



## MEMORANDUM

**TO:** Steve Schukraft, AICP  
HOK Group

**FROM:** Rick Hall, PE  
Principal

**DATE:** March 3, 2006

**SUBJECT:** Parking Study report for Parker Gray Neighborhood/Braddock Metro Station Study, Alexandria, Virginia

To evaluate parking demand and supply in the Parker Gray Study Area, HPE assisted the City of Alexandria in conducting a parking survey during July, 2005. The parking study targeted a 10 block sample area of the Parker Gray neighborhood during the am, mid-day, pm, and evening. Samples were taken to include all days of the week. The survey allowed us to determine that while parking demand is high, supply is generally available in most of the study area during most times of the day.

A few areas appeared to have supply problems at certain times of day, and the overall ratio of parking demand to parking supply varied from 40% to 95% depending on the particular block and time of day. According to the Urban Land Institute's *Shared Parking* guidelines, 85%-90% of available capacity is considered "full use" of available parking.,. Parking in areas and at times in excess of this amount is considered constrained. This report identifies those areas that appear to have constrained parking at certain times of day and recommends ways to address those constraints.

In addition, HPE reviewed the existing parking regulations and standards in the study area to identify conflicts and possible modifications that could increase levels of parking supply.

The following points should be understood in interpreting this report. First, parking demand is methodologically difficult to estimate. ULI has at least four different books on parking demand, and ITE has a book on the topic as well. As explained in ULI's "Dimensions of Parking", there are no single parking factors or ratios that can be expected to apply over a range of areas. The factors affecting parking demand, such as (but not limited to) automobile ownership, land use, transit, and urban design, are so varied as to provide only very rough parking demand estimates. Local studies, such as this one, are indicated to help establish a general level of demand for a specific area.

Second, parking availability and pricing (which is generally related to availability) are the two greatest influences on the use of transportation other than the single-occupant automobile. Study after study since the 1980's has indicated that rates of carpooling, transit, and to a lesser extent walking and bicycling, are closely correlated to parking pricing and availability. As the cost of parking goes up (and availability goes down), people shift to other modes of transportation. Those who cannot shift to other modes will often shift travel times to take advantage of cheaper or more available parking at different times of day.

Consequently, urban areas with high levels of transit accessibility and walkability, such as the study area, are expected to have fewer parking spaces and/or more expensive parking spaces, compared to areas that are less urban and have lower levels of transit and walkability. This means that residents in the study area should not expect to have the level of parking accessibility that residents of lower-density, less-urban parts of Alexandria experience. The trade-off is that residents in the study area have much higher access to transit and a vibrant, walkable community.

With these two points in mind, that parking demand estimation depends greatly on local calibration studies such as this one and that parking demand is expected to closely approach supply in an urban area such as the Parker Gray neighborhood, this study quantifies existing levels of parking demand and supply and identifies ways to balance supply and demand in problem areas.

### **Methodology**

The primary purpose of this study was to collect baseline data on parking supply and usage over the course of the day. HPE supplied a parking survey form and survey procedure to the City of Alexandria Planning and Zoning Department (included in the Appendix.) The procedure consisted of surveying a block of streets every ten minutes and noting which spaces had cars in them and whether those cars were the same or different from the previous pass through the area.

The Planning Department selected a sample area based on their familiarity with the neighborhood. The sample area is shown in **Figure 1**. Planning Department staff conducted the survey counts as well. Completed surveys were sent to HPE for tabulation and analysis.

