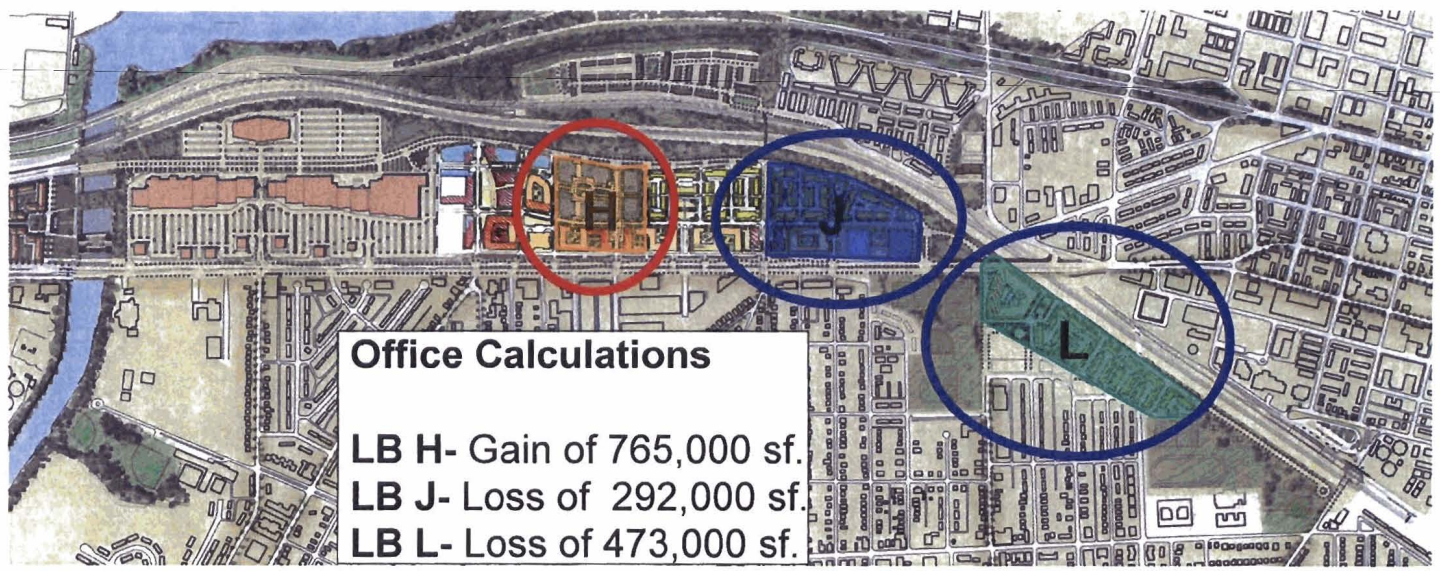


Docket Item #18 A-C

POTOMAC YARD DEVELOPMENT

MASTER PLAN AMENDMENT #2008-0003(A)
TEXT AMENDMENT #2008-0003(B)
CDD CONCEPT AMENDMENT #2008-0001(C)



Planning Commission Meeting
June 3, 2008

Docket Item #18 A-C
MASTER PLAN AMENDMENT #2008-0003
TEXT AMENDMENT #2008-0003
CDD CONCEPT AMENDMENT #2008-0001
POTOMAC YARD DEVELOPMENT

Planning Commission Meeting
June 3, 2008

ISSUE: Consideration of a request to amend the City's Master Plan, Zoning Ordinance and the CDD #10 Concept Plan to relocate office density from Landbays J and L to Landbay H, revise the use map and height limits for Landbay H, delete language regarding required mix of residential uses, and permit office use to be converted to retail through the special use permit process.

APPLICANT: MidAtlantic Realty Partners, LLC
By M. Catherine Puskar, Attorney/Agent

LOCATION: Potomac Yard
2301, 2401, 2501, 2801, 3951 Jefferson Davis Highway
1801, 2401, 2403, 2405, 2901, 3901 Potomac Avenue
1800, 1801, 2000, 2001, 2300, 2301, 2600, 2601, 2800, 2801, 2900 Main St.
600 E. Monroe Avenue
1000, 1400, 1600 S. Main St.

ZONE: Coordinated Development District/CDD #10

PLANNING COMMISSION ACTION, JUNE 3, 2008:

Master Plan Amendment: On a motion by Ms. Fossum seconded by Mr. Jennings, the Planning Commission voted to adopt the Master Plan Amendment #2008-0003 resolution to revise the text regarding the mix of residential building types and heights, as well as the height and use maps as requested by the applicant and recommended in the staff report. The motion carried on a vote of 4 to 2. Mr. Wagner and Mr. Dunn voted against. Mr. Komoroske was absent.

CDD Concept Amendment and Text Amendment: On a motion by Ms. Fossum, seconded by Mr. Jennings, the Planning Commission voted to recommend approval of the CDD Concept Amendment #2008-0001 amending conditions and the Text Amendment #2008-0003 to allow the conversion of office space to retail space through the Special Use Permit process as recommended in the staff report. The motion carried on a vote of 4 to 2. Mr. Wagner and Mr. Dunn voted against. Mr. Komoroske was absent.

Reason: The majority of the Commission supported the transfer of office density to Landbay H/partial I and the amendments necessary to accommodate the buildings in this location as appropriate near the approved Town Center and the location set aside for a future Metro Station. Commissioners Dunn and Wagner voted against the motion because they think there should be a more comprehensive study of the proposal before making the decision to transfer the density.

Speakers:

Cathy Puskar, applicant's attorney, presented the proposal.

Marty Wells, applicant's traffic consultant, presented the traffic analysis.

Gregory Leisch, applicant's economic consultant, presented the economic analysis.

Michael Nigro spoke on behalf of RREEF, owner of Potomac Yard Shopping Center, recommending that retail in Landbays G and H should be limited and spread out to better serve those developments.

Juan Cameron, McCaffrey Interest, Potomac Yard Shopping Center spoke on retail in Landbays G and H.

Stuart Lityin, Alexandria Economic Development Partnership, spoke in support of the proposal.

Katy Cannady spoke in support of the proposal.

Jack Taylor spoke in support of the proposal.

Christopher Campagna spoke in support of the proposal.

Amy Slack spoke in support of the proposal.

Maria Wasowski spoke in support of the proposal.

Andres Domeyles spoke in support of the proposal.

David Fromm spoke in support of the proposal.

Lonnie Rich spoke in support of the proposal.

Eric Zander spoke in support of the proposal.

Mike Ernst spoke in support of the proposal.

Paul Heitel spoke in opposition to the proposal citing the heights of the buildings that will be seen from the Parkway and moving office space further from a currently operating Metro station to a location where there may or may not be a Metro station in the future.

Stewart Schwartz, representing the Coalition for Smarter Growth, spoke in support of the proposal.

Skip Maginnis spoke in support of the proposal.

Master Plan Amendment #2008-003
Text Amendment #2008-003
CDD Concept Plan Amendment #2008-001
Potomac Yard



I. IMPACT BENEFIT CHART:

IMPACT/BENEFIT	COMMENTS
Consistency with Strategic Plan	<ul style="list-style-type: none"> • The proposal is consistent with the Strategic Plan because it furthers the goal of encouraging the redevelopment of Potomac Yard as a pedestrian oriented urban environment with a mix of uses.
Use	<ul style="list-style-type: none"> • Transfers 765,000 sq.ft. of office space from Landbays-J and L to Landbay-H/partial I • Increases height limits in Landbay-H/partial I to match those in the Town Center (Landbay-G) • Deletes language requiring 1/3 townhouses, 1/3 multifamily, and 1/3 stacked townhouses • Permits conversion of office use to retail use through the SUP process.
Open Space/Streetscape	<ul style="list-style-type: none"> • No proposed change to open space/streetscape requirements proposed at this time.
Pedestrian	<ul style="list-style-type: none"> • No change to open pedestrian requirements proposed.
Building Compatibility	<ul style="list-style-type: none"> • Final design of buildings will be addressed in the DSUP process. • Buildings should be designed to complement the urban design of the Town Center, and transition appropriately to lower scale residential development in Landbay I.
Traffic/Transit	<ul style="list-style-type: none"> • Main vehicular access to site is from the approved Potomac Avenue. • Portions of the site are also accessed by Route 1, Braddock Road, Monroe Avenue and <i>proposed</i> South Main St. • BRT stops proposed at adjacent Town Center. Bus stop access from Braddock Road, Metro stop at Braddock Station.
Parking	<ul style="list-style-type: none"> • Parking will need to be provided at a rate appropriate for office development such that impact on retail and residential uses is minimal. • Possible shared parking to be located underground.
Environment/Ecology	<ul style="list-style-type: none"> • LEED certification for office buildings. Encourage LEED
Fiscal	<ul style="list-style-type: none"> • See attached analysis

II. EXECUTIVE SUMMARY:

Despite the recent downturn in the economy and real estate market, the planning for portions of Potomac Yard continues. The future of this large CDD-Coordinated Development District in the northeast portion of the City has been evolving in the City for decades. Potomac Yard has not been static and reacts to market as well as development trends, as may be necessary for its own economic success, as well as in order to meet City and community expectations. In fact, the need to provide enough flexibility to accommodate changing conditions was anticipated in the original approval, and is expressly encouraged in the 1999 approval.

Specifically, the applicant is requesting several amendments to the Potomac Yard plan and accompanying zoning approvals, which would result in the following:

- A transfer of 765,000 sq.ft. of office from Landbay J and Landbay L to Landbay H.
- Increase the height limits in Landbay H from 55-65 ft. to 82 ft. between Main St. and Route 1 from 35-55 ft. to 110 ft. between Main St. and Potomac Ave.
- Allow office use to be converted to retail use with a special use permit .
- Eliminate a requirement for the residential uses to be 1/3 townhouses, 1/3 multifamily, and 1/3 stacked townhouse.

A. Enhanced Town Center:

The applicant is not requesting an increase in density for Potomac Yard, but rather a transfer of density within the Yard from one part of it to another. Specifically, under the proposal, more density will be added adjacent to the Town Center. Staff is recommending approval of the requested amendments, because adding density adjacent to the Town Center and helping to create a critical mass of office use will result in a more successful Potomac Yard town center. Through the discretionary special use permit process the high standards for development, design, public benefits and protection of the surrounding community can be maintained.

The proposal logically leads to discussion and analysis regarding a possible Metro station within Potomac Yard. However, a new Metro station is not currently funded and, therefore, the proposed land use applications have been evaluated based on their merits, assuming no Metro station.

The critical question regarding the proposed amendments is whether they are consistent with the intent of Potomac Yard to create a mixed-use, pedestrian-oriented environment and Town Center. A corollary question is whether the amendments will help or hurt the concept of the Town Center as a critical element to achieving the vision. While there are many procedural and technical questions that need to be addressed, the proposal accomplishes two specific elements for the Yard and the Town Center. It will:

- provide a critical mass of office density to make the office development more desirable and marketable; and
- provide additional density, i.e. shoppers/patrons, adjacent to the retail-restaurant tenants of the Town Center.

When compared to other existing and recently developed urban centers, including Carlyle, East Eisenhower and King Street areas, it is clear that the Potomac Yard Town Center would benefit from additional retail above the 80,000 sq. ft. currently approved for the Town Center. A critical element for success is an active, pedestrian-oriented environment created by a minimum “critical mass” of retail. Support for the active, sizeable retail component necessary to create the positive environment of successful Town Centers requires additional people and an appropriate mix of office and residential uses to support retail.

The critical mass of retail and people needed to support the Town Center concept originally envisioned by the approved plan would benefit from the increased density and land area this application seeks to add to the proposed Town Center. Staff, therefore, supports the proposed density transfer which will make Landbay H/partial I an extension of the urban Town Center of Potomac Yard.

B. Timing of Proposed Amendments:

In addition to the proposed amendments, there are other potential changes in Potomac Yard including the potential redevelopment of the retail shopping center (Landbay F). A future planning study, to begin in Winter 2009, will assess these and other proposals and determine how best to make them work if at all in the context of the overall Potomac Yard approved plan. The question then becomes whether to also wait to consider the proposed amendments as part of the upcoming Potomac Yard plan.

Under normal circumstances, staff would strongly recommend making this application part of a more comprehensive planning process. We were particularly concerned approving this application prior to the small area plan might cause us to overlook some concept, improvement or problem that did not occur to anyone until the area was reviewed comprehensively. In this instance, we made every effort to anticipate those issues; furthermore, we are concerned that, rather than wait for the completion of the small area plan, the applicant may begin construction of approved lower density development that will be detrimental to the Town Center concept.

C. Proposed Conditions:

While staff is recommending approval of the proposed amendments, staff is also recommending a considerable number of conditions to address and require the following:

- Landbay L: Future planning is required prior to any development to ensure that the decreased density is appropriate and well planned.
- Open Space: Additional planning is also required in both Landbays L and J in order to increase the amount of open space as a result of the reduction in density. The 2.78 acre open space area in Landbay N adjacent to the new straightened bridge should be dedicated to the City for open space.
- Conversion of office to retail: Requiring a minimum and maximum conversion for Landbay G and a maximum amount of conversion for Landbay H.
- Green buildings: Staff is recommending that every office building be LEED-certified and that all residential buildings be LEED-certified or comparable.
- Parking: All parking is required to be underground, in contrast to the existing guidelines which strongly encourage underground parking.
- Office Use: Urban design and design guidelines to prohibit inappropriate high security office tenants within Landbay H.

D. Conclusion:

Staff is recommending approval of the proposed amendments because it has studied other town center areas and found the original planned center to be insufficient to support the type of activity required for success. Staff is also recommending approval because it believes the conditions and limitations it is requiring will protect the overall integrity of the plan for Potomac Yard as planned. In addition, the staff recommendation is based on the fact that there will be the subsequent discretionary approval of Design Guidelines and a development special use permit for each of the landbays which will be amended

III. BACKGROUND:

The Potomac Yard/Potomac Greens site is a 295 acre tract of land located in the northeast area of the City. The former railroad yard, is linear in nature and is divided into two main parcels – Potomac Yards and Potomac Greens – by a 120’ wide railroad corridor running through the tract.

Starting in 1987, about the same time that the City began updating the 1974 Master Plan for the Potomac Yard/Potomac Greens portion of the site, RF&P Railroad began to explore development alternatives for the Yard because it was no longer being used for the classification of trains. The first proposal for the Yard, Alexandria 2020, was a mixed-use, neighborhood development which continued the street grid of the adjacent neighborhoods and replicated typical setbacks, heights and architectural styles. The plan included a tree lined interior boulevard, parks and interesting pedestrian gathering places. The plan included a Metro station near the center of the Yard, with the potential for commuter rail service and bus connections. The densities proposed in the 2020 plan were much higher than the currently adopted plan:

- 5.8 million sq.ft. of office space,
 - 440,000 sq.ft. of retail uses,
 - 180,000 sq.ft. for hotel uses, and
 - 6,450 residential units (an estimated 9.67 million sq.ft. @ 1,500 sq.ft./unit)
- Total development: about 16 million sq.ft.*

The 2020 plan was never formally submitted to the City for approval, but the City did approve new zoning for the site in the context of the Master Plan update in 1992. The new zoning, CDD, provided for a lower overall density of development than was proposed with Alexandria 2020, with:

- 2.75 million sq.ft. of office space,
 - 300,000 sq.ft. of retail uses,
 - 625 hotel rooms, (an estimated 456,250 sq.ft. @ 650 sq.ft./room +50,000 sq.ft.)
 - 3,500 residential units (an estimated 5.25 million sq.ft. @ 1,500 sq.ft./unit)
- Total development: about 8.8 million sq.ft.*

Immediately after approving these development levels through the zoning of Potomac Yard/Potomac Greens, a proposal to locate Jack Kent Cook football stadium at Potomac Yard was pursued by the owner of the Potomac Yard tract. This proposal was successfully fought by the City, but as part of the negotiations related to the stadium, the zoning on the Potomac Yard/Potomac Greens site was changed to allow increased levels of development on the site:

- 3.75 million sq. ft. of office space
- 425,000 sq. ft. of retail uses,
- 625 hotel rooms (an estimated 456,250 sq.ft. @ 650 sq.ft./room +50,000 sq.ft.)

- 4,500 residential units (an estimated 6.75 million sq.ft. @ 1,500 sq.ft./unit)
Total development: about 11.4 million sq. ft.

In 1997, there was another proposed change to the CDD guidelines in the Master Plan in order to allow for the location of a Patent and Trademark Office at Potomac Yard. While the office buildings were within the maximum office square footages, a height increase was requested, as two other changes to the Master Plan CDD guidelines which were not related to the PTO proposal. One of the proposals was a change to the definition of the “rule of proportionality” which required a certain amount of residential development concurrent with any commercial development on the site, and the other was to permit a more dense housing type, stacked townhouses. The request was denied by the Planning Commission and withdrawn by the applicant prior to the City Council hearing. PTO subsequently located its offices at Carlyle.

On October 16, 1999 The City Council approved the Potomac Yard/Potomac Greens Small Area Plan and Coordinated Development District (CDD #10), including an Alternative Concept Plan and associated conditions. The Concept Plan details the total acreage, proposed uses and maximum densities, and minimum open space requirements for each Landbay. Approved development levels are as follows:

- 1.9 million sq.ft. of office space
- 735,000 sq.ft. of retail space
- 625 hotel rooms (an estimated 456,250 sq.ft. @ 650 sq.ft./room +50,000 sq.ft.)
- 2,200 residential units (an estimated 3.3 million sq.ft. @ 1,500 sq.ft./unit)
Total development: about 6.4 million sq.ft.

A. Potomac Yard/Potomac Greens Master Plan:

The goals of the Potomac Yard/Potomac Green Small Area Plan are:

- To encourage the redevelopment of Potomac Yard and Potomac Greens as a pedestrian oriented urban environment with a mix of uses.
- To develop livable neighborhoods and successful commercial areas.
- To integrate redevelopment of Potomac Yard into the fabric of the City through the design and arrangement of uses, streets, open space and pedestrian systems.
- To protect neighboring residential areas from the impacts of traffic and incompatible development.
- To minimize traffic, visual and environmental effects of development on the George Washington Memorial Parkway.
- To increase the accessibility of existing neighborhoods to the Potomac River, Four Mile Run and transit facilities.

B. Role of the CDD Concept Plan and CDD Concept Plan conditions:

Potomac Yard is subject to the requirements of the Potomac Yard/Potomac Greens Small Area Plan and the Coordinated Development District (CDD) Concept Plan approved for Potomac Yard/Potomac Greens in 1999 (CDD Concept Plan # 99-0001). The Concept Plan was amended on January 25, 2003 to approve the Alternative Concept Plan. The Alternative Concept Plan includes the Potomac Yard Urban Design Guidelines, which provide a vision framework and principles for new Potomac Yard development to be utilized in evaluating specific proposals. The Concept Plan also created an advisory Potomac Yard Urban Design Advisory Committee (PYDAC) to ensure compliance with the Guidelines. The CDD Concept Plan, Concept Plan conditions, and the Potomac Yard Urban Design Guidelines functionally act as the zoning for the development of Potomac Yard.

C. Potomac Yard Urban Design Guidelines:

The purpose of the Potomac Yard Urban Design Guidelines is to ensure a standard of high quality urban and architectural design within the new urban fabric of Potomac Yard. These guidelines are meant to assist members of the community, project developers and City boards and staff, through building an understanding of the important urban design principles that shaped the plan. Beginning with the site organizing and design principles-

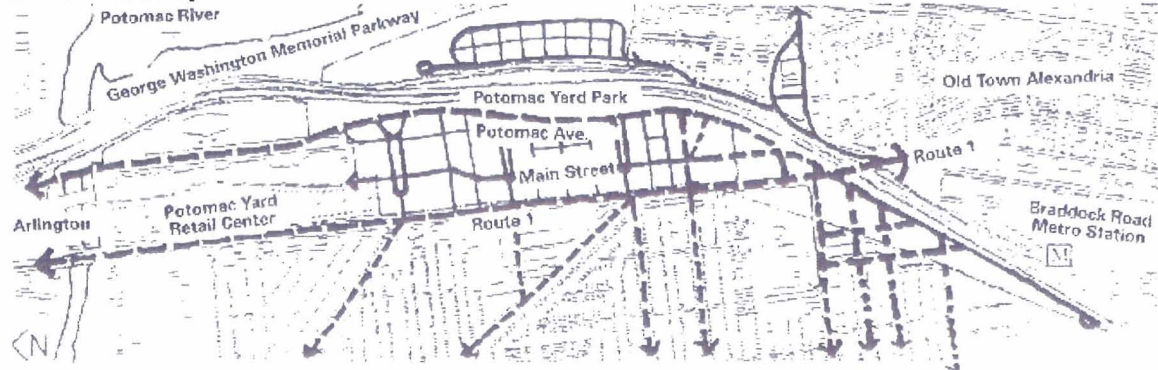
- Identifiable neighborhoods and Town Center
- A pedestrian-friendly and pedestrian-oriented environment
- A mixed-use development and concentrations of density at key locations
- Improvement and enhancement of the Rt. 1 frontage
- Use of open space as a plan-defining element including parks in each neighborhood
- Development of an orthogonal grid and block pattern
- A hierarchy of street network and types

The guidelines explain the structure of the framework plan, streets and open space and how they apply to each of the proposed development parcels. Dimensioned and delineated street sections, park plans, land use and infrastructure descriptions and diagrams identify the plan-defining development requirements. Building and landscape guidelines further address and ensure a high quality environment in the creation of the new neighborhoods, streets, buildings, parks, and open space. Through use and implementation of these guiding principles, a pedestrian-friendly environment will evolve on the Potomac Yard that is founded on the traditional scale and character of the surrounding community context.

