

George Washington's Mount Vernon
Estate and Gardens Traffic Circle
Environmental Assessment
Existing Conditions Report

July 2002

Mount Vernon Circle Environmental Assessment
Existing Conditions Report

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1.0 Introduction

George Washington's Mount Vernon Estates and Gardens (hereafter referred to Mount Vernon) is located in southeastern Fairfax County along the Potomac River. It is the historical home of our nation's first President. While in George Washington's time his estates extended to include more than 8,000 acres, the roughly 500 acres of his property surrounding the actual building and gardens is known as the mansion farm. Mount Vernon can be seen as it was approximately 200 years ago. It is open every day of the year and hosts more than one million visitors a year.

1.1 Study Area Description

The Mount Vernon area of Fairfax County consists of the Mount Vernon Estates and Gardens located along the Potomac River. Figure 1 shows the location of the study area. The western edge of the study area extends to just beyond Old Mount Vernon Road while the eastern edge of the study area reaches almost to Little Hunting Creek. The southern edge of the study area is located just south of the Mount Vernon traffic circle while the northern edge of the study area is located just north of Surrey Drive in the Mount Vernon Estates subdivision. The George Washington Memorial Parkway (GWMP) ends at the traffic circle at Mount Vernon. The Mount Vernon Trail, which is a bicycle and pedestrian trail, ends in the East Parking Lot for Mount Vernon. Northbound Virginia Route (VA Rte.) 235 enters the study area from the west and turns to the north just west of the traffic circle.

1.2 George Washington Memorial Parkway History

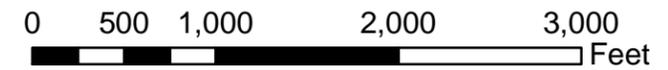
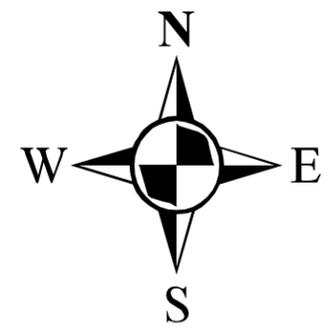
The GWMP was established in 1930 by the United States Congress as a memorial to George Washington. The original section of the GWMP extending from the Arlington Memorial Bridge to Mount Vernon was opened in 1932. Most of the northern section of the GWMP from the Arlington Memorial Bridge to the Capital Beltway opened in 1966.

The initial Mount Vernon Memorial segment of the GWMP was listed on the National Register of Historic Places (NHRP) in 1981. The remaining portions of the GWMP were listed on the

NRHP in 1995. The Parkway is significant for several reasons: (1) It is the first parkway constructed and maintained by the Federal government, (2) it contributes to a regional park system along creeks and rivers, and (3) it is an important step in the evolution of parkway design.¹²

¹² Existing Conditions Report: George Washington Memorial Parkway Safety Improvements, August 2001, pp. 1-1 – 1-5.

**Figure 1.
General Study Area**



Source: USGS, 2002

1.3 Mount Vernon History

The land for the Mount Vernon Gardens and Estates was granted to the Washington family by King George II to George Washington's great-grandfather in 1674. The land stayed in the Washington family for nearly two hundred years until George Washington's great-grandnephew could no longer afford to keep the estate up. In 1858, the Mount Vernon Ladies Association was formed by a charter from the Commonwealth of Virginia to purchase the estate. The Mount Vernon Ladies Association purchased the remaining 200 acres of the property to save the home of the nation's first President. Since coming under the auspices of the Mount Vernon Ladies Association, Mount Vernon has been fully restored. It receives more than one million visitors a year and is opened every day of the year.¹³

¹³ May 6, 2002. Mount Vernon Fact Sheet, http://www.mountvernon.org/press/mv_fact.asp.

2.0 Mount Vernon Visitation and Existing Roadways

2.1 Mount Vernon Visitation

To determine whether visitation at George Washington's Mount Vernon Estate and Gardens has increased over a period of years, data provided by the Mount Vernon Ladies Association from 1994 to 2001 were reviewed. The number of visitors between 1994 and 2001 varied from approximately 952,446 visitors in 1994 to 1,124,116 visitors in 1999. The average amount of visitors for the years 1994 through 2001 was 1,030,943 while the median amount of visitors was 1,038,551.¹⁴ As shown in Figure 2, the visitation trend at Mount Vernon rose between 1994 and 1999, when it peaked. From 1999 to 2001, visitation declined slightly.

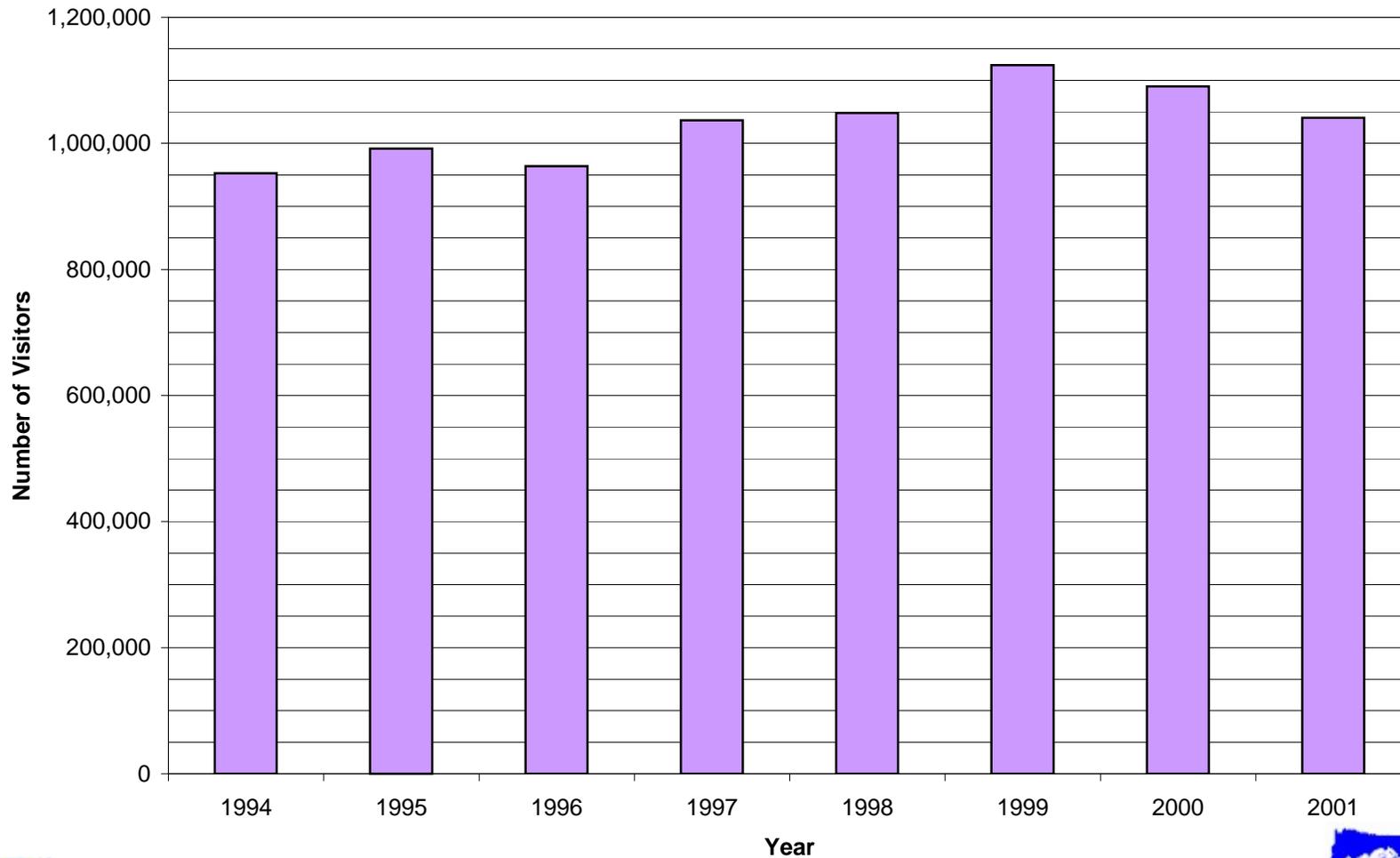
To determine the time of year in which visitation peaks, data from 2001 were analyzed. Figure 3 shows the bar chart of the results of this analysis. Visitation was at its lowest in January of 2001; peaked in April, and then it declined until October, where a lower peak occurred. Visitation then declined through the end of the year. Most likely, some decline from September through December may be attributed to the events of September 11th.

Visitation data also were analyzed to determine the type of visitors that tour George Washington's Mount Vernon Estates and Gardens. The Mount Vernon Ladies Association classifies visitors entering Mount Vernon into nine general categories. They are as follows:

- Adults
- Senior citizens
- Children
- Students and chaperones
- Evening events
- After-hours admissions
- Special rates
- Annual passes
- Free admission

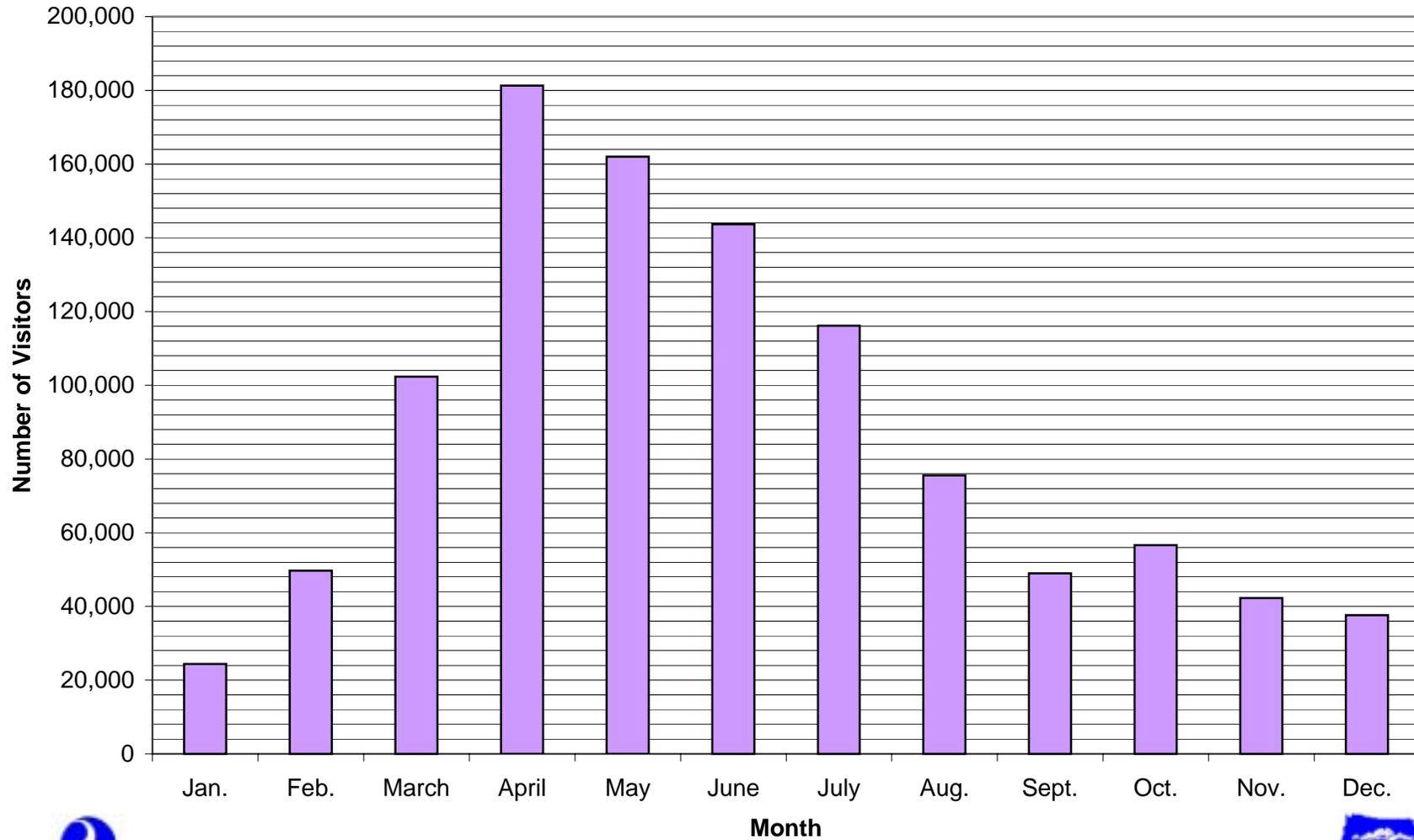
¹⁴ Mount Vernon Ladies Association, 2001.

Figure 2.
Mount Vernon Visitation: 1994-2001



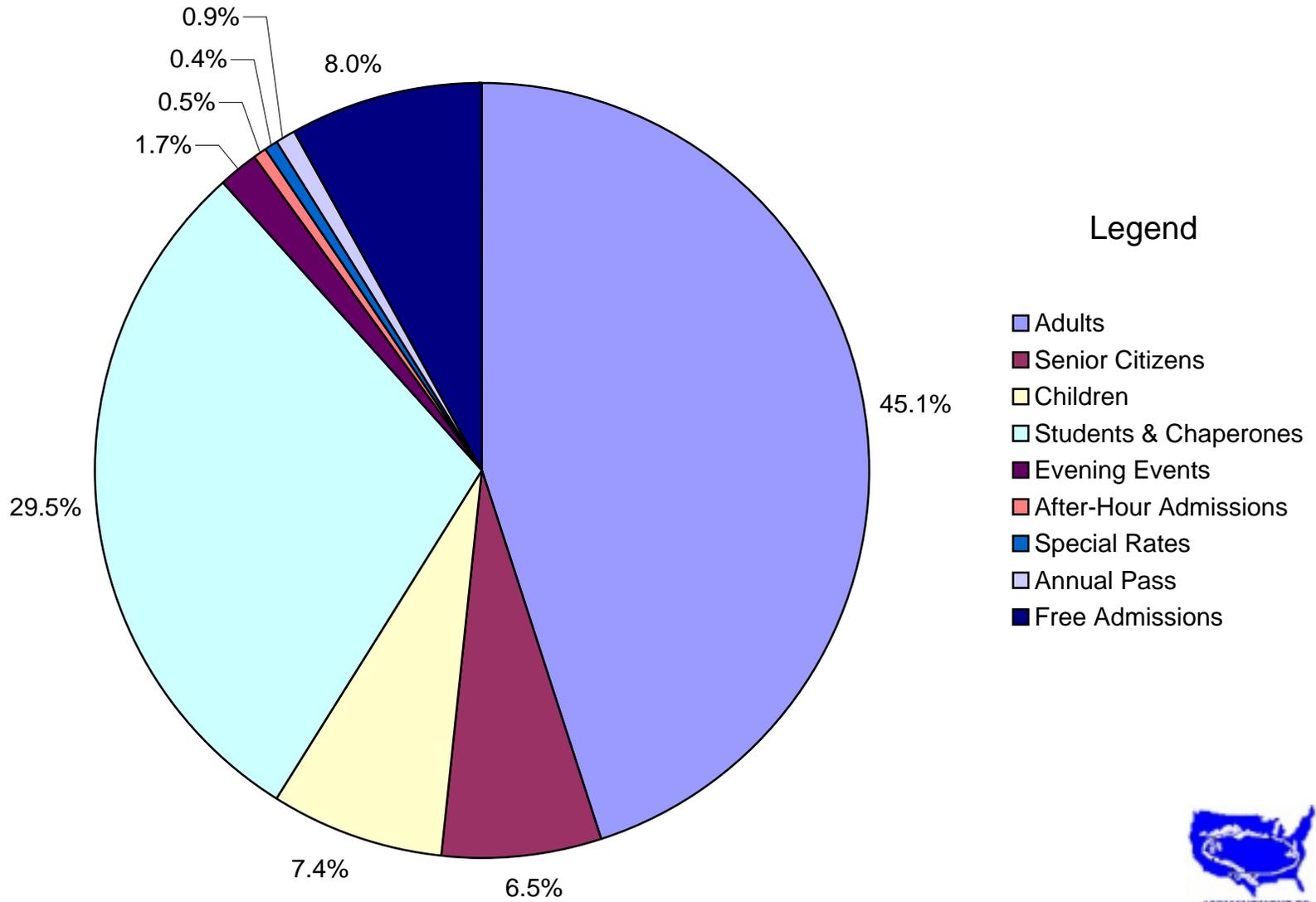
Source: Mount Vernon Ladies Association, 2002

Figure 3.
Mount Vernon Visitation - 2001



Source: Mount Vernon Ladies Association, 2002

**Figure 4.
Mount Vernon Visitation by Type**



Source: Mount Vernon Ladies Association, 2002

The visitation from 2001 was divided into these nine categories. The percentages were placed in a pie chart for easy analysis (see Figure 4). Adults make up the majority of visitors (45.1 percent or 469,439 visitors in 2001). Students and their chaperones composed the second largest group of visitors (29.5 percent or 306,611 visitors in 2001). Free admissions, Children, and Senior Citizens are the next largest types of visitors, but the percentages of these visitors compared to adults and students is much smaller. The number of students visiting Mount Vernon contributes to the peak of visitation in April. Data by type of visitor also were reviewed for 1994 through 2000. The composition of Mount Vernon visitors varies only slightly between those years.

