FOREST GLEN METRO ACCESS
PROJECT SUMMARY FOR TIGER GRANT APPLICATION
August 29, 2011

Project Purpose

- The intersection of Georgia Avenue and Forest Glen Road is one of the most congested intersections located adjacent to a WMATA subway station in the Washington metropolitan area and presents challenges for pedestrians to safely cross MD 97.
- The community has been lobbying several years for a grade separated crossing that would eliminate conflicts with automobiles and significantly improve access to the nearby Forest Glen Metro Station.

Feasibility Study

- MCDOT has retained RK&K to perform surveys, identify utilities, complete a traffic study, develop alternatives, and evaluate the feasibility, constructability, impacts, and costs of implementing a new pedestrian passageway underneath or above Georgia Avenue.
- RK&K performed pedestrian and automobile counts at the intersection to evaluate the potential use of the passageway and impacts to vehicular and pedestrian traffic during construction; daily volumes for the new passageway are estimated to range between 450 and 800 pedestrians.
- RK&K evaluated initial concept alternatives that were reviewed with MCDOT, MNCPPC, SHA and WMATA. The feasibility report, including a recommended alternative will be completed in December 2011
- ADA access improvements would eliminate a 1500' diversion that is currently required for disabled persons who are unable to navigate the existing stairways.

NEPA

- Potential impacts to community, property, and natural, cultural and socio-economic resources are anticipated to be minor. RK&K anticipates that a Categorical Exclusion (CE) will be required to satisfy NEPA.
- After the Feasibility Report is complete and a preferred alternative is selected, the CE could be completed and approved by the spring of 2012.

Constructability

- Construction of underpass would be accomplished via cut-and-cover, including construction of a temporary deck-over constructed at night (requiring temporary lane closures at night). Majority of passageway excavation and construction would be accomplished from below-grade, without interrupting traffic on Georgia Avenue during the daytime.
- Construction of bridge would be accomplished with minimum disruption to Georgia Avenue during peak period. Temporary lane closure would be required to erect the bridge.
- Construction duration would be approximately 2 to 3 years depending on alternative selected.

Costs

- $2.7M planning and design cost
- $13.3M construction cost
- $1.5M ROW Acquisition cost
- $0.5M bike sharing cost

Schedule

- Complete NEPA Categorical Exclusion: Spring 2012
- Complete Final Design: June 2013
- R/W Acquisition: June 2014
- Construction: June 2014 – June 2017

Land Use

- Area is within Forest Glen Sector Plan and North and West Silver Spring Master Plan
- Area is largely already built-out to current proposed land use
    - Mostly single-family residential
    - Some multi-family residential near Metro station
    - Holy Cross Hospital represents large institutional land use
    - Also includes some other institutional (churches), medical/office, park, and retail land uses
- Existing and proposed land use plans from Master Plans attached for reference

Vehicular AADT Volumes

- Figure showing AADT Volumes surrounding the Georgia Ave (MD 97)/Forest Glen Road (MD 192) intersection for 2009/2011 is attached.
- 2040 AADT Volumes are assumed to be the same as current year AADT volumes
    - The COG model shows no traffic growth for the 2030 model compared to current volumes
    - Historical AADT volume data shows reductions between 2001 and 2011.

Delay Savings

- For pedestrians crossing Georgia Avenue, the proposed tunnel would save approximately 119 seconds, on average.
    - This savings includes 48 seconds from shorter walking distance (612' vs. 397') and 71 seconds less average waiting time at the traffic signal
    - Total savings for the 733 pedestrians captured in the 13-hour pedestrian count would be 24 total hours.
- For vehicular traffic, pedestrians diverting to the proposed tunnel would reduce the number of calls for the extended pedestrian crossing interval, reducing average delay at the intersection
    - Using a sample of four one-hour periods between 6 AM and 7 PM (including the actual AM and PM peak hours), the average delay reduction per hour due to the pedestrian passageway is 3.2 seconds per vehicle entering the intersection
    - Based on having 63,603 vehicles entering the intersection during this 13-hour period, the total delay reduction due to the passageway would be 57 hours
        - This analysis assumes little to no pedestrian crossing activity outside of this 13-hour window, so there would be no delay reduction due to the passageway during that period.
        - Hence, the delay reduction of 57 hours for the 13-hour period is assumed to be the same for the entire 24 hour period.

Pedestrian Statistics

- Up to 90% of the pedestrian activity at the Georgia Avenue / Forest Glen Road intersection is related to the Forest Glen Metro Station
- Of the pedestrians walking along Forest Glen Road between Georgia Avenue and the Forest Glen Metro Station, 97% of the westbound pedestrian traffic enters the station during the AM peak hour, and 99% of the eastbound pedestrian traffic comes from the station during the PM peak hour.
- The existing pedestrian clearance (Flashing Don't Walk) intervals are not long enough for a pedestrian to cross either Georgia Avenue or Forest Glen Road at the MUTCD-recommended walking speed of 3.5 feet per second.
    - Increasing the pedestrian clearance intervals to meet the MUTCD walking speed

recommendations would result in greater delays during the AM peak hour, and a small delay increase during the PM peak hour, with proposed signal timing optimization.
    - This would also increase delays if the current signal timing is not optimized.
- Pedestrian-related crashes at the Forest Glen Road intersection accounted for 13% of the crashes reported from 2005 through 2009.
    - The 8 pedestrian-related crashes during the time period include 5 crashes involving pedestrians crossing Georgia Avenue, and the remaining 3 were crossing Forest Glen Road.
    - Vehicular through-movement crashes account for 3 of the 8 pedestrian-related crashes, with the remaining five crashes involving turning vehicles
- Along the segment of Georgia Avenue between the I-495 off-ramp and Tilton Drive (which includes the Forest Glen Road intersection), the crash rate for pedestrian-related crashes was nearly four times greater than the statewide average for similar roadways.

