

APPENDIX A:

Conformance of the Friendship Heights Sector Plan with the 1993 General Plan Refinement of the Goals and Objectives for Montgomery County

The General Plan Refinement sets forth seven goals, each with several accompanying objectives. The goals are listed below with a discussion of how this Sector Plan implements them.

1. LAND USE: Achieve a variety of land uses and development densities consistent with the "Wedges and Corridors" pattern.

The Sector Plan directs higher density growth to a transit station locale in the Urban Ring, with a transit-serviceable land use pattern (Objective 1). The Plan encourages a mix of land uses in the Town Center, encourages street activity and a safe pedestrian environment, and plans for suitable transitions between residential neighborhoods and the commercial area (Objective 2). The Plan recommends use of transferable development rights (TDRs) on the GEICO site in order to help preserve farmland in the Agricultural Wedge by transferring development from the rural areas to higher density areas (Objective 4). The Plan's coordinated system of parks, recreation and open space will promote public activity and community identity (Objective 8).

2. HOUSING: Encourage and maintain a wide choice of housing types and neighborhoods for people of all incomes, ages, lifestyles, and physical capabilities at appropriate densities and locations.

By recommending housing on the GEICO and Hecht's sites, the Sector Plan expands opportunities for variety and choice in housing types including ownership or rental, townhouse or multi-family (Objective 1). The moderately priced dwelling unit (MPDU) program will assure the provision of low and moderate income housing (Objective 4). The Plan seeks to maintain and enhance the quality of existing adjacent neighborhoods by promoting compatible infill development and discouraging cut-through traffic and spill-over parking (Objective 5).

3. ECONOMIC ACTIVITY: Promote a healthy economy, including a broad range of business, service, and employment opportunities at appropriate locations.

The Sector Plan recommends that land near public transit be zoned for a variety of types and intensities of employment. These will include local retail and services (Objective 4). Commercially zoned land will provide opportunities for attracting corporate headquarters and retaining and enhancing offices for existing businesses and federal agencies (Objective 2).

4. TRANSPORTATION: Enhance mobility by providing a safe and efficient transportation system offering a wide range of alternatives that serve the environmental, economic, social, and land use needs of the County and provide a framework for development.

The Plan improves the efficiency of the existing transportation system by establishing a transportation management district (Objective 3). It supports the existing transit system by placing higher density uses near Metro and providing convenient access to the station (Objective 4). It recommends a bikeway network and an enhanced pedestrian system to link neighborhoods and the commercial Town Center in a safe and secure manner (Objectives 6 and 8).

5. ENVIRONMENT: Conserve and protect natural resources to provide a healthy and beautiful environment for present and future generations. Manage the impacts of human activity on our natural resources in a balanced manner to sustain human, plant, and animal life.

The Plan conforms with this goal by recommending a conservation-oriented greenway system (Objective 2), and supporting restoration measures to address the lack of adequate stormwater management and water quality protection in the past (Objectives 3, 4 and 5). Land use policies in the Plan and the transportation emphasis on transit, bicycle, and pedestrian access are designed to promote improved air quality (Objective 7). The Plan recommends protecting existing trees and planting new trees on all major streets (Objective 8.) It proposes site design to minimize noise impacts (Objective 10) and recommends installing utilities underground (Objective 12).

6. COMMUNITY IDENTITY AND DESIGN: Provide for land use patterns and land uses that offer ample opportunities for social interaction and promote a strong sense of community through public and private cooperation.

Fostering a sense of community is one of the main goals of this Sector Plan. The Plan recommendations include infill development that is compatible with the character of the neighborhoods; pleasant, attractive and safe public gathering spaces for a variety of community activities; and integration of community landmarks into public spaces (Objectives 1 and 2).

7. REGIONALISM: Promote regional cooperation and solutions to problems of mutual concern to Montgomery County, its neighbors, and internal municipalities.

The Sector Plan analysis considered office, retail, and housing markets as well as existing and projected traffic on both sides of the District of Columbia/Maryland line. The citizens advisory committee (CAC) included a representative from a D.C. neighborhood and the Mayor of the Village of Friendship Heights. The proposals to place more development near the Metro station and to emphasize transit, cycling, and walking is part of a regional solution to the ozone problem.