2.2 Existing Roadways

The roadway network around Mount Vernon consists of the GWMP, US 1, VA Rte. 235, and local streets. Figure 5 shows the roadway network within and adjacent to the study area. US 1, also known as the Richmond Highway, is a major arterial that follows a southwest to northeast orientation northwest of the study area. Most of the local street network is located outside of the study area. However, a few streets such as Surrey Drive, Wessynton Way, and Colonial Avenue are either entirely within or have portions of the roadway within the study area. The following sections describe the characteristics of the GWMP, the Mount Vernon Trail, and VA Rte. 235.

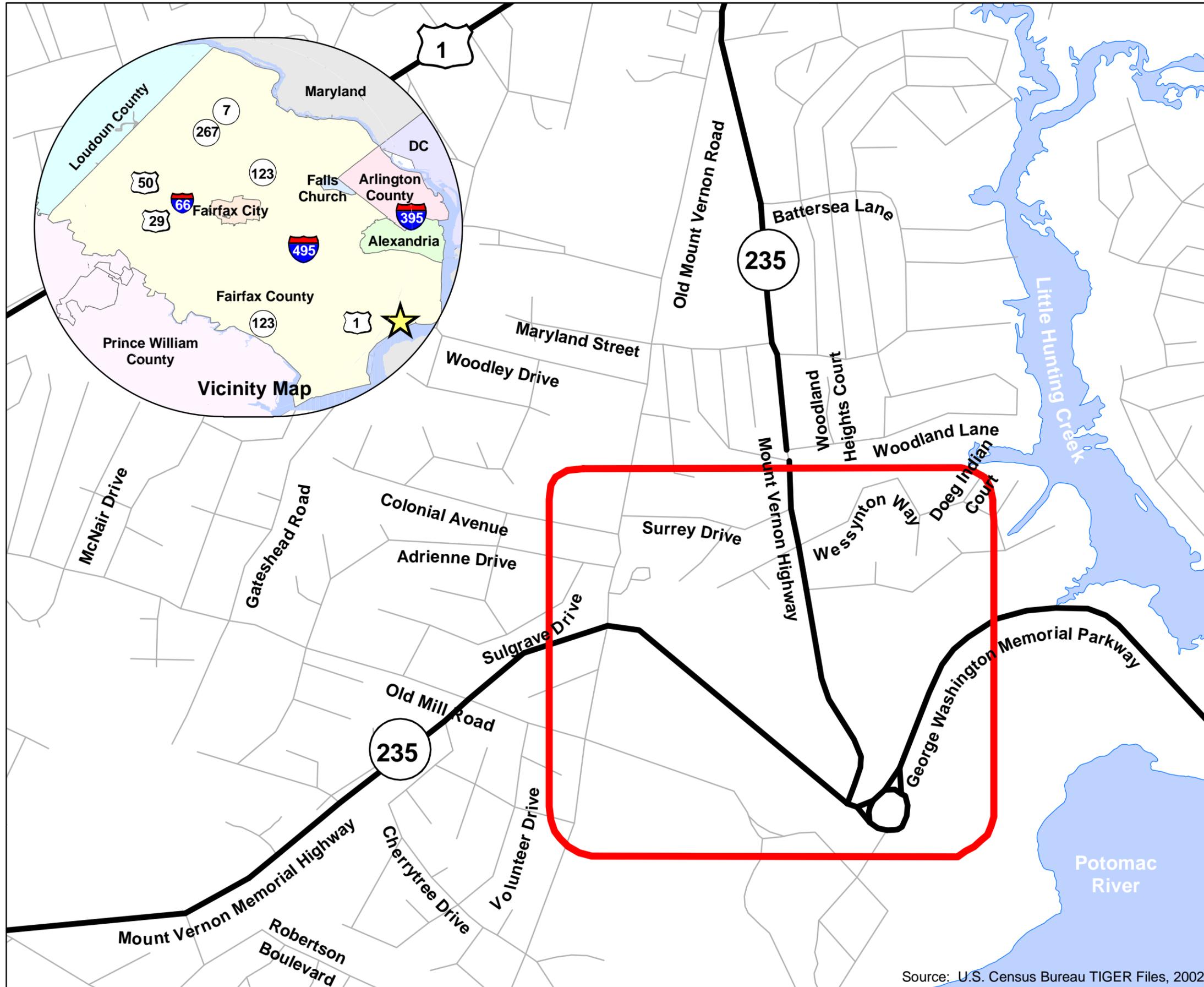
2.2.1 *George Washington Memorial Parkway*

The GWMP is a linear park that stretches through Virginia, Maryland, and the District of Columbia. It stretches in four segments from the Great Falls of the Potomac in Maryland to Mount Vernon in Virginia. It has a total area of 7,645 acres and received a total of 8,360,030 visitors during the 2001 Fiscal Year.¹⁵ The park is owned by the Federal government and is operated by the National Park Service (NPS). Not only is the GWMP considered to be a commuter route by many local residents, but it also offers scenic, historic, and recreational settings and serves as a protector of the Potomac River shoreline and watershed.

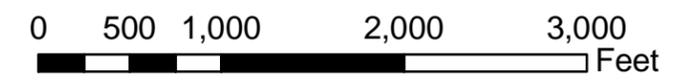
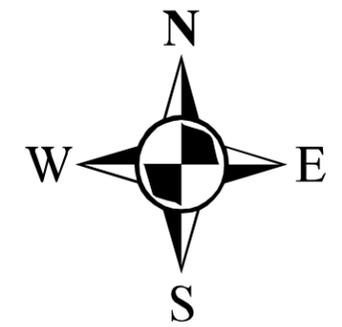
Along the southern end approaching Mount Vernon, the Parkway is a four-lane roadway. It ends at the Mount Vernon Circle, which is a one-way traffic circle that circulates counter-clockwise. Figure 6 shows the location of the GWMP within and near the study area.

¹⁵ Data collected on May 6, 2002. National Park Service, <http://www.nps.gov/gwmp/pphtml/facts.html>.

**Figure 5.
Roadway Network**

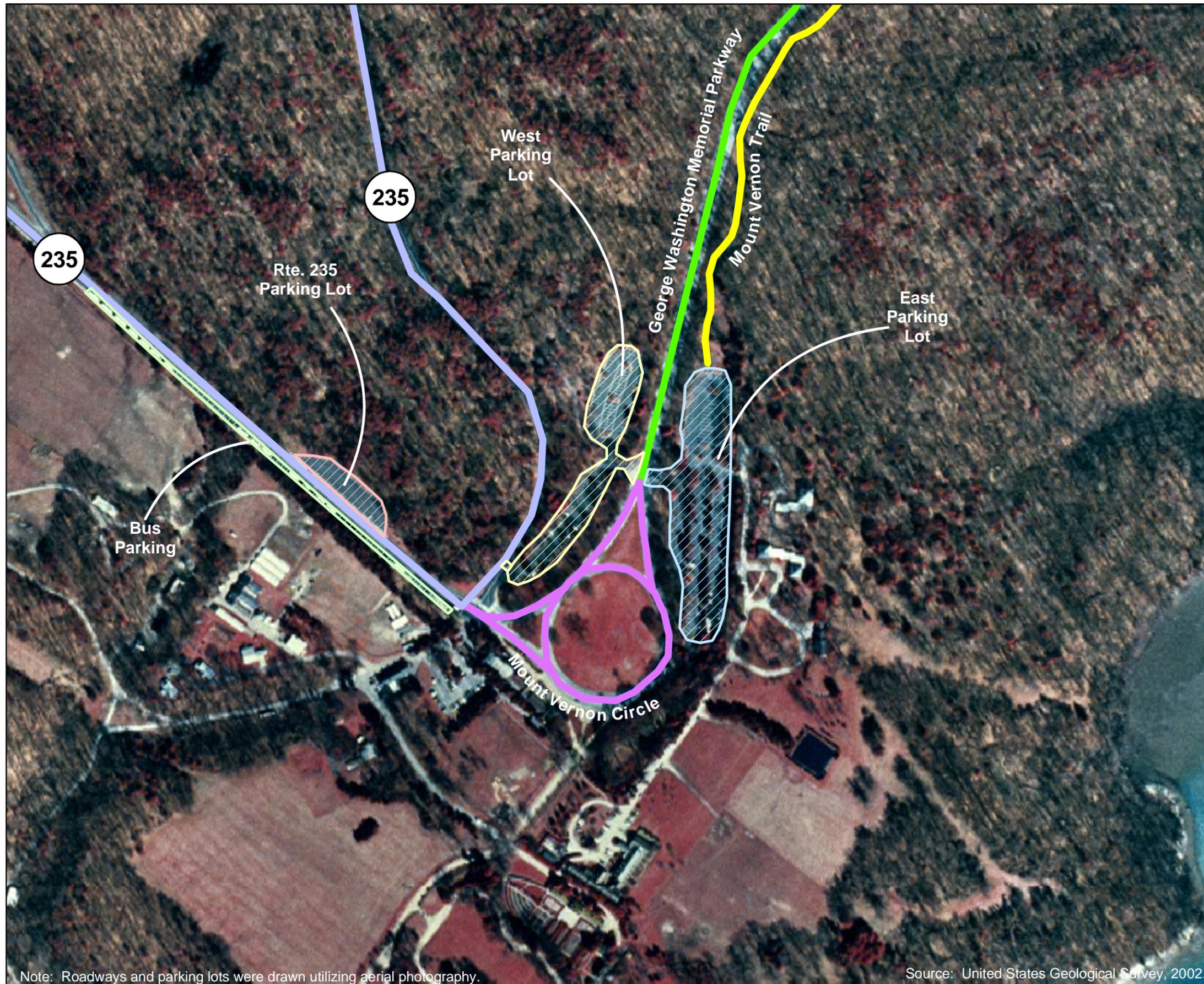


- Legend**
-  Major Roads
 -  Streets
 -  General Study Area
 -  Water



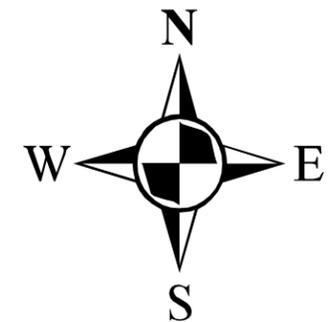
Source: U.S. Census Bureau TIGER Files, 2002

**Figure 6.
Mount Vernon Local Roadway
and Parking Locations**



Legend

-  Mt. Vernon Trail
-  George Washington Memorial Parkway
-  VA Route 235
-  Mount Vernon Traffic Circle
-  Bus Parking
-  East Lot
-  Route 235 Lot
-  West Lot



Note: Roadways and parking lots were drawn utilizing aerial photography.

Source: United States Geological Survey, 2002.

2.2.2 Mount Vernon Trail

The Mount Vernon Trail is a bicycle, jogging, and pedestrian trail that is 18.5 miles long. It begins at Theodore Roosevelt Island near the Lincoln Memorial, crosses through the City of Alexandria, and ends at Mount Vernon. The NPS created the trail in 1973. At its southern end, the trail terminates in the East Parking Lot for Mount Vernon (see Figure 6).¹⁶

2.2.3 VA 235

VA Rte. 235 is a state highway that enters the western portion of the study area and exits through the northern part of the study area. To the west, it diverges from US 1 and heads east until approximately 100 feet northwest of the traffic circle (see Figure 6). It then turns left and heads in a northerly direction. After it exits the study area, it merges with Old Mount Vernon Road, which in turn merges back into US 1. Within the study area, VA Rte. 235 is a two-lane roadway with 12-foot lanes.

2.2.4 Mount Vernon Parking

2.2.4.1 Current Capacity

Mount Vernon has three parking lots located on NPS property for vehicles as well as parking for tour buses. Figure 6 shows the location of these parking lots. The East Parking Lot is located east of the GWMP and contains 238 parking spaces. It has one entrance from the circle and one exit onto the GWMP. This parking lot also contains parking for recreational vehicles. The Mount Vernon Trail ends at the northern end of this parking lot. The West Lot is located west of the GWMP. The exit is located on the GWMP while the entrance is located on VA Rte. 235. The West Parking Lot contains 144 spaces. The VA Rte. 235 Lot is located along VA Rte. 235 approximately 300 feet northwest of the circle. This parking lot has 42 spaces and also contains a post office. Tour bus parking is located along the southern edge of VA Rte. 235 from where the highway turns north to approximately 1,450 feet northwest of the turn. Also, tour buses utilize the GWMP for parking during peak times.¹⁷ During peak times, the center of the Mount Vernon traffic circle is used for parking.

¹⁶ May 8, 2002. <http://www.nps.gov/gwmp/mvt.html>.

¹⁷ “The Need for Parking: Method of Determining the Spaces Needed”, Mount Vernon Ladies Association, 2001. DRAFT

2.2.4.2 Future Demand

To determine the future demand for parking, the Mount Vernon Ladies Association drafted a memorandum that predicts the current and future needs for parking. This section summarizes their methodology and results.