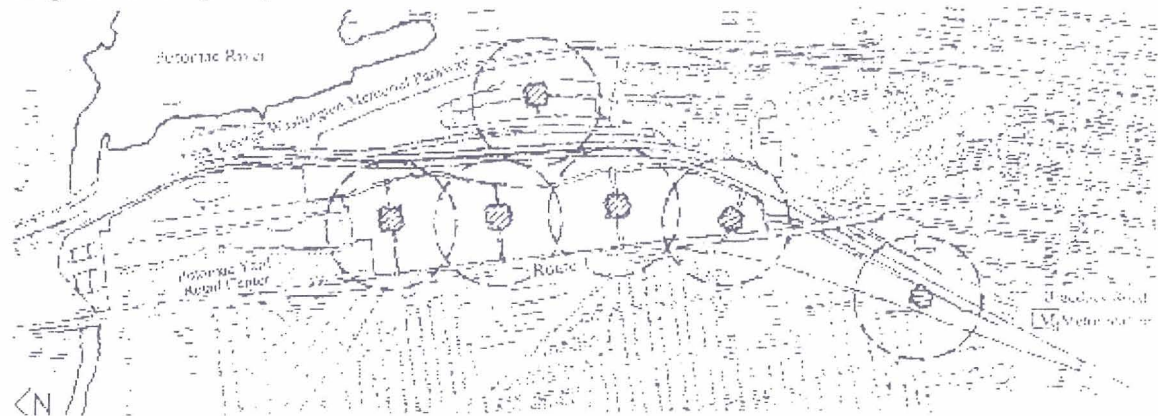
Neighborhoods and Walking Distances



Street Hierarchy

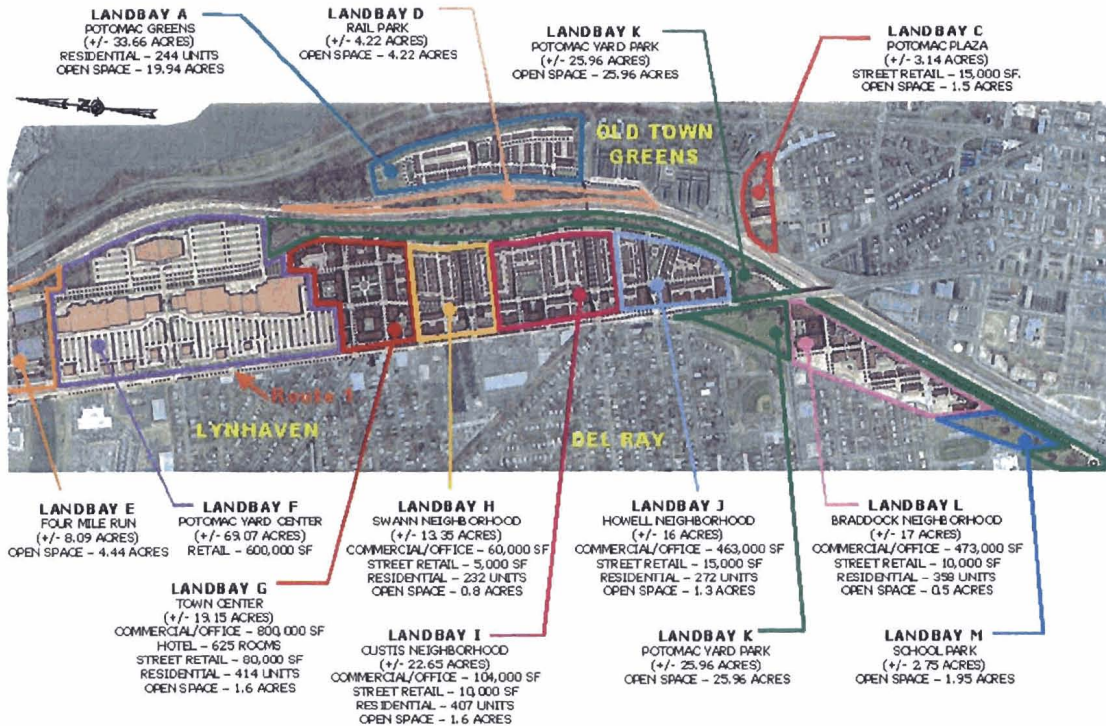


Neighborhood Open Spaces



D. Existing Approvals for Each Landbay:

Potomac Yard – Alternative Concept Plan



Note: Sizes of Landbay J, K & L are staff estimates and require additional engineering design to determine exact sizes.

Landbay A is approximately 33.66 acres in size and is approved for up to 244 residential units and 19.94 acres of open space. The proposal will not affect the densities in Landbay A.

Landbay C is approximately 3.14 acres in size and is approved for 15,000 square feet of street retail and 1.50 acres of open space. The proposal will not affect the densities in Landbay C.

Landbay D is approximately 4.22 acres in size and is approved for 4.22 acres of open space. The proposal will not affect Landbay D.

Landbay E is approximately 8.09 acres in size and is approved for 4.44 acres of open space. The proposal will not affect Landbay E.

Landbay F is approximately 69.07 acres in size and is approved for 600,000 sq.ft. of retail. The proposal will not affect the densities in Landbay F.

Landbay G is approximately 19.15 acres in size, and is approved for up to 800,000 sq.ft. of office space, 625 hotel rooms, 80,000 sq.ft. of street retail, 414 residential units, and 1.6 acres of open space. The proposal will not affect the densities in Landbay G.

Landbay H is approximately 13.35 acres in size, and is currently approved for up to 60,000 sq.ft. of office space, 5,000 sq.ft. of street retail, 232 residential units, and 0.8 acres of open space. The proposal will increase the total allowable office density in Landbay H by 765,000 sq.ft. The allowable street retail square footage and the number of residential units will remain unchanged.

Landbay I is approximately 22.65 acres in size, and is approved for up to 104,000 sq.ft. of office space, 10,000 sq.ft. of street retail, 407 residential units, and 1.60 acres of open space. The proposal will not affect the densities in Landbay I.

Landbay J is approximately 16 acres in size, and is currently approved for up to 463,000 sq.ft. of office space, 15,000 sq.ft. of street retail, 272 residential dwelling units and 1.3 acres of open space. The proposal will decrease the total allowable office density by 292,000 sq.ft. for a total of 171,000 sq.ft. of allowable office density in Landbay J. The allowable street retail square footage and the number of residential units will remain unchanged.

Landbay K is approximately 25.96 acres in size, and is approved for 24.24 acres of open space. The proposal will not affect Landbay K.

Landbay L is approximately 17 acres in size, and is currently approved for up to 473,000 sq.ft. of office space, 10,000 sq.ft. of street retail, 358 residential units and 0.5 acres of open space. The proposal will reduce the allowable office density in Landbay L to zero, while maintaining the total allowable street retail square footage and the number of residential units.

Landbay M is approximately 2.75 acres in size and is approved for 1.95 acres of open space. The proposal will not affect Landbay M.

Landbay N is approximately 2.78 acres in size and is a non-usable area. The proposal will not affect Landbay N.

E. Existing Development Approvals:

There have been four development approvals for Potomac Greens (Landbay A), Potomac Plaza (Landbay C), Landbay H/partial I and the mixed-use fire station (Landbay G). Landbay G is currently in concept review and there have been several meetings with PYDAC in recent months to discuss the conceptual site plan for Landbay G. The current concept plan for Landbay G provides 80,000 sq.ft. of retail space, 800,000 sq.ft. of office, 625 hotel rooms and 414 residential units including 64 affordable dwelling units in the Fire Station. Potomac Greens is under construction and approximately 80% completed.

Potomac Plaza was completed several years ago and is now fully occupied with retail and restaurant uses. The Potomac Yard fire station is under construction. The Landbay H/partial I proposal was approved the City Council on October 14, 2006. The final plan and construction documents for Landbay H/partial I have been administratively approved.

Table 1: Approved Development Site Plan (DSP) densities

	Office	Hotel	Retail	DU
Landbay A (Potomac Greens)	0	0	0	227
Landbay C (Potomac Plaza)	0	0	15,000	0
Landbay G (Mixed use fire station)	0	0	0	64*
Landbay H/Partial I	50,831	0	4,081	216
Total	50,831	0	19,081	507

* Affordable dwelling units only.



IV. PROPOSAL:

The applicant, Mid-Atlantic Realty Partners, LLC, is requesting approval of the following:

- CDD Concept Plan Amendment;
- Master Plan Amendment; and
- Text Amendment.

A. *CDD Concept Plan Amendment:*

The applicant is requesting approval to relocate office density within Potomac Yard from Landbays J and L to Landbay H/partial I, revise the height limits in Landbay H/partial I, and permit office use to be converted to retail use through the special use permit process. As shown in *Table 2* below, the applicant proposes to transfer 292,000 sq. ft. of office density from Landbay J and 473,000 sq.ft. from Landbay L to Landbay H/partial I for a total of 765,000 sq.ft. of new office space in Landbay H/partial I in addition to the 60,000 sq.ft. of office space already approved for Landbay H. Together Landbay G and Landbay H/partial I would have a total of 1,625,000 sq.ft. of office/commercial space or double that currently approved for this area. As a result Landbays J and L would be reduced by 765,000 sq.ft. of office space and would no longer have significant office/commercial space. Landbay L would become primarily a residential area and Landbay J would become primarily residential with 63 percent less commercial/office space than originally planned for the area, a total of 171,000 sq.ft. of commercial office space.

Table 2: Potomac Yard Landbays G, H, I, J & L Densities

	Existing CDD Approval				Proposed CDD Amendment				Change in Use from Existing CDD			
	Office	Hotel	Retail	DU	Office*	Hotel	Retail	DU	Office	Hotel	Retail	DU
Landbay G	800,000	625	80,000	414**	800,000	625	80,000	414	0	0	0	0
Landbay H	60,000	0	5,000	232	825,000	0	5,000	232***	765,000	0	0	0
Landbay I	104,000	0	10,000	407	104,000	0	10,000	407	0	0	0	0
Landbay J	463,000	0	15,000	272	171,000	0	15,000	272	-292,000	0	0	0
Landbay L	473,000	0	10,000	358	0	0	10,000	358	-473,000	0	0	0
Totals	1,900,000	625	120,000	1,683	1,900,000	625	120,000	1,683	0	0	0	0
Total Retail and Office SF	2,020,000				2,020,000							
Total Residential Units	1,683				1,683							

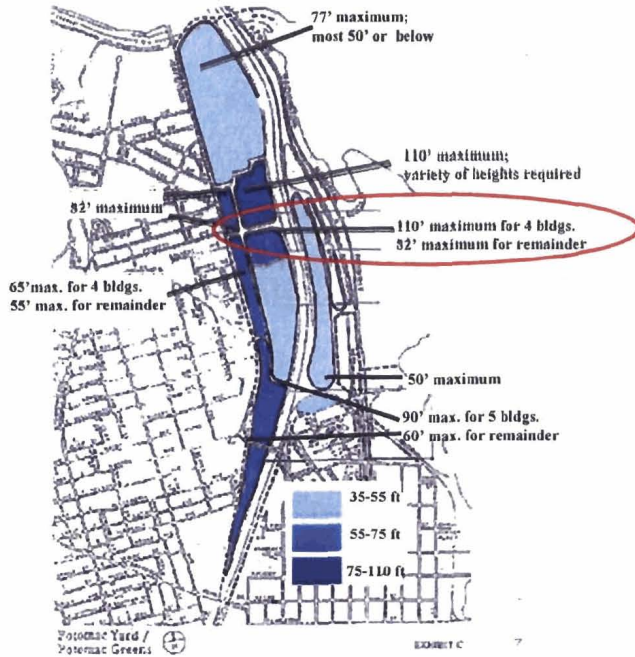
* Office Use can be converted to Retail Use with City Council approval through the SUP process.

** An additional 64 affordable dwelling units are approved for Landbay G, for a total of 478 dwelling units.

*** The applicant proposes 400 dwelling units in Landbay H/partial I.

B. Master Plan Amendment:

The applicant is also requesting that the height limits be amended in Landbay H/partial I from 55 – 65 ft. to 82 ft. in the block between Main St. and Rt. 1 and from 35 – 55 ft. to 110 ft. in the area east of Main St. to accommodate the additional office density proposed for Landbay H. The applicant is requesting a Master Plan amendment to amend the map of heights for the Landbay H/partial I to reflect the proposed changes as depicted within the map.



The applicant is requesting a Master Plan amendment to the CDD Guidelines for Potomac Yard/Potomac Greens to delete the requirement that at least one-third of the residential units shall be townhouses; no more than one-third shall be multifamily units, no more than one-third shall be stacked townhouse units.

C. Text Amendment:

The applicant is requesting a text amendment to the CDD zoning table to permit office space to be converted to retail space with the approval of a special use permit as follows:

Note : New Text is indicated with Underline>

Article V. MIXED USE ZONES

* * *

Sec. 5-600 CDD/Coordinated development district.
 * * *

5-602 *Coordinated development districts created, consistency with master plan, required approvals.*

(A) The CDD districts, as shown on Table 1, are as follows:

Table 1. Coordinated Development Districts

CDD No.	CDD Name	Without a CDD Special Use Permit	With a CDD Special Use Permit		
			Maximum F.A.R. and/or Development Levels	Maximum Height	Uses

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard

10	Potomac Yard/ Greens	<p>The RB zone regulations shall apply to the area south of the Monroe Avenue Bridge and east of the Metro Tracks, the CSL zone regulations shall apply on the first 250 feet east of Rte 1. and the I zone regulations shall apply on the remainder of the site; except that the U/T regulations shall apply to an area approximately 120 feet wide located just west of the Metrorail right-of-way (area shown on the plat for Case REZ #95-0005) for the purpose of accommodating the relocated rail mainline on the yard, and except also that the area known as the "Piggyback Yard" and Slaters Lane portion of Potomac Yard (as shown on the plat for Case REZ #95-0004) may be developed pursuant to the CRMU-L zone provided that the Piggyback Yard:</p> <ul style="list-style-type: none"> - shall contain no more than 275 dwelling units; - shall contain no more than 60,000 square feet of commercial space, of which no more than 30,000 square feet shall be office; - shall be planned and developed pursuant to a special use permit; -shall have a maximum height of 50 feet; and -shall generally be consistent with the goals and the guidelines of the small area plan 	<p>Up to 1,900,000 square feet of office space, <u>except that office square footage may be converted to retail square footage through the Special Use Permit process.</u> Up to 625 hotel rooms. Up to 735,000 square feet of retail space. Up to 2,200 residential units.</p>	<p>Heights shall be as shown on the map entitled "Predominant Height Limits for CDD" (Map No. 24, Potomac Yard/ Potomac Greens Small Area Plan Chapter of 1992 Master Plan (1998 ed.)).</p>	<p>Predominately residential with a mix of land uses to include office, retail and service, hotel, parks and open spaces, and community facilities</p>
----	----------------------------	--	---	---	--

V. STAFF ANALYSIS:

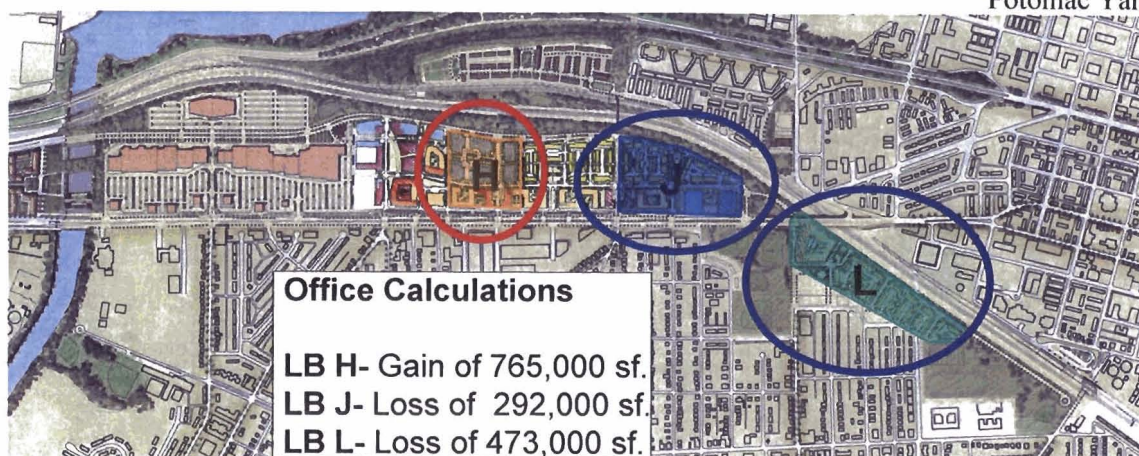
The approved concept for Potomac Yard has and continues to be a good one. It focuses density and retail space in a town center at a central location. It reserves land area adjacent to the Town Center for a future Metro station. It adds a new lower density residential community beyond the Town Center extending south and seeks to integrate it with existing residential neighborhoods. The location of retail space through the Yard reflects both the Town Center and neighborhood focus by concentrating the greatest amount of retail space in the Town Center to support it, and allowing small pockets of neighborhood-serving retail spaces to be scattered throughout the generally residential areas.

In the southern portion of the Yard, where the elongated land area intersects with the Monroe Street bridge and becomes a “tail,” there are moderate concentrations of office and additional neighborhood serving retail locations. Open space and streetscape requirements are designed to bring harmony, character and attractiveness to this future community and significant design considerations govern all development of Potomac Yard in order to achieve the mixed use, urban and pedestrian friendly environment the Plan seeks to achieve.

The application now before the City seeks to make changes to the Concept Plan, Master Plan and zoning that reflects the above scheme. Therefore, the basic consideration for staff, City decision makers and the community is whether the proposed changes enhance the approved concept or detract from it. Staff is supporting the proposed amendments, with significant conditions, because it believes they do not fundamentally change the overall concept approved for Potomac Yard. Instead, staff believes the proposals enhance that concept and make its success more likely.

A. Transfer of Office Use:

The most critical question among the several raised by the amendments is whether transferring 473,000 sq.ft. of office floor area from Landbay L and 292,000 sq.ft. of office floor area from Landbay J to Landbay H is consistent with the intent of the Potomac Yard Plan to encourage the redevelopment of Potomac Yard and Potomac Greens as a pedestrian-oriented urban environment with a mix of uses. The current development planned for Landbay H is 60,000 sq.ft. of office space, 5,000 sq.ft. of retail space and 232 residential units. (16% commercial 84% residential) The proposal by the applicant would increase the amount of office to 825,000 sq.ft. and leave the retail and residential use unchanged (58% commercial and 42% residential).



Since the Potomac Yard Plan's approval in 1999, Alexandria has seen the evolution of urban planning and design best practices evolve, especially, for example, with the Eisenhower East and Braddock Metro Neighborhood planning processes. Those practices are reflected in part in the proposed amendments to transfer density. Another clear principle that has emerged over time is the great advantage of locating significant office density near Metro. While the current proposal leads to the a discussion of the desirability of a Metro station in Potomac Yard (*as discussed in more detail below*), staff evaluated the proposal based on current conditions, with a Metro site that is currently unfunded and may never be constructed.

Staff's analysis of the proposed density transfer to Landbay H focused to a great extent on the impacts they would have to the adjoining Landbay G (Town Center) development. The current proposal for Landbay G consists of 800,000 sq.ft. of office space, 414 residential units, plus an additional 64 affordable units at the Fire Station, 80,000 sq. ft. of retail (195,000 sq.ft. with approval of the conversion of office floor area as part of the requested amendments) and 625 hotel rooms. The current proposal for Landbay G consists of approximately 51 % commercial uses and 49% residential uses.

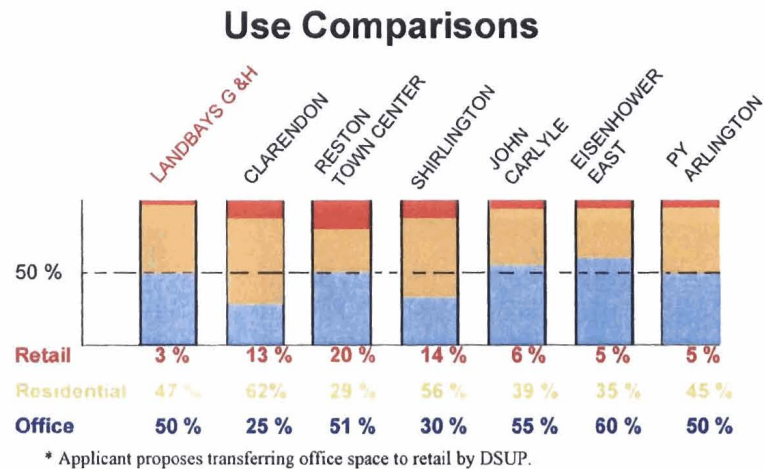
Making a new retail street, such as the one proposed to be the heart of Landbay G, successful is challenging, but certain critical elements are identifiable. For example, density that brings people to the area is important. More importantly is an appropriate balance of uses. From a planning perspective, it is ideal to have a 50/50 balance of residential and office uses, or come as close to that mix as possible. The mix of uses is vital to ensure:

- Economic and environmental sustainability that combines elements into neighborhoods that are more than the sum of the parts;
- Transportation efficiencies, effective use of infrastructure investment with two-way Metrorail usage by residents and workers, spreading the peaks, decreasing trips, and decreasing overall parking demand;

- The mix and overlap of populations that will add life on the streets;
- 24/7 instead of 9 to 5, with increased safety and walkability
- Distinct sub-areas with uses that reinforce uniqueness and the maximum opportunity for innovation; and
- Resource-sharing, such as shared parking.

For example the office uses that surround great streets such as King Street or shopping areas such as Clarendon help to maintain the retail and restaurants during the day, and the residents and visitors help maintain those uses at night. Not only do the office tenants help to ensure that retail can be viable and open during the day, the retail uses and amenities are a key attraction for the Class-A office buildings and tenants appropriate for a location such as Potomac Yard. For comparison purposes, staff evaluated the mix of uses of adjoining mixed use developments and town centers in the area.

The clear message from the comparison of other centers is that the planned office density near the proposed Town Center is insufficient to successfully support the planned retail within it. Staff supports the proposed transfer of density to Landbay H because it increases the amount of supporting density for the retail component of the Center, and because when



Landbays G and H are considered together, the transfer helps achieve a more balanced mix of office and residential uses within and adjacent to the Town Center.

Staff voiced this same opinion in 1999 when the Potomac Yard CDD Concept Plan was approved. Specifically, staff advised against locating office space in Landbays J and L instead of near the Town Center because additional density at the Center was vital. The 1999 staff report states:

Of critical importance to the success of such a (Town) Center is the level of development concentrated in the immediate area; it is the retail area which creates the desirable activity. While the applicant has proposed locating significant levels of office and residential uses within the Town Center, as well as the project's single hotel, staff supports moving additional office from other parts of the proposed development to the Town Center in order to increase the potential viability of the proposed retail uses.

Staff continues to believe that additional office density in an appropriate mix with residential uses will be beneficial to the Town Center, and will enhance the existing Potomac Yard Plan. Additional commercial/office space near the Town Center would provide a greater number of potential shoppers for retail and restaurant uses in the Town Center during the day and early evening. If a Metro station is constructed adjacent to Landbays G and H, ridership at the station would increase due to the increased number of workers located within the walk shed. The Town Center – Landbay G is the heart of Potomac Yard and staff believes that any changes that add potential day-time population for the retail and restaurant tenants are desirable. Staff is recommending the transfer of office floor area be contingent on maintaining the all-important balance of a 50-50 mix of office and residential uses to the greatest extent possible.

B. Office Use- Urban Design- Security Measures:

Although additional office space is desirable to support the Town Center, staff is concerned that potential tenants may include federal government agencies with security needs that are inconsistent with the goals for a mixed-use, pedestrian-oriented urban development at Potomac Yard.



To address this concern and the potential design, character and functional problems it creates, staff is not recommending specific limitations on users of buildings. Instead, it is requiring that buildings and users meet certain performance standards to maintain the intent of the Potomac Yard Plan. With these performance standards, and the review of each building as part of the development special use permit process, staff believes that concerns regarding the types of tenants and the associated security measures can adequately be addressed.

C. Conversion of Office Use to Retail Use:

The applicant is requesting that office floor area be able to be converted to retail floor area as part of the development special use permit for each building or landbay. The Potomac Yard Plan currently requires the majority (80,000 sq.ft., or 60%) of the retail

(outside Landbay F, Potomac Yard Shopping Center) to be provided within the Town Center and that smaller amounts (5,000 to 15,000 sq.ft.) be provided within each landbay that would be neighborhood serving retail uses such as dry cleaners and coffeshops. For comparison purposes the recently completed Potomac Plaza on Slaters Lane is approximately 15,000 sq.ft. The program is important because it seeks to make the Town Center retail self sustaining, and is careful not to allow the dilution of retail space throughout Potomac Yard.

Staff seeks to retain these goals, although it is not opposed to allowing some of the flexibility the applicant seeks for the future. It, therefore, reviewed the conversion proposal by assessing the amount of retail within Landbay G, the affect on the office density in Landbay G of allowing a reduction for increased retail space there, and the need to retain only small amounts of small scale retail within the neighborhoods.



Increase in Retail in Landbay G

If the office space within Landbay G were converted to retail, the amount of retail space would increase from 80,000 sq.ft. to 195,000 sq.ft. Staff has compared the planned 80,000 square feet of retail in the Town Center to the retail component of other town centers and retail streets within the region and nation to determine the minimum amount necessary for a critical mass of retail a successful center requires. The chart below demonstrates that the Town Center plan is deficient and that approximately 150,000 to 200,000 sq.ft. of retail space is desirable to be self sustaining.

