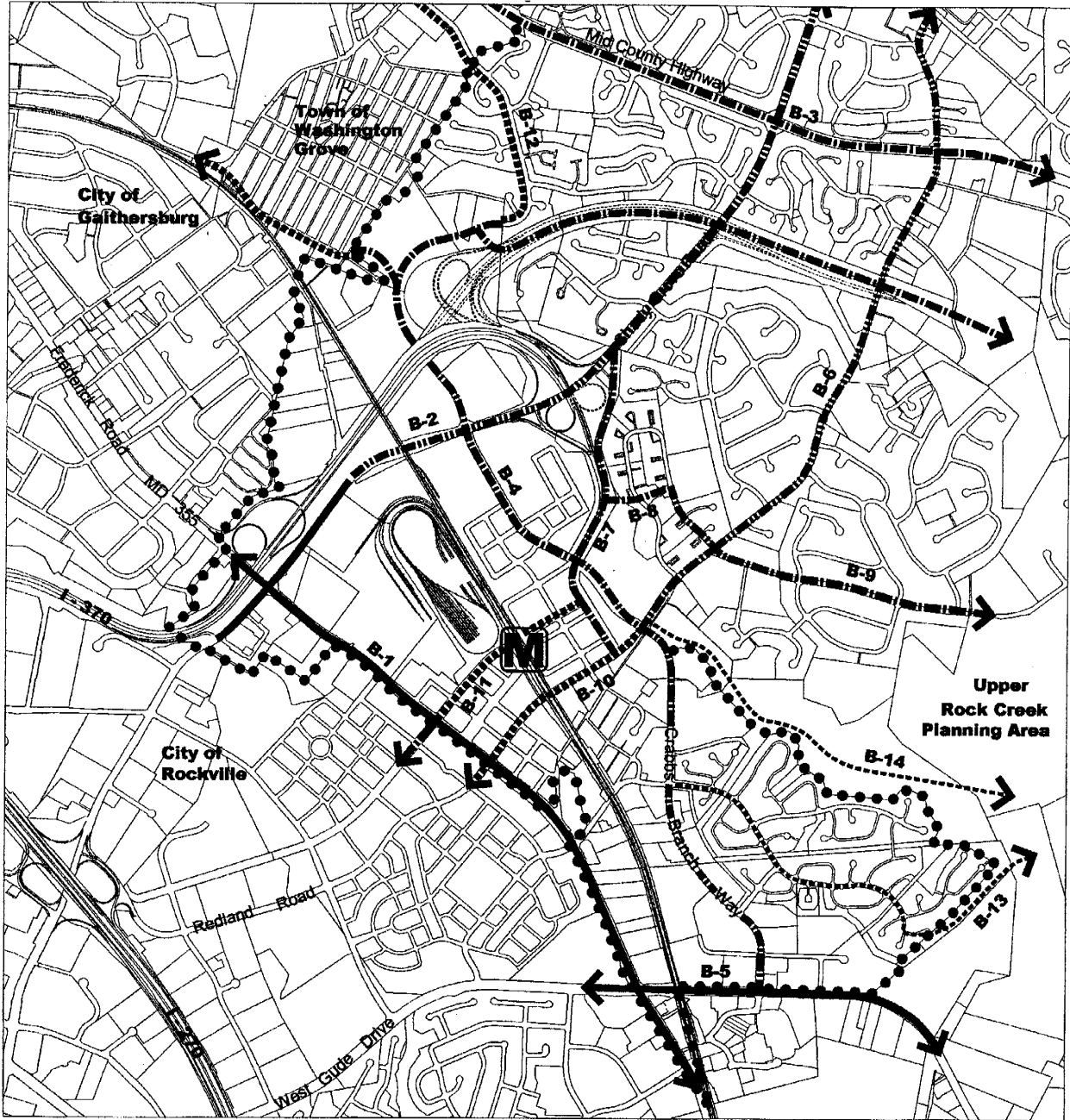


- Existing Sidewalks
- - - - - Proposed Sidewalks
- — — Proposed Shared-Use Paths (Class I)
- — — Proposed Asphalt Paths (open section)
- — — Proposed Underpass
- ● ● ● Shady Grove Sector Plan Boundary
- - - - - Corridor Cities Transitway

Note: All Intersections to be designed with pedestrian friendly characteristics. All Metro Neighborhoods streets to have sidewalks on both sides.



Existing and Proposed Bikeways



- Existing Shared-Use Paths (Class I)
- Proposed Shared-Use Paths (Class I)
- Proposed Bike Lanes (Class II)
- Proposed Shared-Use Roadways (Class III)
- - - - - Potential Bikeways (to be determined)
- Shady Grove Sector Plan Boundary

Note: shared-use paths, Class I, are also shown on Pedestrian Network.



Bikeway Classifications

| Ref. No. | Name | Limits | Class Type | Comments |
|----------|----------------------------------|---|---|--|
| B-1 | MD 355 | Length of planning area | Shared Use Path Class I | Locate along west side |
| B-2 | Shady Grove Road | Length of planning area | Bike Lanes Class II | Provide sidewalks along both sides |
| B-3 | Midcounty Highway | Length of planning area | Shared Use Path Class I | Locate bike path on west side, sidewalk on east side |
| B-4 | Crabbs Branch Way | Length of planning area | Shared Use Path Class I (See Proposed Trail Comments) | Locate bike path on east side from Amity Drive to Redland Road, Shift to west side south to Gude Drive. Provide connections to the Metro Station |
| B-5 | Gude Drive | Length of planning area | Shared Use Path Class I | Locate on north side, tie into Rockville's Bicycle Beltway |
| B-6 | Redland Road | Crabbs Branch east to Muncaster Mill | Either a Shared Use Path, Class I or sidewalks with Class III | Classification to be determined at project planning |
| B-7 | Metro access road | Shady Grove south to Metro | Shared Use Path Class I | Provide connection to Park Overlook |
| B-8 | Park Overlook | Metro access road to Blueberry Hill Park and Needwood | Shared Use Path Class I | Obtain easements from homeowners' association |
| B-9 | Needwood Road | Blueberry Hill Park to Muncaster Mill | Shared Use Path Class I | Locate on south side of roadway |
| B-10 | Redland Road | Crabbs Branch west to MD 355 | Bike lanes Class III | Unmarked lanes adjacent to parking |
| B-11 | New Road | Both sides of Metro station | Bike lanes Class III | Unmarked lanes |
| B-12 | Amity Drive | Length of planning area | Bike lanes Class III | Unmarked lanes |
| B-13 | Indianola Drive | Crabbs Branch east to park property | Bike lanes Class III | Study as an access to Upper Rock Creek Park |
| B-14 | Crabbs Branch Stream Valley Park | Redland to regional park | Shared Use Path Class I | Study as an access to Upper Rock Creek Park |

Roadway System

The proposed roadway recommendations improve the existing network by providing intersection improvements, connecting roadway, and creating a series of new streets to improve access within the Metro Neighborhoods. The recommendations that follow range from major highway to local street improvements (see Proposed Roadway Network and Classification Table).

Intercounty Connector (ICC) and Midcounty Highway Extended

The proposed ICC provides a major route for east-west traffic across the County. This Plan retains the previous plan's recommendations for right-of-way and number of lanes. Future decisions regarding the ICC will be made in the context of the federal Environment Impact Statement (EIS) process. If the Final EIS concludes that the full ICC cannot be built as envisioned in area master plans, then alternative east-west transportation projects will be considered. These alternative options are described in the 2002 *Transportation Policy Report* as Option 1 and Option 2 and are included in this Plan's Appendix. Either option is consistent with the Plan's recommendations.

MD 355

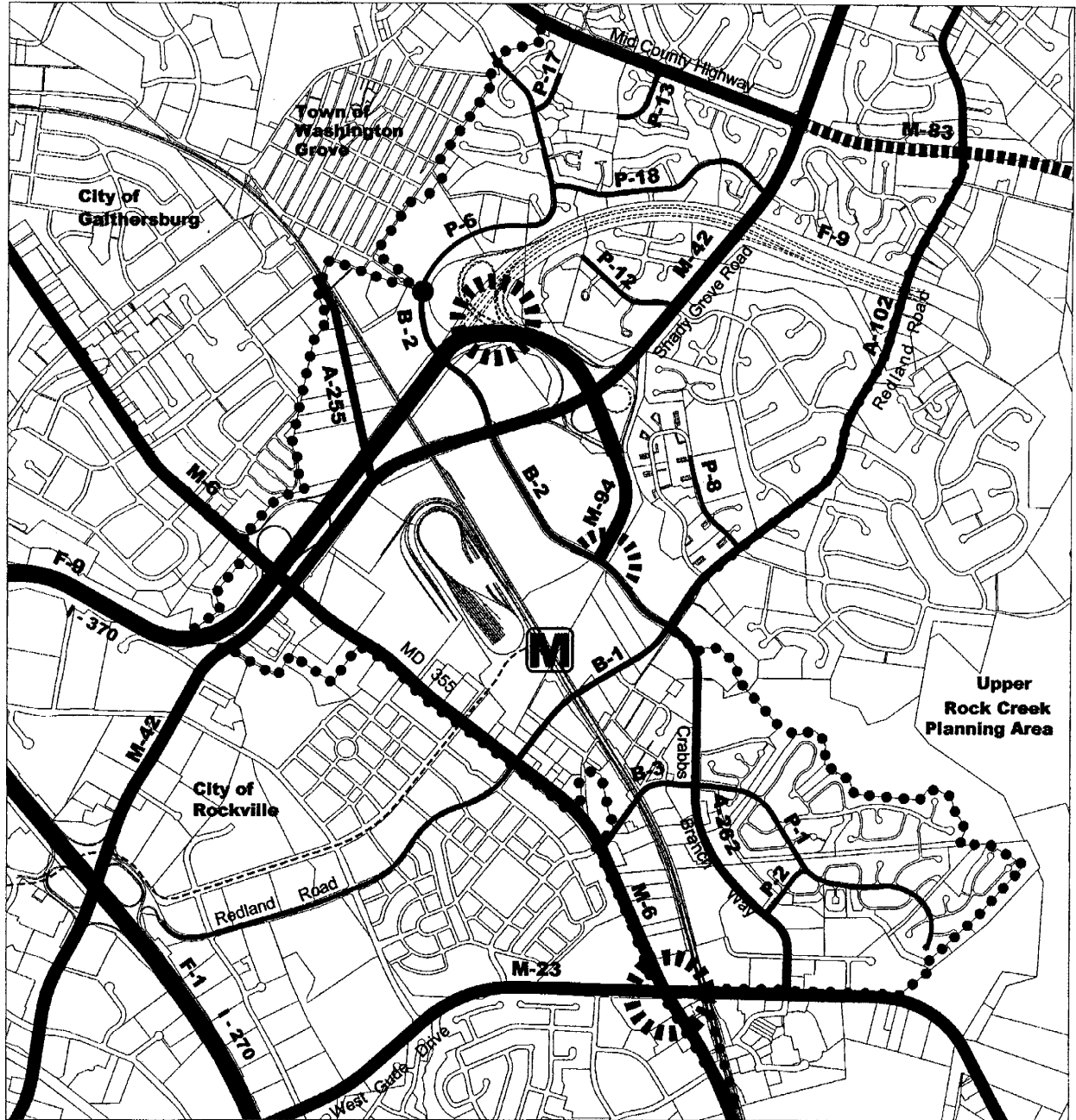
MD 355 runs from Friendship Heights to Clarksburg. Within urban metro areas, the roadway is treated as an Urban Boulevard, divided with a median, requiring slower speeds, enhanced with streetscape and emphasizing pedestrian safety and access. This urban character should be achieved along MD 355 between the Solid Waste Transfer Station and Indianola Drive, and is consistent with road character in Rockville and Gaithersburg. This Plan recommends:

- Maintaining classification as a Major Highway with six lanes, divided. Increase the right-of-way to 150 feet outside the Metro Neighborhoods to ensure adequate curbside space for pedestrians and streetscape improvements.
- Creating an Urban Boulevard character between Indianola Drive and the entrance to the Solid Waste Transfer Station. Maintain the existing 120-foot right-of-way with additional space through a public improvement easement for adequate sidewalks. Roadway design characteristics will include features appropriate for Metro areas with significant pedestrian traffic, such as increased streetscape improvements, slower travel speeds, short intersection spacing, and minimized pedestrian crossing distances at intersections.
- Minimizing direct driveway access from MD 355. The proposed street system is designed to consolidate access to side streets. If driveways are allowed because no alternative access is feasible, use driveway aprons not corner curb returns. Driveway ramps must reach the level of adjacent sidewalk to maintain a safe sidewalk for pedestrians. Avoid driveways with defining curbs and medians that increase pedestrian exposure to turning vehicles and that encourage high speed turning movements.
- Maximizing pedestrian safety, especially at intersections, by minimizing pedestrian crossing distance, increasing pedestrian time to cross, and ensuring adequate sight distances.
- Allowing short block lengths intersecting MD 355 in the Metro station area (see Commercial Business Streets for Metro Neighborhoods). Shorter block lengths better accommodate residential development, improve Metro access by increasing the number of possible routes to the station, and create a more pedestrian-friendly environment.
- Providing the recommended streetscape improvements.

Shady Grove Road

This road is a major traffic route through the planning area connecting with two interstate highways, I-370 and I-270. Local access is limited to a few connecting streets along Shady Grove Road. This Plan recognizes Shady Grove Road's role in cross-County travel. Improvements should address local pedestrian access, noise impacts, and streetscape character.

Proposed Roadway Network



- Freeways
- Major Highways
- Arterial Roadways
- Business Roadways
(See Commercial Business Streets for Metro Neighborhoods.)
- Residential Primary
- Shady Grove Sector Plan Boundary
- Corridor Cities Transitway
- Potential Partial Interchange
- Potential Interchange



- Maintain Major Highway classification with six-lanes, divided, with an increase to a 150-foot right-of-way. Increased right-of-way will provide adequate space for pedestrians and streetscape improvements.
- Improve Shady Grove Road's overall character with streetscape improvements.
- Provide noise walls east of I-370 along residential properties, if found in compliance with the County's noise guidelines.
- Provide a shared use path (Class I) underpass at Crabbs Branch Way under Shady Grove Road (See Proposed Bikeways).

Redland Road

Redland Road provides a travel route between Muncaster Mill Road and MD 355. It is classified as an Arterial. **(assuming approval by Council)** This Plan reaffirms that Redland Road should not be widened to four lanes north of Needwood Road.

- Achieve an 80-foot right-of way with a maximum of two lanes from Needwood Road to Muncaster Mill Road.
- Permit roadway improvements between Needwood Road and Crabbs Branch Way that minimize negative impacts on Park Overlook, the adjacent townhouse community.
- Achieve a 100-foot right-of-way from Crabbs Branch Way to MD 355 to create a four lane, divided Commercial Business Street. Support on-street parking during off-peak traffic periods to serve local businesses.
- Develop a full intersection at Yellowstone Way to improve access to Metro and to new residential development.
- Provide a Class III bikeway in the Metro Neighborhoods to accommodate bikes and on-street parking during non-peak traffic periods.

Crabbs Branch Way

Crabbs Branch Way is a significant travel route through the planning area from Gude Drive to Shady Grove Road. It provides access to residential areas, the Metro station and the County Service Park. The road does not extend north of I-370 although a bridge under I-370 was built in anticipation of such an extension. This Plan recommends:

- Extending Crabbs Branch Way with an 80-foot right-of-way, under I-370 to Amity Drive, to improve local connections. To discourage cut-through traffic, a traffic circle should be considered at the intersection of Crabbs Branch Way and Amity Drive. Additional traffic calming measures along Amity Drive should also be considered.
- Achieving a 100-foot right-of-way between Shady Grove Road and Redland Road to accommodate four lanes and a median. Support on-street parking during off-peak hours to provide needed parking for the local park and residents. During peak hours parking lanes will become travel lanes.
- Creating a partial interchange connecting the Metro access road to Crabbs Branch Way to provide more direct access to I-370.
- Maintaining the current 80-foot right-of-way between Redland Road and Gude Drive.

Interchanges

- Create grade-separated interchanges at:
 - Metro access road and Crabbs Branch Way (limited to the east side)
 - MD 355 and Gude Drive, if found necessary. Minimize impacts on adjacent businesses by measures such as depressing MD 355 under Gude Drive
 - ICC and I-370 (to be developed in the ICC's Draft Environmental Impact Statement).

Local Street Network

This Plan recommends Commercial Business Street standards to achieve urban street characteristics in the Metro Neighborhoods. Such characteristics include short block intersecting spacing, tight corner radii, variable rights-of-way, and urban streetscape treatments. This Plan recommends:

- Providing a new grid system of local streets forming short walkable blocks within the Metro station vicinity (see Commercial Business Streets for Metro Neighborhoods). Those streets that are listed in the Street and Highway Classification table are needed to improve access to Metro and local circulation. Additional streets that are illustrated but not listed in the table are also desired.
- Within the Metro Neighborhoods, all streets shall be built to Commercial Business Street standards with primarily 70-foot right-of-ways.
- Designing local intersections with pedestrian-friendly characteristics such as minimal corner radii, raised pedestrian crosswalks, and special crosswalk pavement.
- Providing traffic calming measures along all residential streets experiencing cut-through traffic, particularly in the Old Derwood community.

Other Roadway Improvements

These recommendations are not required by this Plan but are consistent with its objectives.

- If the vacant Casey properties 6 and 7 are developed with relocated County services, permit a new, private street over the CSX tracks and north of I-370, connecting Crabbs Branch Way to Oakmont Avenue to improve local access for industrially zoned properties. Also, study an “authorized vehicles only” ramp to and from I-370 to serve adjacent industrially zoned properties.
- Explore opportunities to create new street connections under the CSX tracks especially at the Metro station where expanding the existing pedestrian tunnel may be feasible.
- Study the need for a new interchange at Midcounty Highway and Shady Grove Road.

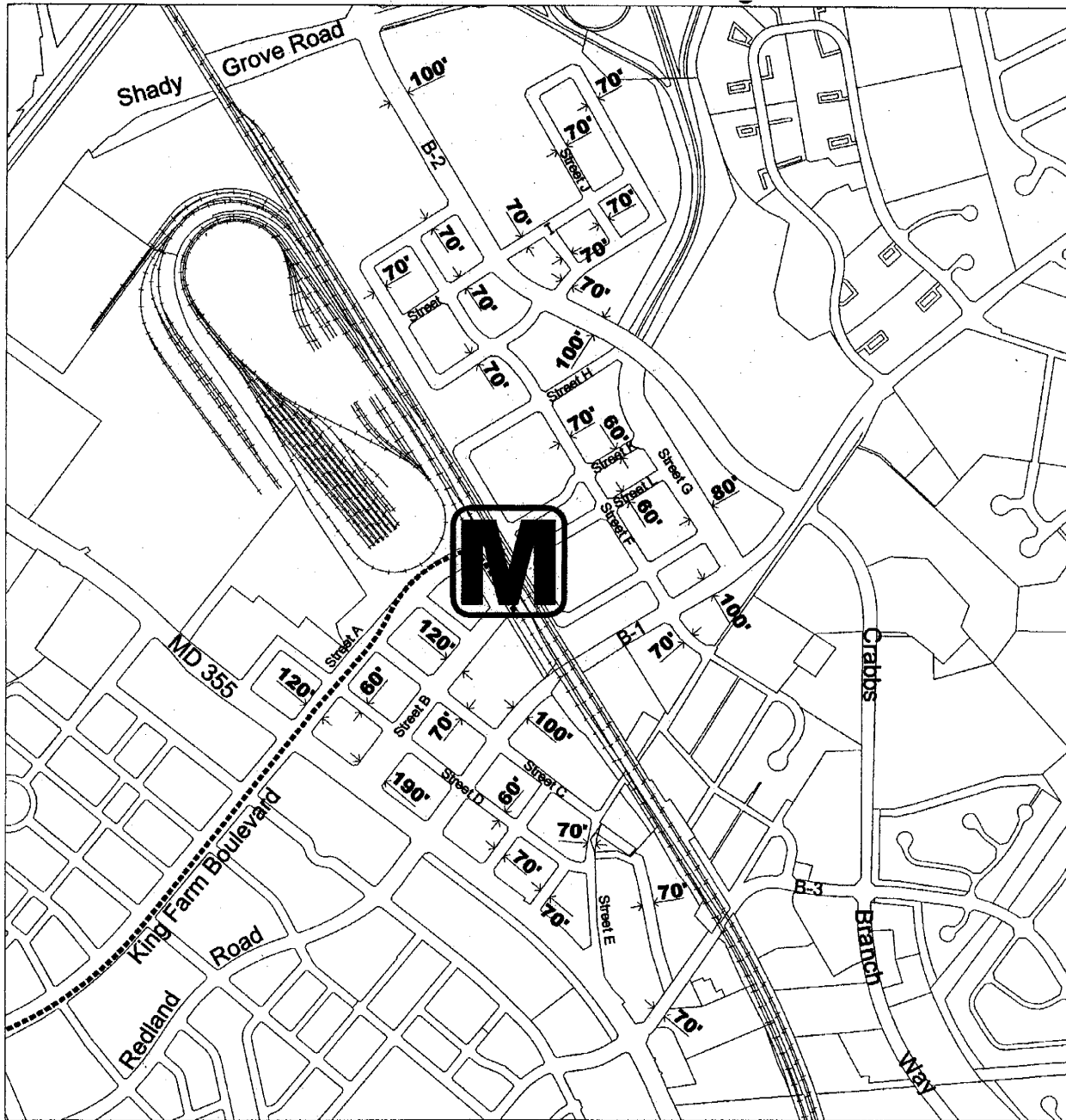
Parking Supply and Demand

Parking policies in Metro station areas should be part of an overall strategic plan to encourage transit use while meeting local business and resident parking needs. There is a significant demand for Metro parking spaces, with current facilities at capacity. To reduce future traffic and provide sufficient area to create a mixed-use residential community, this Plan recommends limiting the expansion of parking at the station. Locating residential units close to Metro rather than parking garages, decreases future traffic since a high percent of residents use Metro. Constrained parking at the Metro also results in higher number of transit trips to the station, via Ride-On and Metro buses, and the future Corridor Cities Transitway.