To determine the current capacity for parking, the amount of spaces as described in the section above were determined. It was determined that the East Parking Lot, West Parking Lot, and Rte. 235 Parking Lot could hold a total of 424 vehicles. During busy days in the spring, summer, and fall, the National Park Service requires that Mount Vernon allow parking on the traffic circle. The need for parking on the circle was estimated to be 175 vehicles. On very busy days when the circle is full, people park illegally along the roadways. By summing the amount of parking spaces in the parking lots and the estimate for the circle, the need for parking spaces during a busy day was calculated to be 599 spaces.¹⁸

The Mount Vernon Ladies Association does not expect or desire a large increase in visitation. As shown in Section 2.1, visitation has not increased greatly over the past several years. However, the amount of time visitors spend at Mount Vernon has increased. In 1992, the average time of stay was 99 minutes. Since more experiences in the historic area have been added to Mount Vernon, the amount of time a visitor spends at Mount Vernon has increased to 135 minutes in 1998. To determine the increased amount of time that visitors might spend at Mount Vernon, additional time spent at each facility was estimated (see Table 1).

Facility	Method of Calculation	Time Spent at Facility
Orientation Building	Includes Film	23 Minutes
Museum	Four minutes per gallery (5 galleries) plus six minutes for George and Martha Experience	26 Minutes
Education Center	Two minutes per gallery (15 galleries), nine minutes for Revolutionary War Theater, eight minutes for Presidential Theater	47 Minutes
Shopping and Restaurant Experience		5 Minutes
Total Additional Time		101 Minutes

Source: Mount Vernon Ladies Association.

¹⁸ *ibid.*

When estimating visitor time spent at Mount Vernon, the Mount Vernon Ladies Association recognized that different people might spend different amounts of time at Mount Vernon depending on their interests or whether they had a set schedule and were unable to see various parts of Mount Vernon. As a result, parking demand for visitors was calculated based on visitors staying for an additional 50 minutes and 75 minutes as well as 101 minutes. They also assumed that people would arrive by car, bus, and boat in the same proportion that they have for the past 25 years (the ratios have been consistent for the past 25 years.). Table 2 shows the resulting chart for demand and parking spaces.¹⁹

Table 2 Need for Parking Spaces		
Time Spent at Mount Vernon per Visitor	Current Need for Parking	Additional Spaces Required
135 minutes current	599 spaces	175 spaces
135 minutes current + 50 minutes additional = 185 minutes total	820 spaces	396 spaces
135 minutes current + 75 minutes additional = 210 minutes	931 spaces	507 spaces
135 minutes current + 101 minutes additional = 236 minutes total	1,047 spaces	623 spaces

Source: Mount Vernon Ladies Association.

As shown in the table above, a need for more parking spaces exists. Though visitation itself will not greatly increase, the length of visitor stay will likely increase in the future, thus creating a higher demand for parking spaces.

2.2.5 Traffic Counts

Traffic in the vicinity of Mount Vernon consists of a mix of vehicle types and modes of transportation. Vehicular traffic consists of personal automobiles, buses, motorcycles, and bicycles and includes commuter traffic as well as traffic traveling to and from the Mount Vernon Estate and Gardens. In addition to vehicular traffic, a high volume of pedestrian traffic is present in the Mount Vernon area. Commercial truck traffic is prohibited on the GWMP and is minimal along the studied sections of VA 235. Historical and current traffic count data, consisting of average daily traffic (ADT) counts and turning movement counts, was gathered and analyzed to

¹⁹ *ibid.*

determine traffic characteristics and historical growth patterns. Figure 7 shows the locations where current traffic counts were taken.

2.2.5.1 Historical Traffic Counts

To develop a baseline of traffic in the Mount Vernon area historical traffic counts were gathered from VDOT and the NPS, where available, for VA 235 and GWMP. Recent turning movement counts for the intersection of VA 235 and VA 235 west of the traffic circle were obtained from VDOT. Figure 8 summarizes the historical ADT and turning movement count data obtained from VDOT and the NPS.

2.2.5.2 New Traffic Counts

To determine current traffic demand in the Mount Vernon area, a series of daily counts on GWMP and VA 235 and intersection turning movement counts were performed in May 2002. Daily traffic volume counts were performed for both weekday and weekend conditions for five consecutive days. Intersection turning movement counts were performed during weekday AM, weekday PM, and weekend, midday peak hour conditions. Figure 9 summarizes the current 2002 traffic count data.

The traffic counts show a heavy peaking characteristic during the traditional weekday morning and evening commuting peak periods of 7:00 to 9:00 AM and 4:00 to 6:00 PM. Weekend traffic has a less defined peak with the highest traffic volumes occurring between 1:30 and 2:30 PM.

2.2.6 *Operational Analysis*

To analyze the traffic operations characteristics of the Mount Vernon Circle and adjacent roadways, a traffic operations and simulation model was constructed in Synchro 5.0 and SimTraffic. Traffic volume data and roadway/intersection geometry obtained in May 2002 was input into the Synchro network to perform capacity analyses for existing weekday AM, weekday PM, and weekend midday peak hour conditions. The Highway Capacity Manual (TRB Special Report 209, 2000) control delay methodologies were used in reporting the results.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time duration. Capacity is combined with Level-of-Service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist

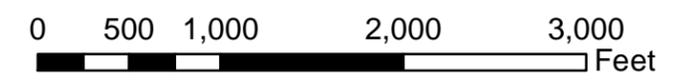
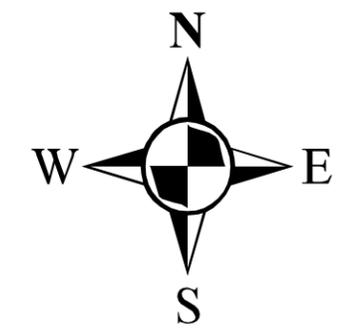
perceptions within a traffic stream. The Highway Capacity Manual defines six levels of services, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. Capacity analyses were performed for the intersections of VA 235 at VA 235, VA 235 at the parking lot access, Mount Vernon Circle at the parking lot access, and GWMP at the exits from the parking lots.

**Figure 7.
Traffic Count Locations**



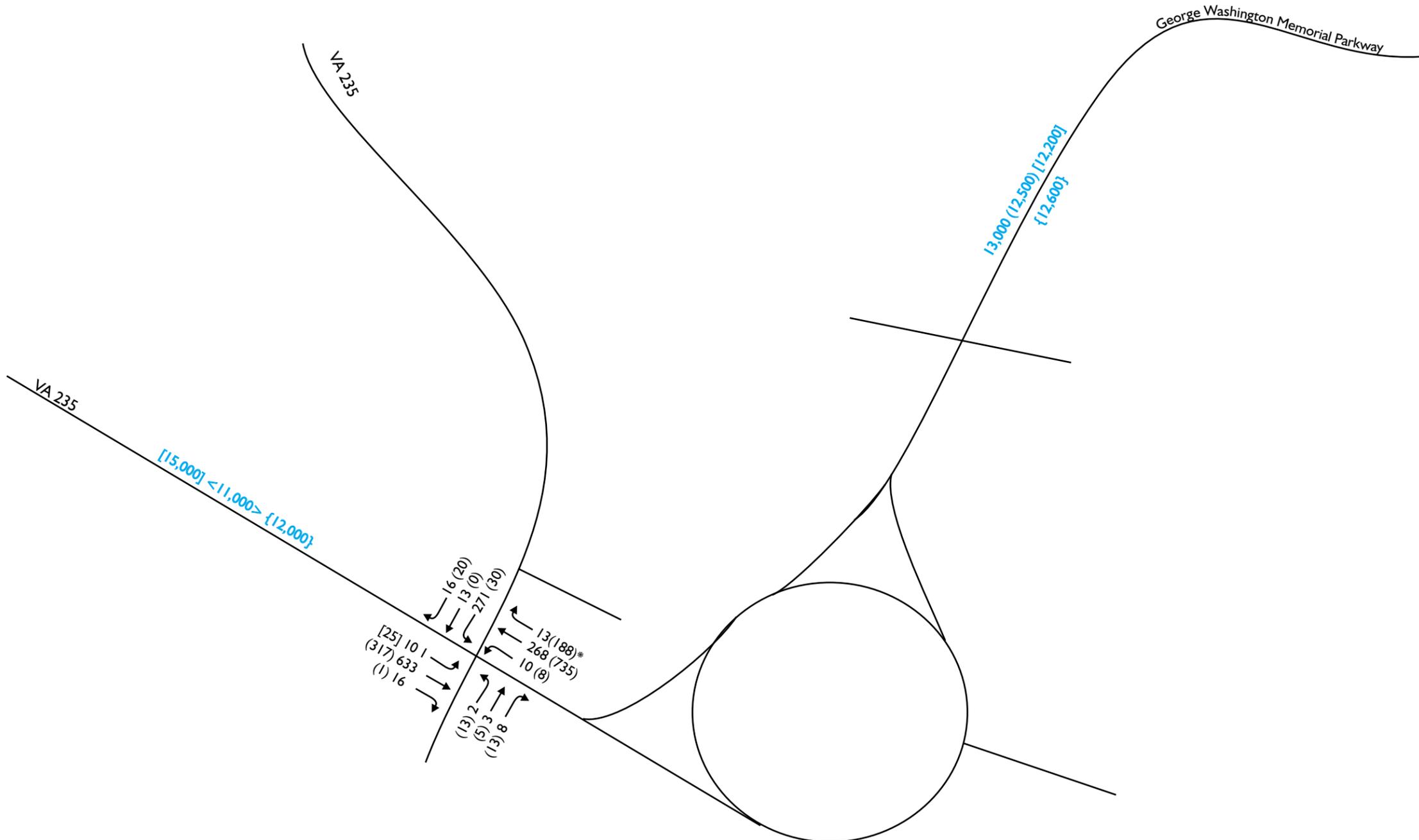
Legend

-  Tube Count
-  Turning Movement Count
-  General Study Area



Source: USGS, 2002

Figure 8.
Historic Average Daily Traffic
and Turning Movement Counts



Legend

- XX AM Peak Hour Turning Movement Volume
- (XX) PM Peak Hour Turning Movement Volume
- XX 1994 ADT Volume
- (XX) 1995 ADT Volume
- [XX] 1996 ADT Volume
- <XX> 1997 ADT Volume
- {XX} 1998 ADT Volume
- 55 1999 ADT Volume
- 77 2000 ADT Volume

*Turning Movement Count
Data Collected 4/18/2000

Figure 9.
Current 2002 Traffic
Count Data

Legend

XX= Weekday AM Peak Hour
(XX)= Weekday PM Peak Hour
[XX]= Weekday Peak Hour

XX= Saturday (5/11/02)

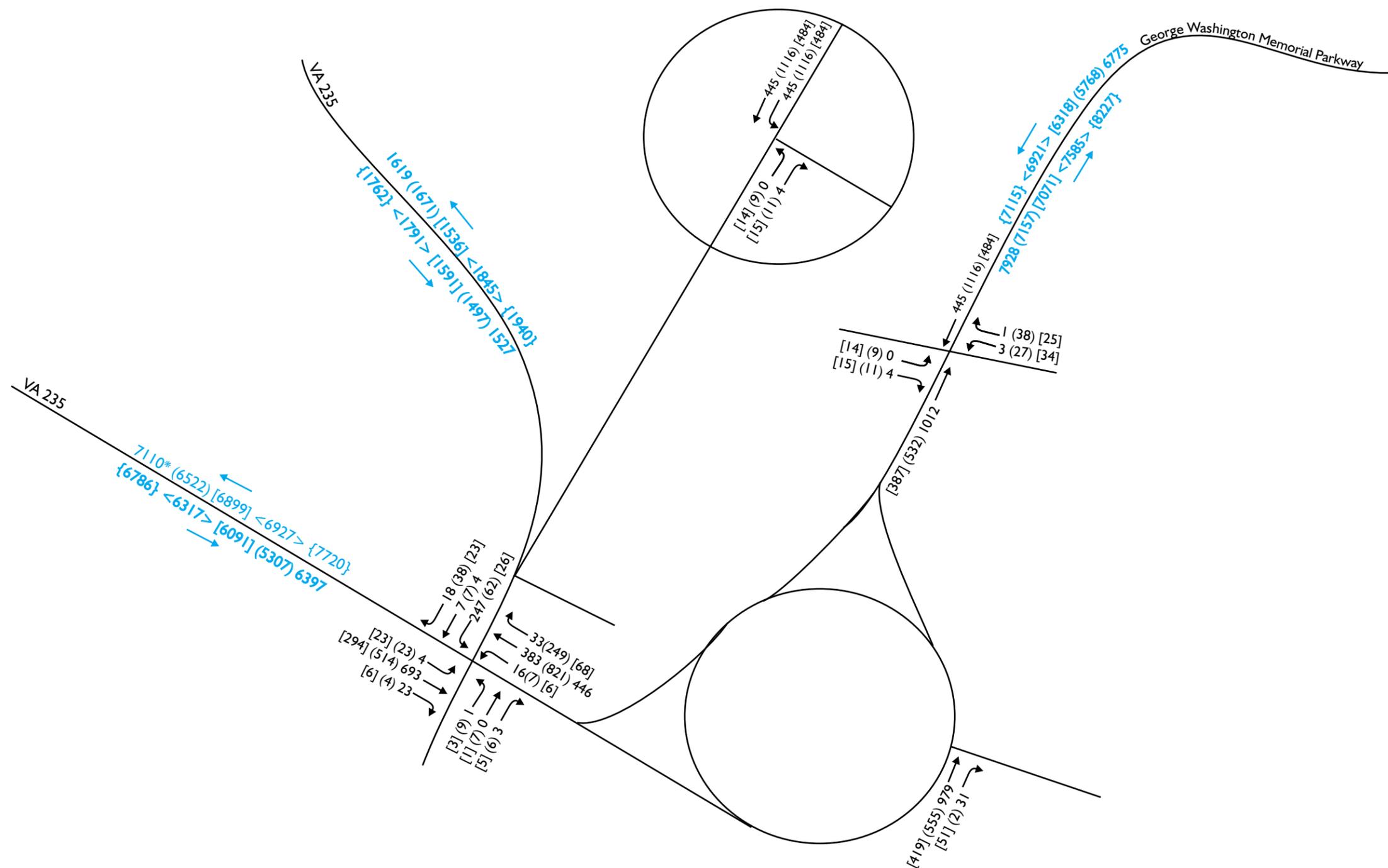
(XX)= Sunday (5/12/02)

[XX]= Monday (5/13/02)

<XX> = Tuesday (5/14/02)

{XX}= Wednesday (5/15/02)

*Friday (5/17/02)



2.2.6.1 Intersection of VA 235 and VA 235

The intersection of VA 235 and VA 235 located west of the traffic circle currently operates as a four-way stop controlled intersection. During the weekday AM peak hour, when heavy commuter traffic is passing through the intersection traveling toward Alexandria, Arlington, and Washington DC, the intersection operates at LOS F with long queues likely forming as each vehicle stops at the intersection. Likewise, in the weekday PM peak hour, when commuter traffic is returning home, the intersection again operates at LOS F, with long queues forming particularly on the westbound approach, where the SimTraffic model shows queues reaching back beyond the northern entrance to the traffic circle on GWMP. During the weekend midday peak hour, the intersection currently operates at LOS D, with long delays experienced on the westbound approach from the traffic circle.