Crash History (from Traffic Report)

RK&K obtained recent crash history information (January 2005 through December 2009) for the intersection of Georgia Avenue (MD 97) and Forest Glen Road (MD 192) from the Maryland State Highway Administration (SHA).

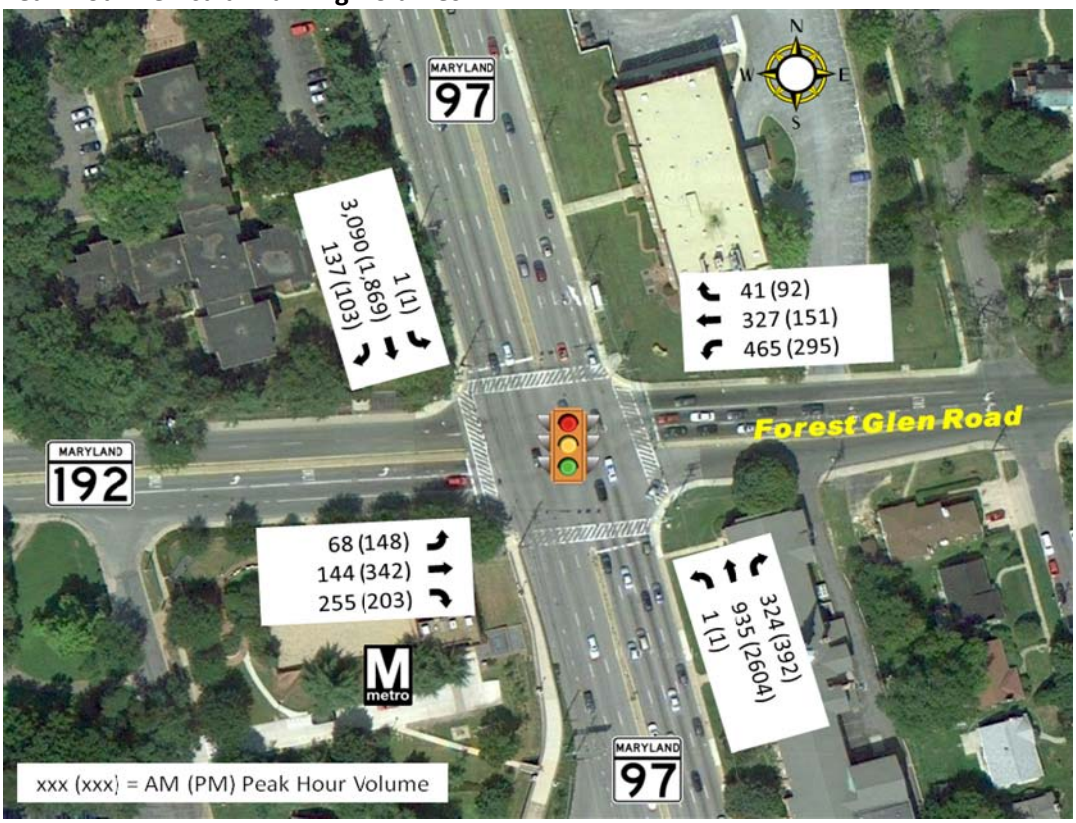
The following trends were identified in the five (5) years of crash data for this intersection:

- Eighty-four (84) crashes were reported at this intersection during the study period. There were no reported fatalities.
- There were eight pedestrian-related crashes (10% of the total).
    - Five (5) of these crashes occurred in 2006, more than in any other year of the study period.
    - One (1) pedestrian-related crash was reported each in 2008 and 2009.
- The most frequent type of crash reported was the rear-end collision (32 crashes, or 38% of the total).
    - Most of these rear-end crashes (81%) occurred along MD 97.
- The second-most common crash type was the left-turn collision (21 crashes, or 25% of the total).
    - The year with the highest number of left-turn crashes was 2007 (7 total).
    - Three (3) left-turn crashes were reported in 2009.
- The most common probable causes reported were “failure to yield right-of-way” (21 crashes) and “failure to give full attention” (18 crashes).
- Seventy-six percent (76%) of the crashes resulted in an injury.
- Thirty-seven percent (37%) of the crashes reported during the study period occurred at night.
- Eighteen percent (18%) of the crashes occurred on wet pavement surfaces.