The Plan’s parking recommendations strive to provide an adequate supply of short-term parking for retail, restaurant, and small business customers, and make more efficient use of shared parking opportunities with Metro garages through the Transportation Management District. This Plan recommends:

- Limiting the supply of Metro parking to the currently provided 6,000 spaces to reduce additional automobile traffic in the planning area.
- Designating short-term garage spaces and allow shared long-term parking spaces in off-peak periods to maximize use of parking facilities.
- Allowing on-street parking along major roads in non-peak periods on a case-by-case basis. On-street parking for local streets should be unrestricted. On-street parking contributes to pedestrian safety by physically separating the sidewalk from moving vehicles.
- Providing joint use of Metro parking spaces during non-peak hours for Metro Neighborhood residents. Consider minimum parking requirements as maximum parking permitted.
- Ensure that all parking facilities adjacent to residential development are designed to be compatible and attractive neighbors.

Commercial Business Streets for Metro Neighborhoods



Note : All 70' ROW streets to have parking on both sides.
 All 60' ROW streets to have parking on one side only.
 Final alignment of proposed roads to be determined by the Preliminary Plan.

----- Corridor Cities Transitway



Street and Highway Classifications

| Roadway | | Limits | Minimum ROW Width (feet) | Number of Travel Lanes |
|---|---|--|--------------------------|---------------------------------------|
| Freeways | | | | |
| F-9 | Interstate 370 | Western Plan Boundary to Intercounty Connector | 300 | 6, divided |
| F-9 | Intercounty Connector (ICC) | I-370 to Redland Rd | 300 | 6, divided plus Transitway/Bikeway |
| Major Highways | | | | |
| M-6 | MD 355, Frederick Av | I-370 to Ridgemont Av | 150 | 6, divided |
| M-6 | MD 355, Frederick Av | Ridgemont Av to Indianola Drive | 120 | 6, divided |
| M-6 | MD 355, Frederick Av | Indianola Dr to Gude Dr | 150 | 6, divided |
| M-23 | Gude Drive | MD 355 to Eastern Plan Boundary | 150 | 6, divided |
| M-42 | Shady Grove Rd | Western Plan Boundary to I-370 | 150 | 6, divided |
| M-42 | Shady Grove Rd | I-370 to Midcounty Hwy | 120 | 6, divided |
| M-83 | Midcounty Highway | Northern Plan Boundary to Redland Rd | 150 | 4-6, divided |
| M-94 | Metro Access Road | I-370 to Street "G" | 150 | 4, divided, with exclusive transitway |
| Arterials | | | | |
| A-102 | Redland Road | Crabbs Branch Way to Needwood Road | 80 | 4 |
| A-102 | Redland Road | Needwood Road to Midcounty Hwy Extended | 80 | 2 |
| A-255 | Oakmont Avenue | Shady Grove Road to Northern Plan Boundary | 80 | 2 |
| A-262 | Crabbs Branch Way | Gude Dr to Redland Rd | 80 | 4 |
| Commercial Business District Streets | | | | |
| B-1 | Redland Road | MD 355 to Crabbs Branch Way | 100 | 4, divided |
| B-2 | Crabbs Branch Way | Gude Drive to Shady Grove Road | 100 | 4, divided |
| B-2 | Crabbs Branch Way Extended | Shady Grove Road to 1,000 feet north of I-370 | 80 | 4 |
| B-3 | Indianola Drive | MD 355 to Crabbs Branch Way | 70 | 2 |
| B-4 | King Farm Boulevard Extended (Street "A") | 1,100 LF from MD 355 to Metrorail Station | 120 | 2 |
| B-5 | Street "B" | MD 355 to Street "D" | 190 | 2 |
| B-5 | Street "B" | 700 LF from Street "D" to Metrorail Station | 120 | 2 |
| B-6 | Somerville Drive Extended (Street "C") | Street "A" to Street "E" | 70 | 2 |
| B-7 | Street "D" | Street "A" to Street "E" | 60 | 2 |
| B-8 | Paramount Drive (Street "E") | MD 355 to CSX Transportation | 70 | 2 |
| B-9 | Street "F" | Crabbs Branch Way to Street "K" | 70 | 2 |
| B-10 | Street "G" | Metro Access Road to Crabbs Branch Way | 80 | 2 |

| Roadway | | Limits | Minimum ROW Width(feet) | Number of Travel Lanes |
|------------------------------------|------------------|---|-------------------------|------------------------|
| B-11 | Street "H" | Metro Access Road to Street "F" | 70 | 2 |
| B-12 | Street "I" | 550 LF west of Crabbs Branch Way to 900 LFeast of Crabbs Branch Way | 70 | 2 |
| B-13 | Street "J" | Street "I" to 700 LF north of Street "I" | 70 | 2 |
| B-14 | Street "K" | Street "F" to Street "G" | 70 | 2 |
| B-15 | Street "L" | Street "F" to Street "G" | 70 | 2 |
| Primary Residential Streets | | | | |
| P-1 | Indianola Drive | Crabbs Branch Way to Crabbs Branch Park | 70 | 2 |
| P-2 | Monona Drive | Crabbs Branch Way to Indianola Way | 70 | 2 |
| P-6 | Amity Drive | Northern Plan boundary to 70 Crabbs Branch Way Extended | 70 | 2 |
| P-8 | Needwood Road | Redland Road to Blueberry Hill Local Park | 70 | 2 |
| P-12 | Briardale Road | Shady Grove Road to 1,500 LF north of Shady Grove Road | 70 | 2 |
| P-13 | Miller Fall Road | Midcounty Highway to Shady Grove Middle School | 70 | 2 |
| P-17 | Taunton Drive | Amity Drive to Shady Grove Middle School | 70 | 2 |
| P-18 | Epsilon Drive | Shady Grove Road to Amity Drive | 70 | 2 |

These are the number of planned through lanes for each segment.

Not including lanes for turning, parking, acceleration, or other purposes auxiliary to through travel.

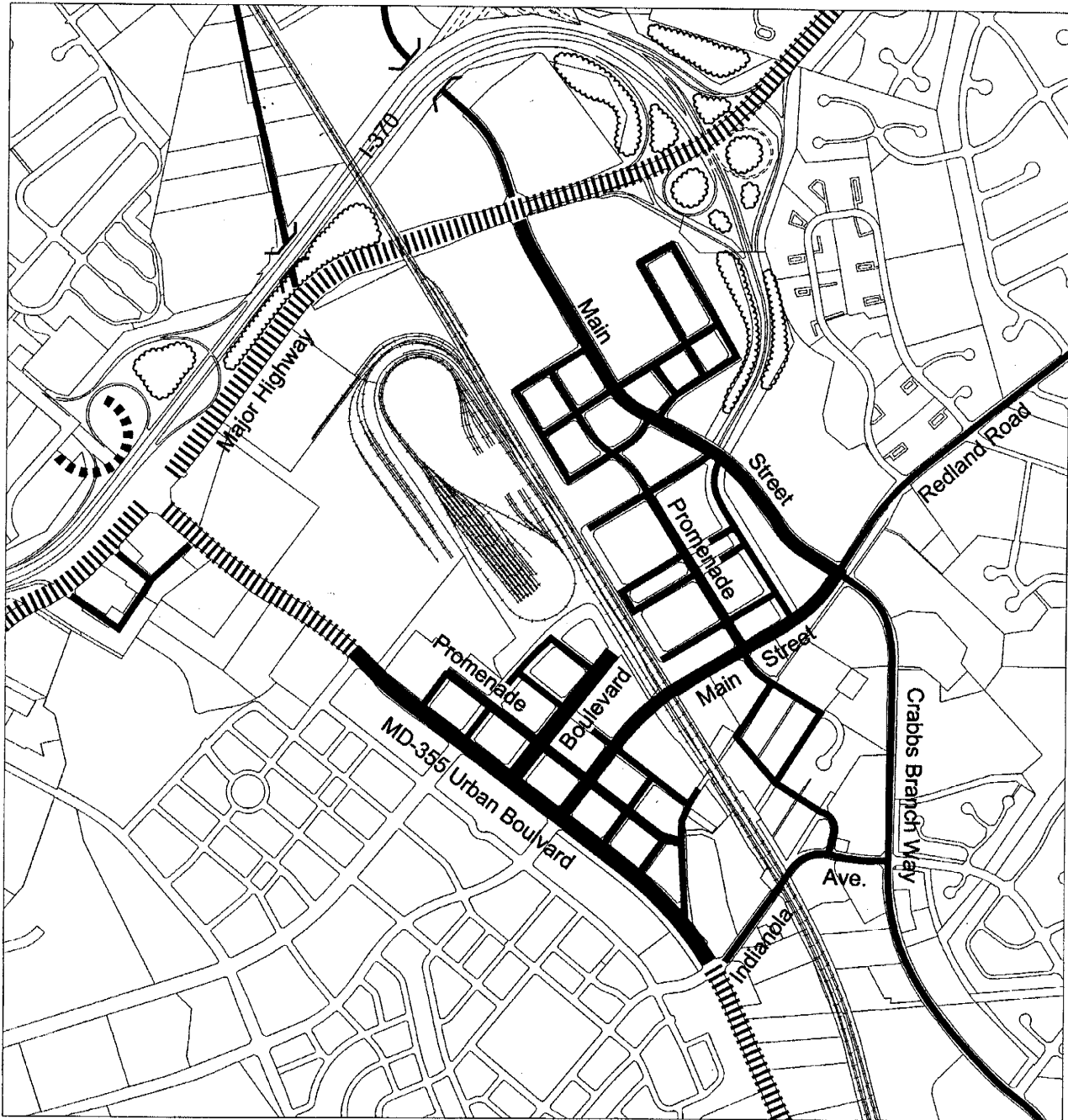
Streetscape Plan








The Shady Grove planning area needs a safe and an attractive pedestrian environment that encourages Metro use, contributes to social interaction, and provides a setting for public life. Currently, walking to Metro or nearby parks is challenging and unpleasant due to the lack of sidewalks and streetscape improvements. This Plan recommends an extensive network of streetscaping, sidewalks, trails, and crosswalks to improve the pedestrian environment. The recommended streetscape improvements create an attractive setting for pedestrian and business activity, reinforce the stability of existing neighborhoods, and promote the vitality of the new Metro Neighborhoods.

Objectives

- Encourage walking by creating an attractive pedestrian environment that improves access to Metro and other destinations.
- Strengthen community identity by developing streetscapes that distinguish each of the Metro Neighborhoods and the Metro station area.