Table 3: Length and Square Footage of Successful Retail Shopping Streets and Town Centers

	Mizner Park (Boca Raton, Fl)	Reston Town Center (Reston, Va)	Santana Row (San Jose, Ca)	Shirlington Village (Arlington, Va)
Length (in feet)	1,080	885	1,500	882
Retail Space (in sq. ft.)	236,000	784,194	680,000	282,566
	John Carlyle Street (Alexandria, Va)	Clarendon (Arlington, Va)	Potomac Yard (Arlington, Va)	Washingtonian Center (Gaithersburg, Md)
Length (in feet)	1,400	900	1,800	500
Retail Space (in sq. ft.)	173,977	529,204	230,210	464,583

Although the existing, large, Potomac Yard Shopping Center (Landbay F) is adjacent to the future Town Center, and may in the future be more supportive, it does not now support the type of retail planned for the Town Center. Because of its big-box, automobile-oriented nature, the shopping center attracts patrons, with the possible exception of Target customers, who are unlikely to also patronize the Town Center within the same shopping "trip." Therefore, in assessing this application, staff believes that it is necessary that a critical mass of retail be provided within Landbay G to ensure the viability of the Town Center.

While increased retail space in Landbay G, the Town Center, is critical, it is important that the increase be balanced by the uses of the adjacent Landbays. For example, there has been a desire by the City, community and property owner to see the shopping center redevelop into an urban mixed-used and pedestrian-oriented extension of Potomac Yard. However, the proposal requires rezoning and, therefore, needs to occur as part of the upcoming Potomac Yard planning process which is currently scheduled to begin in Winter 2009. Staff anticipates that the study will likely take 12-18 months and that, at the earliest, adjoining construction would likely not take place for several years after the approval of the Master Plan. Therefore, it is possible that the Town Center could be approved and constructed for quite some time prior to any redevelopment on the existing retail center. There is also currently a site plan proposal by Target for a modest 15,000 sq.ft. addition, which is scheduled for the July Planning Commission hearing, which will utilize all of the remaining floor area within the retail center. The hoped for but hypothetical future changes to the shopping center site may bring additional retail space to Potomac Yard and, if well designed, could provide additional support for the Town Center.

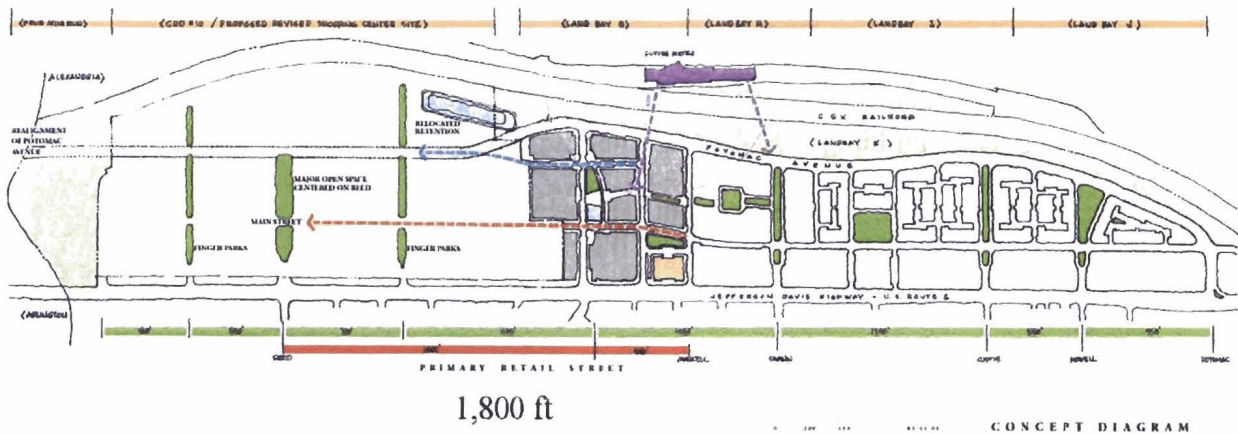
On the south of the Town Center, Landbay H has the future potential to provide significant office and residential density to support the vitality and customer activity necessary for the successful retail in the Town Center. Increasing the retail space in Landbay G also decreases office space there, which is another component necessary to the Town Center success. The additional office density in Landbay H which would result from approval of this application will also balance the need for office to support the Town Center that the reduction in office in G that conversion to retail necessitates.

Staff is recommending approval of the applicant's proposal to convert office to retail space. It will allow flexibility and a potential increase in retail floor area in Landbay G, in order to ensure a critical mass of retail for a successful Town Center. Staff is also recommending that the amount of total retail in Landbay G be limited to a maximum of 195,000 sq.ft. to allow for additional retail space within the shopping center area, and to limit the reduction of office space. A future special use permit approval is required to assess the scale and location of retail buildings, the mix and arrangement of uses, and the other design and functional considerations to make Landbay G a great Town Center.

Increase of Retail in Landbays other than Landbay G

In order to support the Town Center, it is important that the plan for Potomac Yard not allow significant retail space to be built at other locations in the Yard and compete with the Town Center retail space. It is imperative, for example, that the neighborhood serving retail space within the residential areas of the Yard be limited to convenience shops, such as cafes and dry cleaning stores. It is also critical that the centrally located retail on Main Street within the Town Center not be allowed to be extended beyond the length of other successful retail shopping streets, which are approximately 1,000 to 2,000 feet in length. (see Table 3, above) The distance is based on how far people are willing to walk and cross shop both sides of each retail street, and generally equates to a maximum distance of about five traditional Old Town city blocks.

As part of the future planning process for Potomac Yard, it is possible that Main Street, the primary north-south road, will be extended into the shopping center in Landbay F in order to better coordinate and connect retail development in the two Landbays. The graphic below shows a hypothetical 2,000 linear foot retail street in both the Town Center and Landbay F and demonstrates that there is a limit to where retail space can be located so as not to dilute the primary retail area in Landbay G.



Because it is important that retail space in Potomac Yard support and not compete with the future Town Center in Landbay G, staff is recommending that the amount of retail within each landbay be limited to a maximum amount of 20,000 sq.ft. The limitation includes Landbay H, with a great increase in office density under this application, as well as the residential neighborhoods.

D. Green Buildings- Sustainability:

At the direction of City Council, the Planning Commission, and as articulated in Council’s Strategic Plan, staff has been incorporating various green and sustainable site and building



elements into each development proposal in recent years and incorporating LEED certification as part of many of the recent development proposals. As the Planning Commission and Council are aware, staff is evaluating elements such as cost and certification methods for commercial and residential uses and has begun meeting with members of the development community. It is staff's goal that by Winter 2008, staff will propose a green building strategy for new developments within the City. In addition to requiring certification for certain recent projects and achieving a certain number of points for certain projects all of the recent projects (Madison and Jaguar) within the Braddock area have been required to provide a green roof for each of the buildings.

Because of the amount of office floor area proposed as part of this amendment, staff feels strongly that all of the office buildings should be LEED certified. This approach is consistent with the City's Strategic Plan and Eco-City strategies. In addition, recently released studies indicate that LEED certified buildings outperform their conventional counterparts including a variety of areas such as energy savings, occupancy rates, sale price and rental rates. In addition, LEED certification is a minimum prerequisite for nearly all of the Federal government tenants.



While staff is recommending LEED certification for the office buildings, certification for the residential building, including the townhouses and stacked townhouses is more problematic for a multitude of reasons. The USGBC is in the process of revising the scoring for LEED certification although the new approach and certification has not yet formally been adopted. Therefore, staff is recommending that the residential uses be LEED certified to the greatest extent possible with the understanding that in the future the residential uses may be able to incorporate many of the measures for LEED certification but may not be able to achieve LEED certification. Staff also added a recommendation that the proposal will also be subject to the City's future green building policy for new development.



E. Master Plan Increase in Height:

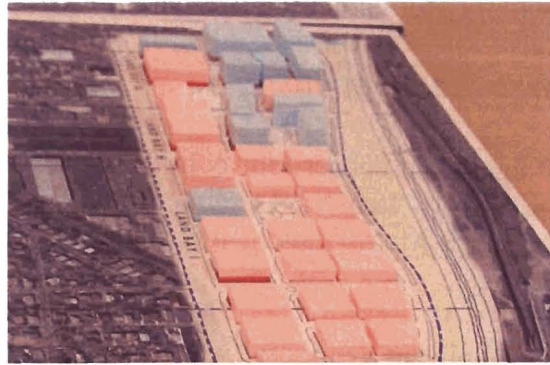
An element of the Potomac Yard Small Area Plan is the map of Predominant Height Limits for the CDD. Landbay H/partial I is planned for a height of 55 – 65 ft. for buildings between Rt. 1 and Main St. and 35 – 55 ft. for buildings between Main St. and Potomac Ave. The applicant is requesting that the Master Plan be amended to increase the heights in Landbay H/partial I to accommodate the office development proposed to be moved from Landbays J and L. The proposed heights would be compatible with the

heights approved for Landbay G. The heights between Route 1 and Main St. are proposed to increase from 55 – 65 ft to 82 ft. and heights between Main St. and Potomac Ave. are proposed to increase from 35 – 55 ft. to 110 ft. If space is increased in Landbay H/partial I to 825,000 sq.ft. as proposed it is necessary to increase the accompanying height within Landbay H, Partial I.

Existing



Proposed



Staff supports the proposed increase in heights because the heights are similar to the heights permitted within Landbay G and unlike other landbays, where there are nearby existing homes or adjoining communities, this landbay is separated from the adjoining communities by Landbay K and Rt. 1. It is important to note that while the height would be increased in the Concept Plan and the Master Plan, the heights would be maximum heights and the final heights would be approved as part of the development for each landbay and buildings.

F. Eliminate 1/3 townhouses, 1/3 multi-family, and 1/3 stacked townhouse requirement:

Currently the Master Plan provision for Potomac Yard within the Land Use section which states:

“At-least one-third of the residential units be townhomes; no more than one-third shall be multi-family units; no more than one-third shall be stacked townhomes.”

The applicant contends that the requirement may arbitrarily limit good land use planning within Potomac Yard and proposes to delete this requirement. While staff acknowledges that requiring 1/3 mix may be problematic, staff believes the provision was intended to ensure a variety of building types which adds to the fine grain mix of buildings similar to many of the great neighborhoods such as Northeast and Del-Ray that surround the Yard, rather than consolidated areas of building types. In addition, with a mix of building types some of the units, such as the multi-family units, are likely to be more “affordable” than single family townhomes. Staff does not support elimination of the requirement but rather recommends the following:

“The residential buildings within Potomac Yard and each Landbay shall consist of a variety of buildings types and heights which should include townhouses, stacked-townhomes and multi-family units.”

While staff acknowledges that the provision recommended by staff is less specific than the current Master Plan provision, the language added by staff requires a variety of building types within each Landbay and the overall Yard, while still allowing some flexibility for good design as part of each development special use permit.

G. Landbay L:

A significant concern for both the Planning Commission and staff has been the effect of the density transfer Landbay L, a landbay located relatively close to the existing Braddock Metro station, to Landbay H, a location which may not ever have a Metro station.

The applicant’s proposal would remove 473,000 square feet of office development from Landbay L, retaining 358 residential units and 10,000 sq.ft. retail space for the landbay. The result is a fairly low density residential development next to one of the City’s Metro stations.

Appropriateness for Office Development

With regard to the reduction in office density, the applicant contends that while the site is close to a Metro, the approximately 2,000 ft. distance of the site from the Metro station is outside the zone where there is the highest Metro ridership occurs. Staff acknowledges that the site is outside the ¼ and ½ mile walking distance from the Braddock Metro station, and that its location will lack some of the amenities that other office locations include. Therefore, office development may be less desirable here than at other locations closer to a Metro station and, for example, significant retail space.

The applicant also contends that Class A office development is not economically viable at the Landbay L location. According to the Marshall Valuation Service, the cost to construct a Class A office building of good to excellent quality is approximately \$380 to \$390/ sq ft including soft and land costs. Based on comparable buildings within the City and standard accepted practices, staff believes the applicant’s estimate of the cost of construction of \$383/sq.ft. is a reasonably accurate reflection of the office construction market. According to the applicant, a Class A office space within Landbay L could achieve a rental rate of \$35 to \$36 /sq.ft. Based on a full service rental rate of \$35.50 per square-foot (the midpoint), a vacancy rate of 5 %, \$11/sq.ft. expenses, and a 7.5% to 8.5 % projected overall capitalization rates for new office construction, the projected values for a Class A office building in Landbay L would range from \$267 to \$303/sq.ft. of net rentable floor area, which is less than the \$380 to \$390/sq.ft. all-in costs to construct an office building.

Based on the above assumptions, a rental rate of approximately \$42 to \$45/sq.ft would be needed to support a Class A office building at this location. In comparison, the adjoining Braddock Place office buildings are achieving \$30-\$35/sq.ft, while buildings adjacent to the King Street Metrorail station and within Carlyle yield rents as high as \$40 to \$43/sq.ft.

Staff acknowledges that it would not be economically feasible to construct Class A office buildings in Landbay L based on current market conditions.

Future Planning For Landbay L:

While there are significant challenges, both in terms of location and economic feasibility, to Class A office development on Landbay L, the loss of office density raises other planning questions, including how best to arrange the remaining land uses and densities, whether there is a way to connect the area to the Braddock Metro for better access, and how best to maximize open space on the site. The size, shape and location of Landbay L create awkward development sites, and the design of the area must be coordinated with both the lower density neighborhood to the west and its high density neighbors to the east. Especially given the recently approved Braddock Metro Plan and the adjacent Jaguar development, the land use and design of Landbay L is challenging. Even without office density, the site is still relatively close to the Metro.



For all of these reasons, staff is requiring that Landbay L be evaluated as part of the comprehensive Potomac Yard planning process to ensure that its future development is appropriate, coordinates with adjacent uses, and supports the overall Potomac Yard Plan as well as the greater community. The Potomac Yard planning process is scheduled to begin in Winter 2009 and is likely to take 18 months to complete. Staff has added a CDD condition (*condition # 3A*) that prohibits the applicant or its successors from submitting a preliminary development plan until they have participated in the comprehensive planning process and the planning process has been completed. Because the applicant is concerned about the unknown future of that planning process and the potential for it not to conclude by the time the applicant seeks to proceed with development, Staff has included a condition allowing the applicant to submit a plan under the current development scheme in the form of a Development Special Use Permit (DSUP) if the comprehensive plan is not completed by January 2011. The applicant would still be subject to all of the applicable requirements for Potomac Yard.

H. Traffic and Transportation:

The total number of vehicle-trips that would be generated by the approved density and proposed density transfer from Landbays J and L to Landbay G would be the same. The approved density for Potomac Yard would generate approximately 1,624 AM peak hour vehicle trips and 1,954 PM peak hour vehicle trips, upon completion and full occupancy.

The density transfer would have relatively few impacts to the study intersections with no decreases in operations within the acceptable range. The study intersections would continue to operate at an overall acceptable LOS “D” or better in the AM and PM peak hour with the exception of Route 1/East Glebe Road which would operate at a LOS “E” during the PM peak hour with or without the commercial density transfer.

The applicant’s traffic analysis results, summarized in the table below for key areas intersections, indicate that the proposed change in the density transfer will not materially change traffic conditions from those of approved density.

Table 4: Comparison of total future Level of Service

Intersection	Approved CDD		Proposed CDD	
	Level of Service (Delay – sec./veh.)			
	AM	PM	AM	PM
Route 1 at E. Glebe Road	D(48.0)	E (61.2)	D(47.4)	E(61.8)
Route 1 at Swann Avenue	A(7.7)	B(10.2)	C(30.3)	B(10.2)
Route 1 at Custis Avenue	A(5.5)	A(3.4)	A(6.2)	A(3.2)
Route 1 at Howell Avenue	A(7.3)	A(5.6)	A(5.5)	A(3.2)
Route 1 at Slater’s Lane	C(22.6)	C(30.5)	C(22.5)	C(30.2)
Route 1 at Potomac Avenue	B(14.6)	C(32.4)	B(14.5)	C30.9)
Main Street at Monroe Avenue	B(14.6)	B(16.6)	B(11.9)	B(17.9)
Main Street at Potomac Avenue	D(38.1)	D(36.5)	D(37.9)	C(33.0)
Potomac Avenue at E. Glebe Road	A(4.4)	A(6.0)	A(5.1)	A(6.4)
Potomac Avenue at Swann Avenue	A(1.7)	A(1.6)	A(1.8)	A(2.1)
Potomac Avenue at Custis Avenue	A(1.1)	A(0.7)	A(1.0)	A(0.7)
Potomac Avenue at Howell Avenue	A(1.0)	A(3.4)	A(1.0)	A(3.9)

I. Parking:

Underground Parking

The Potomac Yard/Potomac Greens Chapter of the Master Plan currently states:

“Required parking in the CDD shall be underground or embedded within the block, to the maximum extent possible. Required parking for individual townhomes and other single family units shall be served by alleys to the maximum extent feasible.”

While the Potomac Yard approvals currently strongly encourage underground parking, staff is recommending (*condition # 11A*) that as part of this amendment parking for all uses (exclusive of townhomes and stacked townhomes) be located below grade, with the exception of one above grade parking structure in Landbay-G, which needs to be screened with active and/or architectural screening. It has been City policy for development special use permit approvals that all parking be provided below grade to ensure that people density is added above grade rather than car density, ensure that active uses are on each building frontage and eliminate the mass of above grade parking structures. Staff is therefore recommending that a condition be added to the CDD conditions and Master Plan which states:

“All parking for all building(s) and/or Landbay(s) shall be underground, with the exception of one above grade parking structure within Landbay G which shall be entire screened with active and/or architectural screening. Required parking for individual townhomes and other single family units such as stacked and duplex units shall by rear alleys.”

Parking – Affordable Housing:

Current Potomac Yard CDD requirements prohibit the residential units from requesting a parking reduction, and the lack of flexibility in the rule hinders creativity with regard to additional on-site affordable housing units. While not an amendment requested by the applicant, staff is recommending that on-site affordable units that comply with the affordable housing requirements of Section 7-700 of the Zoning Ordinance and/or the City’s Affordable Housing policy be permitted to request a reduction in the amount of required parking spaces. A parking reduction may be a way to enable additional on-site affordable units because the expense of parking could be reduced or eliminated for each unit. The parking reduction would be a special use permit that would require approval by the Planning Commission and City Council on a case-by-case basis for each building and/or landbay(s).

Parking – Shared Parking:

Staff is recommending an amendment to *condition # 10* to allow shared parking within Landbay G and Landbay H as part of the development special use permit approval process for development there. Shared parking operates by allowing the parking for a use that is not being used to accommodate other land uses located near a subject parking

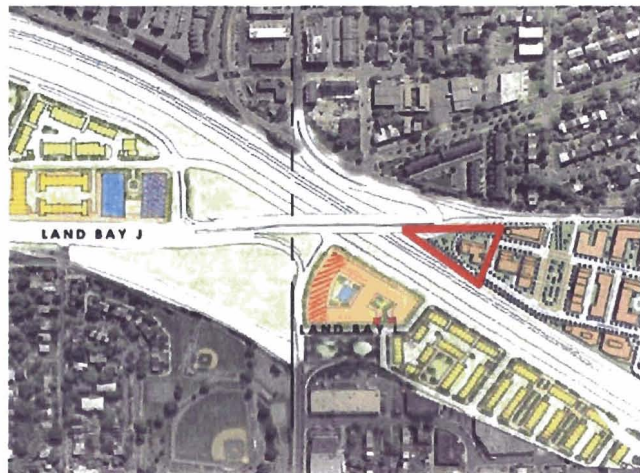
facility, thereby reducing the total amount of land used for parking. Shared parking in the higher density areas, such as Landbays G and H, has the potential of creating a more efficient use of the considerable underground parking that will be provided for the retail, office and residential uses within each landbay. The shared parking could serve both public and private uses; and would be workable with uses such as the office and residential uses which have a complimentary peak period usage. It could also function to allow access for public events such as City functions within the linear park (Landbay K) or the town green (Landbay G) or for activities at the fire station. While shared parking has not been used on a large scale in Alexandria, staff believes allowing the flexibility to share parking spaces is a good idea to better utilize the parking resources within Potomac Yard.

J. Open Space - Landbays- J, L and N:

One of the issues raised by the proposed transfer of density is whether the amount of open space has increased in Landbays J and L as a result of the significant reduction in office space there. The answer is that it does theoretically but, depending on the location and types of building constructed (stacked townhouses, multi-family etc.) the amount of increased open space could vary dramatically. For example, if the majority of units are multi-family buildings versus townhomes the amount of open space would probably increase substantially. However, if the majority of the units are townhomes, the amount of open space would probably not increase significantly.

Staff believes that there should be a requirement for additional open space within Landbay J and Landbay L as part of the amendment. However, additional analysis is needed in each case before a specific amount or location for open space can be calculated. Therefore, staff is recommending that the Potomac Yard Design Guidelines for each of these landbays be revised to reflect the revised open space prior to the submission of development plans for Landbay J and/or Landbay L. This will allow the applicant to prepare more detailed development plans for Landbay J and Landbay L and allow a more detailed review and analysis of potential additional open space within each of the landbays.

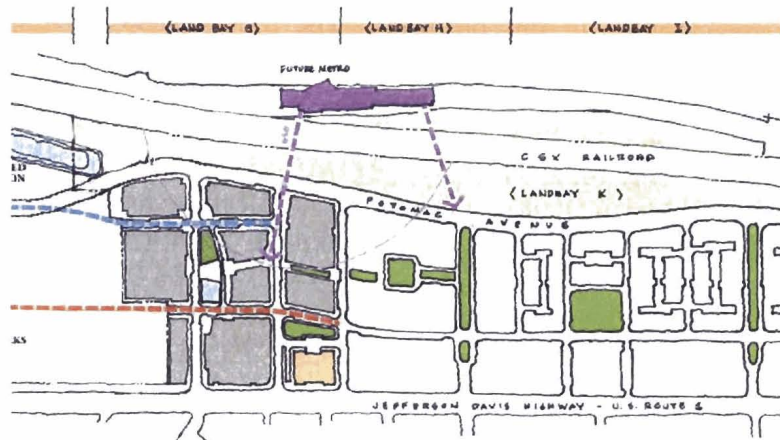
In addition to the revision to the design guidelines for Landbays J and L, staff is also recommending that Landbay N be dedicated to the City or a public access easement be provided for this triangular shaped piece of property adjacent to the bridge. While this landbay is part of the Potomac Yard approvals, the Concept Plan does not allocate density to this landbay.



When the Concept Plan was originally approved in 1999, the possible realignment of the Monroe Avenue bridge was not finalized and potential redevelopment of the properties within the Braddock Metro area was unclear. However, with the current realignment of the new Route 1 bridge, the recent adoption of the Braddock Metro Plan and the recent approval of the Jaguar development, the land-use and planning approvals have identified this area as an opportunity for a gateway to the Braddock neighborhood and a location for a landscaped area and possible pedestrian connection. In fact, when the Jaguar development was recently approved a condition of approval required the Jaguar development to improve this triangular area with landscaping and pedestrian improvements. Staff is recommending that this approximately 2.78 acre site be dedicated to the City for open space or a perpetual open space easement be provided to ensure that this area remains open and functions as a gateway to the Braddock neighborhood. Staff is recommending that the area be dedicated or a public access easement be provided prior to preliminary development plan approval for Landbays H, I or J.