Table 3 summarizes the LOS and average delay at the intersection of VA 235 and VA 235 for existing 2002 conditions.

Table 3 Intersection of VA 235 and VA 235 (4-Way Stop)			
Movement/Approach Lane	LOS (Delay, sec)		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekend Midday Peak Hour
Northbound Driveway; left-through-right	E (37.2)	B (10.5)	A (9.2)
Southbound VA 235; left-through-right	C (18.5)	B (11.6)	A (9.7)
Eastbound VA 235; left-through-right	F (159.8)	E (35.3)	B (12.7)
Westbound GWMP; left-through	E (39.5)	F (425.6)	E (49.8)
Westbound GWMP; right	A (8.8)	C (16.1)	A (9.0)
Overall	F (95.4)	F (215.8)	D (30.7)

Source; Kimley-Horn and Associates, Inc., 2002

2.2.6.2 Intersection of VA 235 and Parking Lot Access

The intersection of VA 235 and the parking lot access located north of the intersection of VA 235 and VA 235 currently operates as an unsignalized intersection with traffic restricted to vehicles turning in to the parking area only. However, during the traffic counts, occasional vehicles

illegally exiting the parking area were observed. Due to the restriction of traffic at this intersection, little or no delay is experienced during any of the three peak periods analyzed.

2.2.6.3 Intersection of Mount Vernon Circle and Parking Lot Access

The intersection of the Mount Vernon traffic circle and the parking lot access located in the southeast quadrant of the circle currently operates as an unsignalized intersection with traffic restricted to traffic traveling counterclockwise around the circle or entering the parking area. Due to the lack of conflicting traffic movements at this intersection, little or no delay is experienced during any of the three peak periods analyzed.

2.2.6.4 Intersection of George Washington Memorial Parkway and Parking Lot Exits

The intersection of the GWMP and the parking lot exits, located northeast of the traffic circle, currently operates as a two-way stop controlled intersection. During the weekday AM peak hour, little traffic exits the parking areas, however, the vehicles that do exit, particularly left-turning vehicles, experience moderate to long delays, whereas traffic on GWMP passes nearly unimpeded, resulting in an overall LOS A for the intersection.

During the weekday PM peak hour, traffic traveling on GWMP experiences little or no delay at this intersection, however, queues from the downstream intersection of VA 235 and VA 235 were shown in the SimTraffic simulation to approach the intersection of GWMP and the parking lot exits, which would delay traffic. Traffic exiting the parking areas was found to experience long delays due to the high volume of through traffic on GWMP at the intersection.

During weekend midday peak hour conditions, traffic on GWMP passes through the intersection with little or no delay while traffic exiting the parking areas experiences moderate delays

Table 4 summarizes the LOS and average delay at the intersection of GWMP and the parking lot exits for existing 2002 conditions.

Table 4 Intersection of George Washington Memorial Parkway and Parking Lot Exits (Unsignalized)			
Movement/Approach Lane	LOS (Delay, sec)		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekend Midday Peak Hour
Northbound GWMP; through traffic	A (0.0)	A (0.0)	A (0.0)
Southbound GWMP; through traffic	A (0.0)	A (0.0)	A (0.0)
Eastbound parking lot exit; left-right	B (11.2)	F (55.6)	C (17.5)
Westbound parking lot exit; left-right	E (41.2)	F (70.0)	C (19.4)

Source; Kimley-Horn and Associates, Inc., 2002

2.2.6.5 Mount Vernon Circle

Traffic using the Mount Vernon Circle, as previously discussed, experiences delays during the weekday PM peak hour experiences delays due to the queuing of traffic from the intersection of VA 235 and VA 235. Additionally, traffic using the circle is further delayed during times of peak visitation to the Mount Vernon Estate and Gardens by vehicles mounting the curb to park in the center of the traffic circle and by vehicles reentering the roadway from parking inside the circle.

2.2.7 Accident Information

Traffic accident data has been obtained for the roadways and intersections in the Mount Vernon Circle study area from VDOT and the NPS for 1997 through 2001. During that period a total of 66 accidents occurred in or near the study area. Accidents predominantly involved property damage only (PDO), however, one fatal accident, and 13 injury accidents did occur. 64% of the recorded accidents occurred during daylight hours, 24% occurred at night, and 12% occurred during either dawn or dusk conditions.

Weather and pavement conditions were not specified for the vast majority of the accident data, nor was vehicle type or collision type. Likewise, many of the accident records did not specify the major contributing factor or cause of the accident, however, of the those with contributing factors listed, driver inattention, excessive speed, deer or other animals running out into the roadway, and driver intoxication were common causes.

Table 5 summarizes the accident history in the Mount Vernon vicinity by location from 1997 through 2001.

Table 5 Accidents By Location						
Location	1997	1998	1999	2000	2001	5-Year Total
Intersection of VA 235 and VA 235	5	2	4	2	5	18
Merge – Road From VA 235 & Mt Vernon Circle	2	1	0	0	0	3
Diverge – Mt Vernon Circle to NB GWMP	3	1	1	2	1	8
Merge – Mt Vernon Circle & SB GWMP	1	3	5	4	3	16
Diverge – NB GWMP at ramp to Memorial Bridge	0	0	0	0	1	1
Diverge – SB GWMP at ramp to Memorial Avenue	1	0	0	0	0	1
GWMP at bridge of Little Hunting Creek	2	1	2	1	2	8
Intersection of Ft. Myer Drive and ramp to NB GWMP	0	0	1	0	0	1
Intersection of GWMP and Vernon View Drive	0	0	0	1	0	1
Unspecified Location	0	2	2	1	4	9
Total Accidents	14	10	15	11	16	66

Source; Kimley-Horn and Associates, Inc., 2002

3.0 Environmental Conditions

3.1 Land Use

Mount Vernon is located in the Mount Vernon Community Planning Sector of Area IV of the Comprehensive Plan for Fairfax County. The land uses near Mount Vernon are mainly the private land, residential, public/government facilities, private open space, and public parks. Along the US 1 corridor, the land use is a mix of office space, high-density residential land uses, and lower density land uses. For the purposes of this report, only land uses within the study area and immediately adjacent to the study area are considered. These land uses are:

- Private recreation
- Residential
- Public/government facilities
- Private open space
- Public parks

3.1.1 Private Recreation

Most of the land within the study area is classified as Private Recreation. This land consists entirely of the Mount Vernon Estates and Gardens grounds, including easements from the National Park Service. Figure 10 shows the location of the community facilities and trails.

3.1.2 Residential

Residential land uses are located in the northern and western portions of the study area as well as immediately adjacent to the northern, southern, and southwestern portions of the study area. These particular residential areas are zoned for low density residential development with two to three dwelling units per acre. Neighborhoods within this area consist of Sulgrave Manor, Westgate, Surrey at the Potomac, Wessynton, and Mount Vernon Forest.

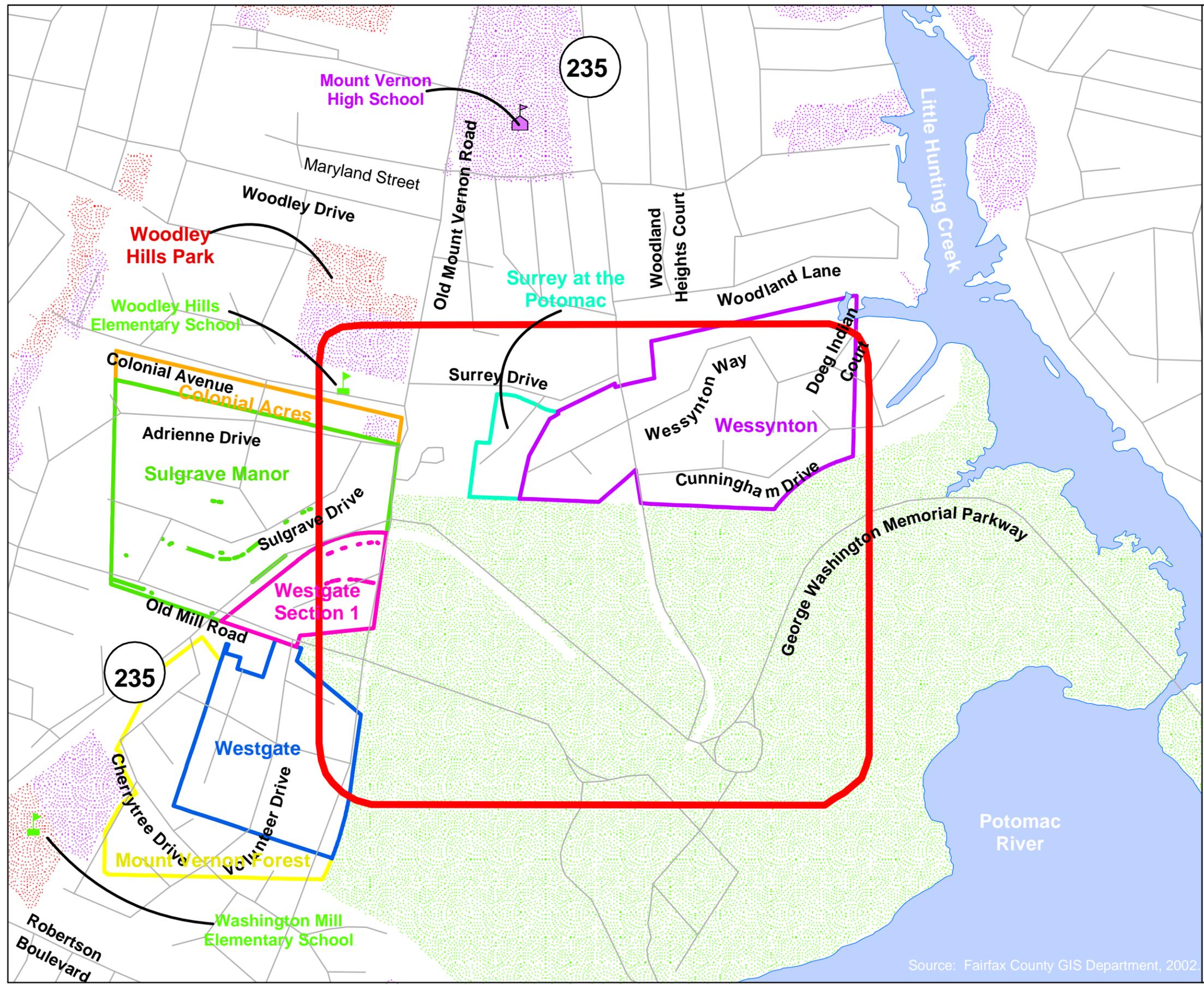
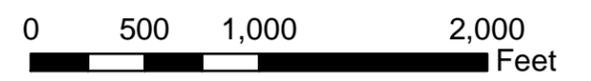
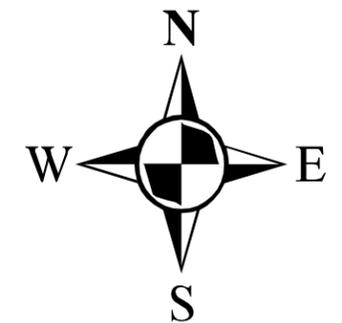
3.1.3 Public and Government Facilities

Two elementary schools are located within or adjacent to the study area. Woodley Hills Elementary School, is located in the northwestern corner of the study area on Old Mount Vernon Road. Washington Elementary School, is located southwest of the study area on Cherrytree Drive (see Figure 10). A post office serving the Mount Vernon community is located in the VA Rte. 235 Parking Lot. Figure 10 shows the location of the public and government facilities.

**Figure 10.
Community Facilities and Trails**

Legend

-  Elementary Schools
-  High Schools
-  Middle Schools
-  Streets
-  General Study Area
-  Parks Managed by Public School System
-  Fairfax County Parks Authority Parks
-  Parks Managed by Others (Mount Vernon/NPS)
-  Colonial Acres Subdivision
-  Mount Vernon Forest Subdivision
-  Sulgrave Manor Subdivision
-  Surrey at the Potomac Subdivision
-  Wessynton Subdivision
-  Westgate Subdivision
-  Westgate Section 1 Subdivision
-  Water



Source: Fairfax County GIS Department, 2002.

3.1.4 Private Open Space

Private open space is located both within and adjacent to the study area. Within the study area the open space is located in the northeastern corridor. The open space outside the study area is on the southwestern edge of Mount Vernon.

3.1.5 Public Parks

Two public parks are located either within or adjacent to the study area. Parkland associated with the GWMP is located in the northeastern corner of the study area. The other park is managed by the Fairfax County Parks Authority and is north of Woodley Hills Elementary School (see Figure 10). In addition, parks managed by Fairfax County Schools exist near all of the schools near the study area.

3.1.6 Trails

[This section will be completed once data has been received from Fairfax County. A reference to the section on the Mount Vernon trail will be completed.]

3.1.7 Future Land Use

The Fairfax County Future Land Use map shows the area surrounding Mount Vernon to maintain its current land use structure. Most of the area will be low-density residential development with private recreational uses being maintained around Mount Vernon and public park uses being maintained at the southern end of the GWMP.

3.2 Socioeconomic Features

To determine the demographic characteristics of the Mount Vernon area and the surrounding areas, Census 2000 data were analyzed. Figure 11 shows the location of the Census 2000 Tracts, Block Groups, and Blocks in the vicinity of Mount Vernon.

3.2.1 Demographics

To determine the demographic characteristics of the Census study area, Census 2000 data were used. The following sections discuss the age and minority characteristics of the Census study area.

3.2.1.1 Age Characteristics

Table 6 shows the age distribution for the different Census 2000 Block Groups within the area surrounding Mount Vernon.

As shown in Table 6, children from the ages of five to 17 as well as adults from the ages of 50 to 64 have the highest age distributions of 18.53 percent and 18.04 percent, respectively. The lowest age concentrations were adults from the ages of 18 to 24 (3.49 percent) and adults from the ages of 22 to 29 (8.68 percent). The table also shows the minimum and maximum age distributions. The average median age of the population living in the Census study area is 38.5 years. The minimum median age is 29.4 years while the maximum median age is 48.7 years.

One element of demographics to consider is the demographic segment of the population aged 65 years and older. People who are 65 years and older are typically settled and Figure 12 shows the distribution of the population who are 65 years old and over within the Census study area. Most Census study areas contain populations that have less than 25 percent of the population as age 65 and over. Within the Census study area, high concentrations of population over the age of 65 are located in isolated pockets just north of Little Hunting Creek (100 percent), just south of Hinson Farm Road (58.3 percent), and off of Robertson Boulevard (75.0 percent).