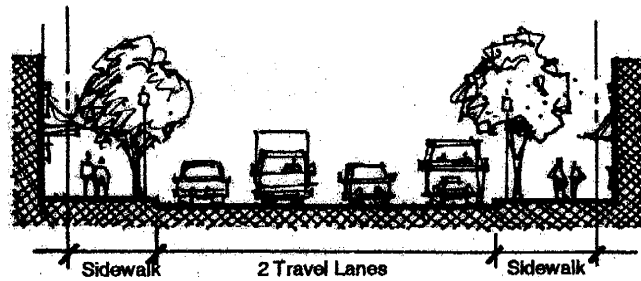
Streetscape Plan



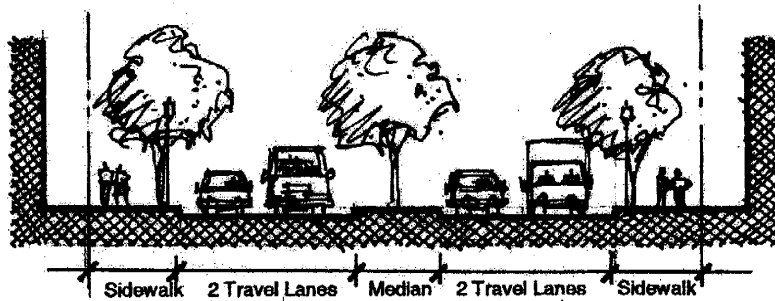
-  Gateway
-  Urban Boulevard
-  Major Highway
-  Main Street
-  Promenade
-  Local Streets
-  Woodland Treatment



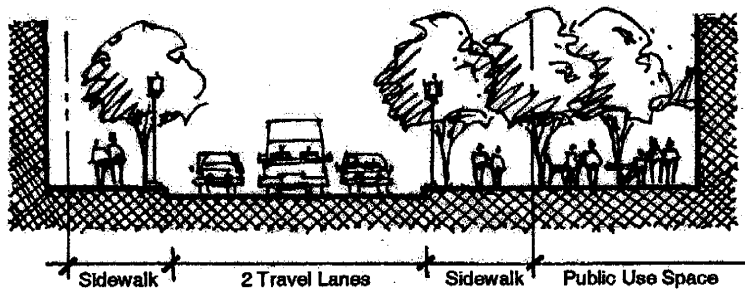
Proposed Cross Sections



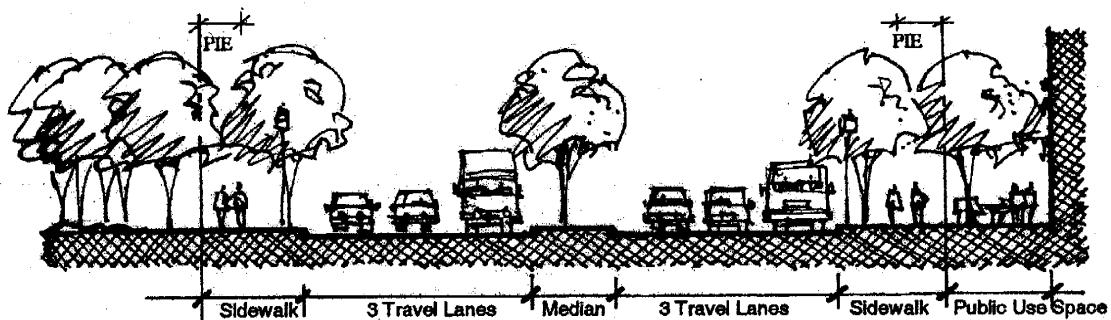
Local Street – 70' ROW



Main Street – 100' ROW



Promenade – 60' ROW



Urban Boulevard – 120' ROW

- Reinforce the street hierarchy by achieving a higher level of streetscape improvements along major corridors and within the Metro station area and in areas of significant pedestrian activity.
- Increase greenery to improve attractiveness and environmental quality by planting closely spaced street trees along all streets.
- Improve pedestrian safety with street lighting that also contributes to community character and identity.
- Reduce visual clutter and create attractive street corridors by placing utilities underground, coordinating public signage, and encouraging attractive commercial signage.
- Maintain streetscape improvements through public/private partnerships.

Concept

The streetscape concept enhances the existing corridors of Shady Grove Road and MD 355, and creates a new district of streetscape improvements centered in the Metro Neighborhoods. This concept supports the Plan's land use recommendations. A major theme of the streetscape concept is "re-greening the Shady Grove" to create an attractive setting for existing and new communities. A separate document, the *Shady Grove Streetscape Plan*, will include detailed specifications on streetlights, street tree species, paving, and other streetscape elements (see Streetscape Concept and Street Cross-sections).

Shady Grove Road Corridor

- Upgrade Shady Grove Road with sidewalks, lighting, and extensive landscaping and street trees to create a green, attractive setting along its entire length.
- Reforest the right-of-way between I-370 and Shady Grove Road to increase the amount of greenery in the Corridor.
- Create a naturalized landscape within the I-370 interchange with Shady Grove Road and along both sides of the Metro access road to provide a greater sense of the natural environment.

MD 355 Corridor

- Create an Urban Boulevard from the Solid Waste Transfer Station to Indianola Drive to establish the identity of the Metro station area, facilitate walking, and improve Metro access.
- Within the Urban Boulevard, provide extensive street trees, and special sidewalk and crosswalk paving to improve pedestrian safety and encourage walking.
- Provide a double row of shade trees along both sides of the roadway to help create a boulevard character.
- Along the roadway outside the Metro Neighborhoods, north and south of the Metro station area, provide shade trees in a curbside lawn panel to separate pedestrians from moving traffic. Provide a six-foot wide sidewalk at a minimum.

New Streets in the Metro Neighborhoods

- Provide an urban streetscape throughout the Metro Neighborhoods with ornamental pedestrian-scaled lighting, special sidewalk and crosswalk paving, and coordinated street furniture.
- Plant trees according to urban standards for closely spaced street trees to achieve the "re-greening of Shady Grove" theme and to create an attractive setting for residents and businesses.
- Outside the right-of-way and directly adjacent to storefront retail uses, provide adequate paved areas to accommodate outdoor seating such as movable tables and chairs. Provide foundation plantings where appropriate to increase the sense of greenery.
- Create extensively landscaped Promenades in Metro West, Metro North and Metro South. The Promenade, a linear urban public use space, is partially within the right-of-way and provides seating areas, recreation, and amenities such as artwork, fountains, and seasonal plantings. The Promenade should achieve a garden character compatible with adjacent residential development.

- In the Metro West Neighborhood, create an extensively landscaped boulevard that leads to the Metro station. It should reflect the “regreening of Shady Grove” theme by establishing a garden character in the medians. Seating areas and other amenities should be provided within median areas that are over 50 feet wide to create outdoor places.
- In the Metro West Neighborhood, provide streetscape around the town square with lawn panels, shade trees, and seating areas to create a green urban park.
- In the Metro North Neighborhood, landscape public sidewalks around the town common with lawn panels, shade trees, and seating to create a green urban park.

Redland Road between MD 355 and Crabbs Branch Way

- Create a main street with extensively landscaped median. Provide shade trees, special sidewalk paving, and crosswalks to improve pedestrian safety and encourage walking.

Crabbs Branch Way between Shady Grove Road and Redland Road

- Create a main street with extensively landscaped median. Provide lawn panels for street tree planting to complement the primarily residential character.
- Develop the recreation trail, a Class I shared use bike path, on the street’s east side with special paving (not asphalt), a double row of shade trees, seating areas, and other special features.
- Design the pedestrian underpass at Shady Grove Road with features that express the garden character. Incorporate artwork into the design of the underpass.
- Provide special sidewalk paving and crosswalks to improve pedestrian safety and encourage walking.

Signage

- Commercial signs should be located on building facades or consolidated in a monument sign. Freestanding, pole mounted signs should be avoided to minimize visual clutter and improve overall attractiveness.

Overhead Utilities

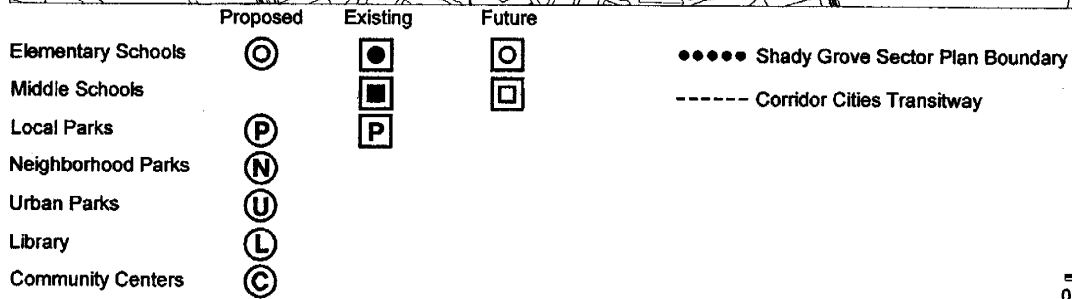
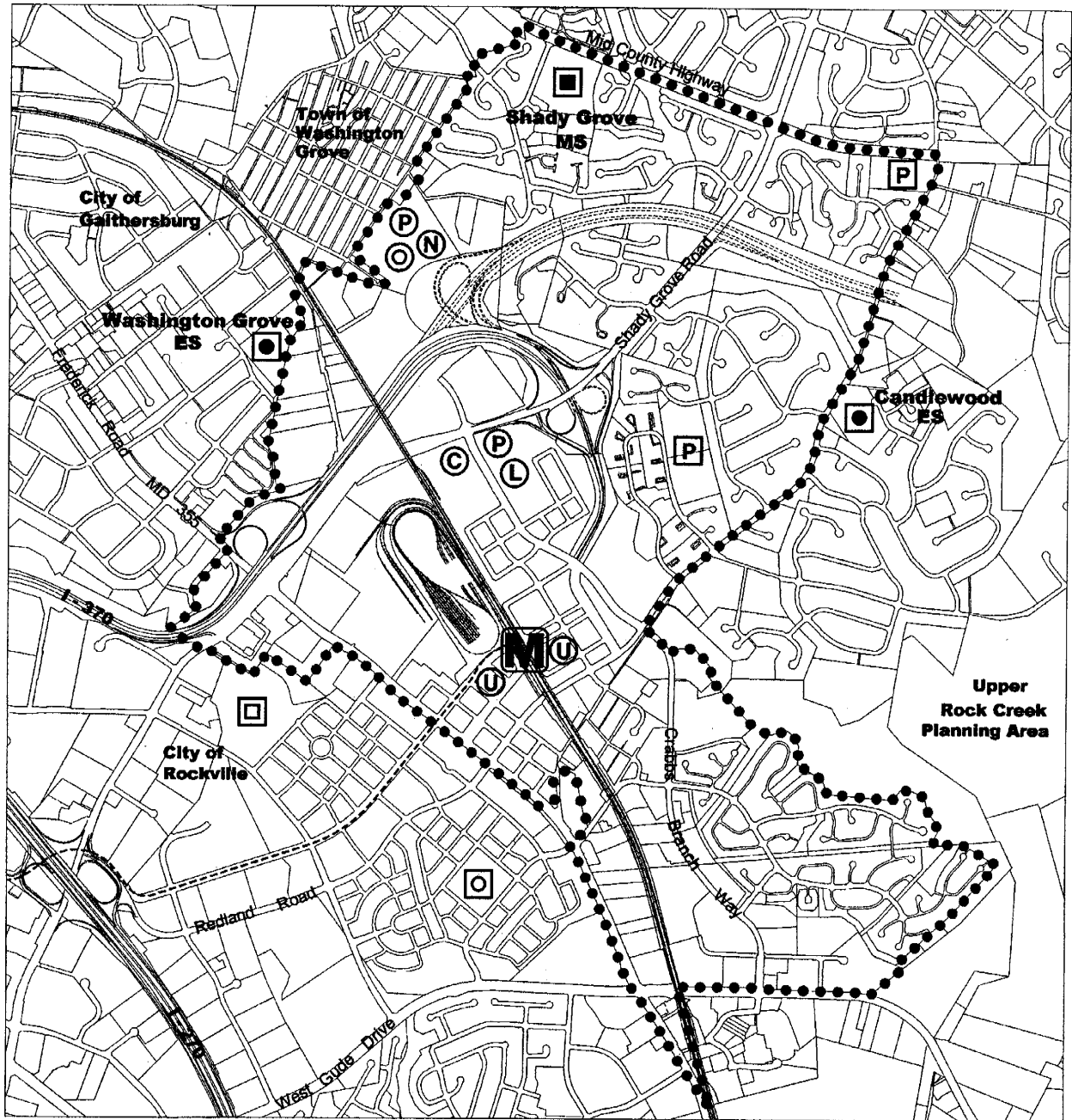
- Require development within the Metro Neighborhoods to underground utilities along new and existing roadways, especially along major roadways with existing overhead utilities.
- Placing existing overhead utilities underground in areas outside the Metro Neighborhoods will be considered on a case-by-case basis.