APPENDIX B: Coordination of Friendship Heights Sector Plan with District of Columbia Planning and Zoning

The Friendship Heights Sector Plan area is adjacent to the District of Columbia along Western Avenue. That section of the District is part of Ward 3.

Planning in the District of Columbia has a three-tiered structure consisting of the Comprehensive Plan, ward plans, and more detailed small area plans.

The Comprehensive Plan is a long-range policy document that provides overall guidance for future planning and development. Its twelve elements include a land use element and an accompanying generalized land use map. Ward plans for each of the District's eight wards (adopted as one of the elements of the Comprehensive Plan) are intended to provide neighborhood-level interpretation and application of the Comprehensive Plan objectives and policies. They can be amended every two to four years. The more detailed small area plans include planning and development initiatives and implementation strategies for specific areas within wards.

Zoning in the District of Columbia is intended to carry out land use and development plans. Of the 29 zoning categories, there are three residential and three commercial zones in the area extending from Western Avenue to Garrison Street. They are described in Table B-1.

The residential area east of Wisconsin Avenue is zoned R-1 B for single-family detached houses. The area north of Military Road is zoned R-2 for single-family semi-detached houses. This is also the zoning for the residential area west and south of the Lord and Taylor covered and employee parking lot. This Lord and Taylor lot, like the Metrobus parking lot, is zoned R-5-B for moderate density apartments.

The Lord and Taylor property containing the store on Western Avenue is zoned C-2-A, community business center. The Lord and Taylor surface parking lot to the northeast of the store on Western Avenue, like the Neiman Marcus property, is zoned C-3-A for major business and employment.

While most of the Wisconsin Avenue frontage in this area is zoned C-2-A, the Chevy Chase Pavilion property on the southeast corner of Wisconsin and Western Avenues is zoned C-2-B and developed under a planned unit development (PUD). A PUD is a planning tool which allows a developer greater flexibility in site planning and building design and the incorporation of amenities.

The Xerox site next to the Chevy Chase Pavilion on Wisconsin Avenue, also zoned C-2-B, has approvals for a PUD, described in Chapter I Section B and C of the Sector Plan.

**TABLE B-1
DISTRICT OF COLUMBIA ZONING CATEGORIES IN FRIENDSHIP HEIGHTS**

ZONE	USE	MINIMUM LOT DIMENSIONS		DENSITY	FAR	HEIGHT	
		Width (ft.)	Area (sq. ft.)			Stories	Feet
Residential Zones							
R-1-B	Single Family detached	50	5,000	40%	n/a	three	40
R-2	Single-Family semi-detached	30	3,000	40%	n/a	three	40
R-5-B	Moderate density apartment	n/a	n/a	60%	1.8	n/a	50
Commercial Zones							
C-2-A	Community business center; low to moderate density	n/a	n/a	n/a	2.5 ¹	n/a	50
C-2-B	Community business center; medium density	n/a	n/a	n/a	3.5 ²	n/a	65
C-3-A	Medium bulk major business and employment	n/a	n/a	n/a	4.0 ³	n/a	65

Source: Government of the District of Columbia

Note: The commercial zones encourage mixed-use development by allowing higher densities for residential uses.

¹ Non-residential FAR is limited to 1.5, and residential lot occupancy is limited to 60%

² Non-residential FAR is limited to 1.5, and residential lot occupancy is limited to 80%

³ Non-residential FAR is limited to 2.5, and residential lot occupancy is limited to 80%

The Urban Design section of the Ward 3 Plan emphasizes the importance for the ward's quality of life of pedestrian amenities, streetscape design, compatibility, and sensitivity to the scale of existing buildings, maintenance of environmental quality, integration of new development with existing area or neighborhood character, and transitions between land uses. Western and Wisconsin Avenues, designated as special streets, deserve particular attention to urban design issues. Policies for streetscape include strengthening the image and design cohesiveness of the ward's commercial nodes, particularly Wisconsin and Connecticut Avenues, by government support for community sponsored streetscape plans.