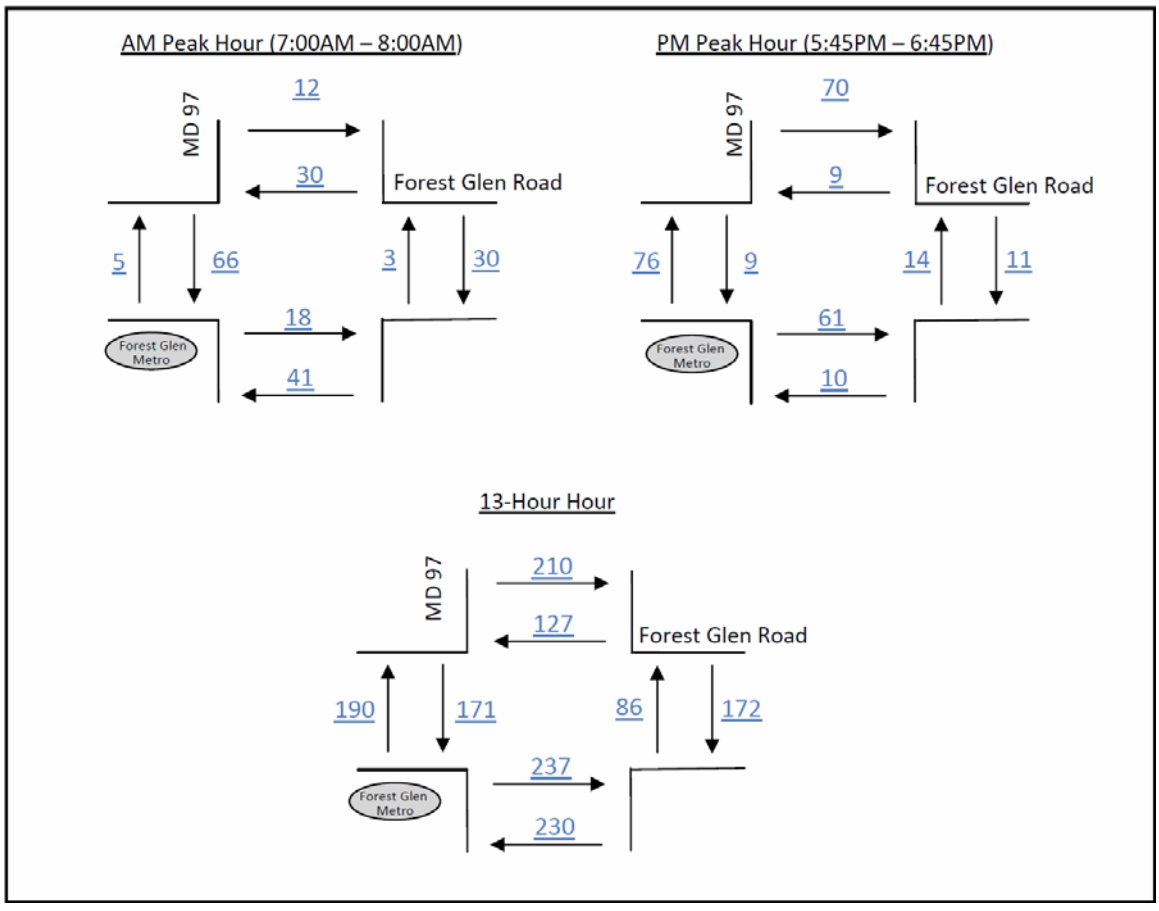
RK&K also obtained crash data for this same five year period along MD 97 between the off-ramp from westbound I-495 and Tilton Drive, a 0.30 mile segment that includes the MD 192/Forest Glen Road intersection. This crash data includes a comparison of the crash rates within this segment to the statewide average crash rates for other similar roadways. Crash rates are reported as the number of crashes per 100-million vehicle-miles traveled. This crash data for the five-year period (2005 – 2009) is summarized as follows:

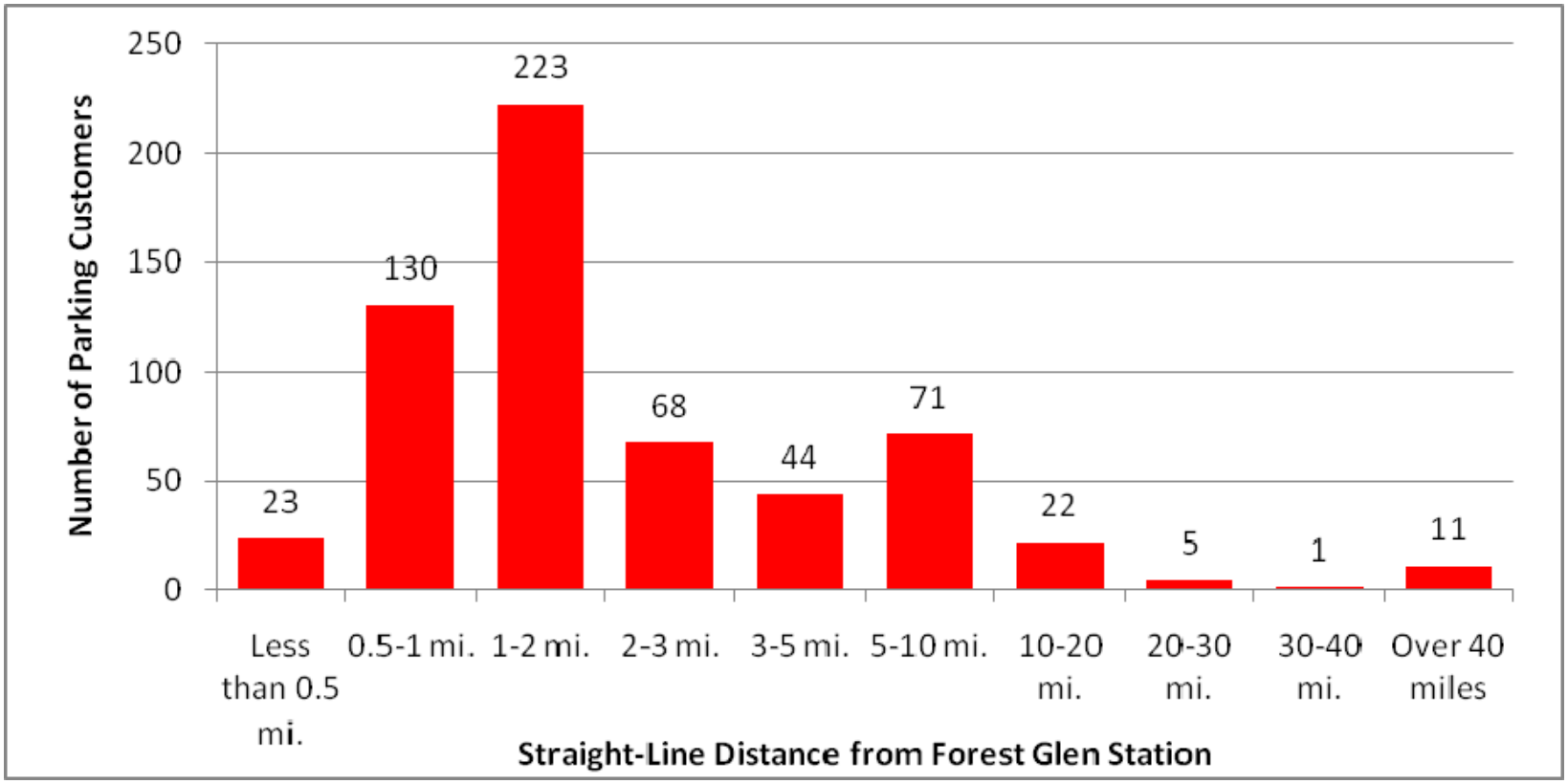
- The pedestrian-related crash rate (24.9) was almost four times the statewide average.
- The sideswipe crash rate (116.3) was almost six times the statewide average.
- The total crash rate (all types combined) was 468, which is more than twice the statewide average.