Neighborhood Protection

Through traffic is inappropriate within residential communities. It disturbs the peace of a neighborhood and creates a hazard for children and pedestrians. This Plan supports measures to mitigate cut-through traffic and calm travel speeds to help protect the existing single-family communities.

- Support several traffic circles in Old Derwood to help reduce cut-through traffic and slow travel speeds.
- Support traffic calming measures and a traffic circle along Amity Drive at its connection with Crabbs Branch Way.
- Encourage the establishment of neighborhood parking permit programs to protect nearby residential areas from non-resident parking.
- Study the need for traffic restrictions within Parkside Estates and Old Derwood to discourage cut-through traffic.

Existing and Proposed Public Facilities



AREA WIDE ELEMENTS

PUBLIC FACILITIES

Public parks, schools, and other civic uses provide needed community services and become gathering places for community life. This Plan recommends a full range of public facilities that should be conceived as civic places, creating community identity and providing a pedestrian-friendly character. The Plan provides general locations for these facilities based on current estimates of future facility needs. The actual number of such facilities should be reevaluated based on actual development yield and County policies when development occurs.

In addition to parks and schools, public facilities in the County Service Park provide needed services such as bus repair, park maintenance, and school lunch service. This Plan recommends gradually relocating the County Service Park facilities since these services do not require proximity to the Metro Station.

Public Facilities Concept

Provide a full complement of public facilities that can serve both new and existing residents. This Plan recommends locating public facilities in the Jeremiah Park area as transitional uses that are convenient to the community. Public facilities such as a library and local park located at Crabbs Branch Way and Shady Grove Road should be visible, accessible, and create a civic presence. Existing County service facilities should be relocated and reconfigured to sites where they can operate more efficiently.

Park and Recreation Facilities

The park system proposed for the Shady Grove planning area will expand recreation opportunities, provide a park trail system integrated with sidewalks and bikeways, and help protect areas of natural and cultural significance.

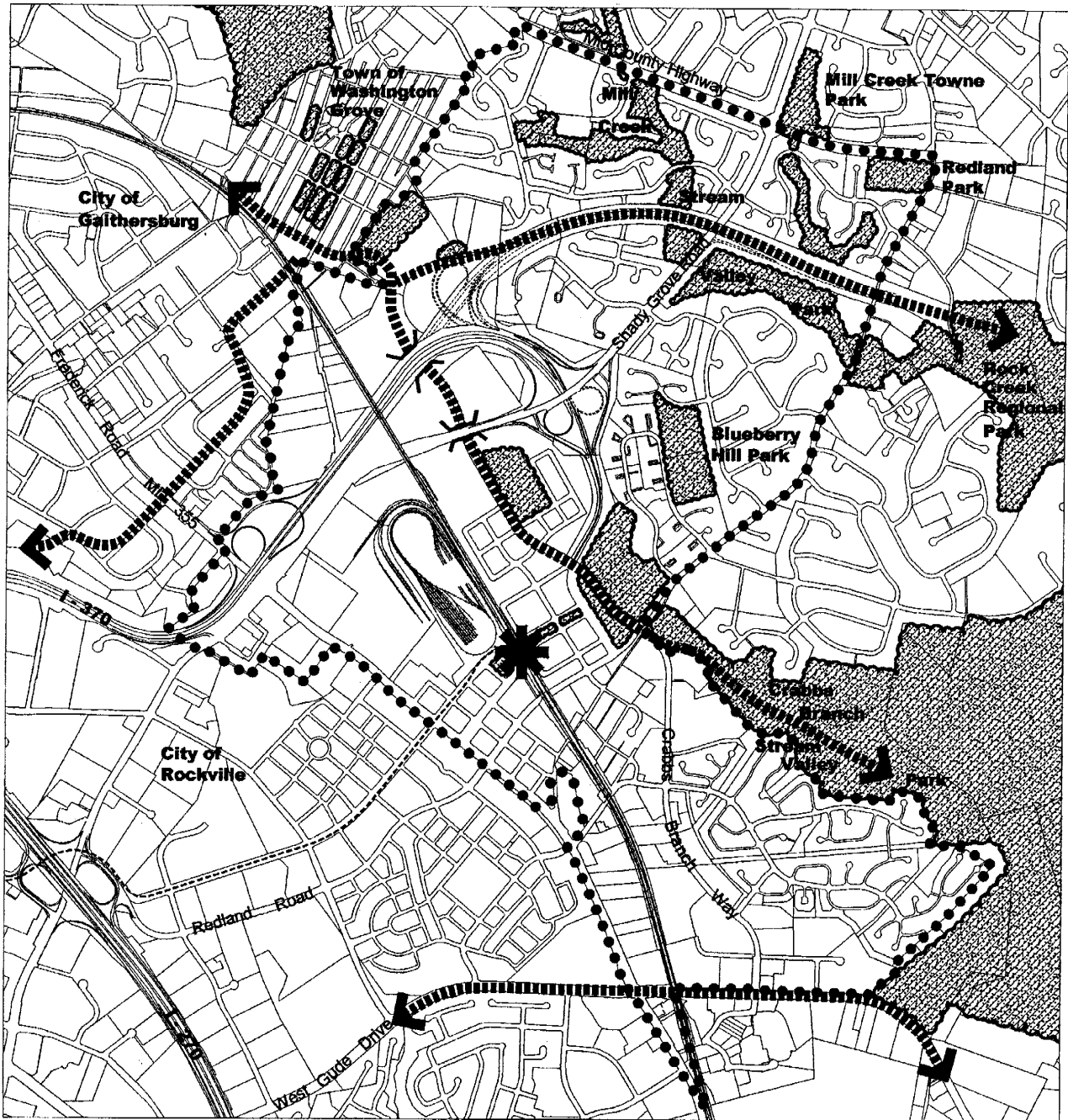
Objectives

- Provide a series of public and private small urban parks in higher density areas near the Metro station to meet the recreational needs of residents and employees.
- Provide additional active and passive recreational opportunities for a wide range of age groups and interests.
- Provide safe and attractive pedestrian and bicycle routes in a connected system between parks and from adjoining neighborhoods.
- Provide park settings for historic features.

The County's *Park, Recreation and Open Space Master Plan* (PROS) identifies unmet recreation needs in the Shady Grove and Derwood communities for basketball courts, ball fields, and playgrounds. Additional active and passive recreation facilities are needed for residents of the Metro Neighborhoods. Passive recreation opportunities such as nature walks, picnicking, trails and bird watching are not easily accessible in this area. This Plan has the potential to meet these needs and create a range of recreational opportunities including passive recreation.

There is also an important need to provide connections to parks located just outside the planning area. This Plan supports the *Countywide Park Trails Plan* proposal for a mid-county greenway trail corridor

Park, Trail, and Open Space Concept



- ▬▬▬▬▬ Countywide Trails
- ▨▨▨▨ Public Park System
- ★ Urban Parks at Metro
- Shady Grove Sector Plan Boundary
- - - - - Corridor Cities Transitway



that traverses this portion of the county. The greenway is intended to link the Potomac and Patuxent Rivers and this Plan seeks to find local connections to this regional system.

Concept

This Plan retains existing parks and expands recreation opportunities by creating new neighborhood, local, and nature-oriented parks along Crabbs Branch Way within the Buffer Area. This linear network will also be connected to the cross-County trail that links to destinations beyond the planning area such as Upper Rock Creek Regional Park. In addition, a series of urban parks is proposed to provide needed open space within the Metro Neighborhoods (see Park, Trail and Open Space Concept).

The *Countywide Park and Trails Plan* and the *PROS Plan* both identify basic goals for the County's trail system, including making connections, offering variety, and balancing recreation, transportation, and environmental efforts. The planning area abuts the Crabbs Branch Stream Valley Park, which may have some trail potential. This Plan identifies path and trail opportunities throughout the planning area in the parks and through the communities with the goal of connecting neighborhoods to parks, shopping, and the Metro.

Recommendations (See Existing and Proposed Parks and Open Space)

Provide Recreational Opportunities in Existing Parks

- Site 1 - Preserve Blueberry Hill Park as a recreation park. Provide additional passive recreational facilities in the wooded portions including trails, picnic facilities, seating areas, and improved pathways to surrounding communities.
- Site 2 - Maintain the existing active recreational uses at Redland Road Local Park.