3.2.1.2 Minority Populations

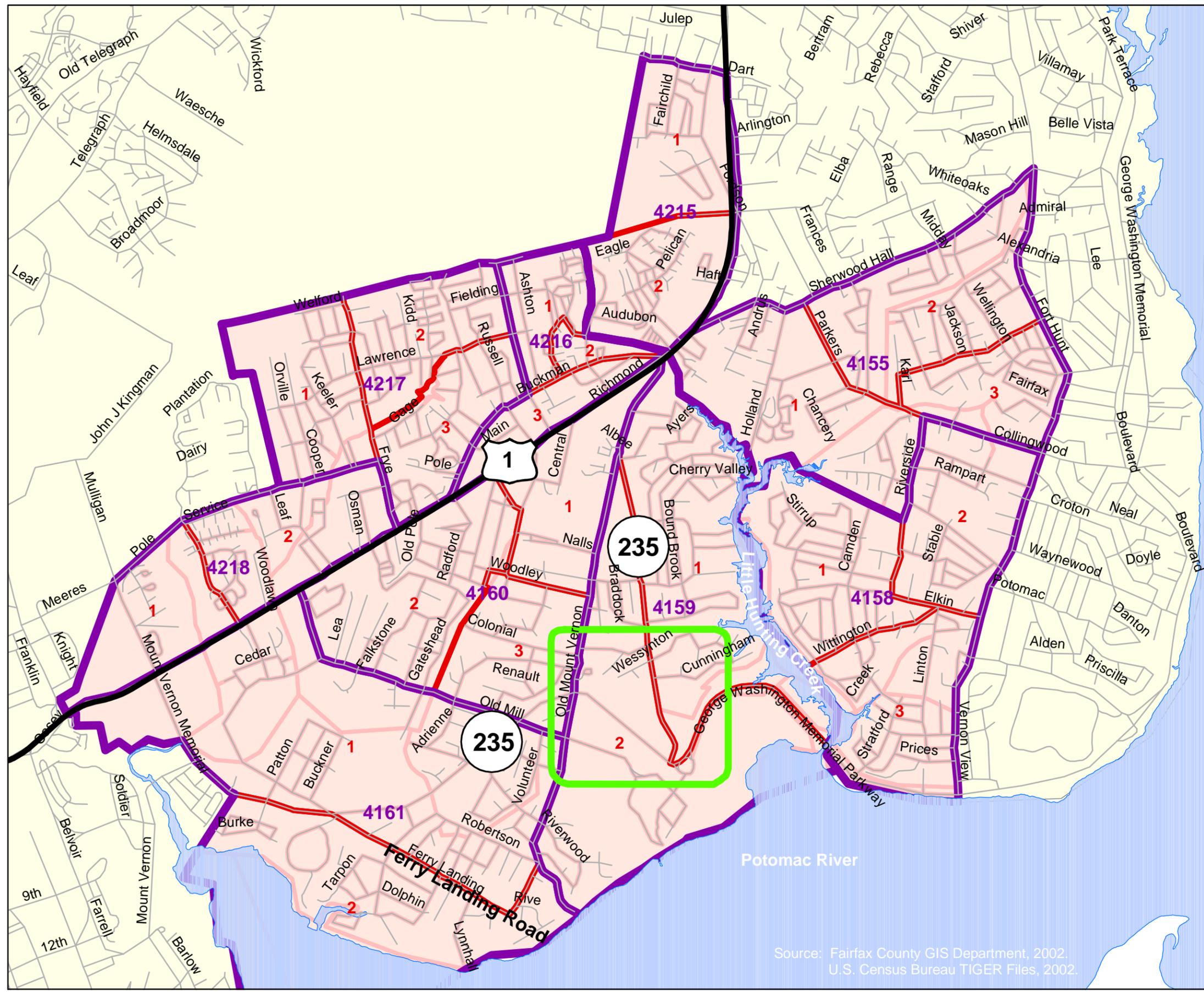
Minority populations are one element of Environmental Justice (EJ) considerations. The Census Bureau defines minorities as any race that is not white, including African-American, Asian, Native American or Alaskan, Pacific Islanders or Hawaiians, other unspecified races, or people who consider themselves to be two or more races.²⁰ The minority concentrations within the census study area were analyzed to determine the location of high minority populations. Figure 13 shows the results of this analysis. Minority population within the study area are less than 20 percent.

3.2.2 Economics

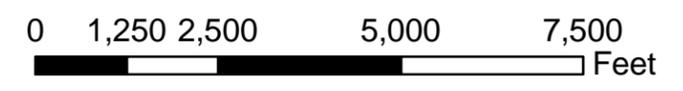
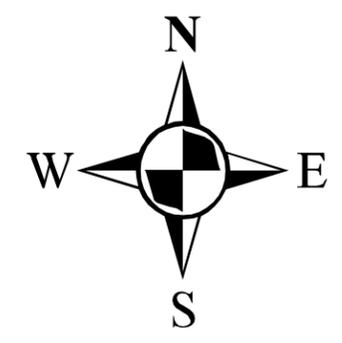
To understand Fairfax County and the study area from an economic viewpoint, several economic factors were examined. The Mount Vernon Planning District, was compared to Fairfax County as a whole, the Commonwealth of Virginia, and the United States. Table 7 compares this data.

²⁰ US Census Bureau, 2002.

**Figure 11.
Census Study Area**



- Legend**
- Streets
 - Major Roads
 - General Study Area
 - Water
 - Census 2000 Tracts
 - Census 2000 Block Groups
 - Census 2000 Blocks
 - Fairfax County
 - 4155** Census Tract Number
 - 2** Census Block Group Number



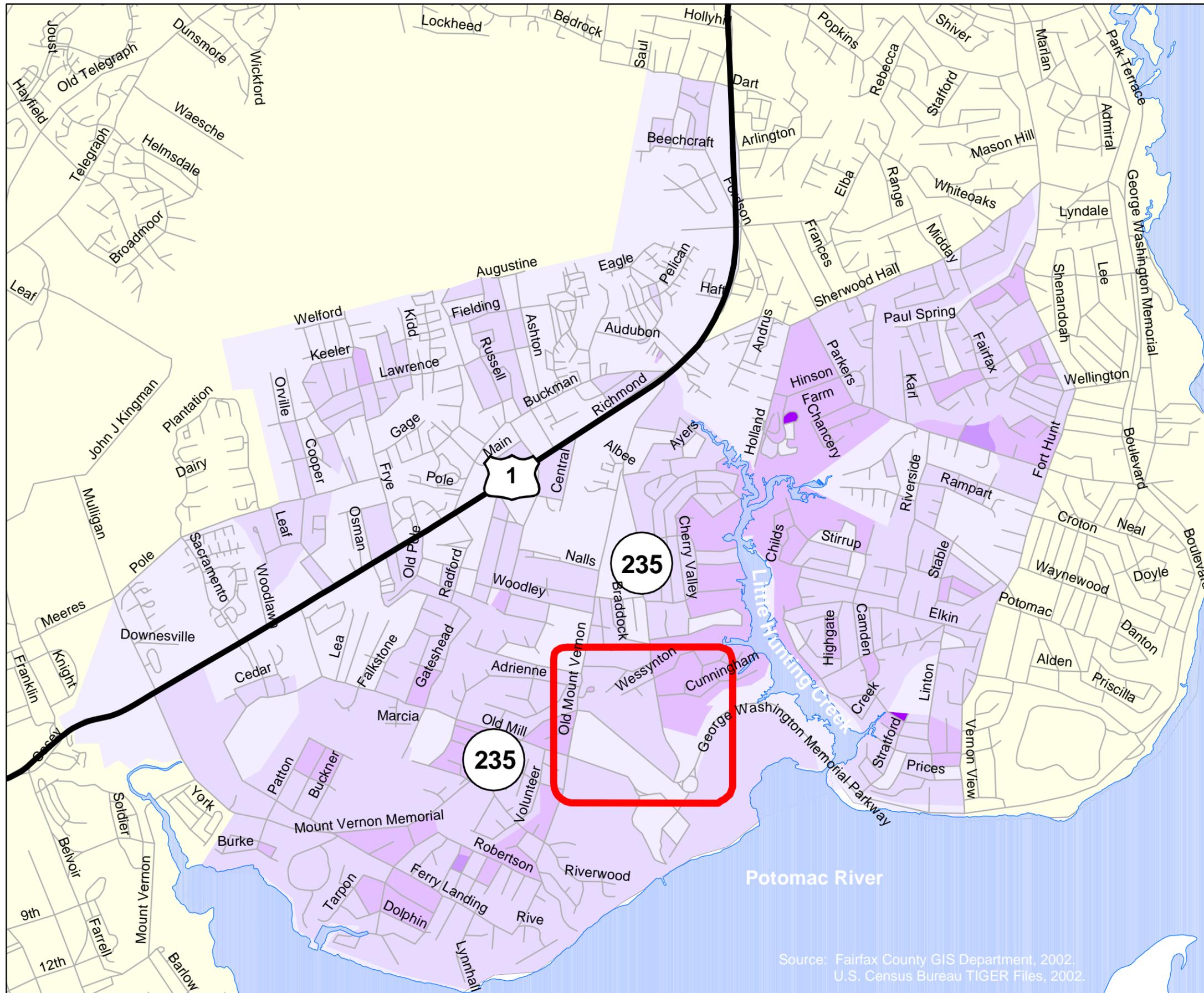
Source: Fairfax County GIS Department, 2002.
U.S. Census Bureau TIGER Files, 2002.

**Table 6
Age Distribution**

Census 2000 Tract	Census 2000 Block Group	Under 5	Age 5-17	Age 18-21	Age 22-29	Age 30-39	Age 40-49	Age 50-64	Age 65 and Over	Median Age
4155	1	7.60%	21.99%	4.33%	5.42%	12.96%	14.70%	17.29%	15.70%	38.2
	2	6.83%	15.01%	1.29%	4.24%	14.51%	18.70%	21.03%	18.39%	44.2
	3	5.95%	14.43%	0.77%	4.41%	14.32%	18.83%	18.28%	23.02%	44.5
4158	1	6.27%	17.32%	1.91%	2.87%	12.31%	17.74%	21.39%	20.19%	45.5
	2	8.48%	21.26%	1.39%	2.25%	13.64%	21.13%	18.08%	13.77%	41.2
	3	5.92%	16.80%	1.92%	4.16%	11.28%	17.36%	26.40%	16.16%	45.8
4159	1	5.34%	17.40%	2.04%	3.85%	10.90%	17.91%	21.81%	20.74%	45.8
	2	5.01%	16.95%	3.19%	3.75%	10.13%	15.36%	30.38%	15.24%	47.6
4160	1	8.70%	19.24%	3.26%	10.98%	16.41%	18.91%	16.09%	6.41%	35.0
	2	7.64%	16.75%	3.78%	10.59%	16.79%	16.01%	18.68%	9.77%	37.2
	3	5.66%	16.99%	2.07%	6.49%	13.67%	16.85%	19.20%	19.06%	42.4
4161	1	5.26%	15.56%	2.70%	4.02%	11.49%	17.73%	24.09%	19.14%	46.0
	2	4.42%	17.43%	1.92%	3.09%	9.51%	16.43%	28.36%	18.85%	48.7
4215	1	7.31%	15.49%	4.61%	11.91%	20.02%	14.77%	15.81%	10.09%	35.0
	2	9.19%	23.42%	5.73%	12.77%	18.52%	13.18%	11.96%	5.23%	29.4
4216	1	7.33%	25.41%	5.90%	12.23%	17.74%	14.79%	12.79%	3.82%	29.6
	2	11.68%	20.16%	6.09%	13.34%	19.93%	16.83%	9.75%	2.21%	29.4
	3	8.77%	19.21%	5.15%	15.38%	19.90%	18.09%	8.91%	4.59%	30.5
4217	1	5.81%	20.39%	4.45%	7.75%	13.57%	16.65%	22.83%	8.54%	39.1
	2	5.88%	21.55%	4.04%	8.42%	15.21%	17.17%	18.47%	9.25%	37.1
	3	9.27%	20.52%	5.08%	14.13%	18.45%	17.25%	11.10%	4.20%	30.5
4218	1	6.86%	13.72%	3.65%	23.38%	21.70%	17.59%	10.17%	2.92%	30.7
	2	7.57%	19.15%	5.06%	14.31%	19.00%	17.71%	11.98%	5.23%	32.4
Average		7.08%	18.53%	3.49%	8.68%	15.30%	17.03%	18.04%	11.85%	38.5
Minimum		4.42%	13.72%	0.77%	2.25%	9.51%	13.18%	8.91%	2.21%	29.4
Maximum		11.68%	25.41%	6.09%	23.38%	21.70%	21.13%	30.38%	23.02%	48.7

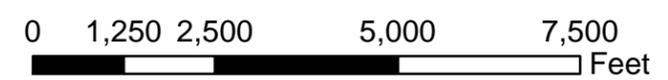
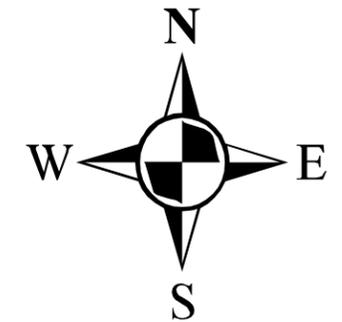
Source: U.S. Census Bureau Summary File 1,100% Data, 2002.

Figure 12.
Percent People 65 and Over



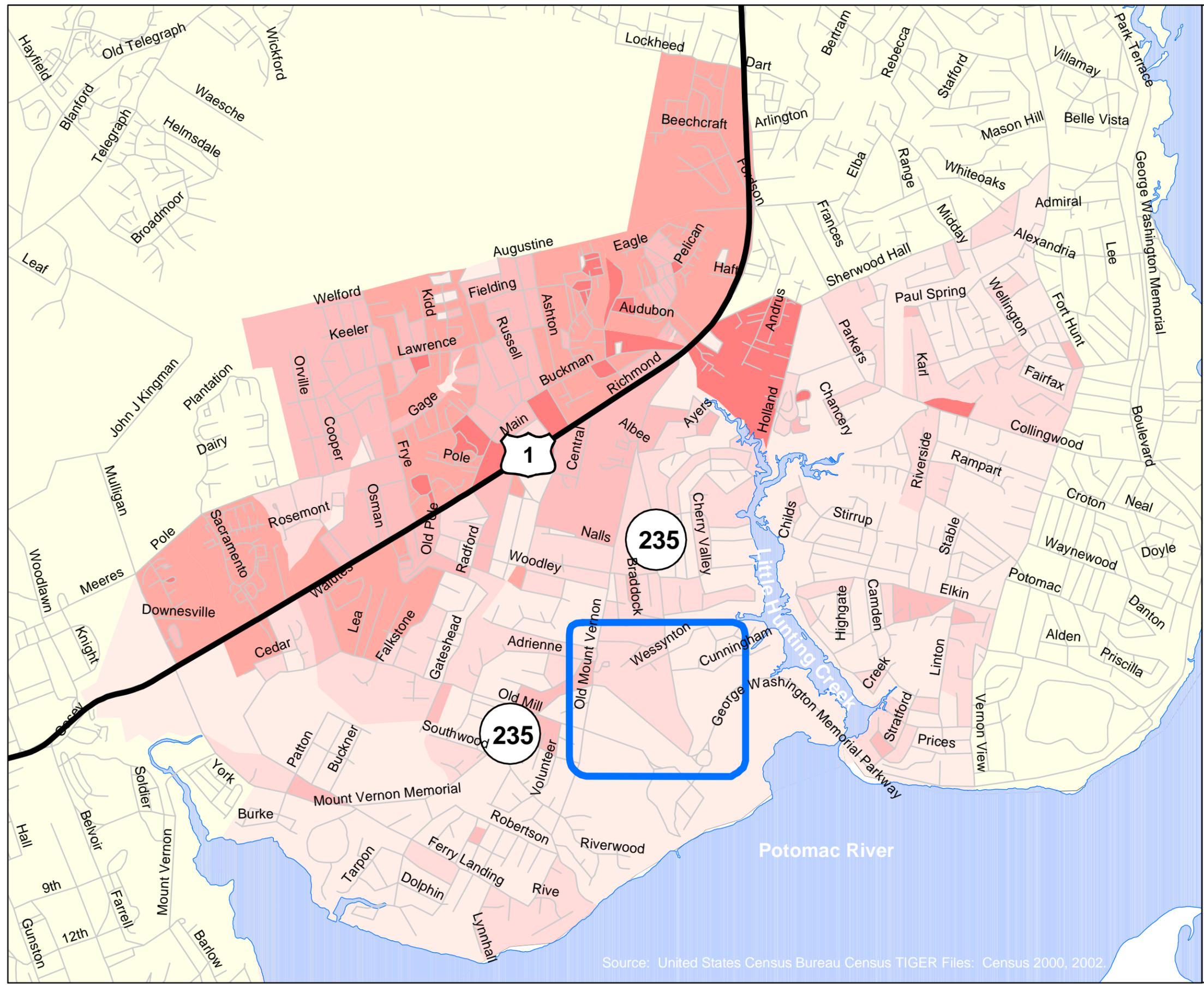
Legend

- Major Roads
- Streets
- General Study Area
- < 5%
- 5.1% - 25%
- 25.1% - 50%
- 50.1% - 75%
- > 75%
- Fairfax County
- Water

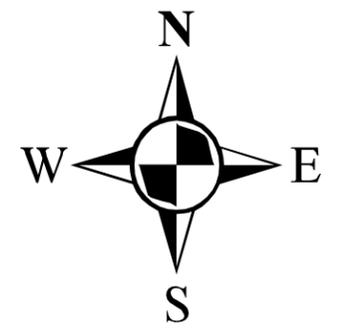


Source: Fairfax County GIS Department, 2002.
U.S. Census Bureau TIGER Files, 2002.