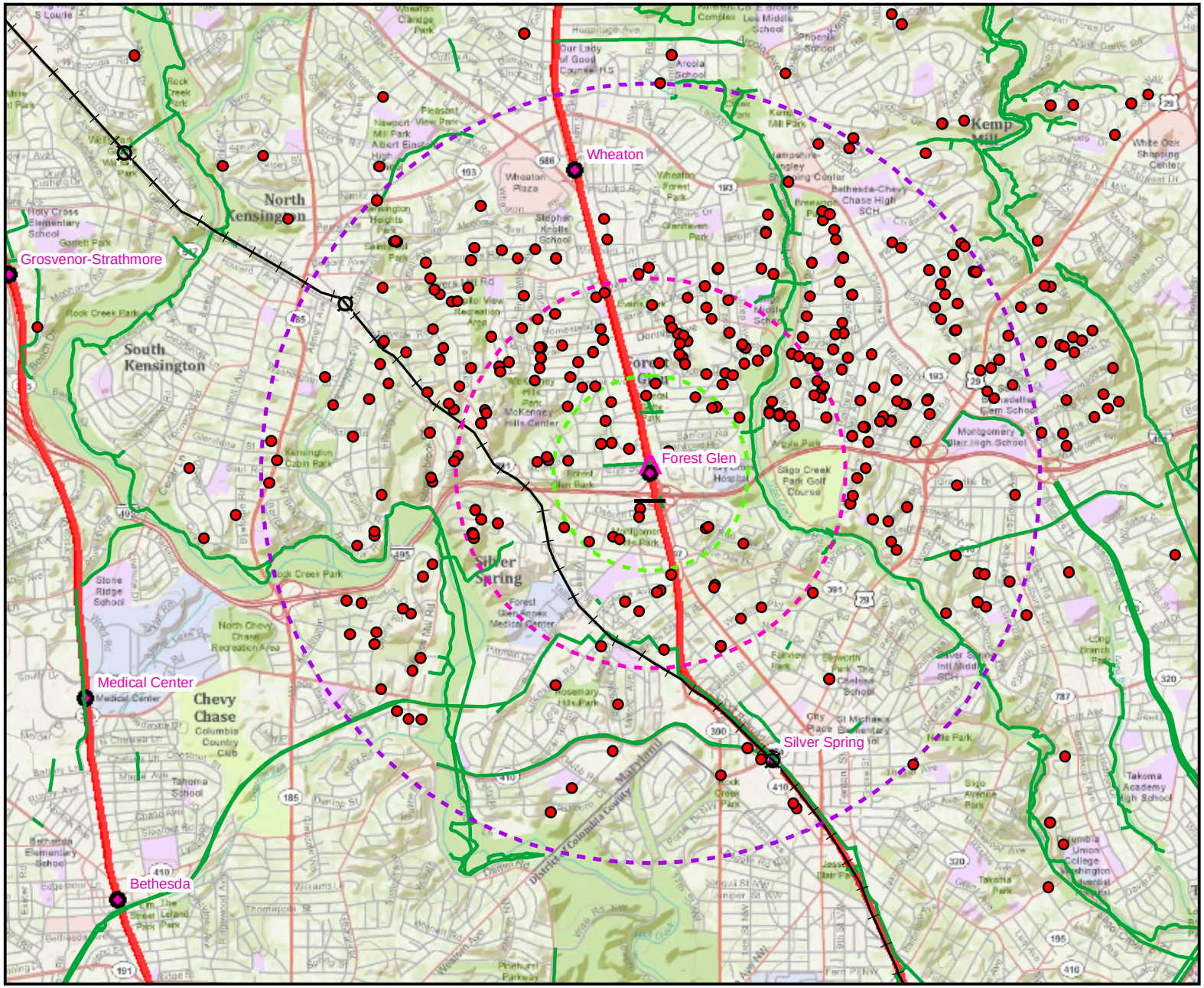
Peak Hour Vehicular Turning Volumes



Peak Hour Pedestrian Volumes




Number of Parking Customers
250
200
150
100
50
0
23
130
223
68
44
71
22
5
1
11
Less than 0.5 mi.
0.5-1 mi.
1-2 mi.
2-3 mi.
3-5 mi.
5-10 mi.
10-20 mi.
20-30 mi.
30-40 mi.
Over 40 miles
Straight-Line Distance from Forest Glen Station



Origin of Parking Customers at Forest Glen Station

by address of registered SmarTrip card, May 3, 2011 (81% of cards registered)

Legend

- Forest Glen Station
- Parking Customers
- Half-Mile
- 1 Mile
- 2 Miles
- MARC Station
- Bike Lanes/Paths/Routes

0.5 0.25 0 0.5

Miles

WMATA Low Surface Distortion Projection
Central Meridian:-77.033 Standard Parallel: 38.833
Datum: NAD83 NSRS2007; Units: Feet
WMATA Enterprise GIS

Forest Glen Metro Station Pedestrian Access
Bridge and Tunnel Alternative Delay Evaluation

	Movement	Distances (LF)	Walk Time (s) @ 4.5 fps	Additional Time (s)	Total Time (s)	Estimated Usage*	
No-Build	SE to SW Metro At-Grade	612	136.0	71	207.0		
Bridge	SE to SW Metro via Bridge	361	80.2	70	150.2	90%	$T_{bridge}/ T_{ground} = 0.73$
Tunnel	SE to SW Metro via Tunnel	397	88.2	0	88.2	100%	$T_{tunnel}/ T_{ground} = 0.43$

*Estimated usage based on AASHTO Pedestrian Facility Design Guide, Exhibit 3-39, Pedestrian Use of Bridges/Tunnels Based on Convenience

