

TECHNICAL MEMORANDUM

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Subject: Southwest Waterfront Mode Split Assumptions

Introduction

This memorandum summarizes the mode split assumptions from the Southwest Waterfront (SWW) *Transportation Impact Study* for the Stage 1 Planned Unit Development (PUD). It was prepared to respond to the Zoning Commission's request for a more details explanation of most split assumptions, including comparisons to other projects.

As stated in the report, the number of anticipated vehicular trips generated by the SWW PUD was estimated using the Institute of Transportation Engineers' (ITE) *Trip Generation*, 8th Edition. The traditional methodology outlined in the *Trip Generation* manual was supplemented with information from the WMATA 2005 *Development-Related Ridership Survey Final Report* and from past studies conducted in the area from the library of Gorove/Slade Associates, Inc. WMATA's *Ridership Survey* is the primary source of mode split data from comparable developments. It contains data from existing and established DC area developments, using the same methodology to collect data for each development. Data from the 2000 Census and from the 2010 Commute Connections State of the Commute survey is included in this memorandum in order to clarify the mode split assumptions from the June 2011 report. Table 1 shows the mode split assumptions used for the SWW PUD.

Table 1: Mode Split Assumptions for SWW PUD

Land Use	Mode Split			
	Vehicle	Transit	Walk	Bike
Office	50%	35%	10%	5%
Retail/Restaurant	25%	35%	30%	10%
Residential	35%	45%	15%	5%
Hotel	35%	45%	15%	5%
Church	50%	35%	10%	5%
Marina	35%	45%	15%	5%

Mode Split Assumptions

As stated in Section 3.1 "Site Transportation Demand" of the *Transportation Impact Study*, the WMATA 2005 *Development-Related Ridership Survey Final Report* provides an overview of automobile and transit use patterns within the Washington DC Metro region, with survey results from various land-uses across the Metropolitan area.

Gorove/Slade selected several surveyed sites from the WMATA report to develop as comparable, using several independent variables. These included:

1. The distance of the development from the closest Metro Station;
2. The location of the nearest Metro-rail station to other concentric Metro-rail stations in the system, since this offers the greater ability to access other Metro lines and connect to other areas in DC, Maryland and Virginia; and
3. The parking ratio of the PUD, since the amount of parking is a significant influence on overall TDM programs and ease of driving.

No single site from the WMATA report had the same or identical characteristics of the proposed PUD, so survey results from individual sites, each showing similarity with at least one of the independent variable were found and averaged to determine the alternate mode split reduction to be applied to the ITE trip generation for the PUD. The SWW is expected to exhibit mode split characteristics similar to developments located within the center of the District. This is because the SWW will have excellent bus, rail, cycling, and walking options. Although other sites surveyed in the WMATA report may have a more similar walking distance to/from Metro, they will not have the overall quality of non-automobile mode transportation. Thus, preference was given to comparing the SWW site to survey sites within the District core.

For the office component, the three most similar locations were determined to be 1701 Pennsylvania Avenue, the Reeves Center, and 3 Ballston Plaza. These sites had automobile mode splits of 25%, 58%, and 79%, respectively, with an average of 54%. As stated above, Gorove/Slade anticipates that the SWW PUD will behave similar to sites in the District core, and thus rounded down this average to 50%. These commute mode shares at office sites are shown in Table 3 on page 22 of the report. The mode splits for 1701 Pennsylvania Avenue, the Reeves Center, and 3 Ballston Plaza are shown in Table 2 below.

Table 2: Commute Mode Share at Office Sites from WMATA Ridership Survey

Office Site	Mode			
	Vehicle	Metrorail	Metrobus & Other Transit	Walk & Other
1701 Pennsylvania Avenue	25%	56%	16%	3%
Reeves Center	58%	26%	9%	7%
3 Ballston Plaza	79%	17%	1%	2%
Average	54%	33%	9%	4%

For the residential component, the three most similar locations were determined to be the Summit Roosevelt, Highland House West, and the Meridian at Gallery Place. These sites had automobile mode splits of 22%, 53%, and 15%, respectively, with an average of 30%. As none of these locations had characteristics very similar to the SWW PUD, in order to be conservative, Gorove/Slade rounded this average up to 35%. These mode shares at residential sites are shown in Table 9 on page 29 of the report. The mode splits for the Summit Roosevelt, Highland House West, and the Meridian at Gallery Place are shown in Table 3 below.