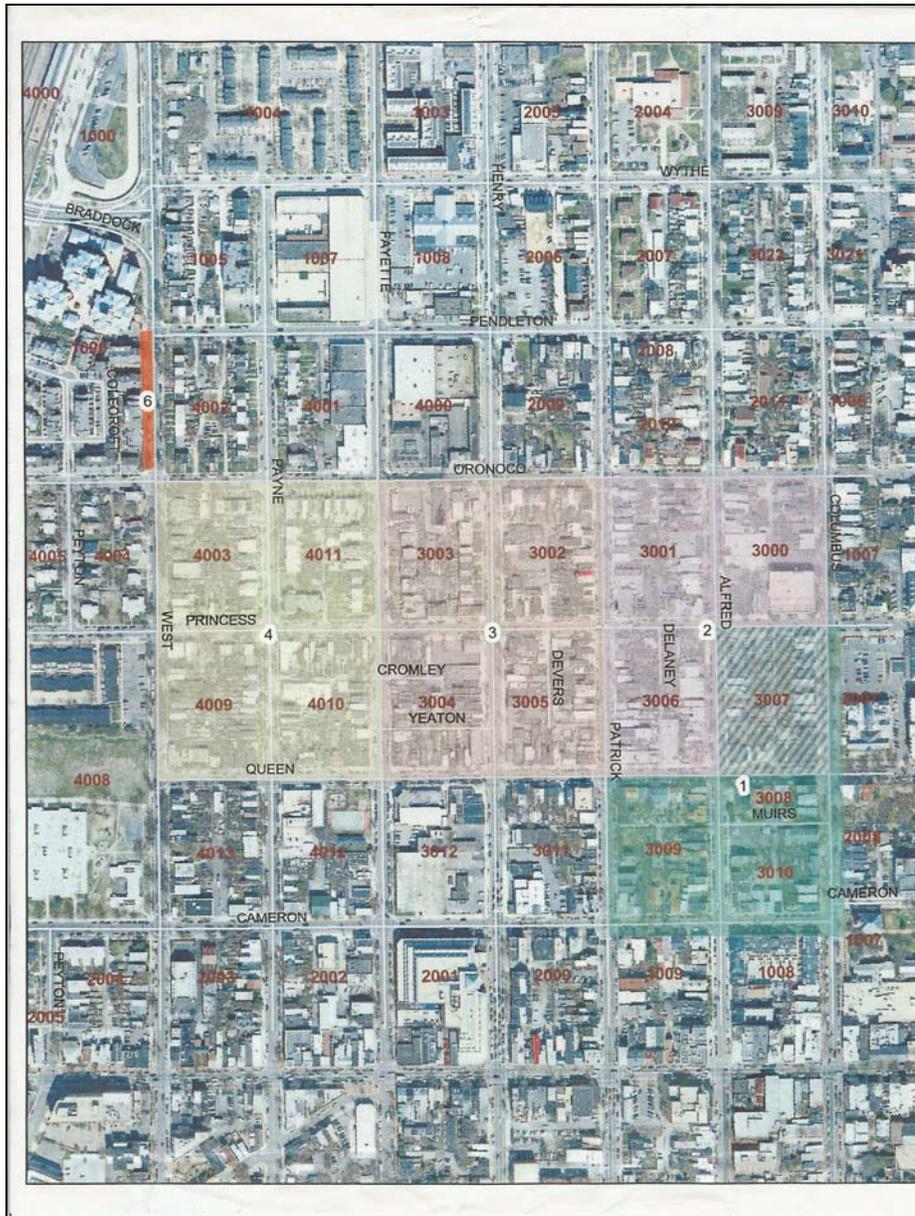
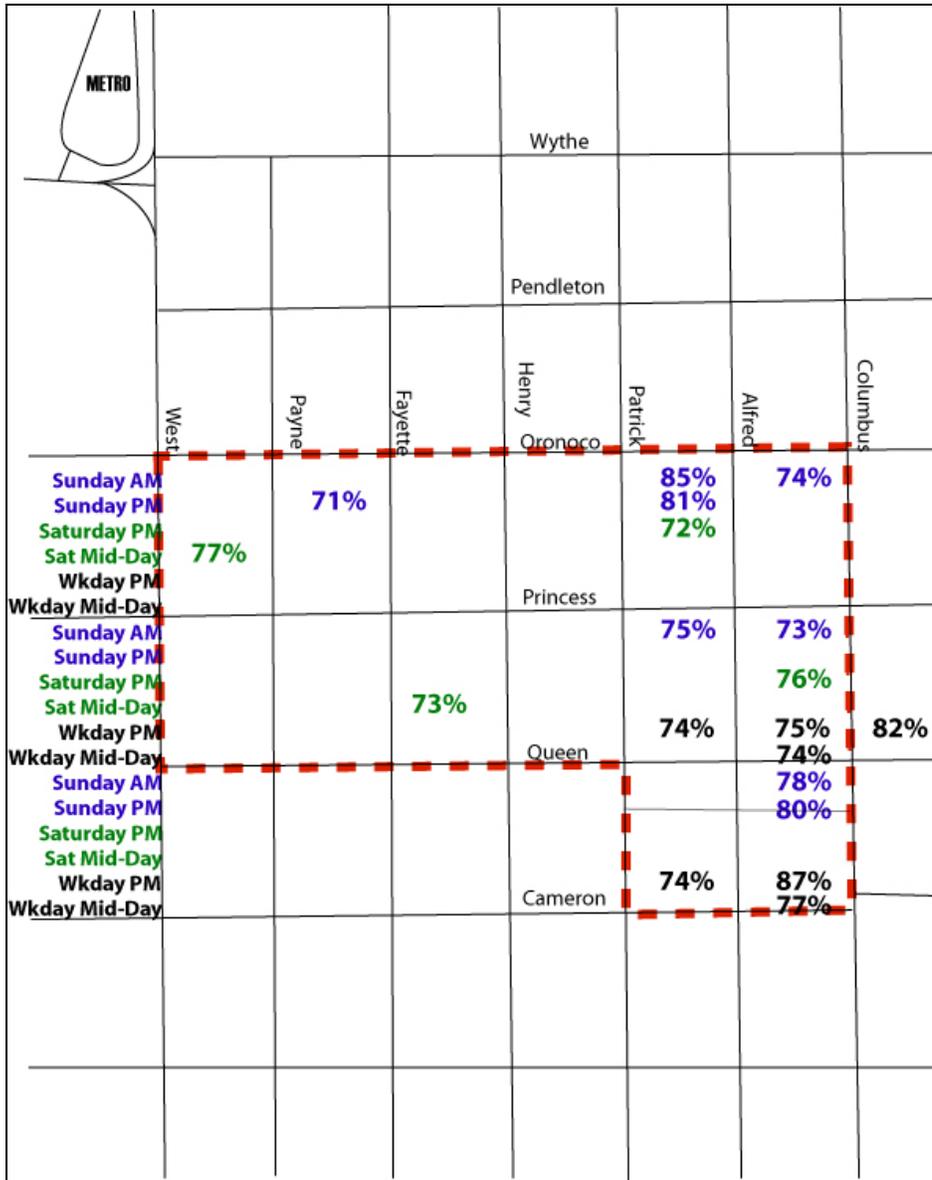