**Figure 13.
Percent Minority Population**



- Legend**
- Major Roads
 - Streets
 - General Study Area
 - Less than 10%
 - 11% to 20%
 - 21% to 50%
 - 51% to 75%
 - Greater than 76%
 - Fairfax County
 - Water



Source: United States Census Bureau Census TIGER Files: Census 2000, 2002.

Table 7 Economic Characteristics			
Location	Median Household Income[†]	Per Capita Income[†]	Percent Below Poverty Level[†]
Mount Vernon Planning District	\$53,000	Not Available	5.8%
Fairfax County	\$82,036	\$36,863	5.7%
Commonwealth of Virginia	\$46,889	\$24,215	9.6%
United States	\$41,433	\$21,690	12.5%
[†] For Fairfax County, Commonwealth of Virginia, and the United States, the Estimates from the Census 2000 Supplementary Profile were used.			

Sources: 2000 Fairfax-Falls Church Community Assessment, 2001.

Fairfax County Department of Systems Management for Human Services, 2002.

Fairfax County Economic Development Authority, 2002.

U.S. Census Bureau Census Supplementary Profile, 2002.

As shown in the table, the median household income in Fairfax County is higher than the median household income for the United States, Virginia, and the Mount Vernon Planning District. In addition, Fairfax County has the highest per capita income and lowest percent of the population living below the poverty level. For the Mount Vernon Planning District, the percent of the population living below the poverty level is slightly higher than that for Fairfax County.

Table 8 shows the unemployment rates for Fairfax County, Virginia, and the United States.

Table 8 Unemployment Rates: 1996 – 2000					
Area	Percent Unemployed[†]				
	1996	1997	1998	1999	2000
Fairfax County	2.7%	2.3%	1.6%	1.6%	1.2%
Commonwealth of Virginia	4.4%	4.0%	2.9%	2.8%	2.2%
United States	5.4%	4.9%	4.5%	4.2%	4.0%
[†] Not seasonally adjusted.					

Source: Virginia's Electronic Labor Market Access (VELMA), Virginia Employment Commission, 2002.

As shown from the table above, the Commonwealth of Virginia has had an unemployment rate that is less than that of the United States for the five years reviewed. Fairfax County has had an unemployment rate that is less than that of Virginia. On the whole, Fairfax County is an economically thriving area of Virginia.

3.3 Cultural Resources

3.3.1 Archaeological Resources

A review of the site files at VDHR indicates that a number of archaeological sites have been recorded within the study area. All of these, however are recorded within the National Register boundaries of Mount Vernon. These sites are listed in Table 9.

Table 9 Archaeological Sites Recorded in the Study Area	
Site Number	Component
44FX98	Prehistoric; possible campsite
44FX99	Prehistoric
44FX100	Prehistoric
44FX102	Prehistoric
44FX103	Prehistoric; possible quarry
44FX104	Prehistoric; possible quarry
44FX105	Woodland
44FX106	Possibly Archaic and Woodland
44FX107	Prehistoric
44FX108	Presumably Woodland; possibly isolated camp
44FX109	Prehistoric
44FX116	Possibly Archaic and Woodland, Slave Cemetery
44FX762	Late Archaic, Early, Middle, and Late Woodland, Euro-American, African-American, 18th Century Domestic Site, First half of Nineteenth Century
44FX794	19th Century Euro Americans; Domestic
44FX795	Prehistoric; seasonal base camp
44FX796	Prehistoric, 18th Century Brick Kiln
44FX797	Prehistoric; seasonal base camp, 20th Century Euro-American
44FX798	19th Century Euro-American Dwelling
44FX799	Prehistoric; seasonal base camp
44FX800	Prehistoric; seasonal base camp, 20th Century Euro-American dwelling
44FX801	Prehistoric; seasonal base camp, 18th Century Euro-American dwelling
44FX802	Prehistoric; seasonal base camp

Table 9 Archaeological Sites Recorded in the Study Area	
Site Number	Component
44FX803	Prehistoric, 18th Century Euro-American
44FX804	19th Century Euro Americans
44FX805	Prehistoric, 19th Century Euro-American
44FX806	18th/19th Century Euro-American
44FX818	Prehistoric
44FX819	Prehistoric, 18th Century Euro-American

Source: Carolina Coastal Resources, 2002.

None of these sites currently have recommendations, however, the eighteenth century sites would be associated with Washington's residency at Mount Vernon, and would be contributing resources to the Mount Vernon National Register Historic District.

Since the area outside of Mount Vernon is heavily developed, it is unlikely that significant archaeological sites would survive.

3.3.2 Historic Resources

3.3.2.1 Mount Vernon

Originally comprising around 8,000 acres, Mount Vernon is undoubtedly the most well known house in the United States. George Washington inherited the plantation in 1754 after the death of his half-brother, Lawrence, and it remained his home for the rest of his life (Melvin 1972). Washington converted the simple farmhouse, built by his father, into the mansion that it is today (Loth 1999). Washington oversaw every aspect of the estate from the architecture of the mansion, to the decoration of the interior, to the planning of the outbuildings and the layout of the gardens.

The original plantation was divided into five different farms. Over the years after Washington's death in 1799, four of the farms were divided and subdivided, and only the Mansion House farm remains substantially intact (Melvin 1972). The property fell into decline after Washington's death, and in 1858, approximately 200 acres of the original farm was acquired by the Mount Vernon Ladies Association organized by Ann Pamela Cunningham (Loth 1999). The Association

has expanded their holdings and continues to maintain the “meticulously restored complex in its matchless Potomac River setting as a shrine to the father of our country” (Loth 1999:159).

Mount Vernon is listed on the National Register of Historic Places, the Virginia Landmarks Register, and is a National Historic Landmark (Melvin 1972, Loth 1999). The National Register boundaries include 420 acres (Figure 14) consisting of three tracts noted on the National Register nomination as (Melvin 1972):

- Approximately 300 acres are located south of Mount Vernon Memorial Highway and east of Route 623
- Approximately 80 acres are located north of Mount Vernon Memorial Highway. Route 235, running in a north-south direction, runs almost through the center of this acreage
- Approximately 41 acres are located northeast of Mount Vernon Memorial Highway and adjoins Hunting Creek
- The Department of the Interior has a scenic easement on some 10 acres of land located due north of and adjacent to the traffic circle at the main visitors entrance to the Mount Vernon Estate

3.3.2.2 Mount Vernon Memorial Parkway, Portion of George Washington Memorial Parkway

The Mount Vernon Memorial Parkway is the southern portion of the George Washington Memorial Parkway. The parkway opened in 1932, and was the first parkway built by the U.S. government (Loth 1999). The parkway links the southwestern end of the Arlington Memorial Bridge on Columbia Island, Washington D.C. with Mount Vernon (Mackintosh 1980). The route roughly parallels the Potomac River and was designed and landscaped to “maximize scenic, esthetic, and commemorative qualities” (Mackintosh 1980:2). It retains much on its intended character.

The Fairfax County section, from Mount Vernon to Hunting Creek, is the least altered portion of the highway. It features distinctive stone-faced arch bridges and retains much of its original concrete slab construction. The parkway is four lanes wide with occasional planted median dividers. A landscaped traffic circle is located at the Mount Vernon terminus. Flanking parking areas are screened with vegetation in accordance with the original design (Mackintosh 1980).

Planning for the highway began in 1887 with the formation of the Mount Vernon Avenue Association chartered by the Commonwealth of Virginia. Several routes were surveyed by Lt. Col. Peter Hains of the U.S. Army Corps of Engineers. Hains’s report, submitted in 1890 noted that the road “. . . would not be such as built for ordinary traffic. It should have the character of a

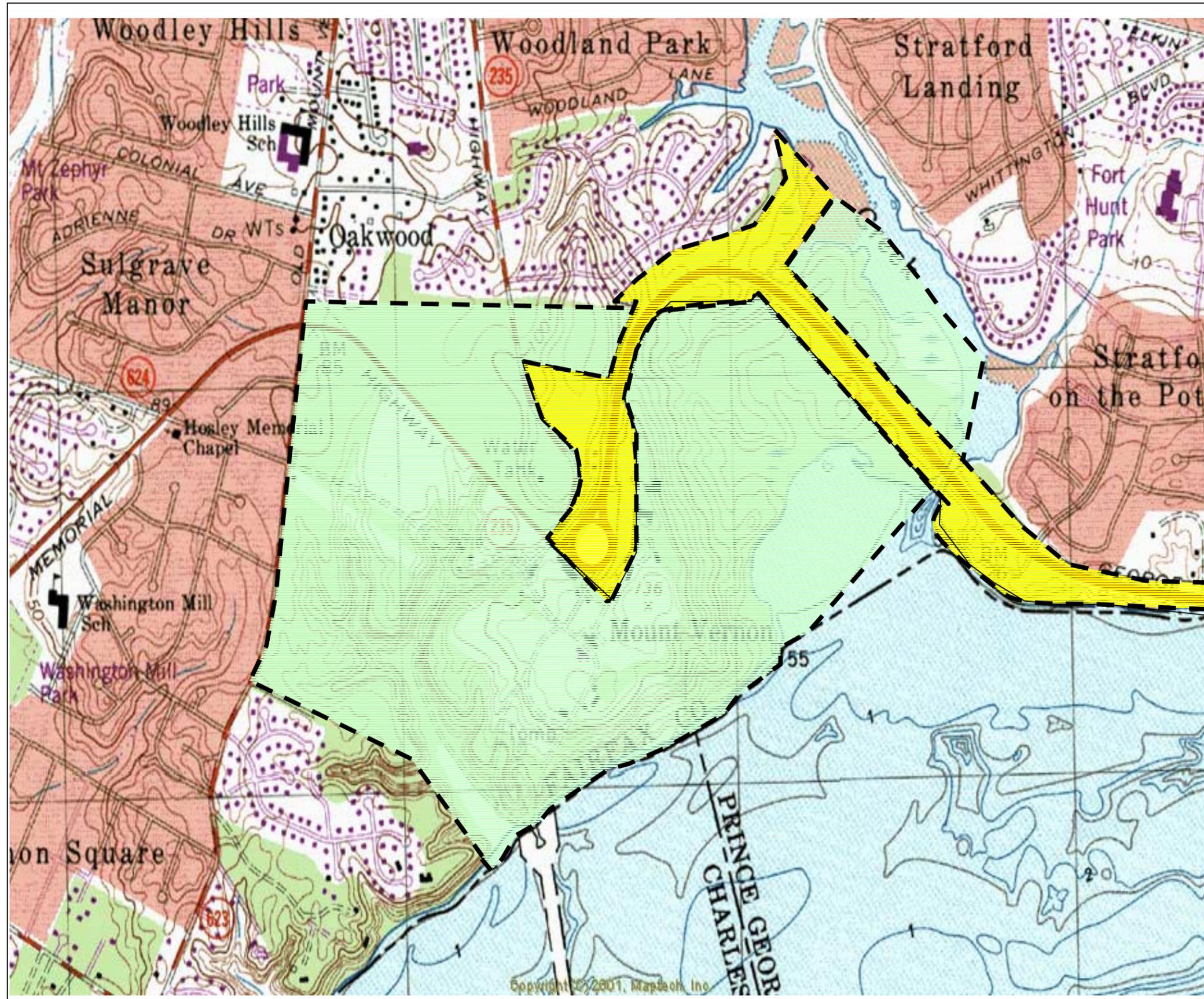
monumental structure, such as would comport with the dignity of this great nation in such an undertaking, and the grandeur of character of the man to whom it is dedicated. . . . The grades should be light, the alignment in graceful curves, and it should pass over some of the high grounds from which the beautiful scenery along the route could be enjoyed.” (Mackintosh 1980:3).

The Mount Vernon Memorial Parkway is listed on the National Register of Historic Places and the Virginia Landmarks Register (Loth 1999). The boundary of the parkway within the study area is shown on Figure 14.

3.3.2.3 Study Area Architecture

With the exception of the two National Register listed resources, Mount Vernon and the Mount Vernon Memorial Parkway (Figure 14), there are no additional previously recorded architectural resources within the study area. A review of the residential areas on the north and west sides of Mount Vernon reveals that the area is built up with suburbs dating no earlier than the 1970s. In addition to the older established suburbs, newer, and larger homes are being built on smaller in-fill tracts such as this one at Surry Court.

Only one resource within the study area appeared to predate 1952, the conventional cutoff for recording historic resources. This house at 3408 Wessynton Way appears from a distance to be an early twentieth century house. However, it is several blocks over from the Mount Vernon boundary, and there are intervening houses that would screen it from any roadway or parking lot improvements. It is doubtful that there would be an effect on this resource.