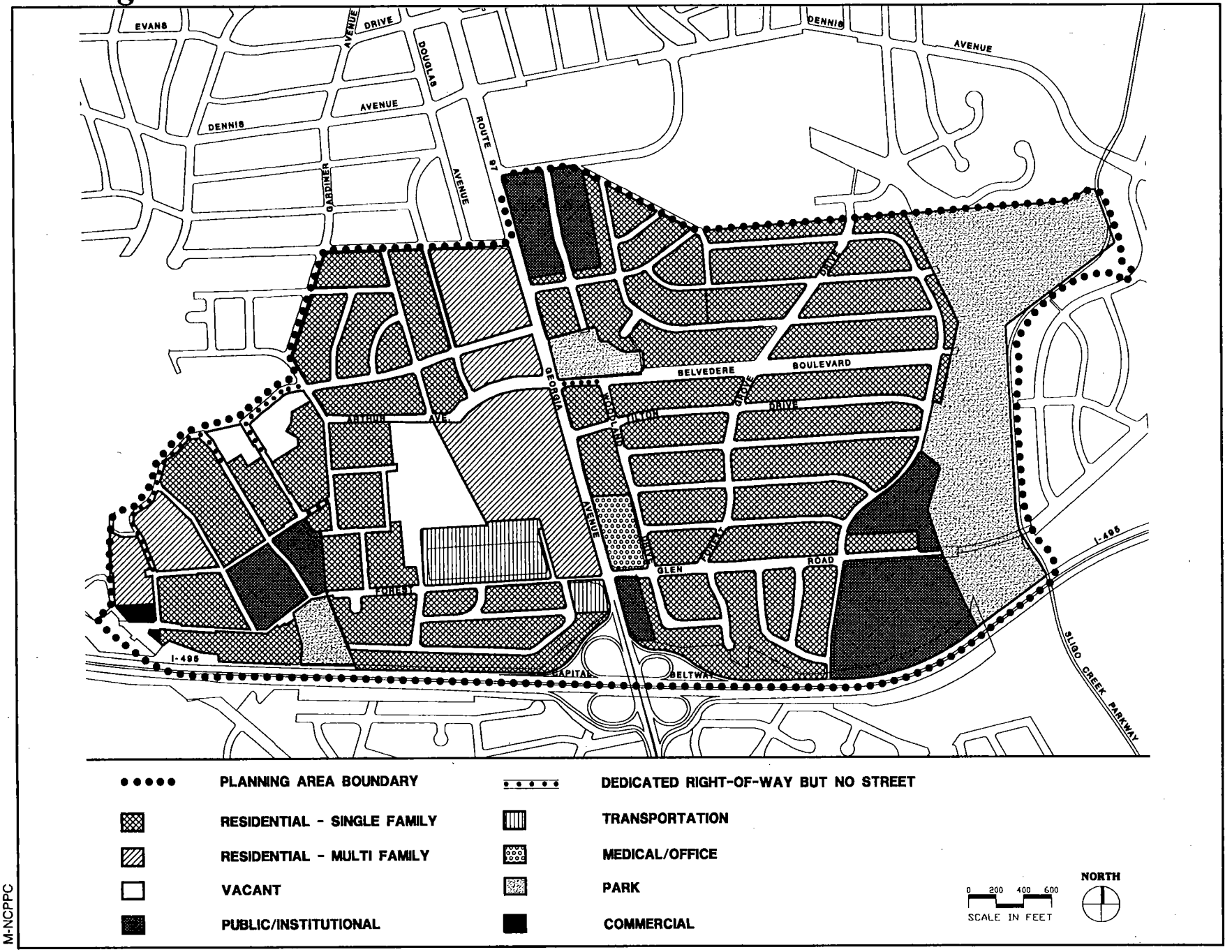
Average Signal Delay: 71s
Average Elevator Delay: 35s (per elevator boarding)

A pedestrian bridge would reduce total pedestrian travel time to the Metro Station (one-way) to **73%** of no-build travel time. Based on AASHTO's Pedestrian Facility Design Guide, this would correspond with a **90%** utilization rate.

A pedestrian tunnel would reduce total pedestrian travel time to the Metro Station (one-way) to **43%** of no-build travel time. Based on AASHTO's Pedestrian Facility Design Guide, this would correspond with a **100%** utilization rate.