K. Possible Metro Station:

As part of the proposed amendments to Potomac Yard, staff prepared a conceptual analysis of possible funding sources for a Metro station at Potomac Yard. (see Attachment #1) In summary, based on the current level of review and certain development assumptions for Potomac Yard, sufficient new tax revenues to finance a Metrorail station could be generated at full build out of Land Bays G and H, as well as the Potomac Yard retail center. However, those revenues will grow incrementally over a decade or more until they reach their peak. The challenge



for the City if it decides to proceed with building a new Metro station in Potomac Yard will be to develop a financing plan which provides borrowing for upfront construction funding for the Metrorail station and then structures an amortization plan to repay that borrowing. Any plan of finance will also need to be consistent with the City's overall debt management practices and long range capital financing goals.

Because Landbay G and Landbay H can be redeveloped even if a Metro station is not constructed, the City will need to determine if the investment of new taxes generated by the development in the PYRC and Landbays G and H provides a sufficient return on investment in overall community long-term transportation benefits to be warranted.

L. Fiscal:

Based on 2008 real estate tax assessments, the City currently receives about \$0.6 million in real estate taxes from Landbays G and H. At full build out, if the density transfer is approved, Landbays G, H and partial I would include some 1.6 million square feet of office and retail units, as well as 848 residential units and 625 hotel rooms. When complete, the real estate assessed value would total approximately \$1.1 billion. At the current City real estate tax rate of 84.5 cents, this \$1.1 billion in future property value would generate \$9.6 million in real estate taxes annually. In addition, the retail and 625 hotel rooms in Landbays G and H would generate \$2.8 million per year in sales, meals and transient occupancy taxes. Hotel occupancy taxes would produce \$2.6 million of this \$2.8 million. In total, the direct tax revenue impact at full buildout Landbays G, H and partial I in 2008 dollars would \$12.4 million in annual tax revenues generated for the City. While City expenditures would increase to support this development, such expenditures would utilize only a small amount of the \$12.4 million in annual tax revenue generated.

VI. COMMUNITY PROCESS:

There has been a full and open public process in the preparation, review and consideration of this proposal. The following is a list of meetings with the Planning Commission, PYDAC, and the community.

May 29, 2008	Community Meeting #3 & PYDAC #4 (scheduled)
May 14, 2008	PYDAC #3
May 6, 2008	Planning Commission Work Session
April 29, 2008	Community Meeting #2
April 9, 2008	PYDAC Meeting #2
April 3, 2008	Community Meeting #1
March 12, 2008	PYDAC Meeting #1

VII. CONCLUSION:

Staff recommends **approval** of the applicant's Master Plan, zoning text and CDD concept plan amendments, subject to the recommended conditions below. The proposed amendments transfer office density to support the Town Center, allow increased height consistent with the transferred office density, allow increased retail space to support the Town Center, and allow greater flexibility as to residential uses. These changes, while significant, retain the same goals as the land use and design concepts approved in 1999 for Potomac Yard while helping to make those concepts more feasible and achievable.

STAFF: Faroll Hamer, Director, Department of Planning & Zoning;
Jeffrey Farner, Deputy Director, P&Z
Terry Russell, Principal Planner, P&Z
Claire Gron, Urban Planner, P&Z
Matthew North, Urban Planner, P&Z
Tom Culpepper, Deputy Director, T&ES

Introduction -- Findings

- F-1. The applicant, Commonwealth Atlantic Properties ("CAP"),¹ has submitted various documents related to its application for approval of a concept plan for the Potomac Yard/Potomac Greens Coordinated Development District,² less the portion of the district known as Old Town Greens, which is located on the east side of the Metro rail tracks, between Slater's Lane and the Potomac Greens site.³ Two of these documents are considered to constitute the applicant's Proposed Concept Plan for this CDD: (1) the plan sheet entitled "Conceptual Design Plan, Overall Plan, Potomac Yard/Potomac Greens Coordinated Development District," dated "05/99" (hereinafter referred to as the "Proposed Overall Plan Sheet"); and (2) the document entitled "Potomac Yard Urban Design Guidelines," dated March 12, 1999, and reissued April 28, 1999 (referred to as the "Proposed Design Guidelines").⁴
- F-2. The concept plan that is being recommended for approval for the Potomac Yard/Potomac Greens Coordinated Development District (the "**Concept Plan**") consists of the following:
- (a) the Proposed Overall Plan Sheet, as modified by staff to reflect the changes which staff is recommending to the applicant's proposal (this modified sheet is referred to as the "**Concept Plan Sheet**" and is attached as Attachment A-1);
 - (b) the Proposed Design Guidelines, as modified by staff to reflect the changes which staff is recommending to the applicant's proposal (these modified guidelines are referred to as the "**Concept Plan Design Guidelines**" and are attached as Attachment A-2); and
 - (c) the conditions set out below under the heading, "Plan Conditions" (the "**Concept Plan Conditions**").
- F-3. In addition, an alternative to the Concept Plan is also being recommended for approval, although this recommendation, as explained below in paragraph 4, is conditioned upon the occurrence of certain events in the future. This alternative concept plan is referred to as the "**Alternative Concept Plan**." The Alternative Concept Plan consists of the following:

¹ Unless the context plainly indicates otherwise, the term "CAP" includes any successor to the applicant "CAP's interest in any of the property which makes up the Potomac Yard/Potomac Greens Coordinated Development District. Thus, obligations imposed on "CAP" by these conditions are also imposed on those to whom CAP conveys property within the Coordinated Development District.

² Other documents submitted by CAP in conjunction with its application, including the application itself, the illustrative concept plan, and responses to issues raised by the City are considered background and information materials, and are not included in any concept plan that is being recommended for approval. CAP's entire concept plan application is contained in a separate three-ring binder.

³ Hereinafter, the terms "Potomac Yard/Potomac Greens Coordinated Development District" and the "CDD" shall refer to the portion of this coordinated development district that is covered by CAP's concept plan application.

⁴ The Proposed Overall Plan Sheet and the Proposed Design Guidelines are set out following tab 2 and tab 3, respectively, in the separate three-ring binder that contains CAP's concept plan application.

- (a) the Concept Plan Sheet, as modified by staff to reflect the changes which this conditional plan makes to the Concept Plan (this modified sheet is referred to as the “**Alternative Concept Plan Sheet**” and is attached as Attachment B-1);
- (b) the Concept Plan Design Guidelines, as modified by staff to reflect the changes which the conditional plan makes to the Concept Plan (these modified guidelines are referred to as the “**Alternative Concept Plan Design Guidelines**” and consist of the Concept Plan Design Guidelines less the pages of these guidelines which need to be revised to incorporate changes called for by the conditional plan, plus replacement pages for the removed pages that contain these changes (the “**Replacement Pages**” which are attached as Attachment B-2); and
- (c) the conditions set out below under the heading, “Plan Conditions” (the “**Alternative Concept Plan Conditions**”).⁵

F-4. The major land use distinction between the Concept Plan and the Alternative Concept Plan involves the portion of the CDD that lies west of the relocated rail lines and generally to the south of Howell Avenue (extended into the CDD). In this area, the Alternative Concept Plan primarily differs from the Concept Plan in that it provides: (i) for the elimination of the current Monroe Avenue bridge and of the current Route 1 roadway between Monroe Avenue and Howell Avenue; (ii) for the construction of a new road structure that provides a direct and relatively straight connection between the intersection of Route 1 and Slater's Lane, at the east end of the current Monroe Avenue bridge, and Route 1 in the vicinity of Howell Avenue (the “New Route 1 Connector”); (iii) for the realignment of certain streets, including Monroe Avenue and its tie-in to the New Route 1 Connector; and (iv) for changes in proposed land uses and proposed areas of open space largely in this portion of the CDD.

Plan Conditions⁶

The Alternative Concept Plan Trigger Condition

1. The Concept Plan shall be the operative concept plan for the CDD, under § 5-604 of the Zoning Ordinance, unless and until the condition set forth in this paragraph (the “Trigger”) is timely satisfied and written notice of its satisfaction is provided by the City Manager to CAP, in which case the Alternative Concept Plan shall become and remain the operative concept plan for the CDD until amended or rescinded by City Council. The Trigger is as follows:
 - (a) On or before October 1, 2000, CAP shall prepare, and submit to the City for its review and its approval or disapproval (which review shall not exceed 120 days), construction documents, in sufficient detail to obtain construction bids, for both the infrastructure to be

⁵ The Alternative Concept Plan Conditions differ primarily from the Concept Plan Conditions in that they contain additional provisions that address the construction of the New Route 1 Connector (a term defined in paragraph 4), the demolition of the Monroe Avenue bridge and the realignment of Monroe Avenue.

⁶ These conditions are applicable to, and are a part of, both the Concept Plan and the Alternative Concept Plan, except where otherwise expressly provided in the paragraphs below or where it is obvious from a condition that it applies only to one plan.

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001

Potomac Yard

constructed and the related work to be undertaken pursuant to the "Route 1/Monroe Avenue Bridge/Potomac Avenue Connection Design -- Concept Plan," (the "Concept Plan Connection Design") and the infrastructure to be constructed and the related work to be undertaken pursuant to the "Route 1/Monroe Avenue Bridge/Potomac Avenue Connection Design -- Alternative Concept Plan" (the "Alternative Concept Plan Connection Design.") (These two "Connection Designs," which show alternative ways of connecting the new "spine road," or Potomac Avenue, with Route 1 and, more generally, the different infrastructure schemes for the portion of the CDD that lies, generally, between the northern side of Howell Avenue (extended into the CDD) and the southern side of the Monroe Avenue bridge, are shown in the document entitled "Route 1/Monroe Avenue Bridge/Potomac Avenue Connection Concept Design --Two Options," which is attached as Attachment C.)

- (b) After receiving the City's approval of the construction documents, CAP shall obtain from construction and engineering (and any other appropriate professional) firms, which are acceptable to the City, estimates of the construction cost for each of these two Connection Designs. The cost estimate for the Concept Plan Connection Design shall be known as the "Concept Plan Cost Estimate," and the cost estimate for the Alternative Concept Plan Connection Design shall be known as the "Alternative Concept Plan Cost Estimate." No later than 120 days after receiving the City's approval of the construction documents, CAP shall submit the Concept Plan Cost Estimate and the Alternative Concept Plan Cost Estimate, along with detailed information showing the basis for each estimate, to the City for its review and approval. The City shall have 150 days from its receipt of the Concept Plan Cost Estimate and the Alternative Concept Plan Cost Estimate to review and determine whether or not to approve them.
- (c) No later than 90 days after its approval of the Concept Plan Cost Estimate and the Alternative Concept Plan Cost Estimate (the "Trigger Deadline"), and based on these estimates, the City shall determine whether it will assume responsibility for the difference between (i) the actual cost for constructing the Alternative Concept Plan Connection Design generally in accordance with the construction documents approved by the City pursuant to subparagraph (a) (the "Alternative Concept Plan Actual Cost") and (ii) the projected "actual" cost for constructing the Concept Plan Connection Design (the "Concept Plan Projected Actual Cost"), such difference to be known as the "Plan Cost Difference."

The Concept Plan Projected Actual Cost shall be the sum of (i) an amount equal to the Concept Plan Cost Estimate less the Concept Plan Estimated Special Cost -- Total (as defined below), multiplied by the fraction which has as its numerator an amount equal to the Alternative Concept Plan Actual Cost less the Alternative Concept Plan Actual Special Cost -- Total (as defined below), and as its denominator an amount equal to the Alternative Concept Plan Cost Estimate less the Alternative Concept Plan Estimated Special Cost -- Total (as defined below), and (ii) an amount equal to the sum of five individual amounts calculated separately on the basis of the following formula for each Special Cost (as defined below): the Concept Plan Estimated Special Cost (as defined below), multiplied by the fraction which has as its numerator the Alternative Concept Plan Actual Special Cost (as defined below) and as its denominator the Alternative Concept Plan Estimated Special Cost (as defined below).

For each Special Cost, the Concept Plan Estimated Special Cost shall be defined as the portion of the Concept Plan Cost Estimate that is estimated for the particular Special Cost; the Alternative Concept Plan Actual Special Cost shall be defined as the portion of the Alternative Concept Plan Actual Cost that consists of the particular Special Cost; and

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001

Potomac Yard

the Alternative Concept Plan Estimated Special Cost shall be defined as the portion of the Alternative Concept Plan Cost Estimate that is estimated for the particular Special Cost. The Concept Plan Estimated Special Cost -- Total shall equal the sum of the Concept Plan Estimated Special Cost for all Special Costs. The Alternative Concept Plan Actual Special Cost -- Total shall equal the sum of the Alternative Concept Plan Actual Special Cost for all Special Costs. The Alternative Concept Plan Estimated Special Cost -- Total shall equal the sum of the Alternative Concept Plan Estimated Special Cost for all Special Costs.

A Special Cost shall be defined to be the cost to accomplish, or the cost otherwise associated with, each of the following matters which relate to activities that will be undertaken in the course of implementing the Concept Plan Connection Design, the Alternative Concept Plan Connection Design, or both.

- (1) **Special Cost -- Demolition:** the cost to remove the existing Monroe Avenue bridge, including removal of bridge abutments, approach lanes to the bridge, and subsurface structures supporting the bridge, and disposal of waste materials, but excluding any cost premium or cost saving under subparagraph (c)(5). It is anticipated that this cost, for the most part, would be incurred in the implementation of the Alternative Concept Plan Connection Design, but not in the implementation of the Concept Plan Connection Design;
- (2) **Special Cost -- Maintenance of Traffic:** the cost of activities required to maintain acceptable traffic conditions on Route 1 (e.g., placement or construction of temporary structures) and of the consequences that such activities or other traffic maintenance requirements will have on other construction activities (e.g., increased cost due to construction activities having to be performed outside of normal hours, or due to limitations being placed on the hours in a period during which construction activities may take place), but excluding any cost premium or cost saving under subparagraph (c)(5). It is anticipated that this cost would be incurred in the implementation of both the Concept Plan Connection Design and the Alternative Concept Plan Connection Design, but that the cost would be higher under the latter plan;
- (3) **Special Cost -- Relocation of Utilities:** the cost to relocate existing underground utilities, but excluding any cost premium or cost saving under subparagraph (c)(5). It is anticipated that this cost would be incurred in the implementation of both the Concept Plan Connection Design and the Alternative Concept Plan Connection Design, but that the cost would be higher under the latter plan;
- (4) **Special Cost -- Soils:** the cost of activities associated with the foundation systems of the bridge or bridge system connecting Route 1, at its intersection with Slater's Lane, with a roadway within the presently-defined Potomac Yard, which activities are required by actual soil conditions within the Yard that differ from the conditions that were used in preparing the cost estimates under subparagraph (b) above, but excluding any cost premium or cost saving under subparagraph (c)(5). It is anticipated that this cost would be incurred in the implementation of both the Concept Plan Connection Design and the Alternative Concept Plan Connection Design, but that the cost would be higher under the latter plan; and

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard

- (5) **Special Cost -- City Construction:** the cost premium or the cost saving, regardless of the cost item, due to the City itself undertaking the construction of a portion of the Alternative Concept Plan Connection Design pursuant to subparagraph (e) below. This cost premium or cost saving, if any, would be incurred only if the Alternative Concept Connection Design were constructed and the City were to decide to construct a portion of this connection design.
- (d) If the City determines that it will assume responsibility for the Plan Cost Difference, and if it conveys this determination in writing to CAP on or before the Trigger Deadline, then the Concept Plan shall no longer be of any force or effect, and shall be replaced by the Alternative Concept Plan as the operative concept plan, under § 5-604 of the Zoning Ordinance, for the CDD. If the City determines that it will not assume responsibility for the amount of the Plan Cost Difference, or if it conveys no determination to CAP before the Trigger Deadline, then the Concept Plan shall remain the operative concept plan, under § 5-604 of the Zoning Ordinance, for the CDD.
- (e) If the City determines that it will assume responsibility for the Plan Cost Difference, then it shall exercise that responsibility either by constructing a portion of the Alternative Concept Plan Connection Design that has a construction cost equal to the amount of the Plan Cost Difference, by contributing the amount of the Plan Cost Difference toward CAP's construction of the Alternative Concept Plan Connection Design, or by otherwise making funds equal in amount to the Plan Cost Difference available for the construction of the Alternative Concept Plan Connection Design. Whether the City constructs a portion of the Alternative Concept Plan Connection Design, contributes toward the construction of the Alternative Concept Plan Connection Design or otherwise makes funds available toward such construction is a determination to be made by the City in its sole discretion.
- (f) In the event that the Alternative Concept Plan becomes the operative concept plan pursuant to subparagraph (d) above, within 90 days of submission by the Applicant to the City of the preliminary development plan for a development consisting of 250,000 square feet or less or, if larger, for a development consisting of a single building, which development, upon completion, would require, in order to secure a certificate of occupancy for all its square footage, completion of the infrastructure improvements described in subparagraphs 15(a) and 15(d) below (the "Trigger Plan"), the City shall provide the Applicant with evidence that funds for the Plan Cost Difference will be available for the purpose of constructing the Alternative Concept Plan Connection Design within one year of the date such evidence is provided. In the event that such evidence cannot be provided by the City within the required time period, then the Alternative Concept Plan shall no longer be of any force or effect, and shall be replaced by the Concept Plan as the operative concept plan, under § 5-604 of the Zoning Ordinance, for the CDD.

- (g) In the event the City disapproves construction documents submitted to it by CAP under subparagraph (a), or disapproves the Concept Plan Cost Estimate or Alternative Plan Cost Estimate submitted to it by CAP under subparagraph (b), the City shall, at the same time it notifies CAP of its disapproval, inform CAP of the basis for its disapproval. Thereafter, and within a reasonable period of time, CAP shall revise the construction documents or adjust the cost estimates to address the basis for the City's disapproval, and submit the revised documents or adjusted estimates to the City for its approval or disapproval, which the City shall provide within 60 days of its receipt of the CAP submission. This process shall continue until City approval of the construction documents or cost estimates has been obtained. Notwithstanding any other provision of this paragraph, the City shall not unreasonably withhold its approval of any construction documents or any costs estimates submitted to it by CAP.

General

2. Any preliminary development plan for the CDD, filed or pursued under § 5-605 of the Zoning Ordinance, shall be consistent with, and shall meet all requirements which are part of, the Concept Plan or, if in effect, the Alternative Concept Plan, including the design guidelines which are part of the operative concept plan; provided, that no preliminary development plan for any portion of the CDD to the west of the relocated rail lines and to the south of Howell Avenue (extended into the CDD), and no site plan proposing a permitted or special use in this portion of the CDD, may be filed or pursued by CAP prior to the Trigger Deadline.

Uses

- 3A. **(NEW CONDITION)** A preliminary development plan and/or any associated development and/or zoning applications for Landbay L shall not be submitted for review to the City prior to a comprehensive analysis by the City of Potomac Yard including but not limited to Landbay L and all associated and applicable Master Plan and/or zoning approvals have been approved by the City. In the event the City has not approved all necessary Master Plan and/or zoning approvals as part of the comprehensive review of Potomac Yard including but not limited to Landbay L by January 1, 2011, Potomac Yard Development LLC ("PYD"), or its successors shall be permitted to file a development plan for Landbay L which shall be subject to all applicable provisions of the CDD Concept Plan, transportation management plan, Potomac Yard Design Guidelines and Zoning Ordinance.
- 3B. **(REVISED CONDITION)** CAP may transfer square footage that is approved in the Concept Plan or, if in effect, the Alternative Concept Plan from one to another landbay, with the approval of the Director of P&Z, subject to the following limitations:
- (a) no transfer shall cause the net square footage of retail use or office use, or the number of dwelling units, in a landbay (i.e., whether the transferor or transferee landbay) to increase or decrease by 15% or more from the net retail square footage or the net office square footage, or the number of dwelling units, approved for that landbay in the Concept Plan or, if in effect, the Alternative Concept Plan;
- (b) no transfer shall cause or result in the decrease transfer of any square footage of retail use from landbay "G" (the "Town Center"); and

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard

- (c) no transfer shall cause or result in a change to any element in or part of the Concept Plan or, if in effect, the Alternative Concept Plan other than an increase or decrease in the amount of retail or office use, or in the number of dwelling units, that is consistent with subparagraph (a).
- (d) Office floor area within Landbay G and/or Landbay H may be converted to ground floor retail use through a special use permit provided that the conversion occurs as part of the development plan for each Landbay(s) and shall also be subject to the following:
- (i) Any conversion of office floor area to retail floor area shall occur on a one for one gross floor area for the office and retail uses.
 - (ii.) For Landbay G, the conversion shall not decrease the amount of ground floor retail floor area below 80,000 sq.ft. and the conversion shall not allow an overall retail floor area above 195,000 sq.ft.
 - (iii.) For Landbay H, the conversion shall not decrease the amount of ground floor retail floor area below 5,000 sq.ft. and the conversion shall not allow an overall retail floor area above 20,000 sq.ft.
4. **(REVISED CONDITION)** For purposes of these concept plan conditions, "retail" is defined to include retail shopping establishments, restaurants, personal service establishments, banks, amusement enterprises, health clubs and any other activity that involves a significant degree of pedestrian activity, as determined by the Director of P&Z. Within landbay "G," space approved for "retail" use shall only be occupied by retail use. ~~In landbays other than landbay "G," space approved for retail use may be utilized for a non-retail use if, after two years of continuous, reasonable marketing efforts, the space remains vacant.~~
- 4A. **(NEW CONDITION)** Potomac Yard Development LLC ("PYD"), or its successors, shall hire a LEED accredited professional as a member of the design and construction team for each landbay(s) and/or building(s). The accredited professional(s) shall incorporate sustainable design elements and innovative technologies into the project. The office/commercial building(s) with the exception of Landbay F shall achieve LEED certification under the U.S. Green Building Council's System and incorporate sustainable design elements and innovative technologies into the project. The residential buildings, with the exception of Landbay F shall explore the possibility of LEED certification under the U.S. Green Building Council's System or comparable program including but not limited to Earthcraft. PYD or its successors shall also work with the City for reuse of the existing building materials as part of the demolition process.
- 4B. **(NEW CONDITION)** The Potomac Yard Design Guidelines for Landbay H shall be amended to reflect the additional office floor area permitted through CDD Concept Plan Amendment 2008-0001 and shall be consistent with the Design Guidelines for the Town Center. At a minimum, the Design Guidelines for Landbay H shall require all parking for the office buildings and multifamily buildings to be entirely below grade and provide for a pedestrian-friendly, barrier-free streetscape with active uses along a majority of the street frontage. The revised Design Guidelines shall be approved by the Planning Commission and City Council prior to or concurrent with the approval of a development special use permit for Landbay H.
- 4C **(NEW CONDITION)** Potomac Yard Development LLC ("PYD"), or its successors, shall increase the provided ground level open space as part of the approval of the preliminary development plan(s) for Landbay J and Landbay L. If a revised plan is approved for

Landbay L as required in condition 3A, the open space requirements of the comprehensive plan shall govern for Landbay L.

5. In addition to the preliminary development plan approval that is required for every building constructed within the CDD pursuant to an approved concept plan, any use locating within such a building, which is a "special use" under the regulations in effect at the time of this concept plan approval for the CD, CG or CL zone in the City's Zoning Ordinance, shall obtain a separate special use permit, pursuant to section 11-500 of the Zoning Ordinance.
6. Accessory residential units (e.g., Granny Flats) may be constructed within the CDD only if they are counted as residential units and all required parking is provided.