The Ward 3 Plan includes the following Transportation recommendations:

- Locating denser commercial use (where designated in the land use element of the Comprehensive Plan) within one-half mile of a Metrorail station; and limiting medium and high-density residential uses (where designated in the Land Use Element) to the major arterials well served by either Metrorail or Metrobus.
- Updating the 1986 Wisconsin Avenue Corridor Study, which suggested a number of zoning changes to reduce the potential increases in traffic from commercial development.
- Providing adequate short-term parking to serve regional commercial centers.
- Enabling safe pedestrian movement especially in areas with an elderly population.
- Requiring all major projects including planned unit developments to provide traffic mitigation studies, a transportation management program, facilities for bicycling, transit incentives, and/or shuttle services.
- Encouraging cycling by providing bicycle lockers at Metrorail stations and bicycle lanes on Wisconsin Avenue.
- Identifying locations for taxi stands.
- Investigating the feasibility of high occupancy vehicle (HOV) lanes on Wisconsin Avenue as well as Connecticut and Massachusetts Avenues.
- Creating a Maryland/District inter-jurisdictional task force to review and coordinate land use and transportation system decision-making in the Friendship Heights area.

There was such an inter-jurisdictional task force at the time of the 1974 Sector Plan for the Montgomery County section of Friendship Heights. The task force reached an agreement that allocated a specified number of trips to the District and to Montgomery County. The agreement was overtaken by subsequent events.

During preparation of the current Sector Plan for Friendship Heights, Montgomery County staff kept the District of Columbia planning staff informed. Counts of existing traffic included several intersections in the District and projections of future traffic included regional traffic from the District. The housing, office, and retail market studies also included data collection from the adjoining District area. The Sector Plan recommends creation of a new inter-jurisdictional task force to share information and coordinate policies and programs relating to planning and urban design, transportation, management, and promotion.

APPENDIX C: Friendship Heights Transportation Analysis–Methodology and Supplementary Data

FRIENDSHIP HEIGHTS TRANSPORTATION ANALYSIS

A. Intersection Analysis: The Critical Lane Method

The Critical Lane Method was used to compute intersection performance or level of service in assessing traffic operations in Friendship Heights. This well-established analytical technique is used by many state and local government transportation agencies throughout the country. Using actual or projected turning movement volumes and existing or proposed lane geometry, the Critical Lane Method computes the maximum number of vehicles crossing the center point of an intersection within a specified period of time, usually the morning or evening peak hour. Depending on the number of vehicles, the intersection is assigned a level of service represented by a letter from a scale of “A-F”–“A” represents uncongested intersections operating without delays, while “F” represents a breakdown in traffic operations. The following summarizes the operating conditions typical of the various levels of service:

Level of Service “A” Conditions of free unobstructed flow, no delays and all signal phases sufficient in duration to clear all approaching vehicles.

Level of Service “B” Conditions of stable flow, very little delay, a few phases are unable to handle all approaching vehicles.

Level of Service “C” Conditions of stable flow, delays are low to moderate, full use of peak direction signal phase(s) is experienced.

Level of Service “D” Conditions approaching unstable flow, delays are moderate to heavy, significant signal time deficiencies are experienced for short durations during the peak traffic period.

Level of Service “E” Conditions of unstable flow, delays are significant, signal phase timing is generally insufficient, congestion exists for extended duration throughout the peak period.

Level of Service “F” Conditions of forced flow, where full utilization of the intersection approach is prevented due to congestion from locations downstream.

B. Existing Traffic Conditions

The levels of service and critical lane volumes for seventeen critical intersections, derived from traffic counts conducted in Spring 1995, are shown in Table 3 in Chapter III, the Transportation Plan. Saturday counts were also conducted in Fall 1995 to examine how six key intersections operated during weekend shopping periods. The results of the Saturday counts are shown in Table C-1. Critical lane volumes for the Saturday counts were calculated from the highest one hour count total between 11 a.m. and 3 p.m. In addition to providing information concerning current intersection performance, the weekday traffic counts provided a baseline for calibrating models used to predict future traffic, as described in Section C. While Friendship Heights experiences some congestion typical in many urban environments, all intersections within the Sector Plan boundary operate within acceptable County standards with critical lane volumes below the Bethesda-Chevy Chase standard of 1,650 critical lane volume and well within the standard of 1,800 for Metro station policy areas. The most congested area is the River Road/Western Avenue intersection located southwest of the Sector Plan area. This intersection operates at LOS F; the lack of turn lanes constrains capacity at the intersection. The difficulty in obtaining additional right-of-way is an important consideration in recommending any intersection improvements in Friendship Heights.