Figure 1: Parker Gray Study Area

## Results

### Parking Survey

Not all times of day and days of the week were sampled for each block, as shown in **Figure 2**. In **Figure 2**, the days of the week and times of day are repeated along the left margin for each row of blocks. Within each block, the parking saturation level for a given day and time period is shown on the appropriate row. For example, the block bordered by Princess, Queen, Patrick, and Alfred indicates that during the Sunday AM time period, parking saturation was 75%.



**Figure 2: Parking Saturation by block, day, and time of day**

As **Figure 2** indicates, not all blocks were sampled at all times of the day, due to the limited nature of this study. However, the survey clearly indicates that parking saturation in most of the blocks at most of the times of day is below 85%. On the western and southern edges of the neighborhood, parking saturation approaches or exceeds 85% in some blocks Weekday PM and Sunday AM and PM time periods. These blocks are bounded by busier streets such as Patrick and Cameron, where on-street parking availability is also limited.

**Parking Regulations**

Based on the documentation provided for HPE’s review, the study area includes 14 defined types of parking control . While complexity is an expected and often delightful element of urban life, complexity in regulation may also indicate that greater efficiency is needed. In Alexandria’s case, parking regulations primarily delineate free parking by time and place.

Free parking is allowed under specific conditions, with and without a permit. Only one of the categories indicates metered parking, and this category is not applied to any of the streets in the Parking Study sample area. Urban parking regulations attempt to control the substantial demand for a very scarce resource (free parking) and generally costs as much or more to enforce than is gained through parking revenue. In other words, parking regulations without a specified cost to the user, may end up as a revenue loss for the City, and still not provide for parking availability at a level acceptable to residents.

**Parking Requirements**

HPE compared the City’s current parking requirements for Zone 6 (the study area) to parking requirements from ULI, ITE, and the SmartCode. The comparison indicates that City requirements are higher than recommended by these three sources for the following categories:

1. Single Family, Duplex, and Townhouse dwellings
2. Shopping Center/retail land uses
3. Multifamily dwellings (higher than ULI standards)

City requirements for office parking spaces are lower than any of the sources. These comparisons are shown in **Table 1**.