Open Space

7. The following open spaces within the CDD shall, upon the completion of their improvements, be dedicated by CAP to the City:
 - (a) the portion of Braddock Field, which is within Potomac Yard Park, as described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines (this portion of the field lies within the CDD and will be combined with public land adjacent to the CDD to form the field that is to be improved by CAP);
 - (b) Monroe Field No. 1, which is within Potomac Yard Park, as described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines;
 - (c) Monroe Field No. 2, which is within Potomac Yard Park (a playfield that staff has relocated from Potomac Greens to the Yard), as described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines;
 - (d) the remainder of Potomac Yard Park (i.e., Potomac Yard Park, less the three fields identified in subparagraphs (a) through (c); also referred to below as the "Potomac Yard Linear Park"), as described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines;
 - (e) the southern portion of CAP's proposed Rail Park (i.e. all of the proposed park except the northern most approximately 1.2 acres) that is described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines;
 - (f) Howell Park, as described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines;
 - (g) the finger parks along Custis Avenue and Swann Avenue, as described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines; and
 - (h) the portion of Potomac Greens Park that consists of approximately 16 acres of environmentally-protected land located in the northern and eastern portions of landbay A, and an additional parcel of approximately one acre located immediately adjacent to said portion of the park at the north end of the landbay A

development, as described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines.

All improvements to these and to the other open spaces within the CDD that are described in the Concept Plan Design Guidelines and the Alternative Concept Plan Design Guidelines, including the portion of the improvements to Braddock Field that will occur on the public property which is currently part of George Washington Middle School, shall be designed and constructed, including with respect to infrastructure and uses, in conformance with the Concept Plan Design Guidelines or, if in effect, the Alternative Concept Plan Design Guidelines, and shall be completed in accordance with the schedule in paragraph 15 below. The improvements to the open spaces identified in subparagraphs (a) through (h) above shall be completed by CAP, and accepted by the City, prior to the space being dedicated to the City. All dedicated open space, following its acceptance by the City, shall be maintained by the City. The remainder of the open spaces in the CDD shall not be owned by the City, and shall be privately maintained. However, a public access easement shall be conveyed by CAP to the City for all such non-dedicated open spaces (except the non-dedicated northern portion of Rail Park) which will provide access to these open spaces to members of the public (including, where appropriate, access for bicycle purposes); provided, that access to and use of one of such spaces, the Town Green on landbay G, may occasionally be limited to the owners and tenants of adjacent or nearby buildings, and their invitees, with the consent of the Director of Recreation, Parks and Cultural Affairs, which consent may not be unreasonably withheld.

8. **(REVISED CONDITION)** Landbay "E" (Four Mile Run) shall be made available by Potomac Yard Development LLC ("PYD"), or its successors, for commercial recreational uses, such as an ice rink, a tennis facility, a rock-climbing barn, a health club facility or a boating facility and may be made available for an ancillary restaurant use, commencing with approval of this concept plan for the CDD; provided, that, to the extent the approval of the National Park Service is necessary for such uses of this landbay, its approval shall be obtained. Landbay "E" shall be made available for these commercial recreational uses at rates that will attract and support them. If this landbay is not fully utilized in this manner at the time that any development within Landbay I or J has received final site plan approval, except for the site area 40-units already approved in Landbay I pursuant to DSUP #2004-0048, then PYD, or its successors, shall submit to the City an alternative plan for the landbay which provides for the provision of recreational amenities directly by PYD or its successors. Construction of any required improvements to Landbay "E" (Four Mile Run) shall occur prior to the issuance of a certificate of occupancy for any development in Landbay I or J except for the site area 40-units already approved in Landbay I pursuant to DSUP#2004-0048.

Grading

9. The portion of the CDD to the west of the relocated rail lines and to the south of Howell Avenue (extended into the CDD), to the district's southern boundary, shall be graded so that the grades in this part of the CDD are designed in accordance with good engineering practices and blend gradually, without any abrupt changes, into the existing grades of the adjacent neighborhoods and the George Washington Middle School.

Parking

10. **(REVISED CONDITION)** No parking reductions shall be requested for any residential uses within the CDD, except as provided for shared parking and on-site affordable units as set forth below and except for "Granny Flats" where the requirement may only be reduced to one space per flat and where a limited number of on-street parking spaces may be used to meet the parking requirement. A parking reduction may be approved as part of a development special use permit for any on-site affordable residential units provided that the units comply with all applicable requirements and standards of Sec. 7-700 of the Zoning Ordinance and/or the applicable provisions of the City's affordable housing policy. A parking reduction may be permitted as part of a comprehensive shared parking plan if approved as part of the development special use permit for each Landbay(s).
11. A minimum of 15% visitor parking, which may be on- or off-street, shall be provided for all residential uses.
- 11A **(NEW CONDITION)** Parking for all office, and residential multi-family building(s) and/or Landbay(s) shall be located underground with the exception of Landbay F, and with the exception of one above grade parking structure within Landbay G which shall be entirely screened with active and/or architectural screening. Required parking for individual townhomes and other single family units such as stacked and duplex units shall from rear alleys.

Phasing and Preliminary Development Plan Processing

12. The CDD Landbay, Infrastructure and Open Space Phasing Plan
 - (a) The very first preliminary development plan application (excluding the preliminary development plan for Braddock Field) that is filed for the CDD shall be accompanied by a "**CDD Landbay, Infrastructure and Open Space Phasing Plan**" (the "CDD Phasing Plan"), which shall be updated and submitted with each subsequent preliminary development plan application that seeks approval of one or more buildings or structures within the CDD. No such preliminary development plan shall be approved unless the Director of P&Z and the Director of T&ES have approved the CDD Phasing Plan which accompanies the development plan application. The initial and each updated CDD Phasing Plan is intended to inform the City of CAP's projections regarding the timing and nature of landbay, infrastructure and open space construction activities, and to ensure that the construction of the infrastructure systems identified below in subparagraph (b)(ii) is pursuant to a comprehensive plan, covering the entire CDD, that has been approved by the City. Notwithstanding the above, CAP may, at its discretion, submit an updated CDD Phasing Plan from time to time for review and approval by the Director of P&Z and the Director of T&ES; provided, that no such submission shall relieve CAP of the requirement that it submit an updated CDD Phasing Plan with each preliminary development plan application that seeks approval of one or more buildings or structures within the CDD.
 - (b) The initial and each subsequent CDD Phasing Plan shall satisfy the following conditions and requirements.
 - (i) As to landbays, the plan shall provide, for each landbay within the CDD, a general outline of the landbay and CAP's most up-to-date projection of

the times when construction of the different land uses (i.e., office, retail, hotel and residential) described in the operative concept plan for the landbay is likely to commence.

- (ii) As to infrastructure, the plan shall provide, for each of the systems of infrastructure identified below in this subparagraph, (x) the general location and layout of the major components, or the backbone, of the system (such components to be determined by the Director of T&ES), and (y) the times when construction of these major system components is expected to commence (provided, that the projected times for the commencement of construction of these components shall be consistent with the schedule in paragraph 15 below). The systems of infrastructure to be addressed are:
 - (A) the system of major streets to be constructed within the CDD, which shall consist of the streets identified below in paragraph 15 and the four major east-west streets to be constructed within the CDD (East Glebe, Swann, Custis and Howell);
 - (B) the sanitary sewer system to be constructed within the CDD, including the Trunk Sewer (as defined below in paragraph 22);
 - (C) the stormwater sewer system to be constructed within the CDD; and
 - (D) the utility systems to be constructed within the CDD (e.g., electricity, water, gas, phone/communications and cable).
- (iii) As to open spaces, the plan shall provide, as to each open space area identified in the design guidelines (except neighborhood open spaces) for the operative concept plan, (x) the general location of the open space, and (y) the time when construction of the improvements to the open space is expected to commence (provided, that the projected times for the commencement of construction of the improvements shall be consistent with the schedule in paragraph 15 below).

13. The Landbay Preliminary Infrastructure, Open Space and Use Plan

- (a) The first preliminary development plan that proposes the construction of a building or structure within a landbay in the CDD shall be accompanied by a "**Landbay Preliminary Infrastructure, Open Space and Use Plan**" (the "Landbay Preliminary Plan"). This plan shall (i) show, at a level of detail defined by the Director of T&ES, all streets and sidewalks, sanitary sewers, storm sewers, and utilities (e.g., electricity, water, gas, phone/communications and cable), and any other infrastructure items identified by the Director, that will be constructed within or otherwise to serve the landbay, (ii) show all the open spaces within the landbay, whether public or private, that are described in the operative concept plan, and (iii) show the general locations within the landbay of the other uses identified for the landbay in the operative concept plan. It is anticipated that the Director of T&ES will require the Landbay Preliminary Plan at least to contain preliminary plans and profiles for the streets and sidewalks, sanitary sewers, storm sewers and utilities to be constructed within or otherwise to serve the landbay. The Landbay Preliminary Plan that accompanies the first

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard

preliminary development plan for a landbay shall be submitted to City Council along with the development plan, and shall be approved by Council in conjunction with its approval of the development plan.

- (b) Any subsequent preliminary development plan for the same landbay that requires or involves modifications (including additions) to the previously approved Landbay Preliminary Plan shall be accompanied by a new Landbay Preliminary Plan which includes all such modifications and complies with subparagraph (a). This new plan shall be submitted to City Council along with the preliminary development plan, and shall be approved by Council in conjunction with its approval of the development plan.
 - (c) Within 60 days of the approval of the first preliminary development plan for a landbay, and within 20 days of the approval of all subsequent preliminary development plans for such landbay, the Director of T&ES shall identify the components of the landbay's streets and sidewalks, sanitary sewers, storm sewers and utilities (and other infrastructure items identified by the Director under subparagraph (a)) that are shown in the approved Landbay Preliminary Plan, and the components of the landbay's open spaces that are shown in that Landbay Preliminary Plan, for which final engineering plans, profiles and, where applicable, calculations shall be submitted along with the final site plan for the landbay development that has just received development plan approval. No final site plan for a building or structure within a landbay shall be released unless the Director of T&ES has received as part of the final site plan submission, and has approved, the engineering plans, profiles and calculations for the infrastructure and open space components which the Director had identified.
14. The Directors of T&ES and P&Z may require that infrastructure, open spaces, land uses and other matters located outside of the landbay that is the subject of a preliminary development plan application also be shown and addressed in the application, if they deemed it necessary to properly assess the proposed development plan.
15. **(REVISED CONDITION)** Construction of the infrastructure and open space improvements identified in the schedule below shall be commenced or completed in accordance with the dates or events in the schedule, unless a variation from the schedule is approved by City Council in conjunction with the approval of a preliminary development plan for the CDD. Following the completion of their construction, the new streets and the improvements to existing streets, which are identified in the schedule, shall be dedicated by CAP to the City.

Infrastructure Improvement

Commencement or Completion Date/Event

Streets

- (a) Potomac Avenue (Spine Road)⁷ --- Construction of this road from its tie-in with South Glebe Road or Crystal Drive in Arlington, to a tie-in with the New Route 1 Connector (see paragraph 15(d)), shall be completed and accepted prior to release of the final site plan for any development in Landbay I or J, except for the site area ~~10 units~~ in Landbay I already approved pursuant to DSUP #2004-0048. Notwithstanding anything in this subparagraph (a) to the contrary, unless construction of this road has already occurred pursuant to this subparagraph, construction of the Spine Road from its tie-in with either South Glebe Road or Crystal Drive in Arlington to a tie-in, at grade, with current Route 1 in the vicinity of Windsor Avenue (or another location determined by the Director of T&ES) shall be completed before the issuance of a certificate of occupancy for 2,000,000 square feet of any new development in this portion of the CDD for which final site plan approval is given after the date of concept plan approval.
- (b) Main Street and South Main Street---Construction shall occur in phases with each landbay, and such construction shall be completed by the date or event described in the initial preliminary development plan approval for the landbay
- (c) Route 1 Improvements⁹ ----- Construction of the Route 1/transitway improvements from Howell Avenue to East Glebe Road shall commence within 90 days of infrastructure plan approval for the Route 1 Corridor Improvement Plan, including the transitway, and shall thereafter be diligently pursued to completion, subject to an agreement between the City and the Applicant for shared financial responsibility for the improvements.

⁷In the event the Alternative Concept Plan is in effect, and the City elects, under paragraph 1(e) above, to construct all or a portion of Potomac Avenue (the Spine Road), then the Applicant's ability to develop and receive certificates of occupancy within the CDD shall be affected by the date on which the construction of Potomac Avenue is completed only (i) if the City commences construction at or before the time that the construction would have been commenced by Applicant in order to have the construction completed within the deadlines in this subparagraph (a), and (ii) if the City thereafter diligently pursues the construction to completion.

⁹ Intentionally deleted.

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard

- (d) Monroe Avenue bridge removal ---- Demolition of the current bridge, construction New Route 1 Connector and of the new connector and realignment of Monroe Avenue realignment¹⁰ Monroe Avenue shall be completed before the issuance of a certificate of occupancy for the earliest of the following: (i) for 800,000 square feet of new office development in the portion of the CDD west of the relocated rail lines (including office development consisting of interim, permitted and special uses), for which final site plan approval is given after the date of concept plan approval; (ii) for 1,750,000 square feet of any new development in this portion of the CDD (including development consisting of interim, permitted and special uses, but excluding hotel uses), for which final site plan approval is given after the date of concept plan approval; or (iii) for 3,250,000 square feet of any new development in this portion of the CDD and/or in the Arlington County portion of the Potomac Yard (including development consisting of interim, permitted and special uses, but excluding hotel uses), for which final site plan approval is given after the date of concept plan approval
- (e) East Glebe Road¹¹ -----Construction shall be completed by the date or event described in the initial preliminary development plan approval for landbay G
- (f) Swann Avenue----- Construction shall be completed by the date or event described in the initial preliminary development plan approval for landbay H

¹⁰ These infrastructure items are only required under the Alternative Concept Plan. See paragraph 4 above. Realignment of Monroe Avenue shall include tying the avenue into the street system within the CDD in a manner approved by the Director of T&ES. In addition, in the event the Alternative Concept Plan is in effect, and the City elects, under paragraph 1(e) above, to undertake all or a portion of the Monroe Avenue bridge removal, or of the construction of the New Route 1 Connector or the Monroe Avenue realignment, then the Applicant's ability to develop and receive certificates of occupancy within the CDD shall be affected by the date on which the construction of the New Route 1 Connector or of the Monroe Avenue realignment is completed only (i) if the City commences the removal or construction, or if applicable both the removal and construction, at or before the time that it would have been commenced by Applicant in order to have the removal and construction completed within the deadlines in this subparagraph (d), and (ii) if the City thereafter diligently pursues the removal and construction to completion.

¹¹ The streets addressed in subparagraphs (e) through (h) are east-west streets that are to be constructed within the CDD.

- (g) Custis Avenue ----- Construction shall be completed by the date or event described in the initial preliminary development plan approval for landbay I
- (h) Howell Avenue ----- Construction shall be completed by the date or event described in the initial preliminary development plan approval for landbay J

Sewers

- (i) Trunk Sewer¹² (to the wastewater ----- See paragraphs 22 and 23 below treatment plant operated by the Alexandria Sanitation Authority)
- (j) Collection System¹³ ----- See paragraph 24 below
- (k) Stormwater sewers ----- See paragraph 26 below

Stormwater Treatment

- (l) Master stormwater quality concept----- See paragraph 27 below plan

Open Space Improvement

Commencement or Completion Date/Event

- (m) Braddock Field¹⁴ ----- A preliminary development plan for the construction of this field shall be submitted to the City within four months of CAP's receipt of all necessary City and School Board consents to use public property on the site of the George Washington Middle School (see note 14); a final development plan shall be submitted to the City within two months of preliminary development plan approval; construction shall commence within three months of City approval of such final development plan, and shall thereafter be diligently pursued to completion.
- (n) Monroe Fields (final fields) ----- In the event the City determines not to assume responsibility for the Plan Cost Difference under paragraph 1 above, a preliminary development plan shall be submitted to the City within three months of such determination, a final development plan shall be submitted to the City within two months of the approval of the

¹² The Trunk Sewer is defined in paragraph 22 below.

¹³ The Collection System is defined in paragraph 24 below.

¹⁴ Braddock Field includes public land that is currently part of George Washington Middle School. The improvement of Braddock Field, therefore, requires the cooperation and consent of the City and the School Board.

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001

Potomac Yard

preliminary development plan, and construction shall be commenced within three months of the approval of the final development plan and thereafter diligently pursued to completion; in the event the City determines to assume responsibility for the Plan Cost Difference under paragraph 1 above, construction shall commence within three months of completion of construction of the New Route 1 Connector and there-after be diligently pursued to completion.

(o) Monroe Fields (interim fields)¹⁵ ----- A plan for the construction of these fields shall be submitted to the City within four months of concept plan approval; construction shall commence within three months of City approval of such plan, and shall thereafter be diligently pursued to completion

(p) Pedestrian Bridge across rail tracks-- Potomac Yard Development LLC ("PYD"), or its successors, shall submit the pedestrian bridge design and location and all applicable documents for the pedestrian bridge across the WMATA and CSX rail tracks by March 1, 2008. The design of the pedestrian bridge shall be in consultation with the Potomac Yard Design Advisory Committee and the Park and Recreation Commission. The bridge design and location for the pedestrian bridge shall require review and approval by the Planning Commission and City Council. Construction of the pedestrian bridge shall commence prior to preliminary site plan approval for any development in Landbay I or J, except for the site area ~~10 units~~ already approved in Landbay I pursuant to DSUP# 2004-0048. If the City has not approved the bridge design and location for the pedestrian bridge prior to October 31, 2008, PYD, or its successors, shall make a monetary payment including a reasonable cost escalation clause to the City equivalent to the design, construction and all applicable costs of the pedestrian bridge, such costs shall be mutually agreed upon by the City and PYD. The monetary payment shall be made prior to

¹⁵ The final Monroe Fields are unlikely to be constructed for many years. Therefore, CAP shall construct two fence-enclosed, regulation-size interim soccer fields, with parking for 65 vehicles and vehicular access to Route 1, at a location within the portion of the CDD west of the relocated rail lines which is approved by the Director of P&Z. Once the construction of these fields has been accepted by the City, the fields shall be operated and maintained by the City. These interim fields shall remain in use until construction of the final Monroe Fields is completed or, if earlier, the City determines no longer to utilize the interim fields.

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard
preliminary site plan approval for any future
development in Landbay I or J, except for the
site area 10 units already approved in Landbay I
pursuant to DSUP# 2004-0048

(q) Potomac Yard Linear Park¹⁶ ----- Construction shall occur in conjunction with the development of each landbay which is adjacent to the Linear Park, and shall be completed by the date or event described in the initial preliminary development plan approval for the landbay; provided, that construction of the entire park shall be completed before the approval by final site plan of 2.5 million square feet of new development within the CDD

(r) Rail Park ----- Potomac Yard Development LLC, ("PYD"), shall construct or dedicate Rail Park – at the City's option, prior to the issuance of a certificate of occupancy for any future development in Landbay I or J, except for the site area 10 units in Landbay I already approved pursuant to DSUP#2004-0048. PYD or its successors, shall submit a *proposal for rail park or an alternative off-site dog park plan in another landbay consistent with the intent of the Potomac Yard Urban Design Guidelines* with all applicable documentation prior to March 1, 2008. The *proposal* shall require review and approval by the Planning Commission and City Council. Construction of the *approved* plan shall commence prior to preliminary site plan approval for any future development in Landbay I or J, except for the site area 10 units in Landbay I already approved pursuant to DSUP#2004-0048. If the City has not approved the *proposal* prior to October 31, 2008, PYD, or its successors, shall make a monetary payment including a reasonable cost escalation clause to the City equivalent to the design, construction and all applicable costs of the improvements to Rail Park as described in the Potomac Yard Urban Design Guidelines, such cost shall be mutually agreed upon by the City and PYD. The monetary payment shall be made prior to preliminary site plan approval for any future development in Landbay I or J, except for the

¹⁶ Potomac Yard Linear Park is the portion of Potomac Yard Park that lies along the rail lines on the east side of the Yard. It does not include Braddock Park, Monroe Field No. 1 or Monroe Field No. 2, all of which are also part of Potomac Yard Park.

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard
site area 10 units already approved in Landbay I
pursuant to DSUP#2004-0048

- (s) Potomac Greens Park ----- Construction shall occur in conjunction with the development of landbay "A," and shall be completed by the date or event described in the initial preliminary development plan approval for this landbay
- (t) Howell Park ----- Construction shall occur in conjunction with the development of landbay "J," and shall be completed by the date or event described in the initial preliminary development plan approval for this landbay
- (u) Swann Finger Park ----- Construction shall occur in conjunction with the development of landbay "H," and shall be completed by the date or event described in the initial preliminary development plan approval for this landbay
- (v) Custis Finger Park ----- Construction shall occur in conjunction with the development of landbay "I," and shall be completed by the date or event described in the initial preliminary development plan approval for this landbay
- (w) Neighborhood Parks ----- Construction shall occur in conjunction with the development of the landbay in which the particular neighborhood park is located, and shall be completed by the date or event described in the initial preliminary development plan approval for the landbay
- (x) Landbay "C" landscaping ----- Construction shall occur in conjunction with the development of landbay "A," and shall be completed by the date or event described in the initial preliminary development plan approval for this landbay
- (y) Landbay – N ----- **(NEW CONDITION)** The approximately 2.78 acre Landbay N shall be dedicated to the City for passive open space purposes prior to preliminary development special use permit approval of Landbay H, I, J and/or L. Alternatively, a perpetual open space access easement shall be granted to the City for Landbay N prior to the preliminary development special use permit approval of Landbay H, I, J and/or L

15A. **Possible Future School Site**

- (a) A portion of the component of Potomac Yard Park consisting of Monroe Fields No. 1 and No. 2 — the portion to be identified by the Director of P&Z and the Superintendent of the Alexandria Public Schools (“ACPS”), and not to exceed three acres — shall be reserved and made available for the construction of a new ACPS school if, in the future, it is jointly determined by the city council and the school board to locate a new school at this site. If such a determination is made, and it is further determined by the council and board that more than the reserved land is needed for construction of the new school, then up to an additional two acres of adjacent land will be made available for the new school. Notwithstanding the prior provisions of this paragraph, the area that is identified by the Director and Superintendent shall be improved in accordance with the operative concept plan and paragraphs 15(n) and 15(o) above, and shall thereafter be both maintained as public open space and utilized for active recreation purposes until such time as it is determined to utilize the area for a new ACPS school.
- (b) In recognition of the possibility that, in the future, a portion of Potomac Yard Park may be removed from active recreational use and placed in school use, CAP shall improve an area of approximately three acres, for active recreational use, in the Potomac Yard linear Park (see note 15), in the general vicinity of land bays “H” and “I,” and at a specific location to be determined by the Director of P&Z. The size of this area and the precise nature of these recreational improvements shall be determined by the Director of P&Z, after consultation with the City’s Parks and Recreation Commission, the Director of Recreation, Parks and Cultural Affairs, and CAP. Construction of these improvements shall occur at the time that development in this portion of the Linear Park is to occur under paragraph 15(q), and shall comply with applicable design guidelines.
16. A separate preliminary development plan shall be submitted by CAP for each of the open space areas that is to be dedicated to the City (see paragraph 7 above). The plan shall be considered by the Planning Commission and City Council, pursuant to the provisions of section 5-600 of the Zoning Ordinance.
17. **(REVISED CONDITION – TO REFLECT EXISTING ZONING ORDINANCE PROVISION)** A Potomac Yard Design Advisory Committee (the “PYDAC”) shall be established to assist the city in reviewing applications for preliminary development plan approval.
- (a) The Potomac Yard design advisory committee shall consist of nine members appointed by the city council, pursuant to title 2, chapter 4 of the Code of the City of Alexandria, Virginia, 1981, as amended, for staggered terms of two years. The committee shall include two members representing the Potomac East area; two members representing the Potomac West area; two members representing the Potomac Yard area; one member representing the business community, and two qualified professionals skilled in architecture or urban design.
- (b) The purpose of the Potomac Yard design advisory committee is to review applications for preliminary development plan special use permit approval under this ordinance, within CDD No. 10 Potomac Yard/Greens, for compliance with the urban design guidelines applicable therein, and make

recommendation on such applications to the planning commission and city council through the director.