**Figure 14.
Historic Resources**

Legend

-  Mount Vernon Boundary
-  George Washington Memorial Parkway

■
Not to Scale



3.4 Natural Resources

3.4.1 Wetlands

To determine if potential wetlands exist within the study area, National Wetland Inventory (NWI) mapping was reviewed for the Mount Vernon United States Geological Survey (USGS) quad. The study area contains two pockets of potential wetlands (see Figure 15). The first potential wetland is located in the middle of the study area. This potential wetland (designated as #1 on Figure 15) is a palustrine wetland that has an unconsolidated bottom and is semi-permanently flooded. It has an area of 0.29-acre (12,449 ft²). The second wetland (designated as #2 on Figure 15) is located in the southeastern corner of the study area on the grounds of the Mt. Vernon Estate and Gardens. It also is a palustrine wetland with an unconsolidated bottom. However, this wetland is permanently flooded and is diked and impounded. The area of this wetland is 0.37 acre (16,239 ft²). The third wetland is located in the northeastern corner of the study area at the very edge of the study area. Other wetlands are located along the banks of Little Hunting Creek and Dogue Creek. These wetlands were identified by the NWI mapping only.

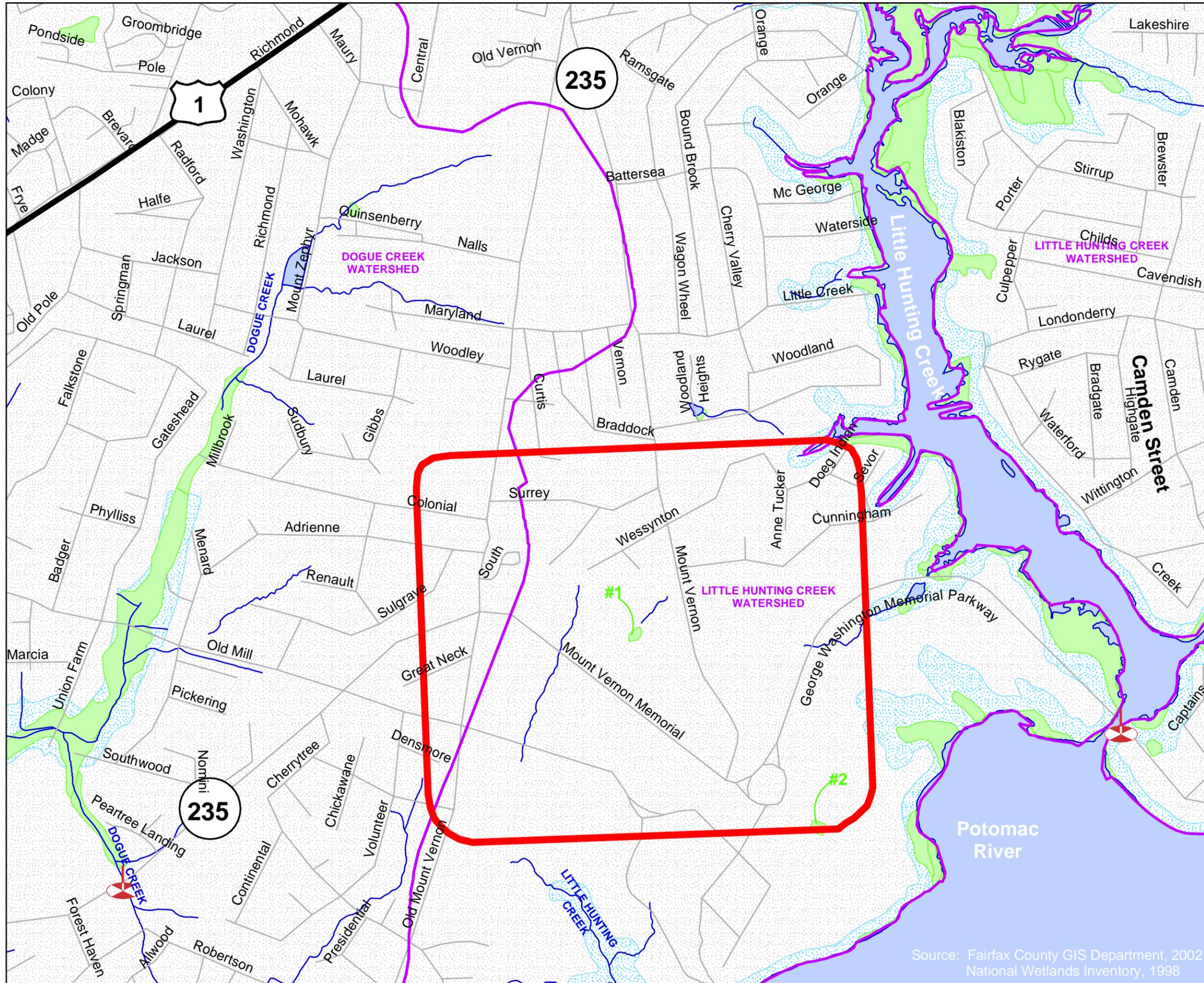
3.4.2 Floodplains

To determine whether the study area is within the 100-year floodplain, Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps (FIRM) were reviewed. FIRM Panels # 5155250136D, Fairfax County, Virginia, and #5155250138D, Fairfax County, Virginia show that only a very small portion of the 100-year floodplain exists at the edge of the study area along Doeg Indian Court, which is at the edge of Little Hunting Creek. The base flood elevation is approximately nine feet above mean sea level (MSL).

3.4.3 Water Resources

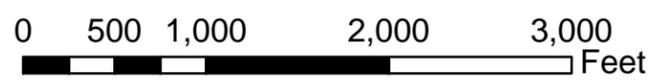
The study area has two streams adjacent to it. Dogue Creek is located west of the study area and Little Hunting Creek is located east of the study area. Both streams flow into the Potomac River. The Potomac River serves as the dividing line between Virginia, Maryland, and the District of Columbia. It eventually flows into the Chesapeake Bay. Mount Vernon is located on the shore of the Potomac River.

**Figure 15.
Water Resources**



Legend

-  Water Quality Monitoring Sites
-  Streets
-  Major Roads
-  Streams
-  General Study Area
-  Resource Protection Area
-  Resource Management Area
-  Watershed
-  Wetlands
-  Water



Source: Fairfax County GIS Department, 2002
National Wetlands Inventory, 1998

The study area is located within both the Dogue Creek watershed and the Little Hunting Creek watershed. These watersheds drain into the Lower Potomac River subbasin. This subbasin drains into the Potomac and Shenandoah River Basin, which in turn drains into the Chesapeake Bay.

To determine the water quality status of the streams within the vicinity of Mount Vernon, both the Environmental Protection Agency (EPA) and the Virginia Department of Environmental Quality were consulted. The Commonwealth of Virginia has kept water quality sample records for both Dogue Creek and Little Hunting Creek. Figure 15 shows the location of these sampling points. Dogue Creek was last sampled in 1989, and Little Hunting Creek was last sampled in 2001¹⁰. Neither Dogue Creek or Little Hunting Creek are on EPA's Section 303(d) list of impaired waters¹¹. There are no national or state designated wild and scenic rivers in the vicinity of Mount Vernon.

3.4.3.1 Coastal Zone Management

The Virginia Coastal Resources Management Program was established in 1986 to protect and manage an area known as Virginia's "Coastal Zone". This zone encompasses 29 counties (including Fairfax County), 15 cities, and 43 towns in Tidewater Virginia and all of the waters therein and out to the three-mile Territorial Sea boundary. The Coastal Zone includes all of Virginia's Atlantic coast watershed as well as parts of the Chesapeake Bay and Albemarle-Pamlico Sound watersheds.²¹ The study area is contained in the Potomac River basin of the Chesapeake Bay watershed. The tidal portion of the river extends from the mouth of the Chesapeake Bay to Chain Bridge in Washington, D.C. As such, the general study area is within the Virginia Coastal Zone.

3.4.3.2 Chesapeake Bay Preservation Area

Fairfax County is responsible for delineating the Chesapeake Bay Preservation Act areas (CBPAs) and adopting programs that implement the performance specified in the language of the Chesapeake Bay Preservation Act. The National Park Service is a member of the Chesapeake Bay Program which also helps implement the act. The CBPAs are divided into two designations

¹⁰ <http://www.deq.state.va.us/water/wqmap.html>

¹¹ <http://www.epa.gov/reg3ward/tmdd/303d.htm>

¹² Virginia Coastal Program, <http://www.deq.state.va.us/coastal/>, 2002.

by the Commonwealth of Virginia's regulations. These areas are Resource Protection Areas (RPAs) and Resource Management Areas (RMAs).

An RPA includes extremely sensitive areas such as major streams, rivers, lakes, and wetlands as well as a 100-foot buffer that surrounds these areas. Within the study area, RPAs generally follow the 100-year floodplain. They are located in the extreme eastern and northeastern part of the study area (see Figure 15) where tributaries from Little Hunting Creek jut inland. An RMA consists of lands that are less sensitive to land use impacts but which still can result in a significant contribution to the Chesapeake Bay pollution problem if not properly used. In Fairfax County, areas that are not designated as RPAs are designated as RMAs.

3.5 Physiography, Geology, and Soils

The study area is located in the Atlantic Coastal Plain physiographic province. This province occupies approximately 26 percent of Fairfax County. Most of the Atlantic Coastal Plain is east of the Interstate 95 (Shirley Memorial Highway). The overall drainage is to the southeast. Drainage patterns are well developed in the western portion of the province. Broad and nearly level areas are found in the central and southern portions of the province. Many of the Coastal Plain soils have moderately slow to slow permeability. Drainage restrictions create shallow seasonal high water tables in large area. High shrink-swell clays are often exposed in areas mapped as "Marine Clay".

With the exception of the Mason Neck/Gunston area, the Coastal Plain was not included in the 1963 Soil Survey of Fairfax County. Fairfax County mapped additional areas.²²

Most of the soils within the Mount Vernon District of Fairfax County, including the northern part of the study area, have not been mapped. The southwestern part of the study area contains the following soil series and types: Mattapex, Colfax, Othello, Hyattsville, Beltsville, and Appling, and loamy and gravelly sediments, and silty and clayey sediments. Mattapex soils occur on uplands in sand, silt, and clay sediments on the lower Coastal Plain. Table 10 contains a description of each of the soil series or types.

²² Fairfax County Public Works and Environmental Sciences, 2002

Table 10	
Soil Series or Type Descriptions	
Soil Series or Type	Soil Description
Mattapex	Occurs on uplands in sand, silt, and clay sediments of the lower coastal plain.
Colfax	Derived from granite, gneiss, and alluvium. Occurs in drainageways, foorlopes, and uplands.
Othello	Silty and clayey. Occurs on nearly level landscapes in the Coastal Plains.
Hyattsville	Occurs in drainageways and toe slops. Derived from Coastal Plain sediments eroded from flopes. Soil materials include clay, silt, sand, and gravel.
Beltsville	Gravelly and silty soil. Occurs on hilltops in the Coastal Plain and on old Coastal Plain terraces over weather schists and granites.
Appling	Derived from granite and gneiss. Occurs on hiltops and side slopes.
Loamy and Gravelly Sediments	Located primarily on steep hillsides in the Coastal Plains.
Silty and Clayey Sediments	Occurs primarily along steep hillsides and adjacent drainageways in the Coastal Plain.
Note: Most of the Mount Vernon District of Fairfax County has not been mapped for soils.	

Source: Fairfax County Public Works and Environmental Services, 2002

3.6 Biological Resources

3.6.1 Vegetation

Within the study area, the vegetation consists of deciduous forest, lawn, and ornamental plantings. The deciduous forest surrounds the GWMP and also exists north of Mount Vernon. Patches of deciduous forest also occur in the western and southwestern portions of the study area. Lawn and ornamental plantings are not only within Mount Vernon itself but also within the residential areas located along the western and northern fringes of the study area.

3.6.2 Wildlife

Wildlife that is within the study area is limited to species associated with urban environments as well as those associated with wooded environments. A complete list of animal species that are known to occur in Fairfax County is available from the Virginia Department of Game and Inland Fisheries, Virginia Fish and Wildlife Information Service.²³

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3.6.3 Threatened and Endangered Species

To determine whether threatened or endangered species exist within the study area, the Virginia Department of Game and Inland Fisheries (VDGIF), Virginia Fish and Wildlife Information Service was consulted for threatened and endangered animal species while the Virginia Department of Conservation Natural Heritage Program (VANHP) was consulted for threatened and endangered plant and insect species. Table 11 shows the list of threatened and endangered species found within Fairfax County. The search with the VDGIF consisted of searching within a three-mile radius of the study area. Therefore, the threatened and endangered animal species listed may or may not be within the study area. The VANHP search was site-specific to the study area.

Table 11				
Threatened and Endangered Species Within Fairfax County				
Common Name	Scientific Name	Federal Status¹	State Status²	Confirmed
Bald Eagle	<i>Haliaeetus leucocephalus leucocephalus</i>	LT	T	Yes
Brook Floater Mussel	<i>Alasmidonta varicosa</i>	FSC	T	No
Migrant loggerhead shrike	<i>Lanius ludovicianus migrans</i>	FSC	T	No
Henslow's Sparrow	<i>Ammodramus henslowii susurrans</i>	FSC	T	No

1Federal Status: LT=Listed Threatened, LE=Listed Endangered, FSC=Federal Species of Concern.
2State Status: T=Threatened, E=Endangered, SC=State Special Concern

Source: The Virginia Fish and Wildlife Information Service, <http://www.dgif.state.va.us/wildlife/index.cfm>, 2002.
Virginia Department of Conservation and Recreation, Division of Natural Heritage, 2001.

Based on a letter received from the VANHP dated June 7, 2002, no plant or insect threatened and endangered species are found within the study area.

3.7 Aesthetics and Viewsheds

The study area surrounding Mount Vernon is wooded, with residential development occurring along the fringes of the study area. To the west, the nearest residential development is 3,085 feet (0.58 mile) from the Mount Vernon Traffic Circle. To the north, the nearest residential development is 2,230 feet (0.42 mile) from the Mount Vernon Traffic Circle.

Approaching Mount Vernon from the west on VA Rte 235, the residential development turns to woods and then to fields nearer to Mount Vernon. A small parking lot and Post Office are

located on the northern edge of VA Rte. 235, and bus parking is currently located along the southern edge of VA Rte. 235. Approaching Mount Vernon on VA Rte. 235 from the north, residential development gives way to woods until VA Rte. 235 turns to the right. At that point, the area is adjacent to Mount Vernon.

The GWMP was built to provide “a fittingly grand approach to Washington, DC.”²⁴ Integrating the roadway closely with the surrounding topography has enabled the GWMP to “lie lightly with the land.” Though much of the GWMP remains unaltered since its construction, the land surrounding the GWMP has been significantly altered and has become densely built-out, especially in the area adjacent to Washington, D.C. Near the study area, the GWMP remains wooded until it crosses Little Hunting Creek, where the land surrounding the GWMP has residential land uses. As it approaches Mount Vernon, the GWMP ends at the traffic circle, and the Mount Vernon Trail ends in the East Parking Lot.

As discussed above, Mount Vernon is surrounded by wooded areas. The actual Estate and Gardens is a combination of carefully sculpted gardens, fields, and historic structures, including George Washington’s mansion. The Estate and Gardens provides a scenic overlook to the Potomac River.

3.8 Air Quality

Mount Vernon is located approximately 170 miles from the Atlantic Ocean. Good air dispersion parameters occur in the region, with typical wind speeds of 5 to 15 miles per hour (mph) predominantly from a general northerly and southerly direction. Overall air quality can be considered fair, but problems with specific pollutants exist in the area. The metropolitan Washington, DC region exceeds the National Ambient Air Quality Standards (NAAQS) for ozone and has been designated a Serious Non-Attainment Area for ozone by the U.S. Environmental Protection Agency (EPA). The region is in compliance for all other pollutants considered in the NAAQS.