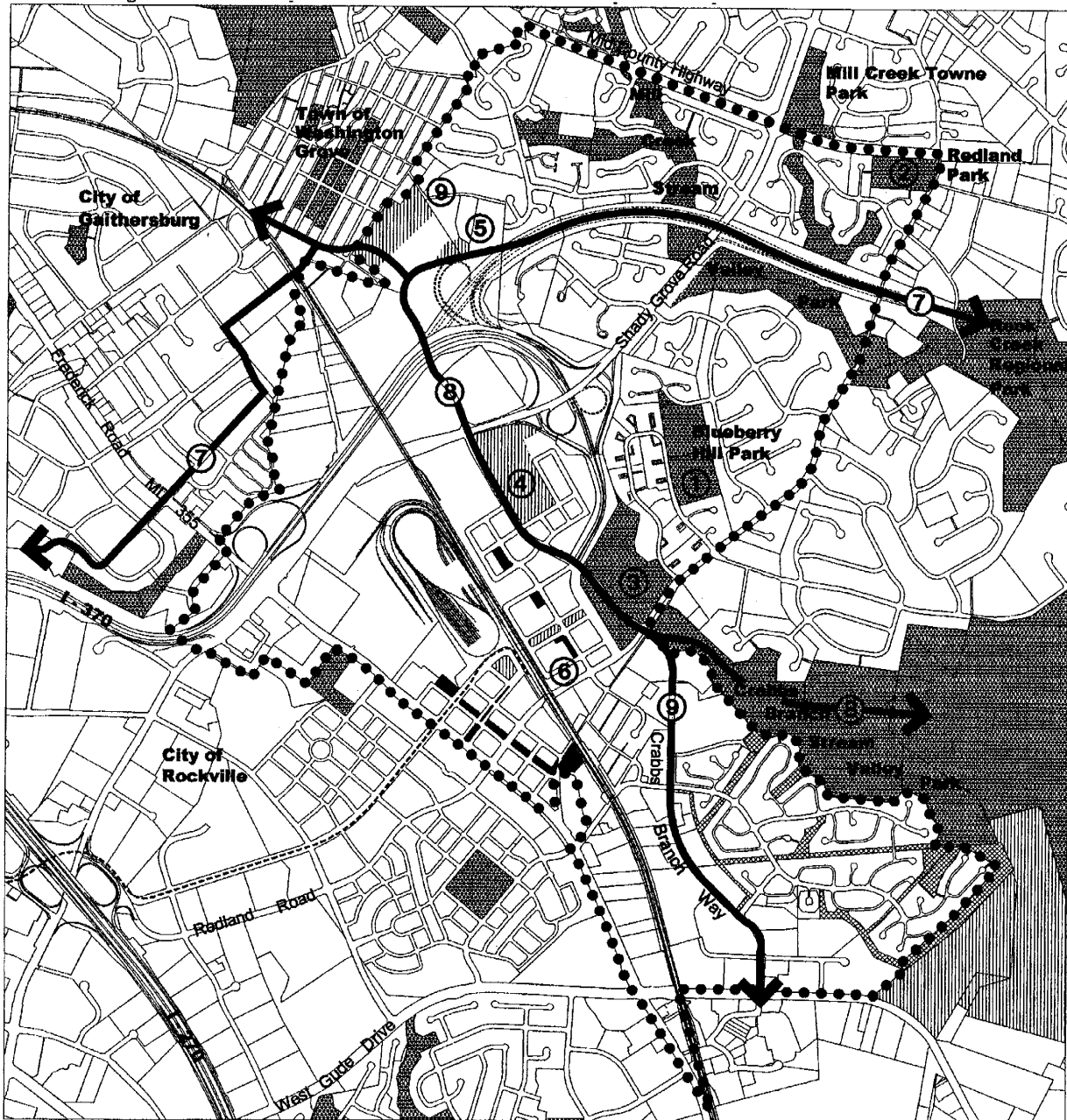
Provide Recreational Opportunities in New Parks






- Site 3 - Provide passive recreation at the stormwater management pond, including trails, interpretive material, seating and picnic facilities. Provide a high point viewing station and consider a fountain in the pond. Connect trails to the Metro station and to surrounding communities.
- Site 4 - Create a 20-acre local park in the Buffer Area, called Jeremiah Park after Derwood's founder. This park should offer active recreational uses including ballfields, such as football, soccer and lacrosse, tennis courts, and multi-age recreation as well as area for a potential library, aquatic center, or elementary school. If this site is not available for a local park, then an alternative site must be found.
- Site 5 - Create a neighborhood park north of the ICC in the Amity Drive area to provide nature-oriented recreation. Active recreation facilities will be located at the proposed elementary school.
- Site 6 - Create Town Square and Town Common parks in the Metro Neighborhoods that offer paved pathways, seating areas, special plantings, shade trees, and public art (See Urban Park Networks).
- Provide neighborhood recreation and public use space in each Metro Neighborhood to provide local recreation opportunities that supplement County parks. Facilities can range from simple seating areas and tot lots in the Promenades to basketball courts and rooftop swimming pools.

Provide Trail Corridors

- Trail 7 - Explore the potential for using sidewalks and a natural surface trail in the Mill Creek Stream Valley Park to provide an east-west greenway connection recommended in the *Countywide Park Trails Plan*.
- Trail 8 - Explore opportunities for a trail connection from Crabbs Branch Stream Valley Park to Rock Creek Park, or an alternative connection via Indianola Drive.
- Extend the bike route along Crabbs Branch Way through the proposed development at Casey at Mill Creek to connect with Washington Grove's bikeway system (see Proposed Bikeways).

Existing and Proposed Parks and Open Space



-  Existing Public Parks and Open Space
-  Existing Private Open Space
-  Proposed Public Parks and Open Space
-  Proposed Public Use Open Space
-  Countywide Trails
-  Shady Grove Sector Plan Boundary
-  Corridor Cities Transitway



Trail 9 - Provide bikeway access to the Rockville Bicycle Beltway that will eventually connect to Rock Creek Regional Park.

- Retrofit existing residential neighborhoods with pedestrian trail connections that will link communities with each other and with community destinations.
- Design the new residential communities with path and trail connections to park and transit facilities.
- Develop all local parks with internal trails to improve access to all users including handicapped users.

Protect historic, cultural, and archeological features

Site 10 - Protect as much of the 13-acre Ridge Road Meadow property as possible through the development review process, balancing site constraints and developer interests. It has been identified as a Class II Heritage Resource site in the *Legacy Open Space Functional Plan* and provides a historic setting and open space buffer for Washington Grove. It should offer passive recreational opportunities including trails and nature observation. As much as possible of the meadow should eventually be acquired through dedication.

Schools

Adequate public schools are a foundation of healthy communities. The Plan recognizes that schools also help define communities. In addition to student instruction, they offer community meeting rooms, outdoor recreation facilities, and host a variety of after-school programs. This Plan's role is to identify appropriate sites for schools needed to serve existing and proposed communities. Proposed residential development at the Metro station area and in surrounding areas will generate an increase in the student population that will require a new elementary school and a portion of a high school.

The increase in the student population created by development proposed in this Sector Plan, coupled with the projected increases in Rockville and Gaithersburg, cannot be absorbed into the existing clusters. Three high school clusters serve the planning area: Gaithersburg, Magruder, and Richard Montgomery. The three high schools are currently operating at capacity and are projected to continue to increase in enrollment, according to the MCPS ***FY2004 Educational Facilities Master Plan***.

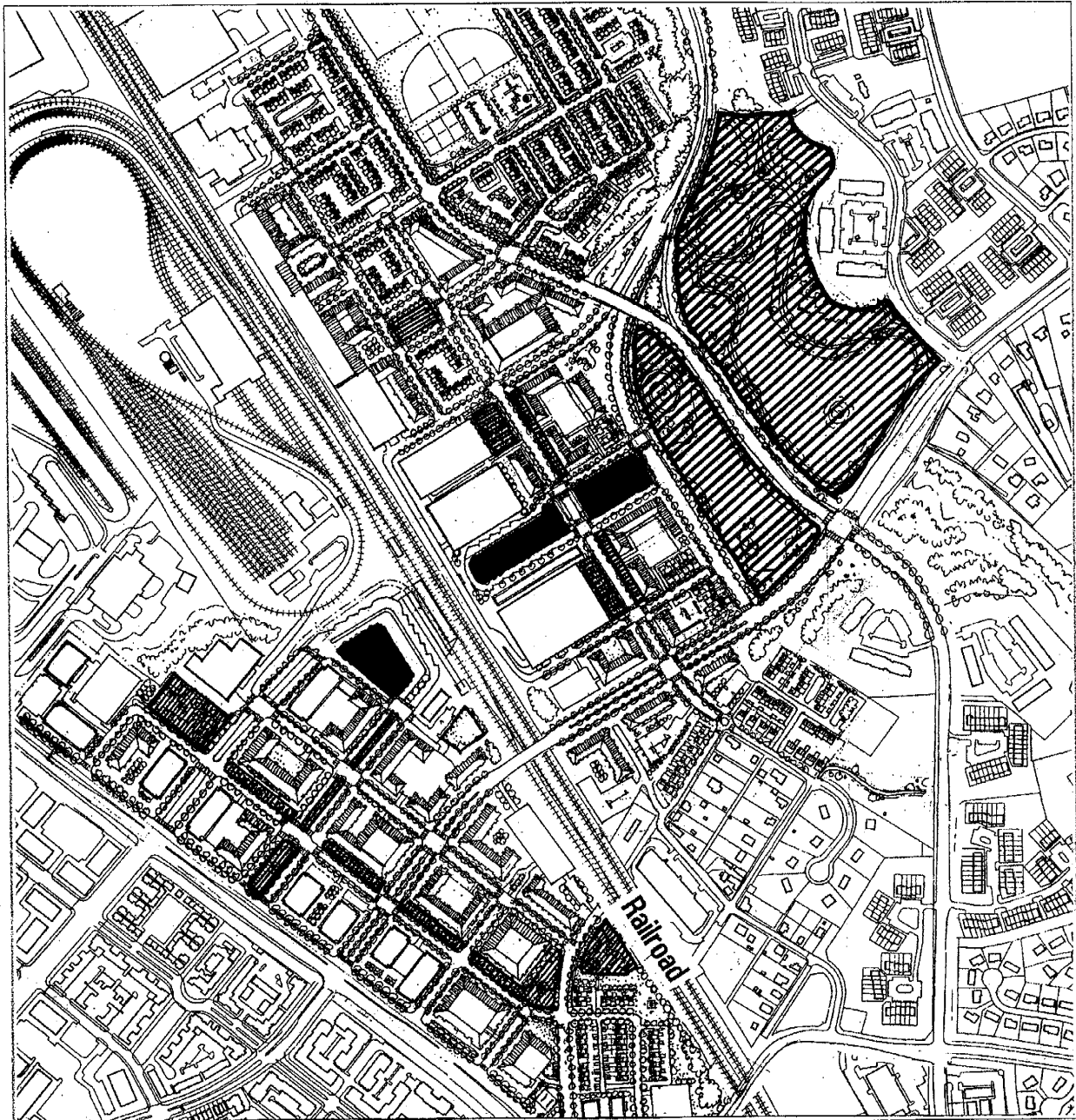
This Plan recommends one elementary school site to meet projected needs for the planning area. The site lies adjacent to the Mill Creek South community along Amity Drive just southeast of the Town of Washington Grove. The additional middle and high schools will need to be provided outside the planning area. Potential sites are available and will be identified by the *Gaithersburg Vicinity Master Plan*. This Plan recommends:




- Designating the Casey at Mill Creek South property for an elementary school.
- Designing the elementary school's layout to encourage walking as well as accommodate school buses and parking areas. Provide walkway connections from all sides of the surrounding community.
- Designing the school's architecture as a civic structure that enhances and complements the surrounding community.
- Recommending a new high school cluster to serve the growing residential areas in the County and municipalities, and alleviate school crowding.