Table 3: Mode Share at Residential Sites from WMATA Ridership Survey

Residential Site	Mode			
	Vehicle	Metrorail	Metrobus & Other Transit	Walk & Other
Summit Roosevelt	22%	31%	20%	27%
Highland House West	53%	33%	2%	12%
Meridian at Gallery Place	15%	61%	6%	18%
Average	30%	42%	9%	19%

For the hotel component, the closest comparable WMATA survey sites were two hotels in Crystal City and one in Friendship Heights. These hotels have an average automobile mode split of 23%. As none of these locations had characteristics very similar to the SWW PUD, in order to be conservative, Gorove/Slade rounded this average up to 35%. These mode shares at hotel sites are shown in Table 15 on page 34 of the report. The mode splits for the Crystal Gateway Marriott, the Crystal Hyatt Regency, and the Embassy Suites Chevy Chase Pavilion hotels are shown in Table 4 below.

Table 4: Commute Mode Share at Hotel Sites from WMATA Ridership Survey

Hotel Site	Mode			
	Vehicle	Metrorail	Metrobus & Other Transit	Walk & Other
Crystal Gateway Marriott	24%	27%	7%	42%
Crystal Hyatt Regency	21%	48%	3%	28%
Embassy Suites Chevy Chase Pavilion	25%	33%	5%	36%
Average	23%	37%	5%	35%

The only retail site surveyed in the WMATA report with similar characteristics to the proposed retail on the SWW PUD is the U Street Main Street retail site, which shows an automobile mode split of 19%. In order to be conservative, this was rounded up to 25% for this report. The mode split for the U Street Main Street retail is shown in Table 15 on page 34 of the report. The mode split is shown as 19% vehicle, 44% Metrorail, 13% Metrobus and other transit, and 25% walk and other.

The mode split assumptions for the Church and Marina uses based on discussions with the SWW team regarding their expected use and comparing them to similar land uses. For the Church, it was expected that during the rush hours, it would have a regional demand similar to the office component, and thus was assumed to have a 50% automobile use. For the Marina, it is expected that during rush hour, it would operate most similar to the residential component, and thus a 35% automobile mode split was assumed.

As stated in the *Transportation Impact Study*, the WMATA *Ridership Survey* was used to determine the percentage of automobile use, and the remainder was split between transit, bicycling, and walking. In addition to the WMATA *Ridership Survey*, the 2010 *State of the Commute Report* from Commuter Connections and the 2000 Census were used to confirm the mode split presented previously in Table 1. They provide a second data source that can be used to double-check the assumptions. They are not considered detailed enough to form the basis of assumptions on their own.

Data from the 2000 Census on mode split for the census tracts adjacent to the SWW PUD show that residents near the site had a drive-alone mode split of 39%, with 61% using other modes. The mode split assumptions in the SWW PUD for residential uses on the site, as shown in Table 1, project that 35% of the residents will drive alone and 65% will use other modes (transit, bicycling, and walking). Thus, the census data confirms the assumptions as the data are similar.

Data from the 2010 Commuter Connections State of the Commute survey shows that for all employment locations within the District, 42% of employees drive alone, and 58% use other modes. The mode split assumptions in the SWW PUD for office uses on the site, as shown in Table 1, project that 50% of the workers will drive alone and 50% will use other modes (transit, bicycling, and walking). This 50% assumption is higher than the overall District average from the Commuter Connections survey, thus confirming the assumptions.

Summary and Conclusions

Table 5 below shows a summary of the mode share data from the WMATA 2005 Development-Related Ridership Survey Final Report outlined above. In comparison, Table 5 also shows the mode split assumptions from the SWW PUD. In order to compare the data, the Metrorail and Metrobus mode split percentages from the WMATA Ridership Survey were summed to a general "Transit" mode share. Additionally, the Walk and Bike mode split percentages for the SWW PUD were summed to a general "Other" mode share. As stated previously, it was assumed that the church uses would have a mode split similar to the office uses and that the Marina would have a mode split similar to the residential uses.

Table 5: Summary of Data from WMATA Ridership Survey

Land Use	WMATA Ridership Survey			SWW PUD		
	Vehicle	Transit	Other	Vehicle	Transit	Other
Office	54%	42%	4%	50%	35%	15%
Residential	30%	51%	19%	35%	45%	20%
Hotel	23%	42%	35%	35%	45%	20%
Retail	19%	57%	25%	25%	35%	40%

As shown in Table 5, the mode split assumptions for the SWW PUD are similar to the mode share percentages from comparable sites in the WMATA Ridership Survey. Additionally, the mode split percentages for the residential and office uses are comparable to data from the 2000 Census and the 2010 Commuter Connection survey. Given location of the SWWF PUD and the significant aspects of the site design accommodating alternate uses, the mode split percentages outlined in Table 1 are appropriate and reasonable for the proposed development. The location of this project and its design will allow for an average or better than District average use of transit (both Metrorail and Metrobus), walking, and bicycling for traveling to and from the proposed PUD.