²⁴ *George Washington Memorial Parkway Safety Improvements: Existing Conditions Report*. Parsons, Brinkerhoff, Quade & Douglas, Inc., August 2001.

The EPA approved the National Capital Region State Implementation Plan (SIP) on December 15, 2000. The EPA also approved the region’s request to extend the ozone attainment date to November 15, 2005.

3.9 Noise

The most common type of noise, or unwanted sound, within the vicinity of Mount Vernon is vehicular or highway noise. To assess whether highway noise levels are compatible with various land uses, the FHWA has developed noise abatement criteria and procedures to be used in the planning and design of highways. These abatement criteria and procedures are in accordance with the Title 23 Code of Federal Regulations (CFR), part 772, U.S. Department of Transportation, FHWA, Procedures for Abatement of Highway Traffic Noise and Construction Noise. A summary of the FHWA Noise Abatement Criteria for various land uses is presented in Table 12.

Table 12 Noise Abatement Criteria Hourly A-Weighted Sound Level – Decibels (dBA)		
Category	Leq (h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands
E	52 (Interior)	Residence, motels, hotels, public-meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*

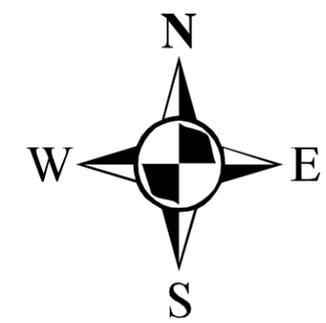
Various locations within the vicinity of Mount Vernon were monitored for noise. Figure 16 shows the noise monitoring locations. **[This section will be completed upon receipt of data.]**

Figure 16.
Noise Monitoring Locations



Legend

-  15-Minute Noise Sample
-  24-Hour and 15-Minute Noise Samples
-  General Study Area



Source: USGS, 2002

3.10 Hazardous Materials and Wastes

To determine where the hazardous materials exist within the vicinity of Mount Vernon, Environmental Data Resources, Inc. was utilized to review both Federal and State hazardous materials databases.²⁵ The following sections discuss the results of this database review. Figure 17 shows the location of hazardous materials sites within the vicinity of Mount Vernon.

3.10.1 Resource Conservation and Recovery Act Sites

The Resource Conservation and Recovery Information System (RCRIS) includes information on sites that generate, store, treat, or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act. While the study area does not contain any RCRA sites, two sites are located approximately 2,100 feet north of the study area. These sites are Mount Vernon High School, located at 8515 Old Mount Vernon Road and Chesapeake Potomac Telephone, located at 8534 Old Mount Vernon Road.

3.10.2 Emergency Response Notification System

The Emergency Response Notification System (ERNS) is responsible for recording and storing information on reported releases of oil and hazardous substances. This report is maintained by the EPA. The study area does not contain any ERNS sites. Two sites are located in the vicinity. One site is located northwest of the study area, and the other is due north of the study area. Both sites are more than 3,000 feet away from the study area.

3.10.3 Facility Index System

The Facility Index System (FINDS) contains both facility information and “pointers” to other sources of information that contain more detail.²⁶ The EPA provides this information. The study area contains no FINDS sites. However, six FINDS sites are within the vicinity of Mount Vernon. These are as follows:

- Woodley Hills Elementary School, 8718 Old Mount Vernon Road, approximately 400 feet north of the study area.
- Brentwood Academy Day School, 3725 Nalls Road, approximately 1,800 feet north of the study area.
- Mount Vernon High School, 8515 Old Mount Vernon Road, approximately 2,100 feet north of the study area.

²⁵ Environmental Data Resources, Inc., April 26, 2002.

²⁶ Please see the Environmental Data Resources Report for a detailed description of the sources.

- Chesapeake Potomac Telephone, 8534 Old Mount Vernon Road, approximately 2,150 feet north of the study area.
- Riverside Elementary School, 8410 Old Mount Vernon Road, approximately 3,600 feet north of the study area.
- Washington Mill Elementary School, 9100 Cherry Tree Drive, approximately 1,800 feet west of the study area.

3.10.4 Leaking Underground Storage Tanks

Leaking Underground Storage Tanks (LUSTs) are underground storage tanks that have begun to leak their hazardous materials, usually fuel. The study area contains no LUSTs. However, four LUSTs are near the study area. Mount Vernon High School, located at 8515 Old Mount Vernon Road, is approximately 2,100 feet north of the study area. Woodley Hills Elementary School, at 8718 Old Mount Vernon Road is approximately 400 feet north of the study area. Chevron #122159 is located at 4001 Mount Vernon Avenue and is approximately 800 feet west of the study area. Riverside Elementary School at 8410 Old Mount Vernon Road is approximately 3,600 feet north of the study area.

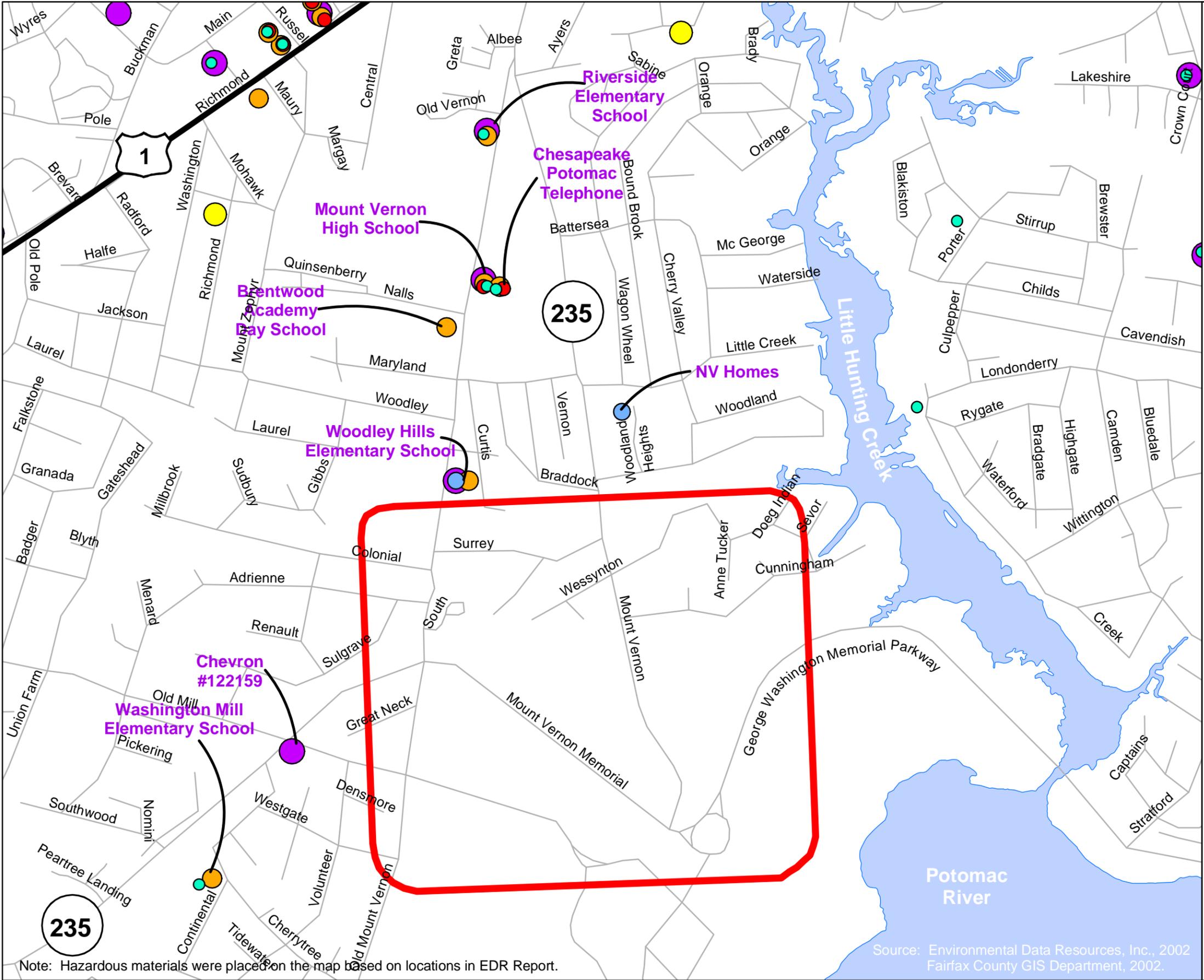
3.10.5 Underground Storage Tanks

The Underground Storage Tank (UST) database contains registered USTs. Underground storage tanks are regulated under Subtitle I of RCRA. The data for these analysis was provided by the Virginia Department of Environmental Quality's Underground Storage Tank Data Notification Information System. While no USTs are located within the study area, four USTs are in the general vicinity of Mount Vernon. The first UST is at Washington Mill Elementary School (9100 Cherry Tree Drive) approximately 1,800 feet west of the study area. Mount Vernon High School, located at 8515 Old Mount Vernon Road, is approximately 2,100 feet north of the study area. Bell Atlantic at 8534 Mount Vernon Road is approximately 2,150 feet north of the study area. Riverside Elementary School at 8410 Old Mount Vernon Road is approximately 3,600 feet north of the study area.

3.10.6 Voluntary Remediation Program

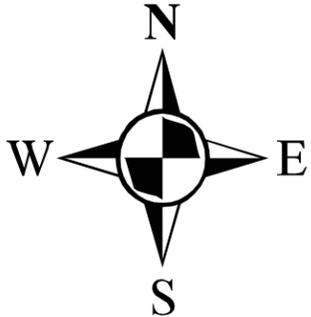
The Voluntary Remediation Program (VRP), which is sponsored by the Virginia Department of Environmental Quality, encourages owners of selected contaminated sites to take the initiative to conduct voluntary cleanups that meet state environmental standards. These sites are usually either open dumps or unpermitted solid waste disposal facilities. These sites cannot be listed on the National Priority List (NPL) nor can be involved in disposing of RCRA hazardous wastes. No VRP sites are within the study area or the vicinity of Mount Vernon.

**Figure 17.
Hazardous Materials
and Major Utilities**



Legend

- Underground Storage Tanks
- Resource Conservation and Recovery Act Database
- Leaking Tanks Database
- Facility Index System
- Emergency Response Notification System
- Leaking Underground Storage Tanks
- Major Utilities
- Streets
- General Study Area
- Water



Source: Environmental Data Resources, Inc., 2002
Fairfax County GIS Department, 2002.

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Note: Hazardous materials were placed on the map based on locations in EDR Report.

3.10.7 Leaking Tanks Database

The Virginia Department of Environmental Quality maintains a Leaking Tanks Database (LTANKS). This database contains currently leaking petroleum tanks. No LTANKS are located within the study area. However, two LTANKS hits are within the vicinity of Mount Vernon. The first location is Woodley Hills Elementary School at 8718 Old Mount Vernon Road. It is approximately 400 feet north of the study area. The second LTANKS hit is located at NV Homes at 8603 Woodland Heights. It is approximately 900 feet north of the study area.

3.11 Energy

Energy requirements associated with the study area relate to the amount of energy that is required to operate and maintain buildings and other permanent facilities. These include any outbuildings at Mount Vernon, the operation of maintenance vehicles and equipment (grounds maintenance equipment), and the operation of National Park Service Equipment. Energy also is required for the operation of motor vehicles traversing the study area.

Energy sources utilized include electricity and petroleum products (heating oils and fuels). The operations related to the study area are dependent upon the continued availability of the existing energy sources.

3.12 Cumulative Impacts

Depending on the availability of funding, a number of additional improvements are under consideration in the vicinity of Mount Vernon and the southern end of the GWMP. These projects are sponsored by either VDOT or the NPS:

- Drafting an Environmental Assessment to study the possibility of widening US 1 from the Stafford County line south of Fairfax County to Alexandria (VDOT)
- Reconstructing of two bridges along the Mount Vernon Trail. Bridge 6 is located south of Fort Hunt, and Bridge 12 is located just north of Fort Hunt (NPS)
- Repaving the Mount Vernon Trail from Mount Vernon to Fort Hunt (NPS)
- Placing headwalls and endwalls along the Mount Vernon Trail to prevent flooding (NPS)
- Stabilizing the Riverside Park shoreline

- Installing a vault toilet at Riverside Park.
- Applying for a cell tower to be located in the Fort Hunt area (the tower would be located on school property but would impact the GWMP viewshed) (NPS)

4.0 Interested Agencies and Other Parties

The following agencies and organizations have jurisdictional approval authority relative to the recommendations developed as part of this study or are anticipated to have a vested interest in the study results.

- U.S. Department of Transportation, Federal Highway Administration, Eastern Federal Lands Highway Division
- U.S. Department of Transportation, Federal Highway Administration, Virginia Division
- U.S. Department of Interior, National Park Service, George Washington Memorial Parkway Unit
- Honorable James P. Moran, U.S. House of Representatives
- Honorable Gerry Hyland, Supervisor, Mount Vernon District, Fairfax County
- Honorable Anthony H. Griffin, Fairfax County Executive
- Fairfax County, Virginia, Department of Public Works and Environmental Services
- National Capital Planning Commission
- U.S. Commission of Fine Arts
- Virginia State Historic Preservation Officer
- Advisory Council on Historic Preservation
- Virginia Department of Transportation
- Fairfax County Department of Transportation
- Fairfax County Department of Planning and Zoning
- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- Mount Vernon Ladies Association

The individuals and organizations listed below are anticipated to have either an interest in the study area and/or safety improvement recommendations developed:

- U.S. Coast Guard
- Metropolitan Washington Council of Governments
- Washington Metropolitan Area Transit Administration
- Washington Area Bicyclists Association
- Fairfax County Non-Motorized Transportation Committee
- Virginia Department of Conservation and Recreation
- Virginia Department of Environmental Quality

- Wessynton Homeowners Association
- Mount Vernon Concerned Citizens Association
- Interstate Commission on the Potomac River
- Potomac Heritage Partnership
- Friends of the Potomac
- Honorable John Warner, U.S. Senate
- Honorable George Allen, U.S. Senate
- Commonwealth of Virginia Governor Mark Warner

5.0 References and Web Sites

<http://www.census.gov/c2ss/www/Products/Profiles/2000/index.htm>

<http://www.velma.vec.state.va.us/LABFORCE.asp?geo=5104000059&cursession=LABFORCE>

<http://www.fairfaxcounty.gov/gov/dpwes/environmental/soilrating.htm>

<http://www.dgif.state.va.us/wildlife/index.cfm>

<http://deq.state.va.us/water/wqmap.html>

<http://www.mountvernon.org/press/mvtfact.asp>

<http://www.nps.gov/gwmp/pphtml/facts.html>

<http://www.deq.state.va.us/coastal.2002>

<http://www.epa.gov/reg3ward/tmdd/303d.htm>

2000 Fairfax-Falls Church Community Assessment, Fairfax County, Virginia, 2001

Census 2000, Summary File 1, 100 percent count demographic data, 2002. Available from the U.S. Census Bureau

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Fairfax County Department of Systems Management for Human Services, 2002

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