County Service Park

The County Service Park provides a variety of services that meet needs beyond the planning area. Facilities include the M-NCPPC park maintenance, DPWT's Ride-On bus depot and general maintenance facilities, the Department of Liquor Control's distribution center, and the MCPS bus depot and maintenance facilities, along with its food and nutrition services.

Urban Park Network



-  Urban Park
-  Passive Nature Park
-  Public Use Park



NOT TO SCALE

Recreation Opportunities

Relocating these facilities is a significant challenge. They are centrally located with direct access to I-370 but within walking distance of the Metro station. Relocation will also require public sector commitment and private sector assistance in the form of partnerships, land exchange, and other innovative approaches. Relocating these facilities should not result in diminished or compromised county services. Relocation costs should be minimized using a variety of techniques such as private sector proposals to relocate services and exchange properties. This Plan recommends:

- Exploring the potential for gradually relocating sites for some of the facilities in the County Service Park to permit more appropriate mixed-use residential development adjacent to the Metro station.

Library Services

A new library in the planning area at the corner of Crabbs Branch Way and Shady Grove Road, adjacent to the proposed local park, would create an opportunity to share parking and increase convenience for residents. A library at this corner is within walking distance of the Metro and retail shopping at The Grove. The corner site offers an opportunity to provide a civic structure on a highly visible site, improving the overall character of the Shady Grove Road Corridor. This Plan recommends:

- Supporting a new library at the corner of Crabbs Branch Way and Shady Grove Road. Consider relocating the 40,000 square foot library now proposed for the Laytonia Recreational Park to the redeveloped school bus depot site where it would provide a community focal point and be accessible to more users via Metro.
- Designing a multi-level building with structured parking, to more efficiently use limited land and increase available parkland. A two-story library with a larger first floor, between 20,000 and 30,000 square feet, and a smaller second floor would provide design flexibility for the Library Department.

Aquatic Facility/Community Center

A County aquatic facility or community recreation center within the Metro Neighborhood area would serve the community by providing year round recreation. The site at the southwest corner of Crabbs Branch Way and Shady Grove Road would require relocating the Department of Liquor Control's Distribution Center, but also offers an opportunity to develop a highly visible civic building that contributes to the Shady Grove Road Corridor's overall character. This Plan recommends:

- Coordinating with the Department of Recreation to explore potential need and sites for a community center or aquatic center. Consider the Liquor Control Board's site as a potential location or the potential library site.
- Designing a multi-level building with structured parking to more efficiently use limited land.

Fire and Rescue

The Montgomery County Fire and Rescue Service (MCFRS) has determined that a future service station is desired in the Shady Grove and Gaithersburg and Vicinity planning areas. There are no fire stations between Station 3 in Rockville and Station 8 in Montgomery Village. MCFRS envisions a facility that would house fire, rescue, and Emergency Medical Service (EMS) units, the County Bomb Squad, and other specialized units.

The Casey property 3 provides an opportunity to locate a future MCFRS service station. A station at this location would provide easy access to MD 355, I-270, and Shady Grove Road, as well as the service areas of Rockville and Gaithersburg. The environmental constraints of this site further provide the opportunity to create a passive park while protecting the existing stream and wetlands. This Plan recommends:

- As an alternative to technology or research and development uses on this site, a public fire and rescue station, approximately six to seven acres, would be appropriate to serve the immediate and surrounding areas.

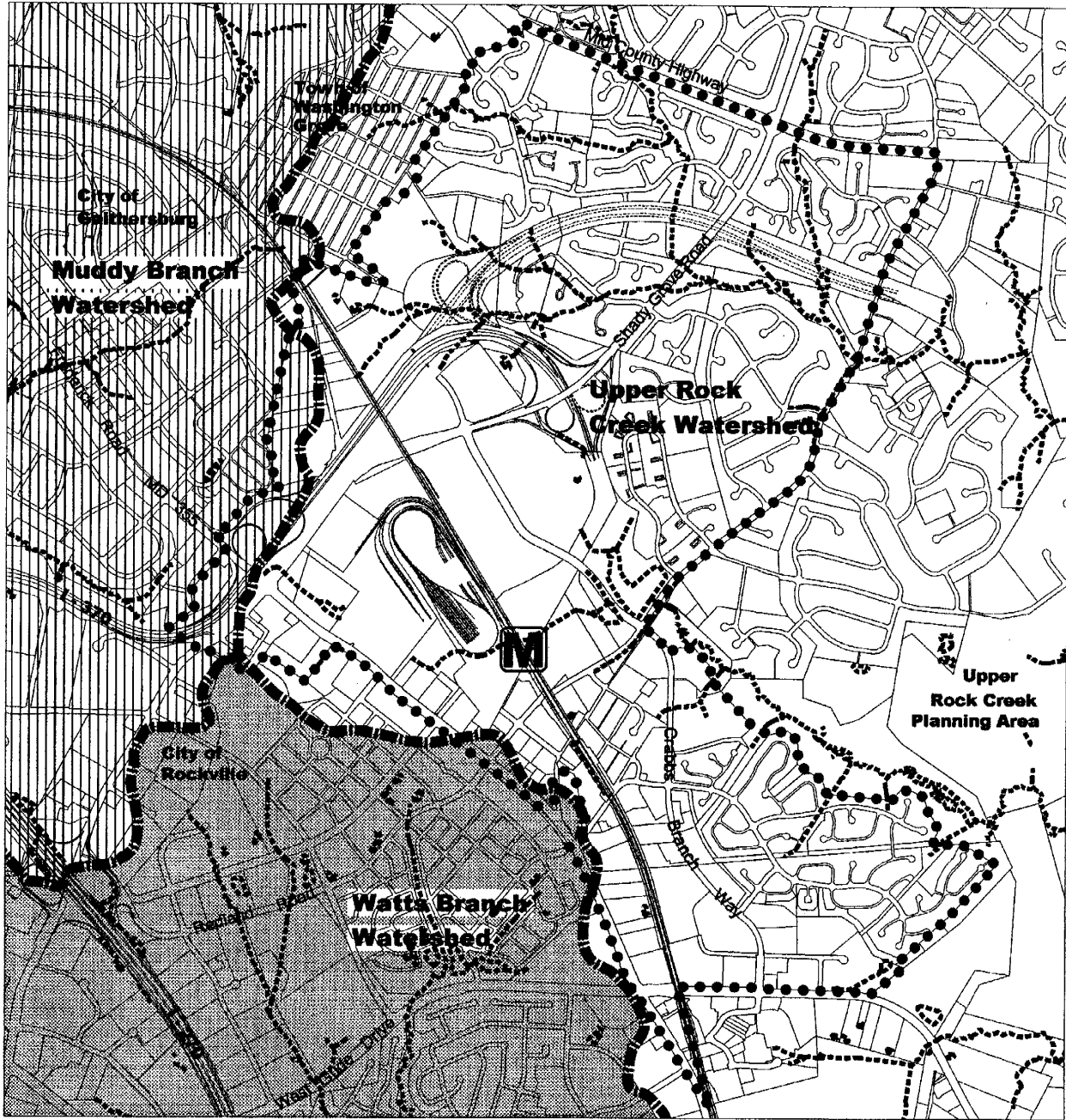
Senior Services and Day Care







As the planning area changes there will be an increased need for social services, especially child daycare. Services such as elderly day care, teen programs, child daycare, and recreation should be provided in convenient locations.

Currently, the planning area is served by three private child daycare facilities. One is located at the west side of the Metro station, one in The Grove shopping center, and one in the Oakmont Industrial Park. The need for such child daycare is also evidenced by the demand that the other daycare facilities experience in their waiting lists. This Plan recommends:

- Redeveloping the existing day care located on WMATA property into the new Metro West neighborhood.
- Providing a new day care facility located on WMATA property within the Metro East neighborhood.

Watersheds



-  Upper Rock Creek Watershed
-  Muddy Branch Watershed
-  Watts Branch Watershed
-  Watershed Boundaries
-  Shady Grove Sector Plan Boundary
-  Streams and Ponds



AREA WIDE ELEMENTS

ENVIRONMENTAL SYSTEMS

The planning area is located primarily in the northwestern headwaters of Rock Creek. Residentially developed in the east, the land remains gently rolling woodland with several stream valleys running through it. Earlier planning efforts have established a series of stream valley conservation parks primarily within the residential areas.

In the planning area's western portion, industrial and commercial land uses have significantly affected natural environment. The Sector Plan seeks to guide development of the Shady Grove Metro area as it changes from a light industrial to a mixed-use, transit-oriented community. This major land use change creates opportunities to improve the environmental setting while recognizing the transportation and overall environmental benefits of locating residential development within walking distance to the Metro.