**TABLE C-1
FRIENDSHIP HEIGHTS 1995 INTERSECTION PERFORMANCE
SUMMARY FOR A TYPICAL SATURDAY**

No.	N/S Street	E/W Street	Critical Lane Volume	Level of Service
1	Wisconsin Avenue	South Park Avenue	1,213	C
2	Wisconsin Avenue	Western Avenue	1,286	C/D
3	Western Avenue	Wisconsin Circle	859	A
4	Western Avenue	Friendship Boulevard	779	A
5	Western Avenue	River Road	1,159	B/C
6	River Road	Willard Avenue	1,271	C

Source: Montgomery County Planning Department, 1995

C. Transportation Analysis Methodology

The traffic impacts of the Sector Plan were determined through a modeling process involving the M-NCPPC County-wide travel demand forecasting model and a computer-assisted, manual model developed by Frederic R. Harris, Inc., the transportation consultants for the study. These models are mathematical tools used to predict travel behavior. The overall process addresses several key questions concerning future travel: where are trips created? where are they going? what mode of transportation are they using to get there? and what route are they taking? Before projecting future traffic in Friendship Heights, the models were calibrated by simulating existing traffic conditions. Simulated volumes produced by the models were compared to actual traffic counts to test the accuracy of the process. After successfully replicating existing conditions, the process was used to develop Year 2015 PM peak hour projections at intersections in the Sector Plan area for the recommended land use scenario. Future traffic operations were then examined using the Critical Lane Method.

The modeling process is discussed in greater detail below. This process must address several different types of trips affecting the Friendship Heights highway network. These include: through trips; internal-external trips or trips originating in Friendship Heights with destinations outside of it; external-internal trips or trips originating outside of and destined to Friendship Heights; and internal trips or trips with origins and destinations within Friendship Heights.

For forecasting purposes, portals surrounding Friendship Heights were established on the highway network to form a boundary around the study area. Frederic R. Harris developed a detailed computerized network within the Friendship Heights boundary. In developing through traffic projections, traffic crossing the portals and passing through the study area was extracted from the M-NCPPC regional model. This model covers the entire Washington, D.C. metropolitan region; it is an excellent resource for estimating the number of trips passing through a particular local area such as Friendship Heights. The through traffic was assigned to the detailed network within the boundary. Next, the volume of inbound traffic generated by the existing development within the study area, as determined by the vehicle trip generation rates of the respective land uses located there, was then assigned to the street system by following the most likely routes from the portals to the various land parcels within the study area. Similarly, outbound traffic was assigned to routes between the various parcels and the portals. The results of this portion of the analysis were compared with the actual traffic counts both within the study area and at the portals. Adjustments were made, as necessary, by rerouting traffic to match existing conditions and through refinements in the vehicle trip generation rates to conform to the current traffic operations throughout the study area. The modeling process was then re-run for various future year scenarios.

Montgomery County and The Institute of Transportation Engineers (ITE) vehicle trip generation rates were used in the Sector Plan analysis. These site-specific rates were adjusted during model calibration to more accurately reflect the trip-making characteristics of the Friendship Heights area. Vehicle trip rates are developed from surveys conducted to determine the number of vehicles entering and exiting a particular land use, such as an office building or shopping center, on a typical day. Other non-vehicular modes including transit riders, bicyclists, and pedestrians are not included in these rates and are not required in determining the traffic impacts of proposed developments. The purpose of this analysis was to determine the impact proposed future developments would have on the Friendship Heights highway network. The vehicle trip generation rates are discussed further in Section II of the Appendix.