- (c) The director shall send a copy of any proposed preliminary development plan for the CDD to the committee, and the committee shall send its comments to the director in time to be sent to the planning commission together with the staff report on the proposed plan. Each applicant for a preliminary development plan approval shall be encouraged to discuss its proposal with the committee, including prior to the filing of an application for approval of a preliminary development plan.
- (e) The committee shall establish a regular schedule which provides for meetings at least once per calendar quarter. Additional meetings may be scheduled by the chair of the committee, in consultation with the director.
- (f) Section 2-4-7(f) of the City Code, which prohibits a person from serving on more than one standing committee, shall not apply to service on the Potomac Yard design advisory committee; provided, however, that this subsection shall expire on December 18, 2007.

~~The PYDAC shall consist of seven members to be appointed by City Council for staggered terms of no more than two years each. The Committee shall include two members representing the Potomac West area; the remaining five members shall be from the City at large and shall include three representatives of residential neighborhoods and the business community and two qualified professionals skilled in architecture.~~

- ~~(b) The PYDAC shall be authorized to review applications for preliminary development plan approvals for compliance with the "Potomac Yard Urban Design Guidelines," which are contained within the Concept Plan Design Guidelines or, if in effect, the Alternative Concept Design Guidelines, and shall send its recommendations to the Planning Commission and City Council for their consideration.~~
- ~~(c) The Director of P&Z shall send a copy of any proposed preliminary development plan for the CDD to the PYDAC, and the PYDAC shall send its comments to the Director of P&Z in time to be sent out with the staff report to the Planning Commission on the proposed plan. Each applicant for a preliminary development plan approval will be encouraged to discuss its proposal with the PYDAC, including prior to the time an application is filed.~~
- ~~(d) The PYDAC shall establish a regular schedule which provides for meetings once a month. Additional meetings may be scheduled at the discretion of the PYDAC.~~

Permitted/Special/Interim Use

18. The Avis and GSA facilities presently located within the Potomac Yard are acknowledged to be, and shall be treated as, existing permitted uses. Nonetheless, in the event that compliance with the schedule in paragraph 15 above requires the construction of an infrastructure or open space improvement in the area occupied by one or both of these existing uses, then whatever modifications to these uses are required to accommodate the required improvement shall be made; if such modifications are not made, no further development in the CDD pursuant to the Concept Plan or, if in effect, the Alternative Concept Plan may proceed. Further, unless approved as interim uses as part of the approval of the first preliminary development plan for the landbay in which they are located, the Avis and GSA facilities shall cease operation within 180 days of the date of approval for that preliminary plan.

19. Land uses not approved in the Concept Plan or, if in effect, the Alternative Concept Plan, which are proposed for a landbay in the CDD for which no preliminary development plan (other than a development plan addressing only the development of open space) has been approved, shall be evaluated under the provisions in the Zoning Ordinance for the underlying zone applicable to the landbay. If defined as a special use under those provisions, such uses shall require a special use permit and, if defined as a permitted use, shall only require site plan approval; provided, that no such uses may proceed if they would "preclude development consistent with the conceptual design plan" (section 5-603(A)(1) of the Zoning Ordinance). A proposed permitted or special use shall be determined to "preclude development consistent with the conceptual design plan" if:
- (a) development pursuant to the Concept Plan or, if in effect, the Alternative Concept Plan, and in the landbay where the proposed use is to be located, is expected to commence before the expiration of the period during which the proposed use will be permitted to, or is reasonably expected to, continue;
 - (b) the use is proposed for a landbay that is adjacent to a landbay for which a preliminary development plan has been approved by City Council, and the Director of P&Z determines that the proposed use is incompatible with one or more of the uses identified in that approved development plan; or
 - (c) the use, if undertaken, would preclude the delivery of an infrastructure improvement identified in paragraph 15 above by the time set out in that paragraph.
20. Any land use that is lawfully existing in a landbay within the CDD, whether as a permitted or special use, at the time the first preliminary development plan for the landbay (other than a development plan addressing only the development of open space) is submitted to the City shall be eligible to be approved as an interim use, as part of City Council's approval of the preliminary development plan. No other land uses shall be eligible for approval as interim uses within the landbay.

Affordable Housing

21. Every preliminary development plan shall meet the requirements of the city-wide affordable housing policy that is in effect as the time the plan is submitted.

Sanitary and Storm Sewer

22. No preliminary development plan for any landbay west of the relocated rail lines, or for any portion of a landbay, which proposes the construction of a building or buildings pursuant to the Concept Plan or, if in effect, the Alternative Concept Plan, shall be approved by City Council until (i) a new sanitary sewer line (the "Trunk Sewer") from Potomac Yard to the Alexandria Sanitation Authority ("ASA") wastewater treatment plant has been designed by CAP to the satisfaction of the Director of T&ES and the Engineer/Director of ASA, and (ii) construction of the sewer has commenced. No Certificates of Occupancy shall be issued for any building, structure or facility within any landbay west of the relocated rail lines until the Trunk Sewer has been completed, has been accepted by the City, and is in service; provided, that, notwithstanding the status of the Trunk Sewer, certificates may be issued for buildings, structures or facility within landbay "F" (the Retail Center at the north end of the Yard), and within the warehouse complex in the Yard located generally to the east of the intersection of Route 1 Howell

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard

Avenue, which are buildings, structures or facilities that the City understood, at the time the sewage retention tank at the Four Mile Run Pump Station was constructed, were to be served by that retention tank.

23. At a minimum, the Trunk Sewer shall be designed and constructed in conformance with the following: (i) the length of the forced main and associated facilities (such as pump stations) shall be minimized; (ii) the Trunk Sewer shall be a gravity sewer for the maximum distance possible within the limits of current technology; (iii) the Trunk Sewer shall accept all the sewage now flowing to the ASA River Road Pump Station; (iv) the Trunk Sewer shall be capable of accepting a portion (to be determined by the Director of T&ES) of wet-weather flows from ASA's Four Mile Run Pump Station; (v) the Trunk Sewer shall be capable of accepting all flows from the Slater's Village/Potomac Greens Pump Station (Slater's Village is also known as Old Town Greens); and (vi) the Trunk Sewer shall be capable of accepting all the sewage from the Retail Center in landbay "F" in the event any portion of the retail center continues in operation beyond January 1, 2018. Further, the Trunk Sewer shall be built on an alignment designated by the Director of T&ES and the Engineer/Director of ASA. The closure of travel lanes on City streets and the disruption of neighborhood activities shall be minimized during construction of the Trunk Sewer.
24. No preliminary development plan for any landbay west of the relocated rail lines, or for any portion of a landbay, which proposes development pursuant to the Concept Plan or, if in effect, the Alternative Concept Plan, shall be approved by City Council until a gravity/forced main sanitary sewer collection system (the "Collection System") has been designed by CAP to the satisfaction of the Director of T&ES and the Engineer/ Director of ASA, and construction of the system has commenced. At a minimum, the Collection System shall be designed to: (i) minimize the amount of forced mains and associated facilities, such as pump stations; (ii) redirect sewage flows from the ASA River Road Pump Station, and a portion (to be determined by the Director of T&ES) of wet-weather flows from the Four Mile Run Pump Station, to the Trunk Sewer; and (iii) redirect flows from the Retail Center in landbay "F" to the Trunk Sewer, in the event any portion of the Retail Center continues in operation beyond January 1, 2018.
25. No final site plan for any development within the CDD east of the relocated rail lines, shall be approved by the City, unless one of the following events has occurred:¹⁷
 - (a) a new gravity sanitary sewer has been constructed by CAP from the termination point of the forced main in Slater's Lane to the existing City sewer in Lee Street, and this new sewer has been accepted by the City and is in service; or
 - (b) the forced main from the Slater's Village/Potomac Greens Pump Station has been redirected to connect with the Trunk Sewer, and the Trunk Sewer has been accepted by the City and is in service.
26. All storm drainage systems within the CDD shall conform to the Potomac Yard Master Drainage Plan approved by the City on October 25, 1996.

¹⁷ This paragraph is a restatement of condition # 47 of SUP 97-0010. That SUP approved the Old Town Greens residential development now under construction between Slater's Lane and Potomac Greens, and it remains in effect.

27. Prior to the submission of the first preliminary development plan for any landbay within the CDD west of the relocated rail lines, a master stormwater quality concept plan for the CDD, which includes stormwater quality calculations, a description of the best management practices ("BMPs") proposed to be employed and the location of those BMPs, shall be submitted to and approved by the Director of T&ES.
28. Prior to the removal or abandonment of any existing storm or sanitary sewer that is located within the CDD, a replacement sewer shall be in place and in service, and all necessary dedications and easements relating to the replacement sewer shall have been granted and recorded.

Transportation¹⁸

29. Shuttle bus service to and from the Braddock Road Metro station and/or the Metro station in Crystal City shall be provided. The nature and extent of this service, the time when it shall commence, the time when it may terminate and similar issues shall be assessed and determined by the City in conjunction with its review of transportation management plan amendments which CAP must file along with its applications for preliminary development plan approvals.
30. (a) Unless and until otherwise authorized by the City as an amendment to the operative concept plan, CAP shall reserve, and shall undertake no activities (except those reasonably required for maintenance and others approved by the Director of T&ES) in, an area in the CDD, between Potomac Greens and the Potomac Yard, that would be suitable for the location of a WMATA rail station (the "Metro Site"). In order to reserve the Metro Site in this manner, CAP shall convey a deed of easement to the City, or any other party identified by the City, which entitles the grantee to use or to authorize the use of the site for a WMATA rail station and for any ancillary purposes. The deed of easement shall also provide for reasonable access to the Metro site, by users of a rail station on the site, from both the adjacent Potomac Greens site and the adjacent Potomac Yard. Within 60 days of the approval of the concept plan for this CDD, CAP shall submit to WMATA a drawing which shows, and a statement which describes the boundaries of the Metro Site, and conveys CAP's view that the Metro Site contains sufficient land for the construction of a WMATA rail station and for reasonable bus, pedestrian and bicycle access to the station. CAP shall thereafter request, and diligently pursue, from WMATA a certification that the Metro Site contains sufficient land for the construction of a WMATA rail station and for reasonable bus, pedestrian and bicycle access to the station; provided that, with respect to this requirement for a WMATA certification, CAP shall be considered to have not satisfied the requirement only if WMATA affirmatively states that the Metro Site does not contain sufficient land for the construction of a WMATA rail station and for reasonable bus, pedestrian and bicycle access to the station.
- (b) In the event funding from sources other than CAP becomes available in the future for the construction of a WMATA rail station at the Metro Site, and the City concurs in the decision to proceed with such construction, CAP shall: (i) convey

¹⁸ Most transportation conditions for the CDD have been recommended for inclusion in the Transportation Management Plan special use permit.

the Metro Site to WMATA, or another entity identified by WMATA, at no cost to the grantee party, for construction of a rail station (the "WMATA Conveyance"); (ii) if requested by the City, cooperate in the establishment of a special service tax district, or another district or area having a comparable purpose, within the CDD, or a portion thereof, to assist in financing the construction of the rail station, in accordance with the requirements of law; and (iii) to the maximum extent feasible, re-locate the uses in landbays G and H, as shown in the Concept Plan and the Alternative Concept Plan, in order to increase the utilization of the WMATA station by persons residing and working in these landbays. In the event that CAP, other than in a WMATA Conveyance, conveys any of the Metro Site property to another party, it shall ensure that the reservation required, and the other obligations imposed upon it, by this paragraph 30 shall continue and shall be binding upon the grantee party.

- 30A. In the event that funding from sources other than CAP becomes available in the future for a light rail or another similar transit system (apart from a heavy rail system that is addressed by paragraph 30 above) within the CDD, and the City concurs in a decision to proceed with the implementation of such a system, CAP shall, if requested by the City, cooperate in the establishment of a special service tax district, or another district or area having a comparable purpose, to assist in financing the system's implementation, in accordance with the requirements of law. In addition, at no time shall CAP undertake any activities within any of the rights-of-way that are shown in the operative concept plan, or within any of the open spaces shown in such plan that are to be dedicated to the City, that would preclude the construction or operation of a light rail or another similar transit system; provided, that in the event of such an activity, every effort shall be made to accommodate the intent of the design guidelines. Nothing in this paragraph shall affect activities undertaken pursuant to the operative concept plan outside of the rights-of-way and open spaces identified above.
31. The New Route 1 Connector, between its intersection with Slater's Lane and with the existing Route 1 (in the vicinity of Howell Avenue), shall provide, on both sides of the roadway, a minimum 8-foot walkway for use by pedestrians and bicycles.
32. Any traffic signalization proposed by CAP and approved by the Director of T&ES, or required by the Director, shall be shown on the final site plan for the portion of CDD in which or adjacent to which the signalization is to be installed. The costs to acquire and install all traffic signalization equipment that is approved or required by the Director shall be the responsibility of CAP, and payment of such costs shall be made to the City prior to the release of the site plan showing the signalization. Any signalization approved or required by the Director shall be installed and properly operating prior to the issuance of a certificate of occupancy for any building which is to be served by the signalization.

Miscellaneous

33. All utilities serving the CDD, whether located within or outside of the CDD, shall be placed underground, and the cost of doing so shall be the responsibility of CAP.
34. A permanent storage area within the CDD, no smaller than 20 feet by 20 feet, shall be made available by CAP for use by the City to place, on a short-term basis, sweeper debris. The area shall be acceptable to the Director of T&ES, and shall be made available to the City at the time a certificate of occupancy for 1.5 million square feet of new development within the CDD has been issued. The storage area shall be easily accessible by street sweeping and debris removal equipment, and may be incorporated in the waste disposal area of a building within the CDD.

Master Plan Amendment #2008-0003
Text Amendment #2008-0003
CDD Concept Plan Amendment #2008-0001
Potomac Yard

35. If the Alternative Concept Plan becomes the operative concept plan for the CDD, CAP shall work with the City in the relocation of the Virginia Power substation, presently located at the west end of the Monroe Avenue bridge, to a new location along the existing Virginia Power underground transmission corridor, in order that pedestrian-oriented buildings may be constructed along the entire Monroe Avenue frontage facing Simpson Fields. The substation shall be architecturally integrated into the surrounding CDD development to the satisfaction of the Director of P&Z.
36. CAP shall be responsible for updating the Concept Plan Sheet and Concept Plan Design Guidelines, and the Alternative Concept Plan Sheet and the Replacement Pages (see paragraphs 2 and 3 above), so that these documents are current at all times. Before the very first preliminary development plan is filed with the City pursuant to this concept plan approval, CAP shall provide the City with two copies of the Concept Plan Sheet and Concept Plan Design Guidelines, and the Alternative Concept Plan Sheet and the Replacement Pages, which reflect the Concept Plan and Alternative Concept Plan approved by City Council. Thereafter, within 30 days of any modifications being approved to the Concept Plan and/or the Alternative Concept Plan, whether approved by City Council or approved pursuant to a concept plan condition, CAP shall file with the City two updated copies of the Concept Plan Sheet and the Concept Plan Design Guidelines, and if appropriate two updated copies of the Alternative Concept Plan Sheet and the Replacement Pages, which reflect the approved modifications. CAP shall not be able to file any application for preliminary development plan approval within the CDD unless fully updated and current concept plan documents have been previously provided to the City.
37. Any inconsistencies in the approved concept plan design guidelines shall be resolved by the Director of P&Z.
38. Notwithstanding any contrary provisions in the Zoning Ordinance, both the approved Concept Plan and, in the event it becomes the operative concept plan for the CDD pursuant to paragraph 1 above, the approved Alternative Concept Plan shall remain valid for 25 years from the date of City Council approval of the Concept Plan.

Text Amendment #2008-0003

Staff recommends **approval** of the zoning text amendment subject to compliance with all applicable codes and ordinances and the following.

Article V. MIXED USE ZONES

* * *

Sec. 5-600 CDD/Coordinated development district.

* * *

5-602 *Coordinated development districts created, consistency with master plan, required approvals.*

(A) The CDD districts, as shown on Table 1, are as follows:

Table 1. Coordinated Development Districts

CDD No.	CDD Name	Without a CDD Special Use Permit	With a CDD Special Use Permit		
			Maximum F.A.R. and/or Development Levels	Maximum Height	Uses
10	Potomac Yard/ Greens	The RB zone regulations shall apply to the area south of the Monroe Avenue Bridge and east of the Metro Tracks, the CSL zone regulations shall apply on the first 250 feet east of Rte 1. and the I zone regulations shall apply on the remainder of the site; except that the U/T regulations shall apply to an area approximately 120 feet wide located just west of the Metrorail right-of-way (area shown on the plat for Case REZ #95-0005) for the purpose of accommodating the relocated rail mainline on the yard, and except also that the area known as the "Piggyback Yard" and Slaters Lane portion of Potomac Yard (as shown on the plat for Case REZ #95-0004) may be developed pursuant to the CRMU-L zone provided that the Piggyback Yard: - shall contain no more than 275 dwelling units; - shall contain no more than 60,000 square feet of commercial space, of which no more than 30,000 square feet shall be office; - shall be planned and developed pursuant to a special use permit; -shall have a maximum height of 50 feet; and -shall generally be consistent with the goals and the guidelines of the small area plan	Up to 1,900,000 square feet of office space, <u>except that office square footage may be converted to retail square footage through the Special Use Permit process and compliance with all applicable conditions of the CDD Concept Plan.</u> Up to 625 hotel rooms. Up to 735,000 square feet of retail space. Up to 2,200 residential units.	Heights shall be as shown on the map entitled "Predominant Height Limits for CDD" (Map No. 24, Potomac Yard/ Potomac Greens Small Area Plan Chapter of 1992 Master Plan (1998 ed.)).	Predominately residential with a mix of land uses to include office, retail and service, hotel, parks and open spaces, and community facilities

Master Plan Amendment #2008 – 0003

Staff recommends **approval** of the Master Plan Amendment to the Potomac Yard/Potomac Greens Chapter of the Master to revise the text as outlined below and the height and use map as provided herein.

~~“ At least one-third of the residential units be townhomes; no more than one-third shall be multi-family units; no more than one-third shall be stacked townhomes.”~~

“The residential buildings within Potomac Yard and each Landbay shall consist of a variety of buildings types and heights which should include townhouses, stacked-townhomes and multi-family units.”

Financing a Metrorail Station

At

Potomac Yard

**Preliminary Analysis of Concept
(Version 1.1)**

**City of Alexandria
May 13, 2008**

INTRODUCTION

The following paper analyzes the concept of financing a new Metrorail Station at Potomac Yard. As this is the first stage of the complex financial analysis, this paper does not represent a full, final work product. The process of updating this report will be iterative, as new and updated information and revised development plans and schedules become available.

BACKGROUND

- It is estimated by the Washington Metropolitan Area Transit Authority (WMATA) staff that the cost to construct a Metrorail Station in Potomac Yard is between \$125 million and \$150 million.
- This WMATA cost estimate, as well as debt service assumptions, are orders of magnitude estimates, which will need to be refined.
- These costs are in 2008 dollars and would need to be eventually adjusted to the years of construction.
- The highest WMATA estimate of \$150 million will be used for the purposes of this analysis.
- Financing the \$150 million costs over a 30-year amortization period at the City's AAA/Aaa rated general obligation tax-exempt borrowing rates would result (using today's rates) in a true interest cost (TIC) of 4.39% and result in annual average debt service of \$9.1 million annually (see Attachment II).
- If revenue bonds were issued instead of general obligation bonds, the TIC would increase depending on the bond's credit structure and rating. Other methods or structures of debt financing could also decrease debt service costs from the \$9.1 million.

- It is likely that it will take a number of funding sources to finance a Metrorail Station at Potomac Yard such as:
 - 1) Federal transportation funds¹
 - 2) State transportation funds²
 - 3) Developer contributions
 - 4) Tax increment financing revenues
 - 5) Special tax district revenues
 - 6) City General Fund supported capital funds

- Any federal, state or outside source of funding would reduce the amount of local bond issuance, as well as decrease debt service needs from the \$9.1 million.

- Private funding is an option to consider, but a revenue stream from tax and developer sources would be needed to repay any private investment. The private sector cost of money is likely to be greater than the public sector.

- The cost to operate a surface Metrorail station is about \$1 million per year. This cost would be shared by all participating jurisdictions, resulting in a small City share.

- There are a number of ways to structure the issuance of bonds including utilizing:
 - 1) City government bond issuance (general obligation bonds, revenue bonds, certificates of participation or lease-purchase funding)
 - 2) Alexandria Industrial Development Authority
 - 3) Potomac Yard Community Development Authority (would need to be established)

¹ Federal funding is not a probable source due to the regional priority of the Dulles rail corridor project.

² Dependent upon the General Assembly action to substantially increase transportation funding.

4) Other public authorities in Virginia with bond issuing capacity

- As is the case with the private funding option, a dedicated, stable and reliable revenue stream would be needed to repay any bonds issued.
- There are pros and cons to utilizing a non-City government entity to issue bonds, with a review of these pros and cons to occur as part of any future analysis.
- A key issue will be how to minimize the need for, or level of, a “full faith and credit” pledge while keeping the cost of borrowing low (i.e., interest rates on bonds issued increases as the credit pledge weakens).
- Another key issue to address will be how to tailor the repayment of the bonds to mirror the likely development build out schedule of Potomac Yard (and hence future tax generation), as it is likely that the Metrorail station would be built early in the development process.
- Potomac Yard Metrorail Station bonds issued by a non-City government entity, but backed by City real estate tax revenues, represent overlapping debt and would be counted in the City’s debt ratios by the bond rating agencies. While this is a key issue, the City’s current low level of debt (about \$330 million) compared to the \$46.2 billion value of the City’s tax base will help dilute the problem of overlapping debt.

CURRENT CITY TAX REVENUES

- Utilizing 2008 real estate tax assessments³, the City currently receives about \$0.6 million in real estate taxes from Land Bays “G” and “H.”
- Utilizing 2008 real estate tax assessments³, the City receives about \$1.3 million in real estate taxes from the Potomac Yard Retail Center. The City also earns about \$2.1 million in sales, business license, meals, admissions and other local taxes per year. Of this \$2.1 million, 67% is derived from the one percent local retail sales tax. This brings the current tax yield of the Potomac Yard Retail Center to \$3.4 million per year.
- Therefore, the total current City-received tax yield from the Potomac Yard Retail Center and Land Bays “G” and “H” is currently \$4.0 million per year.

FUTURE CITY TAX REVENUES

- At full build out, if the density transfer is approved, Land Bays “G” and “H” would total some 1.6 million square feet of office and retail units, as well as 878 residential units and 625 hotel rooms. When complete, the real estate assessed value would total approximately \$1.1 billion.
- At the current City real estate tax rate of 84.5 cents, this \$1.1 billion in future property value would generate \$9.6 million in real estate taxes annually.

³ Reflects adopted 2008 real estate tax rate of 84.5 cents per \$100 of valuation.