Existing Land Use

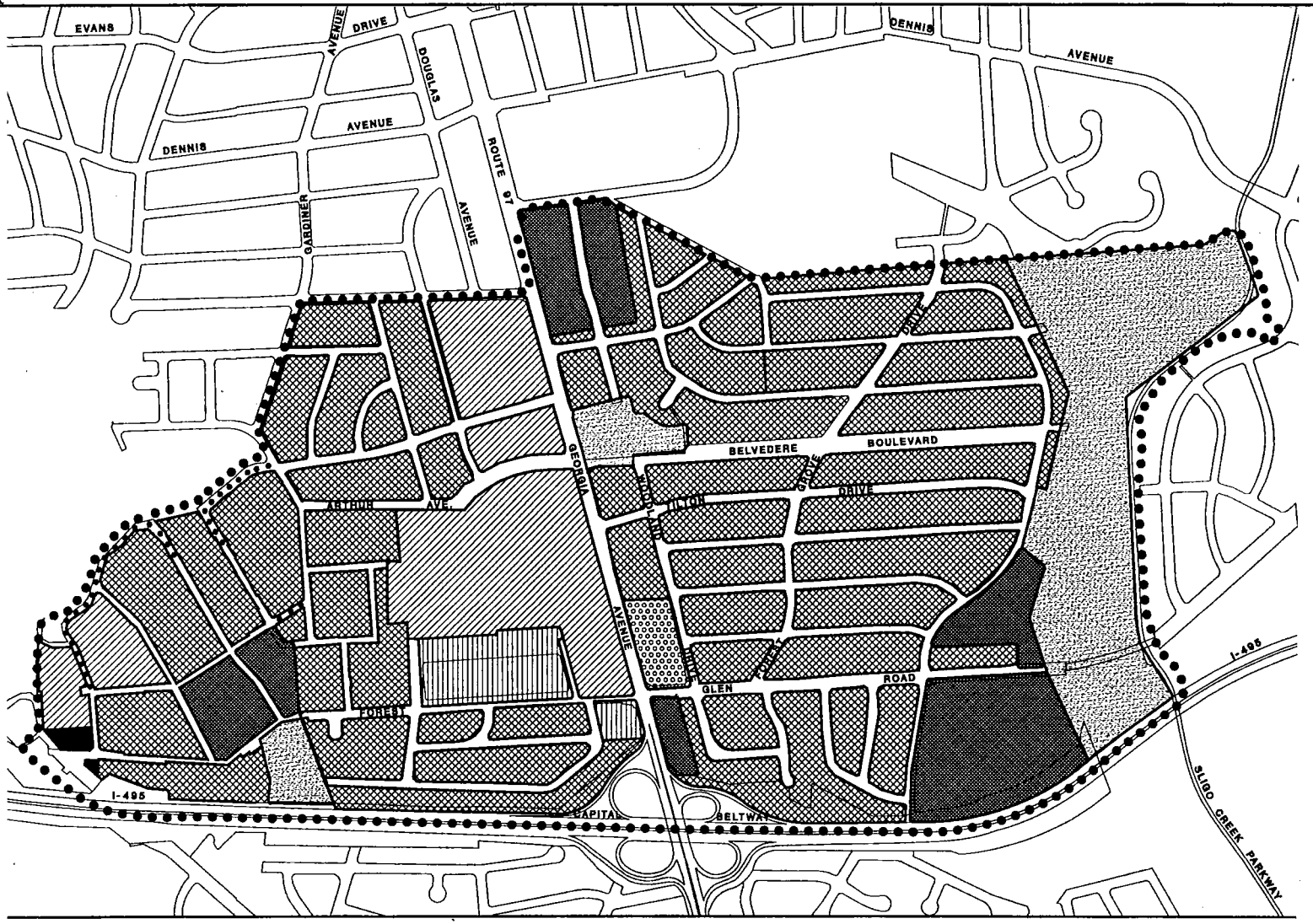
Figure 6



M-NCPPC

Proposed Land Use

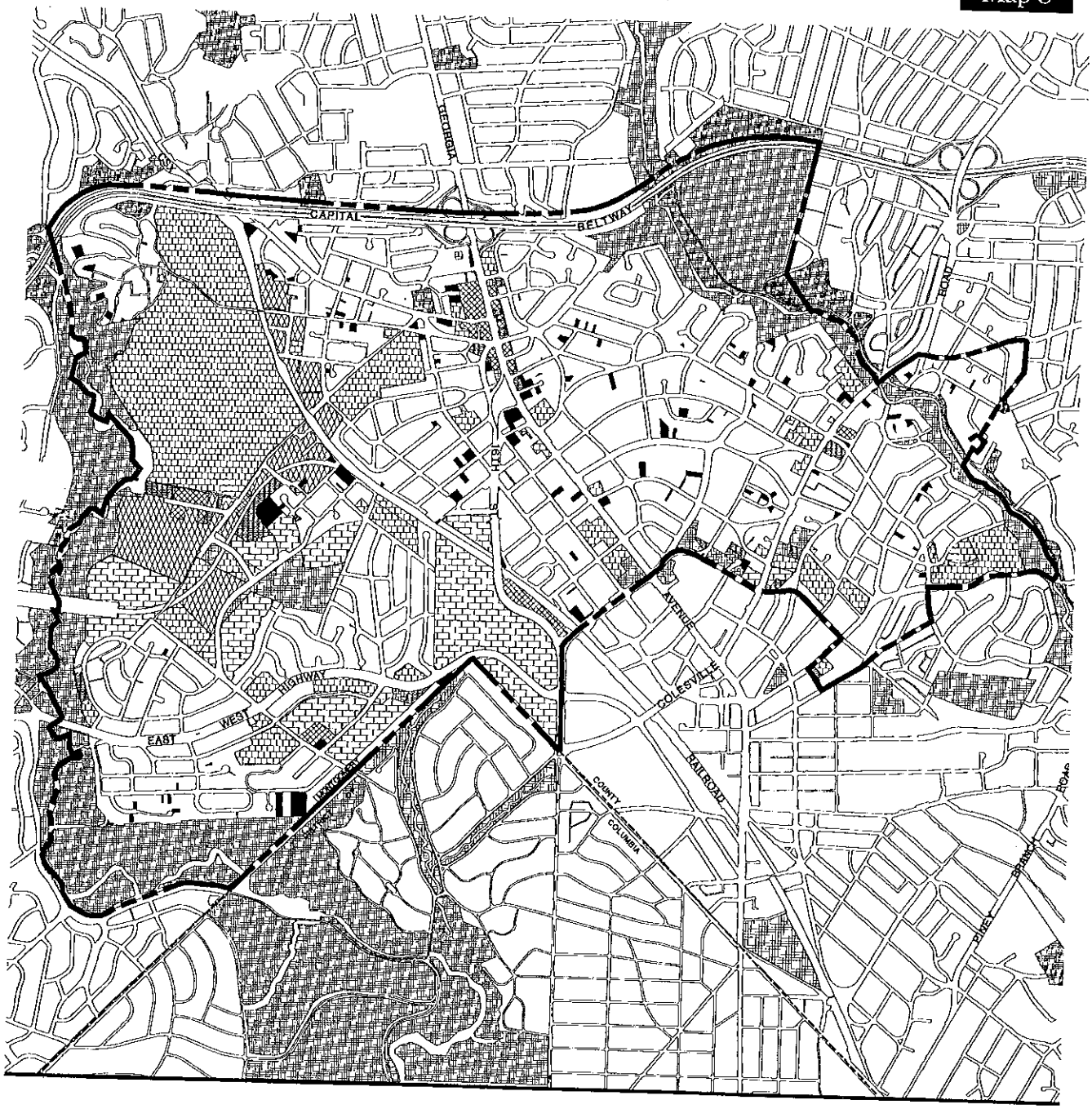
Figure 7



M-NCPPC

Existing Land Use in North and West Silver Spring

Map 8



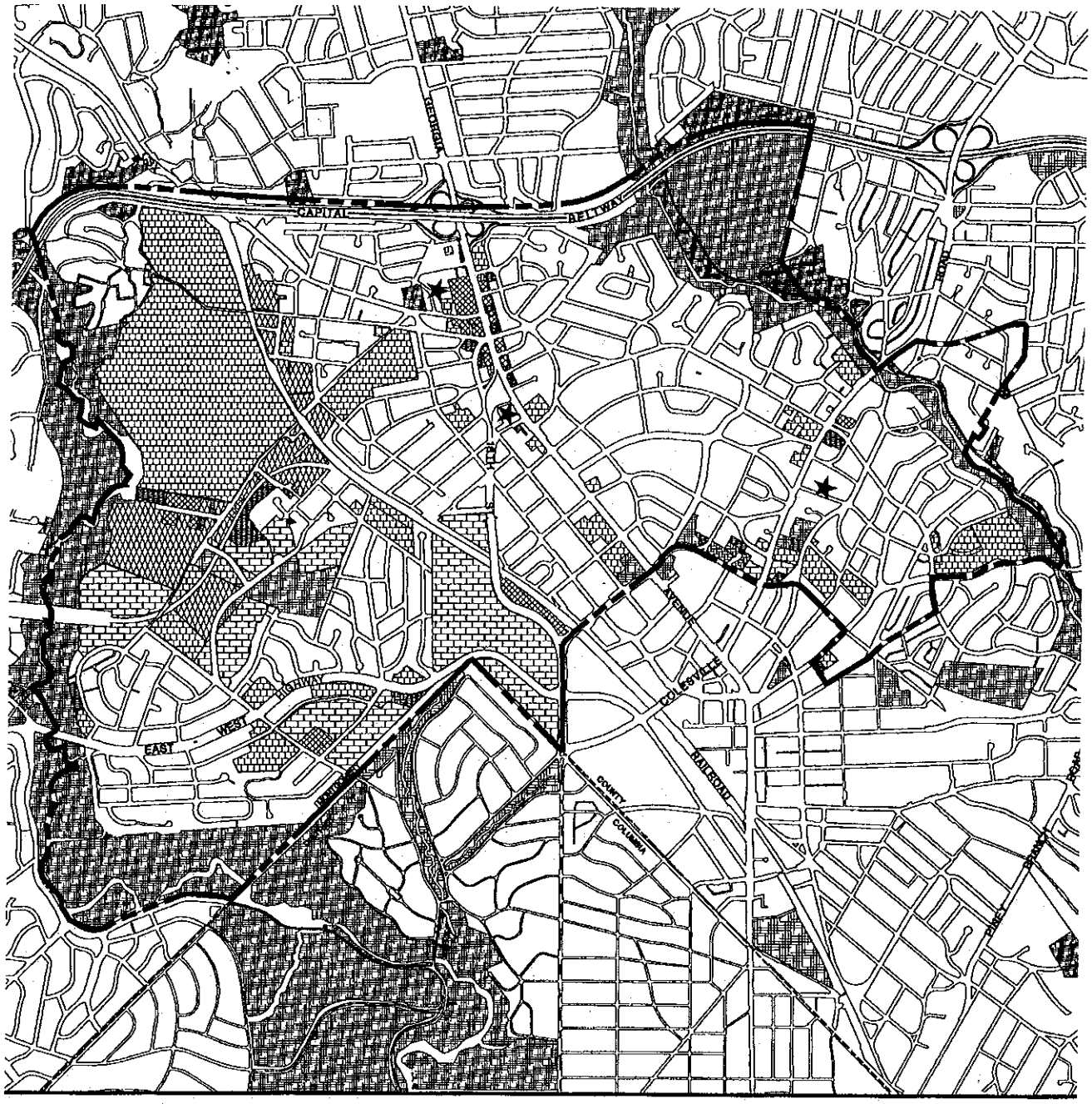
Master Plan Boundary

- Single Family Residential
- Multi-Family Residental
- Retail
- Office
- Industrial/Warehouse
- Public/ Institutional
- Parking
- Open Space
- Parkland
- Vacant

0 375 1500 3000 Feet

Proposed Land Use in North and West Silver Spring

Map 9



Master Plan Boundary

★ Suitable for R60 cluster

Single Family Residential
Multi-Family Residental
Retail
Office
Industrial/Warehouse

Public/ Institutional
Parking
Open Space
Parkland

0 375 1500 3000 Feet

Annual Average Daily Traffic (AADT) Volumes: MD 97 (Georgia Avenue) at Forest Glen Road

Note: The AADTs on MD 97 north of Forest Glen Road are from 2011 data; the other volumes are from 2009 data and have **not** been projected to 2011 levels. The volumes shown have already been seasonally adjusted.