D. 2015 Traffic Conditions

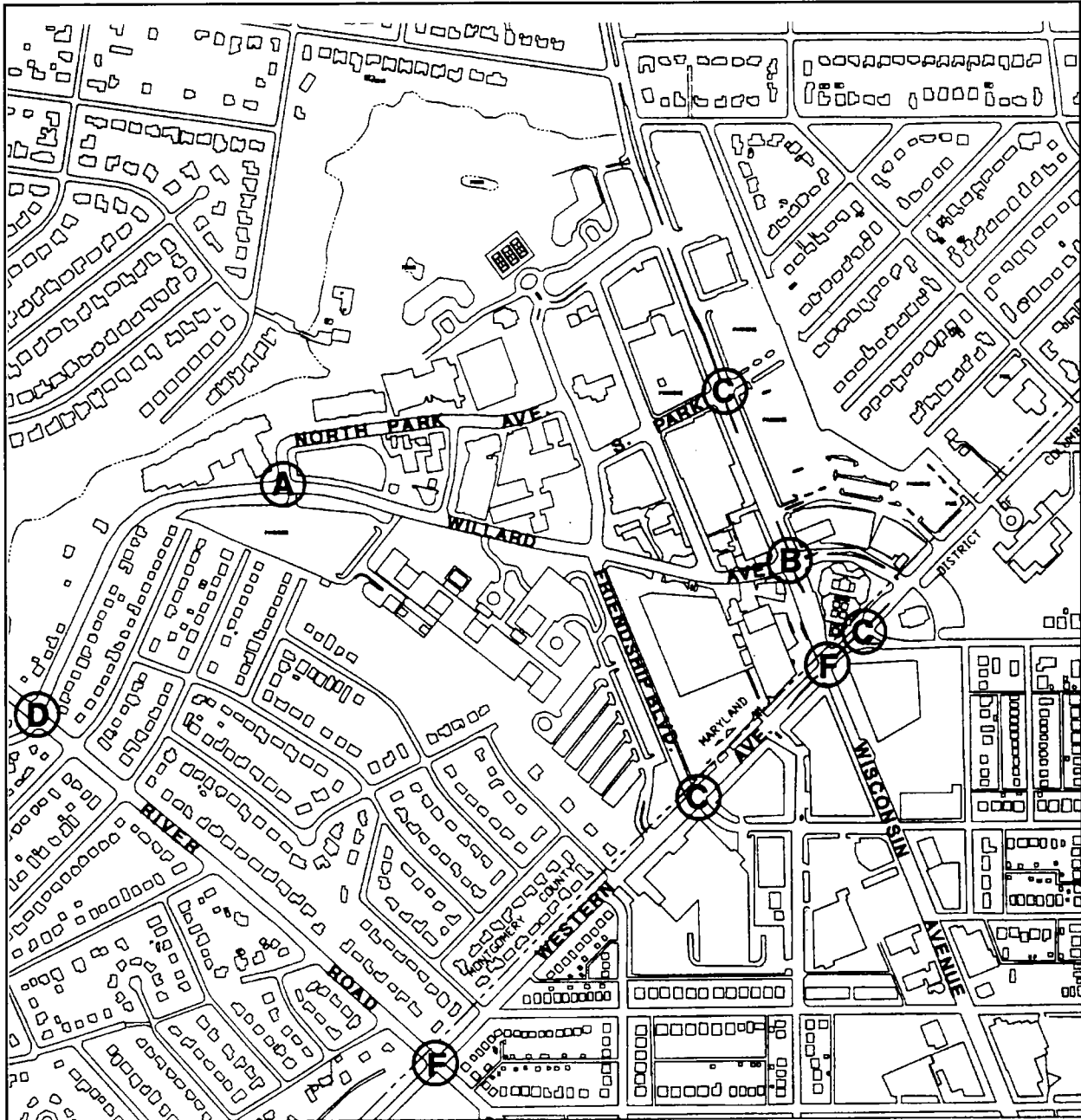
The year 2015 PM peak hour levels of service at key intersections for the “low,” “medium,” and “high” scenarios are shown in Figures C-1, C-2, and C-3. The corresponding land use for these scenarios is shown in Table C-2. The levels of service and critical lane volumes for the “recommended” scenario are shown in Figure 39 and Table 4 in Chapter III, the Transportation Plan. In comparison to existing conditions, intersections along River Road, Western Avenue, and Wisconsin Avenue will be more congested under the recommended land use scenario. The increase in traffic results from a 3.5 percent annual increase in through traffic and 2.0 percent annual increase in locally generated traffic.

The River Road/Western Avenue and Wisconsin Avenue/Western Avenue intersections are projected to be the most congested intersections. The Plan identifies the need for improvements at these locations. Right-of-way limitations, the potential disruption to adjacent development, and expensive land acquisition costs make it difficult to add additional capacity at these intersections. Transportation demand management efforts, transit-oriented redevelopment, and future market conditions may serve to moderate traffic in congested areas in Friendship Heights.

While the Friendship Heights area highway network will become more heavily traveled, the congestion should not be severe in relation to County standards for intersection operations in a well developed CBD, with a centrally located Metrorail station adjacent to the District of Columbia. The mixed use development prevalent in the CBD is functioning well today from a transportation system perspective and should continue to do so in the future. The compact nature of the CBD should continue to be a contributing factor to high transit ridership.