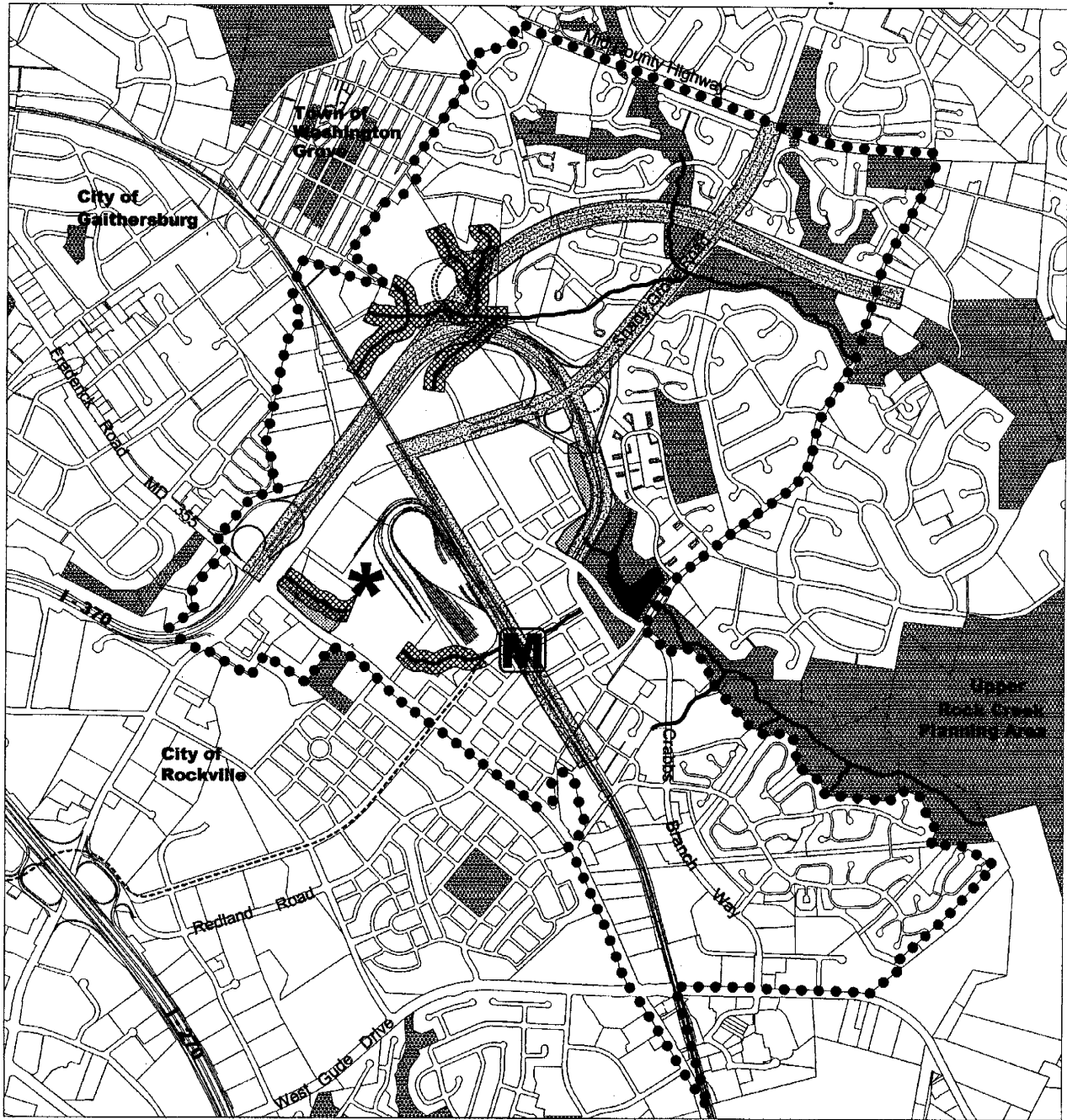
Objectives









- Create a green network of urban parks, recreation parks, linear promenades, and tree-lined streets within the mixed-use communities in the Metro station area to complement the network of natural areas.
- Retain existing green infrastructure and remaining forest cover, and expand the network of natural areas to improve water quality and habitat conditions.
- Protect remaining high quality wetlands and adjoining habitats and improve degraded wetlands by reducing impervious areas and increasing parkland within the Metro Neighborhoods.
- Improve water quality by protecting streams and wetlands and by implementing innovative environmental policies and practices.
- Recommend innovative solutions such as green roofs, green buildings and low-impact development (LID) technologies as well as collective off-site stormwater retrofit and stream restoration measures that enhance natural systems.
- Mitigate negative environmental impacts, such as noise created by transportation and industrial uses, on existing and future residential communities. Where possible, provide land uses and landscape features that shield residential uses from transportation and industrial noise impacts.
- Develop strategies to reduce air pollution and odors. Mitigate adverse environmental impacts on air quality.

Concept

Environmental quality is an important component of quality of life, but more so in intensively developed areas affected by the noise, air quality, temperature, and glare that can result from the built environment. This Plan seeks to create a greener community, protecting and restoring existing wetlands and stream valleys while expanding parklands and extensively landscaping the built environment. This plan strives to accommodate a mixed-use community while maintaining and improving the environmental integrity of the area's forest resources, water quality and stormwater quality management, and noise and air environments.

Environmental Protection and Restoration Concept



-  Noise Mitigation
 -  Environmental Buffers
 -  Forest Reserve
 -  Streams
 -  Parkland
 -  Odor Control Initiatives
 -  Shady Grove Sector Plan Boundary
 -  Corridor Cities Transitway
- Note: Buffers not to scale



Forest Conservation

The green infrastructure of the Crabbs Branch stream valley of Rock Creek has been significantly modified by development. The proposed mixed-use community with new parkland provides an opportunity to restore portions of the system to more natural conditions. Zoning requirements and urban forest conservation standards will create landscaping and tree planting opportunities in the planning area as part of the redevelopment process.

The County's Forest Conservation Law requires that forest and tree conservation be an integral part of all development projects. Forest conservation measures include avoiding or minimizing tree clearing and replacing removed trees. A major focus of the legislation is to retain or plant trees in priority environmental areas such as stream buffers. When this is not possible, required planting may be done off-site but preferably in the same watershed. Payment to a County fund for reforestation projects is acceptable in lieu of planting, as a last resort.

The Forest Conservation Law also requires that 15 percent of any development site be replanted in forest (an area 10,000 square feet or more and 50 feet or more wide, or an area planted at a density of 200 trees per acre). While waivers may be granted to allow tree cover to be used as forest on any site, this Plan recommends that requirements be fulfilled off-site in the Crabbs Branch watershed in forest reserve areas that will be set aside for this purpose. This Plan recommends:

- Integrating compliance with the Forest Conservation Law at the earliest stages of the development process.
- Enhancing the natural environment in Shady Grove by creating green open space as part of landscaping and forest conservation requirements.
- Encouraging the State Highway Administration to use some of their off-site planting requirements in the Shady Grove planning area, specifically in the I-370 right-of-way, and permit others to reforest this area as well.
- Designating forest reserve areas within the planning area to facilitate off-site reforestation requirements (see Environmental Protection and Restoration Areas). Forest reserve is recommended in three areas:
 - A significant forest buffer along the Metro access road when the park maintenance and school bus depot facilities are relocated. The need to achieve a significant buffer may be limited by the need to develop this area with housing units within walking distance of Metro.
 - The environmental buffer along each side of the stream on the Casey 3 site. If additional area is needed, expand the planting area to include the remainder of the property between the stream and MD 355.
 - The environmental buffer along each side of the stream immediately south of the Solid Waste Transfer Station. Retain as much additional forest as possible in the area adjoining the buffer while accommodating the need for a potential WMATA parking garage.

Water Quality and Stormwater Management

The planning area is located primarily in the Upper Rock Creek Watershed and straddles three subwatersheds. Land in the Upper Rock Creek Watershed is designated as Use IV, suitable for the support of a put-and-take trout population. While streams within the planning area do not support trout, downstream areas in Rock Creek Park do and the maintenance of the planning area's water quality is essential to keeping downstream conditions viable.

The stormwater management ponds on either side of Crabbs Branch Way at Needwood Road currently mitigate some impacts from upstream imperviousness and have adequate capacity for anticipated flood and erosion impacts from redevelopment of the Metro station area. Any new development or redevelopment will require improvements to water quality on each site as it develops, in conformance

with the County's stormwater management requirements. Low-impact development techniques would be useful in attaining improvements to water quality, and their application is encouraged.

Redevelopment of the planning area also presents opportunities for stream restoration work in the Metro station area. These efforts should be coordinated with the Montgomery County Department of Environmental Protection's recently completed *Rock Creek Watershed Feasibility Study* (2001). This Plan recommends:

- Reforesting the buffers along the Use IV tributary of Upper Rock Creek, on Casey Property 3.
- Protecting the stream buffer and retain as much additional forest as possible where this stream resurfaces east of the Solid Waste Transfer Station.
- When the park maintenance facility and MCPS bus depot are relocated to accommodate residential development, recreate the stream that formerly ran west of the existing Metro access roadway.
- Increasing landscaping wherever feasible, and encourage the use of low-impact development techniques, green roofs, parking lot planting, and other initiatives to address stormwater quality without occupying land needed for development.
- Designing the passive recreation area at the stormwater management ponds to preserve the ponds' and reforestation areas environmental functions. Work with the County Department of Environmental Protection.

Wetlands

There are about 40 acres of wetlands in and immediately adjacent to the planning area. Some are on privately owned land north of I-370, near the intersection of Shady Grove Road and MD 355, and within the ICC right-of-way. The remaining wetlands are in parkland at Crabbs Branch and Rock Creek. This Plan recommends:

- Protecting high quality wetlands by maintaining or managing the land and adjoining habitats as natural areas. Intrusions into these natural areas by man-made features, including paved paths or trails, should be avoided as much as possible.
- Wetlands and associated buffers on developable or re-developable properties, at a minimum as defined in the *Environmental Guidelines*, should be protected through the application of conservation easements or through public ownership as parkland.
- Do not use natural wetlands as controls for stormwater runoff from developed land.
- Compiling a detailed inventory of the planning area's degraded wetlands and identify opportunities for restoration and enhancement.
- Mitigating the unavoidable wetland impacts of development with programs such as publicly funded stream restoration projects, volunteer projects, or developer funded off-site improvements.

Noise

Excessive noise has a significant effect on the quality of life in any community, and particularly in Shady Grove, which has significant noise volumes from several sources. Shady Grove Road, MD 355, I-370, the CSX Railroad, Metro, and stop-and-go traffic contribute to noise, along with stationary noise sources such as Roberts Oxygen and the Solid Waste Transfer Station. The proposed ICC will be an additional significant noise source.

Montgomery County can mitigate and minimize the noise impact of both stationary and mobile noise sources. The noise ordinance regulates stationary sources such as heating and air conditioning units, construction activity, noise producing land uses, and neighborhood annoyances. The Planning Board uses master plan and regulatory review to implement noise reduction strategies and protect residential properties from mobile sources. Strategies to minimize transportation noise on new development include compatible land uses, buffers, external mitigation techniques, and internal mitigation.

Effective noise control will ensure the sustainability of the planning area as a desirable place to live, work, and conduct business. Roads, streetscapes, residences, and public areas must be designed and located to maximize noise attenuation. This Plan recommends:

- Supporting noise-compatible site design along Shady Grove Road, MD 355, Metro and CSX rail lines, the Solid Waste Transfer Station, and Roberts Oxygen.
- Incorporating compliance with the Adopted County Noise Control Ordinance (Chapter 31B of the County Code) and the Planning Board's *Staff Guidelines for the Consideration of Transportation Noise Impacts in Land Use Planning and Development*.
- Providing noise walls along Shady Grove Road and I-370 if noise levels are found to exceed appropriate standards and guidelines.
- Incorporating noise berms and other mitigation strategies for residential uses along the Metro access road as part of redevelopment of the County and the M-NCPPC properties.
- Investigating the feasibility of eliminating the CSX train whistle as a noise source through CSX policy changes or changes in the at-grade crossing.
- Wherever possible, locating structured parking adjacent to CSX tracks to mitigate noise.

Air Quality

Montgomery County currently does not meet the National Ambient Air Quality Standards set by the Environmental Protection Agency, creating health concerns stemming from exposure to ground level ozone. The main sources of these pollutants are utilities and other industries, motor vehicles, small gasoline powered engines, and small businesses using solvents, cleaning solutions, paints, and insecticides. In the Washington region, motor vehicles account for 30 to 40 percent of the ozone.

After they are emitted, these pollutants can travel several miles before reacting to form ozone. Accordingly, multi-jurisdiction strategies are needed to address ozone. Montgomery County must continue ongoing initiatives to reduce emissions. At the master plan level, these initiatives should include transportation demand management strategies that encourage people to reduce motor vehicle trips and miles traveled. Providing residential units close to transit can contribute significantly to this reduction.

Odors emanating from the Solid Waste Transfer Station are an additional air quality concern in the Shady Grove Sector Plan area. This Plan recommends:

- Designing new development and redevelopment to minimize the need for motor vehicle trips.
- Limiting Metro parking to the existing 6,000 spaces.
- Providing safe and convenient pedestrian and bicycle access to Metro, community retail centers, recreation, and employment areas within the Shady Grove planning area, and link this system to regional trail networks.
- Providing incentives for transit use to minimize single-occupant vehicle travel.
- Working with the Solid Waste Transfer Station to control odors by eliminating or relocating its yard waste processing area or through other innovative measures.