- In addition, the retail and 625 hotel rooms in Land Bays G and H would generate \$2.8 million per year in sales, meals⁴ and transient occupancy taxes. Hotel occupancy taxes would produce \$2.6 million of this \$2.8 million⁵.
- In total, the direct tax revenue impact at full build out of Land Bays G and H in 2008 dollars would be \$12.4 million in annual tax revenues generated for the City.
- The Potomac Yard Retail Center (PYRC) does not have a redevelopment proposal at this time, but is a prime property for redevelopment.
- When the PYRC was constructed, it was intended as a temporary interim use.
- If one hypothetically assumes the same level of density in a redeveloped PYRC as currently exists in Land Bay G and then allocates the uses, one might develop:

<p>1 million sq ft office 750,000 sq ft retail 2,500 residential units TBD hotel rooms</p>

- It should be noted that the above PYRC development assumption is for purposes of determining potential revenue impact, and does not represent either a developer proposal, or a City proposal.
- At full build out of this hypothetical redevelopment scenario, the future property value of this hypothetical redevelopment is estimated at \$1.5 billion.

⁴ Reflects 2008 meals tax rate of 4%.

⁵ Reflects 2008 hotel occupancy tax of 6.5% plus \$1 per room night.

- At the current City real estate tax rate of 84.5 cents, this \$1.5 billion in value would generate \$12.8 million in real estate taxes annually.
- In addition, the retail space (using current PYRC average per square foot retail sales data) would generate \$2.4 million annually.
- In total, the direct tax revenue impact at full build out of the PYRC hypothetical scenario would be \$15.5 million per year. Adding hotels to the PYRC development scenario would increase this tax revenue yield.
- Combining the annual tax revenue yields of Land Bays G and H, as well as a redeveloped PYRC, could yield as much as \$27.9 million per year at full build out.
- If one subtracts from this \$27.9 million in potential future tax revenues, the \$0.6 million in current Land Bays G and H annual tax revenues, as well as the \$3.4 million in current PYRC annual tax revenues, the net tax yield at full build out in 2008 dollars would be \$23.9 million.
- While development at Potomac Yard will generate significant new revenues, there also will be additional City costs to serve this development. The costs include, but are not limited to, police services, parks maintenance, refuse collection, and public education for K-12 students. While the government and school system will bear additional incremental costs, the net fiscal impact to the City when subtracting these costs from the previously described tax revenue generation remains significantly positive.
- When the Potomac Yard CDD plan and the Patent and Trademark Office (PTO) complex were considered by the City for land use approvals, fiscal impact studies were conducted which clearly

6/6/06

show that the proposed development would provide the City with a significant fiscal net benefit. Since these studies were completed, the value of commercial and residential property has grown far faster than the cost of providing government services.

- The most recent study was undertaken in 1999 for the U.S. Patent and Trademark Office. That study showed that for every tax dollar earned:
 - Hotels return 93.5% of tax dollars generated.
 - Retail returns 87.1% of tax dollars generated.
 - Office property returns 83.0% of tax dollars generated.
 - Condominiums return 53.3% of tax dollars generated.
 - Townhouses return 36.8% of tax dollars generated.
 - Apartments return 27.0% of tax dollars generated.
- The reason that residential property provides a lower return is that residents use City services at a greater rate than office workers, shoppers and hotel guests. One of the biggest factors influencing the fiscal impact is the cost of public school education which is driven by the number of public school students generated by residential property.
- With substantially increased residential property values (2001 to 2006) since this 1999 study, and with the demographic shifts of who occupies new residential units being constructed in the City (i.e., fewer public school students), the net positive fiscal impact of residential property is probably greater now than in 1999.

767

- In order to have updated and current fiscal impact data, the City plans to undertake a new fiscal impact study in 2008.

FINANCING A METRORAIL STATION

- This \$23.9 million in net new revenues compares to an annual debt service of \$9.1 million annually on a \$150 million bond issuance to pay for the construction of the Metrorail station. Therefore, one can conclude that these development projects could generate sufficient revenues to not only pay for this debt service, but also to pay for future City services to these development areas, as well as to pay for the general costs that the City incurs operating the City government, as well as funding the Alexandria City School system.
- A tax increment financing (TIF) type bond could be a workable financing instrument to capture a portion of the new tax revenues generated by these developments.
- Under a TIF, bonds are issued to pay for a project, and then tax revenues generated by the project pay the debt service on the TIF bonds.
- TIF financing is a commonly accepted form of finance and has been used in Virginia, the District of Columbia, as well as in Maryland. The National Harbor development was financed in part with a large TIF bond issuance.
- Because construction of a Metrorail station benefits the Land Bay G and H properties, as well as the PYRC, a special tax district could be created. With such a district (which was contemplated when the Potomac Yard CDD was created), additional tax revenues could be raised.

- If a 20-cent special tax district add-on real estate tax rate was levied on Land Bays G and H, as well as the PYRC, it could raise \$5.3 million per year at full build out which could be pledged towards the \$9.1 million in debt service. This would significantly reduce the amount of future tax revenues which might need to be used under the TIF financing structure described above.
- In conclusion, sufficient new tax revenues to finance a Metrorail station will be generated at full build out by the development of Land Bays G and H, as well as the PYRC. However, those revenues will grow incrementally over a decade or more until they reach their peak. The challenge for the City if it decides to proceed with building a new Metrorail station in Potomac Yard will be to develop a plan of finance which provides borrowing for upfront construction funding for the Metrorail station and then structures an amortization plan to repay that borrowing. Any plan of finance will also need to be consistent with the City's overall debt management practices and long range capital financing goals.
- Also, since some significant portion of the Land Bays G and H and a redeveloped PYRC will occur even if a Metrorail station is not constructed, the City will need to determine if the investment of new taxes generated by the development in the PYRC and Land Bays G and H provides a sufficient return on investment in overall community long-term transportation benefits to be warranted.

BOND SUMMARY STATISTICS

City of Alexandria Metrorail System

Dated Date 6/1/2008
 Delivery Date 6/1/2008
 Last Maturity 6/1/2038

Arbitrage Yield 4.389327%
 True Interest Cost (TIC) 4.389327%
 Net Interest Cost (NIC) 4.434542%
 All-In TIC 4.389327%
 Average Coupon 4.434542%

Average Life (years) 18.444
 Duration of Issue (years) 12.189

Par Amount 150,000,000.00
 Bond Proceeds 150,000,000.00
 Total Interest 122,687,358.00
 Net Interest 122,687,358.00
 Total Debt Service 272,687,358.00
 Maximum Annual Debt Service 9,092,193.50
 Average Annual Debt Service 9,089,578.60

Underwriter's Fees (per \$1000)
 Average Takedown
 Other Fee

Total Underwriter's Discount

Bid Price 100.000000

Bond Component	Par Value	Price	Average Coupon	Average Life
Serial Bonds	150,000,000.00	100.000	4.435%	18.444
	150,000,000.00			18.444

	TIC	All-In TIC	Arbitrage Yield
Par Value	150,000,000.00	150,000,000.00	150,000,000.00
+ Accrued Interest			
+ Premium (Discount)			
- Underwriter's Discount			
- Cost of Issuance Expense			
- Other Amounts			
Target Value	150,000,000.00	150,000,000.00	150,000,000.00
Target Date	6/1/2008	6/1/2008	6/1/2008
Yield	4.389327%	4.389327%	4.389327%

Estimate of Full Build Out Value of Potential Potomac Yard Development
 (Chart reflects Land Bays G, H, Part I, and the Potomac Yard Retail Center only)

	<u>Office</u>	<u>Retail</u>	<u>Dwelling Units</u>	<u>Hotel Rooms</u>
Land Bay G (existing)	800,000	80,000 ¹	478	625
Land Bay H, Part I (existing)	60,000	5,000	400	---
Land Bay H (proposed) ²	765,000	---	---	---
Potomac Yard Retail Center (existing)	---	600,000	---	---
Potomac Yard Retail Center (hypothetical new) ³	1,000,000	150,000	2,500	TBD
Total	<u>2,625,000</u>	<u>835,000</u>	<u>3,378</u>	<u>625</u>
Unit Values⁴	<u>x \$400/sq ft</u>	<u>x \$300/sq ft</u>	<u>x \$350,000/unit</u>	<u>x \$250,000/room</u>
Total Estimated Value	\$1,050.0 million	\$250.5 million	\$1,182.3 million	\$156.3 million

ESTIMATED VALUE AT FULL BUILD OUT: \$2,639,100,000

¹Does not reflect requested future potential conversion of 80,000 square feet of office to retail.

²Proposed office density transfer from Land Bays J and L.

³Hypothetical development scenario using Land Bay G level of density.

⁴Represent average values in 2008 dollars.



APPLICATION

CDD DEVELOPMENT CONCEPT PLAN

CDD # ~~10~~ 2008-0001

[must use black ink or type]

PROPERTY LOCATION: Potomac Yard

TAX MAP REFERENCE: 25-01-05-01; 25-03-03-01; 02-03-04; 35-04-06-01; 35-01-12- **ZONE** CDD #10
01;35-04-05-01;35-03-10-01;44-01-07-01;02; 44-03-07-01;02

APPLICANT'S NAME: MidAtlantic Realty Partners, LLC

ADDRESS: 1133 21st Street, NW, Suite 720
Washington, DC 20036

PROPERTY OWNER NAME: Potomac Yard Development, LLC

ADDRESS: 2403 Jefferson Davis Highway, Alexandria, VA 22301

REQUEST: Amend the CDD Concept Plan to relocate office density from Landbays J & L to Landbay H and to permit office use to be converted to retail use through the SUP process.

THE UNDERSIGNED hereby applies for CDD Development Concept Plan approval in accordance with the provisions of Section 5:600 of the 1992 Zoning Ordinance of the City of Alexandria, Virginia

THE UNDERSIGNED, having obtained permission from the property owner, hereby grants permission to the City of Alexandria to post placard notice on the property for which this application is requested, pursuant to Article XI, Section 11-301(B) of the 1992 Zoning Ordinance of the City of Alexandria, Virginia

THE UNDERSIGNED hereby attests that all of the information herein provided and specifically including all surveys, drawings, etc. required to be furnished by the applicant are true, correct and accurate to the best of their knowledge and belief. The applicant is hereby notified that any written materials, drawings or illustrations submitted in support of this application and any specific oral representations made to the Planning Commission or City Council in the course of public hearings on this application will be binding on the applicant unless those materials or representations are clearly stated to be non-binding or illustrative of general plans and intentions, subject to substantial revision, pursuant to Article XI, Section 11-207(A)(10), of the 1992 Zoning Ordinance of the City of Alexandria, Virginia

M. Catharine Puskar, Attorney/Agent

Signature

Print Name of Applicant or Agent

Walsh, Colucci, Lubeley, Fmrich & Walsh PC

2200 Clarendon Boulevard, Suite 1300

Telephone #

Fax #

Mailing/Street Address

Arlington, VA 22201

Telephone #

Fax #

City and State

Zip Code

Date

DO NOT WRITE IN THIS SPACE - OFFICE USE ONLY

Application Received _____ Date and Fee Paid \$ _____

ACTION PLANNING COMMISSION _____ ACTION - CITY COUNCIL _____

73



APPLICATION

MPA 2008-0003

Master Plan Amendment MPA# _____

Zoning Map Amendment REZ# _____

PROPERTY LOCATION: Potomac Yard

APPLICANT

Name: MidAtlantic Realty Partners, LLC

Address: 1133 21st Street NW, Suite 720, Washington, DC 20036

PROPERTY OWNER:

Name: Potomac Yard Development, LLC

Address: 2403 Jefferson Davis Highway, Alexandria, VA 22301

Interest in property:

- Owner Contract Purchaser
- Developer Lessee Other _____

If property owner or applicant is being represented by an authorized agent such as an attorney, a realtor, or other person for which there is some form of compensation, does this agent or the business in which they are employed have a business license to operate in Alexandria, VA:

yes: If yes, provide proof of current City business license.

N/A

no: If no, said agent shall obtain a business license prior to filing application.

THE UNDERSIGNED certifies that the information supplied for this application is complete and accurate, and, pursuant to Section 11-301B of the Zoning Ordinance, hereby grants permission to the City of Alexandria, Virginia, to post placard notice on the property which is the subject of this application.

M. Catharine Puskar, Attorney/Agent

M Catharine Puskar

Print Name of Applicant or Agent
Walsh, Colucci, Lubeley, Emrich & Walsh, PC
2200 Clarendon Boulevard, Suite 1300

Signature

703-528-4700 703-525-3197

Mailing/Street Address

Telephone # Fax #

Arlington, VA 22201

3/25/2008

City and State Zip Code

Date

DO NOT WRITE IN THIS SPACE - OFFICE USE ONLY

Application Received: _____ Fee Paid: \$ _____

Legal advertisement: _____

ACTION - PLANNING COMMISSION _____ ACTION - CITY COUNCIL: _____

273

MPA # _____
REZ # _____

SUBJECT PROPERTY

Provide the following information for each property for which an amendment is being requested. (Attach separate sheets if needed.)

Address Tax Map - Block - Lot	Land Use		Height	Zoning Designation	Frontage (ft.)
	Existing	Proposed	Master Plan		
25.03-03-01, 02, part 03, part 04 ↑ _____	mixed use	mixed use	Designation Existing - Proposed see maps	Existing - Proposed no change	Land Area (acres) approx 13.28
2 _____	_____	_____	_____	_____	_____
3 _____	_____	_____	_____	_____	_____
4 _____	_____	_____	_____	_____	_____

PROPERTY OWNERSHIP

Individual Owner Corporation or Partnership Owner

Identify each person or individual with ownership interest. If corporation or partnership owner, identify each person with more than 10% interest in such corporation or partnership.

- Name: see attached Extent of Interest: _____
Address: _____
- Name: _____ Extent of Interest: _____
Address: _____
- Name: _____ Extent of Interest: _____
Address: _____
- Name: _____ Extent of Interest: _____
Address: _____

74

MPA # _____
REZ # _____

JUSTIFICATION FOR AMENDMENT

(attach separate sheets if needed)

- 1. Explain how and why any proposed amendment(s) to the Master Plan are desirable, beneficial to surrounding properties, in character with the applicable Small Area Plan and consistent with City policies:

see attached narrative

- 2. Explain how and why the proposed amendment to the Zoning Map(s) is consistent with the proposed amendment to the Master Plan, or, if no amendment to the Master Plan is being requested, how the proposed zoning map amendment is consistent with the existing Master Plan:

see attached narrative

- 3. Explain how the property proposed for reclassification will be served adequately by essential public facilities and services such as highways, streets, parking spaces, police and fire, drainage structures, refuse disposal, water and sewers, and schools.

see attached narrative

- 4. If this application is for conditional zoning approval pursuant to Section 11-804 of the Zoning Ordinance, identify all proffered conditions that are to be considered part of this application (see Zoning Ordinance Section 11-804 for restrictions on conditional zoning):

see attached narrative

75

76

CDD No.	CDD Name	Without a CDD Special Use Permit	Maximum F.A.R. and/or Development Levels	With a CDD Special Use Permit Maximum Height	Uses
	Potomac Yard/Greens	<p>The RB zone regulations shall apply to the area south of the Monroe Avenue Bridge and east of the Metro Tracks, the CSL zone regulations shall apply on the first 250 feet east of Rte 1. and the I zone regulations shall apply on the remainder of the site; except that the U/T regulations shall apply to an area approximately 120 feet wide located just west of the Metrorail right-of-way (area shown on the plat for Case REZ #95-0005) for the purpose of accommodating the relocated rail mainline on the yard, and except also that the area known as the "Piggyback Yard" and Slaters Lane portion of Potomac Yard (as shown on the plat for Case REZ #95-0004) may be developed pursuant to the CRMU-L zone provided that the Piggyback Yard:</p> <ul style="list-style-type: none"> - shall contain no more than 275 dwelling units; - shall contain no more than 60,000 square feet of commercial space, of which no more than 30,000 square feet shall be office; - shall be planned and developed pursuant to a special use permit; - shall have a maximum height of 50 feet; and 	<p>Up to 1,900,000 square feet of office space, <u>except that office square footage may be converted to retail square footage through the Special use Permit process.</u> Up to 625 hotel rooms. Up to 735,000 square feet of retail space. Up to 2,200 residential units.</p>	<p>Heights shall be as shown on the map entitled "Predominant Height Limits for CDD" (Map No. 24, Potomac Yard/Potomac Greens Small area Plan Chapter of 1992 Master Plan (1998 ed.)).</p>	<p>Predominately residential with a mix of land uses to include office, retail and service, hotel, parks and open spaces, and community facilities</p>
		<ul style="list-style-type: none"> - shall generally be consistent with the goals and the guidelines of the small area plan 			

RESOLUTION NO. MPA 2008-0003

WHEREAS, under the Provisions of Section 9.05 of the City Charter, the Planning Commission may adopt amendments to the Master Plan of the City of Alexandria and submit to the City Council such revisions in said plans as changing conditions may make necessary; and

WHEREAS, an application for amendment to the **Potomac Yard/Potomac Greens Small Area Plan** chapter of the 1992 Master Plan was filed with the Department of Planning and Zoning on 3/25/08 for changes in the land use designations to the parcels at **2300, 2301, 2600 and 2601 Main Street.**

WHEREAS, the Department of Planning and Zoning has analyzed the proposed revision and presented its recommendations to the Planning Commission; and

WHEREAS, a duly advertised public hearing on the proposed amendment was held on May 6, 2008 with all public testimony and written comment considered; and

WHEREAS, the Planning Commission finds that:

1. The proposed amendment is necessary and desirable to guide and accomplish the coordinated, adjusted and harmonious development of the **Potomac Yard/Potomac Greens** section of the City; and
2. The proposed amendment is generally consistent with the overall goals and objectives of the 1992 Master Plan and with the specific goals and objectives set forth in the **Potomac Yard/Potomac Greens Small Area Plan** chapter of the 1992 Master Plan; and
3. The proposed amendment shows the Planning Commission's long-range recommendations for the general development of the **Potomac Yard/Potomac Greens Small Area Plan**; and
4. Based on the foregoing findings and all other facts and circumstances of which the Planning Commission may properly take notice in making and adopting a master plan for the City of Alexandria, adoption of the amendment to the **Potomac Yard/Potomac Greens Small Area Plan** chapter of the 1992 Master Plan will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the residents of the City;

RESOLUTION NO. MPA 2008-0003

Page 2

NOW, THEREFORE, BE IT RESOLVED by the Planning Commission of the City of Alexandria that:

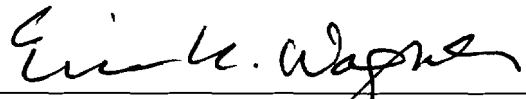
1. The following amendment is hereby adopted in its entirety as an amendment to the Potomac Yard/Potomac Greens Small Area Plan chapter of the 1992 Master Plan of the City of Alexandria, Virginia in accordance with Section 9.05 of the Charter of the City of Alexandria, Virginia:

Amendment the Predominant Height Limits map to increase allowable building heights to 82 feet between Route 1 and Main Street, and to increase allowable building heights to 110 feet between Main Street and Potomac Avenue.

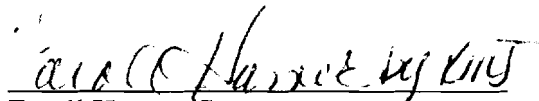
Eliminate the requirement that "At least one-third of the residential units be townhomes; no more than one-third shall be multifamily units; no more than one-third shall be stacked townhomes."

2. This resolution shall be signed by the Chairman of the Planning Commission and attested by its secretary, and a true copy of this resolution forwarded and certified to the City Council.

ADOPTED the 3rd day of June, 2008.


Eric Wagner, Chairman
Alexandria Planning Commission

ATTEST:


Faroll Hamer, Secretary

PC Docket Item # 18 A-C
Case # NPA 2008-0003, TA 2008-0003
CDS 2008-0001



Jeffrey Farner/Alex
06/02/2008 09:05 AM

To Kendra Jacobs/Alex@Alex
cc
bcc

Subject Re: POTOMAC YARD DEVELOPMENT-DENSITY TRANSFER

Jeffrey Farner
Division Chief, Development
Department of Planning & Zoning
City of Alexandria, Virginia 22314
Phone # 703-838-4666 ext. 315
Fax # 703-838-6393
E-Mail: jeffrey.farner@alexandria.va.gov
MGLAIA@aol.com



MGLAIA@aol.com
05/30/2008 03:47 PM

To donna.fossum@verizon.net, JssJennings@aol.com,
hsdunn@ipbtax.com, erwagner@comcast.net,
mslyman@verizon.net, jlr@cpma.com,
john.komoroske@nasd.com,
jeffrey.farner@alexandriava.gov
cc DELPepper@aol.com, Alexvamayor@aol.com,
rob@krupicka.com, Councilmangaines@aol.com,
Timothylovain@aol.com, PaulCSmedberg@aol.com,
justin@justin.net

Subject POTOMAC YARD DEVELOPMENT-DENSITY TRANSFER

Dear Chairman Wagner and Members of the Planning Commission,
I support the proposal for the transfer of density from Landbays J&L to Landbay H.
This change will be more consistent with vision of the original 2020 Citizen Task Force back those many years ago.
The other reasons presented by the developer indicate solid reasoning by concentrating density around even a potential metro stop.
Thank you for your support.
If you have any questions please feel free to contact me.
Marlin G. Lord

Marlin G. Lord AIA Architect
'On the Avenue'
PO Box 2778 (Mail)
2002 Mount Vernon Avenue, Suite 11
Alexandria, Virginia 22301
703-836-2724
703-836-4382 (fax)
MGLAIA@aol.com



**ALEXANDRIA
CHAMBER
OF COMMERCE**

June 2, 2008

RE: Potomac Yard Density

Submitted to: City of Alexandria Planning
Department

On April 1, the Chamber's Government Relations Committee received a presentation by MRP regarding its proposed CDD Concept Plan Amendment, Master Plan Amendment and Zoning Ordinance Text Amendment relating to density transfers among certain parcels at Potomac Yard to place greater density near the proposed town center and possible future Metrorail station. The members of the Government Relations Committee confirmed that this proposal is consistent with those portions of the Economic Sustainability Task Force Report that are supported by the Chamber.

The Chamber does not typically endorse specific projects; however we wish to state our general support to proposals that further advance the recommendations of the Economic Sustainability Task Force Report.

Relocation of office density adjacent to the Town Center in Landbay G creates a mix of uses (office/residential/retail) consistent with successful town centers in the region. Also, the relocation of office adjacent to Town Center concentrates office density within ¼ mile of proposed Metro, consistent with Smart Growth principles.

Successful development of the retail, office and town center will contribute to the City's tax base, and helps to re-balance the real estate tax base to 50% commercial and 50% residential – addressing another component of the Sustainability report.

As the sustainability report refers to Metrorail development, it specifically mentions Potomac Yard and encourages the consideration of higher densities that would better encourage the building of a new Metro station in the land reserved for such station. The Sustainability Report refers to mixed-use development at Metro station sites with office uses as the primary type of development to capture the full economic development potential of the City's Metro Stations, which have heretofore been underutilized from a land use standpoint. MRP plans appear to factor in compatibility should a Metro station there become a reality.