LEVELS OF SERVICE: LOW SCENARIO

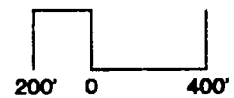
FIGURE C-1



**P.M. LEVELS OF SERVICE (LOS) AT SPECIFIC INTERSECTIONS:
LOW (EXISTING + PIPELINE) SCENARIO**

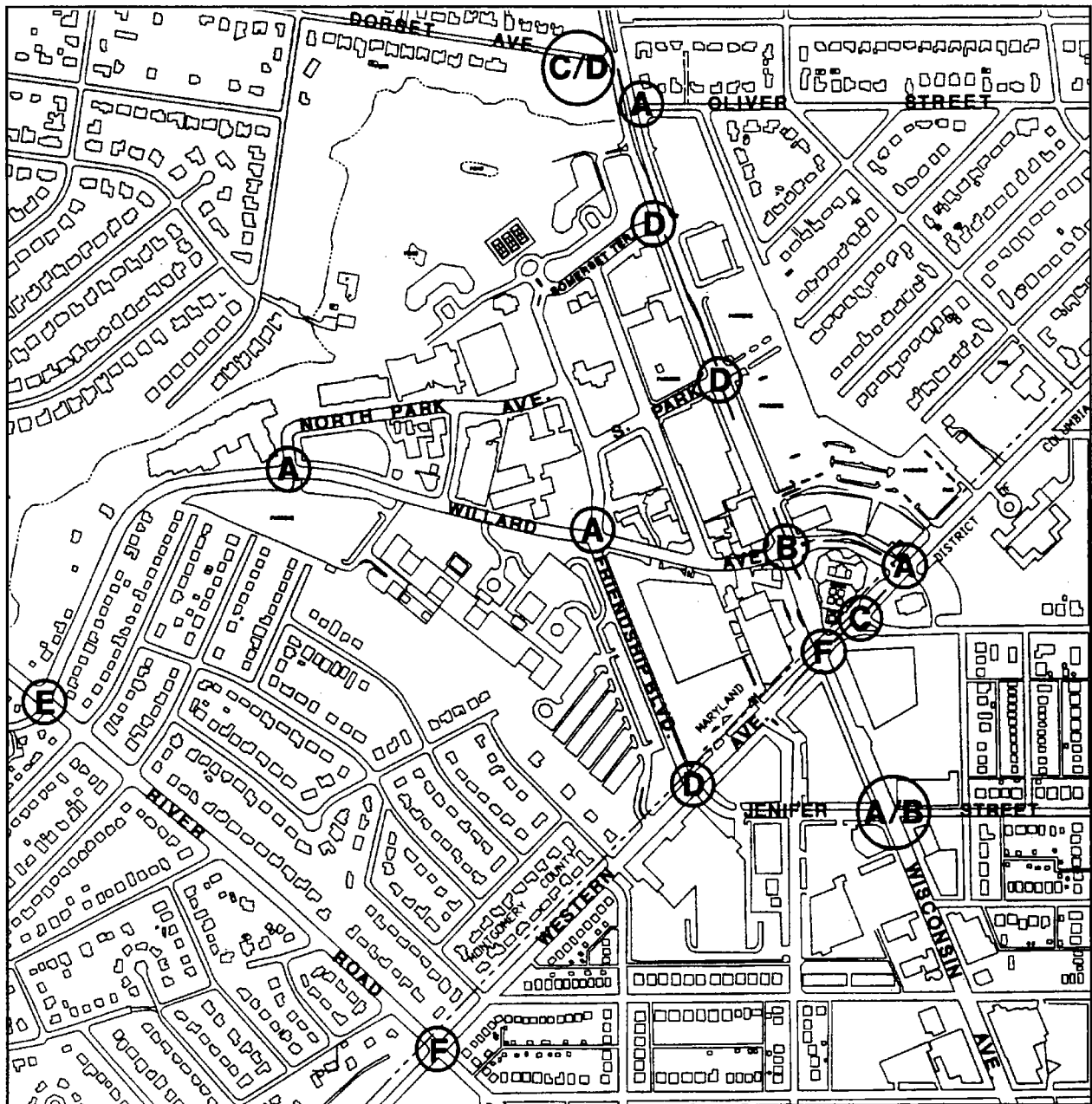


North



LEVELS OF SERVICE: MEDIUM SCENARIO

FIGURE C-2



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**P.M. LEVELS OF SERVICE (LOS)
AT SPECIFIC INTERSECTIONS : MEDIUM SCENARIO**