|                                       | City          | ULI         | SmartCode | ITE           |
|---------------------------------------|---------------|-------------|-----------|---------------|
| Single-family/Duplex/Row or Townhouse | 2/du          | .75-.85/du  | 1/du      | 1.46-1.83/du  |
| Multifamily                           | 1.3-2.2/du    | .75-.85/du  | 1/du      | 1.46-1.83/du  |
| Office                                | 1.66/ksf      | 2.9-3.8/ksf | 2/ksf     | 2.4/ksf       |
| Personal Service                      | 2.5/ksf       | NA          | NA        | NA            |
| Retail                                | 3.03-4.76/ksf | 4/ksf       | 3/ksf     | 2.65-3.76/ksf |

**Table 1: Comparison of Parking Standards between City of Alexandria, ULI, SmartCode, and ITE**

**Recommendations**

This study is a baseline assessment of parking availability for the study area. Whether the parking saturation rates are too high (not enough parking,) too low (too much parking,) or just right depends, in part, on the interpretation of the community. By comparison, the parking would not be considered “full use” under the ULI parameters and procedures.

From a transportation planning perspective, and more specifically, a walkable community perspective, these parking saturation levels are not inappropriate for a mixed use, urban community. The saturation levels support the general perception that parking can be difficult to find at certain times of day and in certain blocks. However, alternate modes are often selected by residents and this diverse transportation environment has many benefits. Within this multi-modal pattern, in a vibrant urban community, parking is almost always a scarce commodity, and this very lack of easy parking is a major factor is supporting overall walkability in the area.

If additional parking availability is desired, the community could invest in structured parking, require additional parking as part of new development, charge market rates for parking, or attempt to create additional shared parking.

### **1. Shared Parking**

HPE recommends attempting to create additional shared parking. Shared parking occurs when two land uses share the same designated parking spaces. This can only happen when the land uses need the parking spaces at different times of day. For example, office and commercial uses that are open during the business day but closed in the evening may share a portion of their parking with residential uses that need parking primarily in the evening.

A shared parking study can be conducted to determine the potential for shared parking in the study area. The study would require an estimate of the square footage of each land use type in the area. Using the Shared Parking tables and methodology provided by ULI, the estimated number of parking spaces required can be determined and compared to the actual number of parking spaces. If additional shared parking is required, the solution would be to create a different mix of land uses to allow this type of parking.

If, on the other hand, the study indicates that sufficient shared parking should exist, the next step is to examine how parking is controlled and regulated. Possibly some parking spaces are in single ownership and are not available to other land uses, sitting vacant during the times when their associated land use is inactive. An example of this might be a church that has ample parking for Sunday mornings, but prohibits other use of these parking spaces during the week.

### **2. Additional Pay Parking Curb Spaces**

In conjunction with optimizing shared parking, the community should institute parking fees to increase parking availability in areas and times where parking is at or over 85% of capacity. Charge more for onstreet parking and reconstruct the 14 parking regulation categories based on the relative fees charged in each area. In areas where parking is scarce or where higher rates of vehicle turnover are desired, higher fees would be charged.

As documented by Donald Shoup in his book, "The High Cost of Free Parking", and as borne out by the experience of downtowns and universities all over the United States, parking fees are a very reliable method for increasing the availability of parking in a constrained area. Based on the review of the parking regulations currently in place, creating higher on-street parking costs would increase parking availability, simplify the parking permitting process and create a more enforceable and understandable parking system.

There are currently 14 different parking regulation types in the study area, many with overlapping requirements and enforcement periods. This type of complicated system can be expensive to enforce and difficult to understand. A price-based system would be easier to enforce and simpler to understand. Increasing the cost of parking would also increase the incentive for using other modes of transportation, which would have positive effects on traffic congestion and the use of transit.

Based on the findings of the parking survey, HPE recommends that increased use of paid parking begin with metered parking in the areas where a parking shortage is indicated. These

areas are indicated in **Figure 3**, which also includes the area of Queen Street that has been targeted for more intensive development. The recommended metered areas are as follows:

1. Block 3001, which shows an occupancy rate of 85% in the Sunday AM
2. Block 3008 and 3010, which show an 87% occupancy rate in the Weekday PM
3. Oronoco Street between Alfred and Fayette, which is targeted for support to neighborhood commercial activities



**Figure 3: Areas recommended for metered parking (shown in solid blue rectangles)**

The parking fee at these meters should be set high enough to obtain a 15% vacancy rate. The appropriate fee will have to be determined through price sensitivity analysis, but modern parking meters are easily programmable and changing the parking rate is not an obstacle. There are several new parking meter technologies in use today that offer options for instituting paid parking, and these should be explored carefully by the City if HPE's additional paid parking recommendation is accepted.