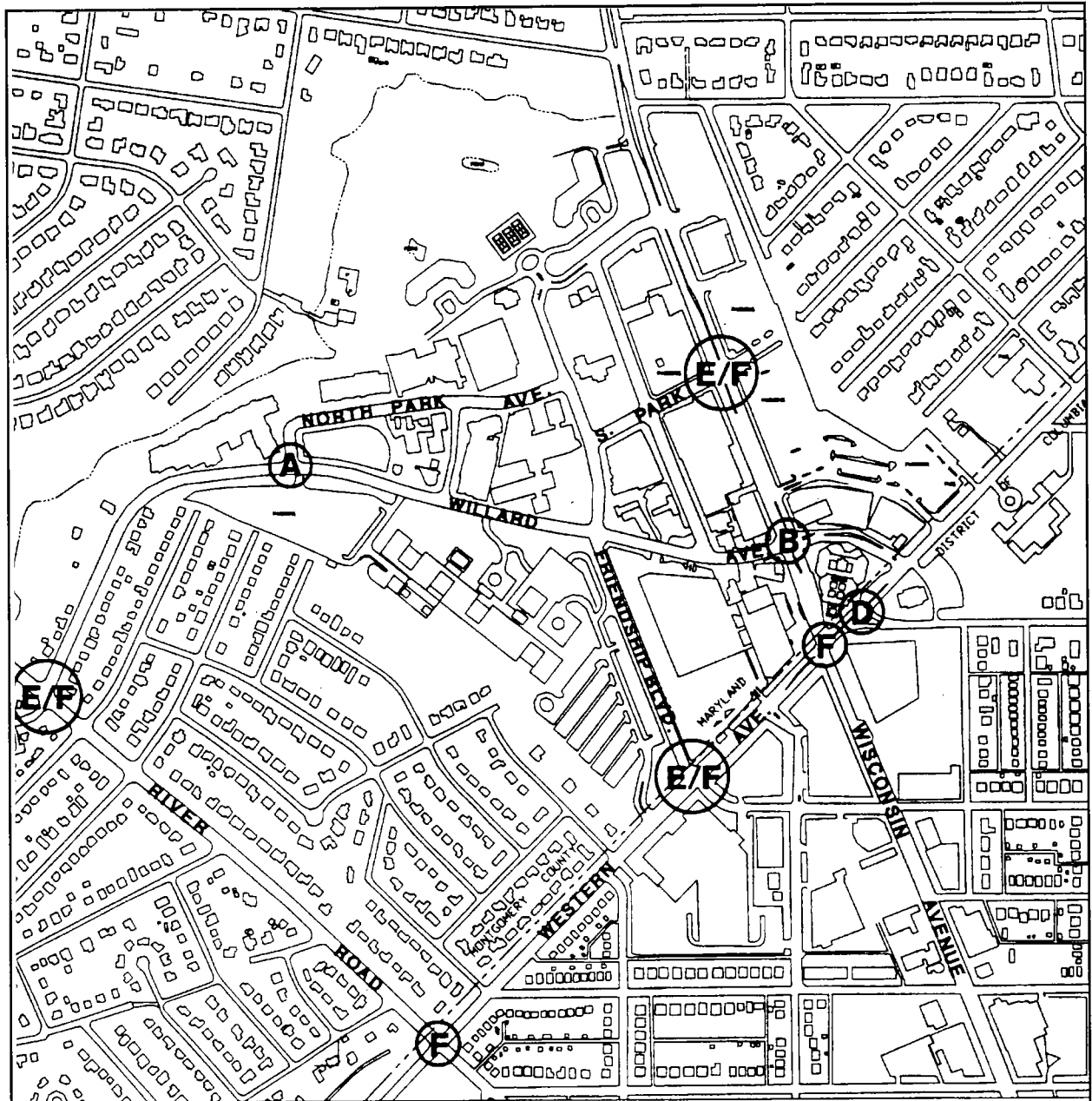


North



LEVELS OF SERVICE: HIGH SCENARIO

FIGURE C-3



**P.M. LEVELS OF SERVICE (LOS)
AT SPECIFIC INTERSECTIONS : HIGH SCENARIO**



North



**Table C-2
Major Parcels - Low, Medium, and High Land Use Scenarios**

Site	Alternative	Retail	Office	Housing	Total
Hecht's	Low (Existing & Pipeline)	176,188(a) +29,915	229,402		435,505
	Medium (b)	350,000	230,000	170,000 (150-170 d.u.'s)	750,000
	High	750,000	250,000		1,000,000
GEICO	Low (Existing)		514,257		514,257
	Medium (c)		720,000	450,000 (300 d.u.'s)	1,170,000
	High		1,400,000	450,000 (300 d.u.'s)	1,850,000
Chevy Chase Land Company	Low (Existing)	63,791 (e)	34,361 (e)		98,152 (e)
	Medium (d)	105,000	135,000		240,000
	High	160,000	375,000		535,000

Source: Montgomery County Planning Department, 10/20/95

- (a.) Existing department store.
- (b.) 750,000 s.f. = 2.0 FAR, maximum allowed under existing CBD-1 zoning using optional method of development.
- (c.) Amount of office density recommended in 1990 B-CC Master Plan (p. 83) plus additional residential density (see B-CC Plan, p. 85.)
- (d.) Existing center on CBD-1 parcel plus residual density recommended in the 1974 Sector Plan for that parcel plus density to allow a low retail/office structure on Wisconsin Avenue frontage of R-60 parking lot.
- (e.) As-built measurement of existing square footage.

FRIENDSHIP HEIGHTS TRIP GENERATION

In calibrating the model-to-base year conditions it was necessary to adjust the number of internally generated trips so that the sum of through trips (external to external) and internally generated trips (internal to external and external to internal) equaled the observed number of vehicles entering and leaving the study area during the P.M. peak hour. Five major factors were identified as contributing to the adjustments of the trip generation rates.

1. **Transit:** Friendship Heights is a transit hub. While the trip generation rates take into account some transit use, travelers in this area tend to make greater than average use of transit, thereby reducing the vehicle trip generation rate.
2. **Peak Spreading:** The growth of development and traffic has resulted in people traveling earlier and later than the “traditional” peak hour although the analysis period continues to be the single hour with the greatest amount of traffic.
3. **Travel Demand Management:** Limited parking, dual worker families, government policies that encourage ridesharing and transit use, have tended to further reduce vehicle-trip generation rates.
4. **CBD vs. Site-Specific Factors:** Vehicle trip generation rates are derived from surveys of individual sites. Central business districts operate interdependently with different trip making characteristics and more options concerning the mode of travel. More trips are linked together; for example, more people may walk or take transit to run errands and to eat or shop each day.
5. **Internal Trips:** Some trips take place entirely within the study area and do not cross the study area boundary. These are particularly short trips and have little impact on traffic within the study area.

These factors were considered in reducing the trip rates so that the model could replicate existing conditions as depicted by actual traffic counts taken at seventeen intersections in Friendship Heights. Regardless of the area being studied, trip generation rates generally must be adjusted to reflect the unique characteristics of different communities.

TRANSIT RIDERSHIP INFORMATION

Table C-3 indicates the number of passengers entering and exiting various Metro rail stations on a typical day in 1995. The Friendship Heights station has excellent ridership in comparison with other Red Line stations located in Montgomery County. Several stations in the downtown core of the District of Columbia are also shown as examples of the ability of stations to accommodate large numbers of riders

Concerning bus transit operations, over 3,300 passengers traveled inbound to and over 3,500 passengers traveled outbound from Friendship Heights via bus on a typical day in 1995. Friendship Heights Village operates a shuttle bus service that carries approximately 500 passengers per weekday and 250 passengers per Saturday.

**TABLE C-3
METRORAIL STATION AVERAGE RIDERSHIP
ON A TYPICAL DAY IN 1995**

Metrorail Station	Enter	Exit
Friendship Heights	8,499	8,713
Shady Grove	9,061	9,002
Rockville	3,483	3,490
Bethesda	7,502	7,606
Tenleytown	5,111	5,050
Silver Spring	11,635	11,354
Farragut North	22,643	22,250
Metro Center	27,802	27,847

Source: Washington Metropolitan Area Transit Authority, 1995