In conclusion, while the Chamber does not specifically endorse the MRP proposal, we conclude that it is consistent with the Chamber's ongoing support of those portions of the Economic Sustainability Task Force Report that relate to increasing the City's tax base through increased commercial development, particularly with respect to Metro density.



lalett@aol.com
06/02/2008 04:36 PM

PC Docket Item # 18 A-C
Case # NPA 2008-0003, TA 2008-0003
CDD 2008-0001

To erwagner@comcast.net, Kuthirai@comcast.net, hsdunn@ipbtax.com, JssJennings@aol.com, mslyman@verizon.net, donna_fossum@rand.org,
cc faroll.hamer@alexandriava.gov, jeffrey.famer@alexandriava.gov
bcc

Subject Docket Item 18, Planning Commission Public Hearing of June 3, 2008

June 2, 2008

Mr. Eric Wagner, Chairman
And Members of Planning Commission
C/o Ms. Faroll Hamer, Director
Department of Planning and Zoning
City Hall, Room 2100
301 King Street
Alexandria, VA 22314

Re: Docket Item 18, Planning Commission Public Hearing of June 3, 2008

Dear Mr. Wagner and Members of Planning Commission,

My name is Lisa Lettieri and I reside at 513 East Nelson Avenue. I'm writing in support to amend the City's Master Plan, Zoning Ordinance and the CDD #10 Concept Plan to relocate office density from Landbays J and L to Landbay H, revise use map and height limits for Landbay H, delete language regarding mix of residential uses, and permit office use to be converted to retail through the SUP process.

This amendment to the plan supports smart growth, mixed use of retail and residential, and a walkable community. Although the density currently located in Landbays J and L would seem to be a good plan because of its proximity to Braddock Road Metro – its challenge is that it does not have enough retail to support the commercial/office space and it does not have an easy access or good exposure to encourage office use. We are in a state of constant change and the plan does not take into account a difficult economic time period. I feel by allowing the reallocation of density from J and L to Landbay H will in effect create a more successful town center in Landbay G.

I understand that allowing the reallocation of density will not provide enough density for a metro between Braddock and National Airport metros, however it will put the density and mix of use in the right place if it should come in the future.

This is the right move to make and I support the amendment. Thank you for your time.

Lisa Lettieri
Del Ray Resident
ADAM member

June 2, 2008

ADAM



ALEXANDRIANS DELIVERING SMART
GROWTH AROUND METRO STATIONS

Chairman Eric Wagner
Members of Planning Commission
301 King Street
Alexandria, VA 22314

Re: Docket Item 18, Planning Commission Public Hearing of June 3, 2008

Dear Chairman Wagner and Members of Planning Commission:

ADAM (Alexandrians Delivering smart growth Around Metro stations) is writing in support of the application to transfer density from Landbays J & L to Landbay H at Potomac Yard.

The application does not affect the total square footage approved for Potomac Yard, but makes the overall development more economically sound and more likely to support a Metro station near the Town Center. By moving the allowable office density closer to the Town Center, the proposal provides a number of benefits:

- The office space will be in a location where it can be part of a mixed use development with nearby retail and residential uses, consistent with Smart Growth principles
- The increased office density will allow additional retail to be supported
- The marketability of the office space will be improved, meaning that the City of Alexandria will realize increased revenues from real property taxes sooner
- The value of the office space will be higher when it is part of an urban style development near a Metro Station, than it would be in a suburban-type configuration further than 1/4 mile from a Metro Station, again leading to increased property tax revenues
- While not sufficient by itself to justify the expense of constructing the Metro Station at Potomac Yard, the proposal takes us one step closer to making this Metro Station feasible.

ADAM supports mixed use developments at higher densities in locations near mass transit facilities (and particularly Metro Stations) for their environmental, economic, and quality of life benefits. We feel the proposal before you achieves these objectives, and does not adversely affect neighborhood objectives. We urge you to approve the density transfer proposal without delay.

Sincerely yours,

Vice President, ADAM

www.alexmetros.org

Cc: Faroll Hamer, Director of Planning & Zoning
Jeffrey Farner, P&Z
Jim Hartmann, City Manager

A | E | D | P

PC Docket Item # 18 A-C
Case # MPA 2008-0003, TA 2008-0003
CDD 2008-0001

June 2, 2008

Mr. Eric Wagner, Chairman
City of Alexandria Planning Commission
City Hall
301 King Street suite 2100
Alexandria, VA 22314

Dear Chairman Wagner,

The Alexandria Economic Development Partnership (AEDP) **strongly supports** the staff recommendation approving the proposed amendments to the Potomac Yard Master Plan and Coordinated Development District (CDD).

At its May 29, 2008 Board Meeting, the Board of AEDP voted unanimously to support the proposal by MRP Realty to relocate office density in Potomac Yard from Landbays J and L to Landbay H adjacent to the Town Center. As revealed in the economic impact analysis prepared by Delta Associates, **Landbay H is a superior office location** to Landbays J and L. It provides office tenants better access and visibility as well as proximity to the Town Center and the existing retail at Potomac Yard Center. As such, the office in Landbay H will be **more marketable, resulting in quicker occupancy and more day-time tenants in proximity to the Town Center**; workers will walk to the Town Center to dine and shop, thereby creating additional retail tax revenue for the City.

The fiscal impact analysis also emphasizes that the density transfer will **result in higher tax revenues** than would be realized if the office remained in Landbays J and L. Specifically, the transferred 765,000 square feet of office will be 11% more valuable in Landbay H, resulting in an assessed value 11% higher and thus **11% greater property tax revenue for the City of Alexandria**. This point is of special importance to the AEDP Board, as one of our chief goals is to increase economic activity that will result in a 50/50 balance of the assessed property values throughout the City. This is also a goal of the City Council, reflected in their adoption of the Economic Sustainability Recommendations at the end of 2007.

1729 King Street, Suite 410

Alexandria, Virginia 22314

ph. 703.739.3820 fax. 703.739.1384

info@alexecon.org

www.alexecon.org

83



AEDP believes that placing high density office in this location would help set the stage for **achieving a Metrorail station at Potomac Yard**. The additional workers will help provide the necessary ridership and the additional tax revenue could be put toward a TIF, or other financial mechanism, to help pay for the transit station.

AEDP believes that the proposed amendment for this project promotes other goals of the Economic Sustainability Workgroup Report as well. We are pleased that **staff has included a fiscal analysis** as part of the land use evaluation process, as recommended in the Report. AEDP believes this project is in line with the directive to **capture the full economic development potential** of the City's Metro stations, both existing and future, and the Board of AEDP is in agreement that the placement of higher density adjacent to the reserved metro site will better **encourage the building of a new Metrorail station**.

We therefore respectfully request that you support this proposal so that the development process can move forward as soon as possible.

Sincerely yours,



Stuart L. Litvin, CEcD
President & CEO

Cc: Members of the Alexandria Planning Commission
Board Members - AEDP

PC Docket Item # 18A-C
Case # MPA 2008-003 TA 2008.001
C D) 2008.001



Kathy Patrick
<kathyva@aol.com>

06/03/2008 03:10 PM

Please respond to
Kathy Patrick
<kathyva@aol.com>

To pnzfeedback@alexandriava.gov

cc

bcc

Subject COA Contact Us: Potomac Yard Density Transfer



Time: [Tue Jun 03, 2008 15:10:26] IP Address: [205.188.117.77]

Issue Type: Planning and Zoning General Feedback
First Name: Kathy
Last Name: Patrick
Street Address: 124 E. Raymond Ave.
City: Alexandria
State: VA
Zip: 22301
Phone:
Email Address: kathyva@aol.com
Subject: Potomac Yard Density Transfer

I am writing in support of the proposal to shift density on the Potomac Yard site from Landbays J and L to Landbay H, near the Town Center and south of the existing retail center at Potomac Yard. As a 12-year Del Ray resident I strongly support the development of a Potomac Yard Metro Station, and it is my understanding that this density shift will be an important element in creating both the demand and the funding for a future station.

Comments: Thank you for your consideration.

Sincerely,

Kathy

Patrick



RREEF Alternative Investments
875 North Michigan Avenue, 41st Floor
Chicago, IL 60611
T 312.266.9300
F 312.266.9346
www.rreef.com

PC Docket Item # 18 A-C
Case # MPA 2008-0003, TA 2008-0003
CDD 2008-0001

June 3, 2008

The Honorable Chairman and Members of the Planning Commission
City of Alexandria
301 King Street
Alexandria, VA 22314

RE: Planning Commission Meeting, June 3, 2008; Docket No. 18A-C Potomac Yard Development, Master Plan Amendment #2008-0003(A), Text Amendment #2008-0003(B), CDD Concept Amendment #2008-0001(C)

Dear Mr. Chairman and Members of the Planning Commission:

RREEF is the investment advisor for Potomac Yard Shopping Center ("Center"), a 600,000 square foot retail development on approximately 69 acres in Alexandria, Virginia. As the Commission is aware, the Center was built in 1996, and in 1999 became a part of the approved Potomac Yard Conceptual Design Plan. In 1999, entitlements were granted for the remaining parcels to the south, but not granted for our parcel, Land Bay F. RREEF's studies indicate that Land Bay F could support similar densities and uses to those already entitled to the south. We are ready to move ahead to seek entitlements for redevelopment of Land Bay F, and suggest that an integrated planning approach for all of the Land Bays will best serve the long term goals of the City.

The application before the Planning Commission changes the allowable contiguous land uses and densities to the south of our property. We have no objection to the transfer of office density to Land Bay H. RREEF anticipates proposing office uses on the southern portion of Land Bay F in a future redevelopment plan so that the combined office buildings on Land Bays F, G and H will create a comprehensive business district within this area of the Potomac Yard Development and adjacent to the proposed new Metro Station.

However, we object to the proposed amendment to convert office to retail space that would create a significant concentration of retail uses in Land Bay G. When RREEF acquired the Center in 2004, compelling factors to purchase the asset included its overall position as the dominant retail component within Potomac Yard, the possibility for its future redevelopment, and the known entitlements which had been granted the adjoining parcels.

The Amendment contemplates up to 195,000 square feet of retail in Land Bay G and 20,000 square feet in Land Bay H, with a special use permit. This is in addition to approximately 20,000 square feet of ancillary retail uses within the proposed hotels. We have no objection to the amendment allowing for the conversion of office to retail use, but request the

86



The Honorable Chairman and Members of the Planning Commission
June 3, 2008
Page Two

Commission to limit the amount of retail to a total of 175,000 square feet of gross floor area, and spread the retail more evenly within Land Bays G and H. Specifically, we would support 100,000 square feet of gross retail area on Land Bay G and 75,000 square feet of gross retail area on Land Bay H, plus the ancillary retail associated with hotel uses. We believe that the retail should be evenly dispersed throughout Land Bays G & H in order to best serve the office, residential and hotel uses located above. This will facilitate greater adjacency and integration with our plans for retail development in Land Bay F.

In addition, RREEF proposes an acceleration of the entitlement process for our parcel, Land Bay F, so that it may be properly integrated and coordinated with the plans for the rest of Potomac Yard. Over the past year we have been in discussions with senior City officials as well as the Planning Staff. We recently learned that the Staff has recommended proceeding with a Small Area Planning process for the entire Potomac Yard area, but will not start that process until late 2009. We recommend that the planning of Land Bay F be initiated immediately and brought before the public, Planning Commission, and City Council. This will ensure that the master planning of Potomac Yard will result in an integrated and exciting new community.

We have also initiated an analysis, in cooperation with City Staff, of the financial feasibility of a new Metro Station serving Potomac Yard. There appears to be consensus in favor of the establishment of the new Station. It is apparent that a new Metro Station will only be possible if and when our parcel (Land Bay F) is replanned and redeveloped in coordination with Land Bays G and H. We stand ready to participate in the planning and implementation of this much needed amenity.

To summarize, RREEF has no objection to the transfer of office density to Land Bay H. We support the conversion of office space to retail space within Land Bays G and H, and we recommend a maximum 100,000 gross square feet of retail in Land Bay G and 75,000 gross square feet in Land Bay H.

Thank you for your consideration of our requests.

Sincerely,

A handwritten signature in cursive script that reads "Pamela Boneham".

Pamela Boneham
Managing Director, RREEF

cc: Faroll Hamer, Director, Dept. of Planning & Zoning
Jeffrey Farner, Asst. Director, Development Division, Dept. of Planning & Zoning
Juan Cameron, V. President, Development, McCaffery Interests, Inc.
Joseph Antunovich, President, Antunovich Associates
J. Howard Middleton, Esq., Reed Smith LLP

NPA 2008-0003
TA 2008-0003
CDD 2008-0001

**Economic Study of Office Density Transfer
Potomac Yard
Alexandria, Virginia**

ECONOMIC STUDY OF OFFICE DENSITY TRANSFER
POTOMAC YARD
ALEXANDRIA, VIRGINIA

Prepared On:

April 23, 2008

Prepared For:

Mr. Matthew Robinson

MRP REALTY

1133 21st Street, NW, Suite 720
Washington, DC 20036

Prepared By:

DELTA ASSOCIATES

500 Montgomery Street, Suite 600
Alexandria, VA 22314
(703) 836-5700

TABLE OF CONTENTS

	<u>Page</u>
Letter of Findings	1
 APPENDICES	
Appendix A: Summary of Existing Plan and Proposed Density Transfer.....	A - 1
Appendix B: Analysis of Office Rents	B - 1
Appendix C: Analysis of Office Building Lease-Up Pace	C - 1
Appendix D: Analysis of Office Building Sales	D - 1
Appendix E: Analysis of Metro Impact	E - 1
Appendix F: Comparative Town Centers and Urban Concentrations.....	F - 1



April 23, 2008

Mr. Matthew Robinson
MRP Realty
1133 21st Street, NW, Suite 720
Washington, DC 20036

RE: Economic Study of Office Density Transfer
Potomac Yard
Alexandria, Virginia
Our Project #28238

Dear Mr. Robinson:

This letter and the attached appendices present the results of our analysis undertaken in connection with the project referenced above. Pursuant to our contract dated March 31, 2008, the primary purpose of our work is to help you and the City of Alexandria make an informed judgment regarding the movement and concentration of office space at Potomac Yard.

It is our purpose to provide our best judgments about the existing and proposed plans for the subject site with regard to rents, lease-up pace, value, tax revenue, and the impact of Metro. Our findings are presented in this report.

The questions addressed by our work are as follows:

1. Will the transferred office space in the proposed plan achieve higher rents than what could be achieved under the existing plan?
2. Will the transferred office space in the proposed plan lease-up faster than the existing plan?
3. Will the proposed plan result in office buildings of greater value than the existing plan?
4. Will the proposed plan result in office buildings that generate greater real estate tax revenue to the City than the existing plan?
5. What might be the impact of Metro on the value of space to be transferred, if a station is established at the Town Center in the future?
6. How will the expanded Town Center plan compare by way of aesthetics, quantity of uses, and success to other town centers or urban concentrations?

Our findings are detailed following. The data on which these findings are based are found in the attached appendices.

91

SUMMARY OF FINDINGS

We conclude that the transferred office space in the proposed plan for the subject can rent for approximately 11% more than the rents that could be achieved in office buildings under the existing plan. We conclude this from an analysis of dozens of leases at locations comparable to both the sending locations (Landbays J and L) and the receiving location (Landbay H).

Office buildings in the proposed density transfer plan for Potomac Yard could lease up at a pace as much as 32% faster than office buildings in the existing plan. We conclude this from an analysis of the lease-up experience for office buildings at locations like the environments found in those planned at Landbays H, J and L.

We estimate that the value of the transferred space in the proposed plan may be 11% higher than the space in the existing plan. While there are an insufficient number of recent office building sale transactions at locations that mirror conditions like Landbays H, J and L, we have drawn this conclusion from the lease differential cited in the first conclusion above.

We conclude that the office buildings planned in the density transfer plan (Landbay H) would be assessed 11% higher by the City of Alexandria, and generate 11% greater tax revenue, than the office buildings planned under the existing approvals, in Landbays J and L.

In addition, the office buildings in the density transfer plan would be more marketable than those planned under the existing approvals and therefore would come on-line sooner to generate property taxes earlier, as evidenced by the more rapid lease-up pace of such properties.

We estimate that if a new Metro station is established at the Town Center in the future, it may induce an additional rent premium of at least 8% for office space within ½ mile of the station. We conclude this from an analysis of dozens of leases that are within walking distance of a Metro stop versus dozens of leases that are not.

We conclude that the receiving site for the proposed density transfer (Landbay H) is a better location for potential office tenants than the sending sites (Landbays J and L). It offers not only better access and visibility, but also proximity to the Town Center as well as the existing retail at Potomac Yard Center.

We believe that the proposed plan for the transfer of density within Potomac Yard will produce a development that is superior to most other town centers and urban concentrations in the Washington area.

The balance of this executive summary sets out a description of the subject property as well as our methodology and findings as regards the above described office rent analysis, lease-up pace research, a discussion of office building values and implications for property tax revenues, our analysis of a Metro location premium, and a comparison of the subject planned town center to other, existing town centers and urban clusters.

THE SUBJECT

The subject site at Potomac Yard in Alexandria, Virginia consists of two sections located on the east and west sides of U.S. Route 1 (Jefferson Davis Highway). The section on the east side of Rt. 1 runs roughly between E. Glebe Road on the north and E. Bellefonte Avenue on the south. It is bordered on the east by the CSX Railroad right-of-way and on the south by the proposed location of Potomac Avenue as it intersects Route 1. The section on the west side of Route 1 runs between E. Monroe Avenue on the north and E. Glendale Avenue on the south. Leslie Avenue lies just to the west of this section, and the CSX Railroad right-of-way forms the eastern boundary. The subject site is illustrated on the site plan included in Appendix A. Please note that the section east of Route 1 includes Landbays G, H, I, and J, and the section to the west of Route 1 is designated as Landbay L.

U.S. Route 1 is the primary access to the site, linking it with the Capital Beltway (I-495) to the south and Crystal City, National Airport, I-395, and the District of Columbia to the north. Currently, a road improvement project is underway to replace the Monroe Avenue bridge and realign the Rt. 1 right-of-way. We do not consider the subject site to be Metro-served. Landbay G on the northern end is about 1.8 miles from the Crystal City Metro stop, and Landbay J is 0.8 miles from the Braddock Road Metro station at the southern end. Landbay L is a 0.7-mile walk from the Braddock Road Metro station. This distance would likely rule out Landbays J and L as a location for government tenants due to Federal agency location guidelines to be within 2,500 feet of a Metro station.

The existing development plan for Potomac Yard calls for the following mix and quantities of uses, as outlined in Appendix A:

- Office: 1,900,000 SF
- Retail: 120,000 SF
- Residential: 1,683 units
- Hotel: 625 rooms

The northern end of the subject site is planned as a Town Center (Landbay G) with 800,000 SF of office space in four 8-story buildings, plus 80,000 SF of ground floor retail space, 414 residential units, and 625 hotel rooms. Based on the approved CDD Concept Plan, Landbay H to the south of the Town Center is planned for 60,000 SF of office, 5,000 SF of retail, and 232 residential units. The applicant has an approved Development Special Use Permit with site plan ("DSUP") for Landbay H that contains approximately 51,000 SF of office, 4,300 SF of retail, and 206 townhouse/multifamily residential units. The proposed plan will replace the approved DSUP, thereby eliminating townhouses in Landbay H. Landbay I is currently planned for 104,000 SF of office space, 10,000 SF of retail, and 407 dwelling units.

Landbay J is currently planned for 463,000 SF of office space in three to five buildings, 15,000 SF of retail, and 272 residential units. Landbay L (on the west side of Rt. 1) is planned for 473,000 SF of office space in two buildings, plus 10,000 SF of retail and 358 residential units. The maximum allowed building height in Landbays J and L is 90 feet (7 stories).

The proposed plan is to transfer 765,000 SF of office density into Landbay H, by taking all of the 473,000 SF of office density currently planned for Landbay L and 292,000 SF of the 463,000 SF of

office density planned for Landbay J. This will permit the concentration of the transferred space adjacent to the 800,000 SF of office space planned for the Town Center in Landbay G. With the increased office density, Landbay H would be developed with four 8-story office buildings ranging from 160,000 to 220,000 SF, thus serving as an extension of the Town Center. As part of its proposed plan, the applicant is also requesting approval to convert office density to retail through the Special Use Permit process, which will increase the amount of ground level retail available to support the office space in the expanded Town Center. The net effect of the proposed density transfer plan would be essentially an expanded Town Center with about 1.6 million SF of office space in eight 8-story buildings and up to 180,000 SF of retail space, in addition to hotel and multifamily residential uses.

With an average floorplate of approximately 25,000 SF, the buildings in the Town Center and those proposed for Landbay H will have the most attractive type of space for large office tenants in Northern Virginia. In addition, the Town Center and Landbay H will offer a pedestrian-friendly environment with landscaped outdoor spaces and a diverse mix of uses, including residential, office, and a large concentration of ground level retail space. Thus, the proposed plan will offer the main characteristics of "New Urbanism"—similar to nearby successful developments such as Clarendon, Shirlington, and Carlyle.

In addition, Landbay H, the receiving site for the density transfer, is a superior location to the sending sites, particularly Landbay L. For potential office tenants, it offers not only better access and visibility, but also proximity to the planned Town Center and the existing retail at Potomac Yard Center.

In making these proposed changes, the sponsor expects benefits of (1) higher rents, (2) faster lease-up, and (3) higher property values for the transferred office space than could be achieved if it remains in Landbays J and L. These benefits would translate into greater real estate tax revenue for the City of Alexandria. The purpose of this study is to test these assumptions of the sponsor.

OFFICE RENT ANALYSIS

In order to determine if the transferred office space in the proposed plan can achieve higher rents than it would under the existing plan, we have compared effective Class A office rents in locations with New Urbanism characteristics, like the proposed plan for the subject, to other locations without those characteristics. To make this comparison valid, all other characteristic need to be held constant, such as age of building, date of lease, lease terms (such as concessions), quality of building, access to Metro, etc.

New Urbanism characteristics include:

- a walkable, pedestrian-friendly environment
- with a diverse set of residential and commercial uses
- that provide easy access to housing, jobs, shopping, entertainment, and other services.

In urban locations, these uses are typically planned in mixed-use buildings with street-level retail and office and/or residential uses above.

The locations analyzed that we judge to have New Urbanism characteristics like the proposed plan for the subject are Shirlington and Clarendon/Courthouse in Arlington and the Carlyle/King Street Station area in Alexandria. Locations without New Urbanism characteristics include Mark Center, Park Center, and Braddock Place in Alexandria.

Because proximity to a Metro station is known to impact office rents, we have compared Shirlington to Mark Center and Park Center, none of which have Metro access, while Clarendon/Courthouse and Carlyle/King Street Station, which are near Metro stations, have been compared to Braddock Place.

We have analyzed 91 office leases written since 2004 in buildings in the locations listed above. First, we converted base rents to effective rents, taking into account concessions and tenant improvements. Then, we adjusted the effective rents for the time elapsed since the leases were written as well as the relative age of the buildings. See Appendix B.

Our analysis indicates that Class A office buildings in Shirlington, Clarendon/Courthouse, and Carlyle/King Street Station enjoy a rent premium attributable to New Urbanism that ranges from 10% to 12%, as shown in Tables B-1, B-2, and B-3 in Appendix B. These premiums are similar to the 11% premium that Delta Associates' research has demonstrated for multifamily residential developments with New Urbanism characteristics in the Washington metro area. See Tables B-5 to B-7.

We conclude that the transferred office space in the proposed plan for the subject can achieve a rent premium of at least 11% more than what would be possible under the existing plan.

LEASE-UP PACE ANALYSIS

There also appears to be greater demand for office space in office buildings with New Urbanism locations. A significant measure of demand is the speed at which the space in a new office building is leased, or the "lease-up pace". In order to estimate how fast the transferred office space in the proposed plan for the subject will lease up compared to the space in the existing plan, we have compared the leasing performance of recently completed office buildings in the Shirlington, Carlyle/King Street Station, and Clarendon/Courthouse areas with buildings in the following locations without New Urbanism characteristics: Crystal City, Mark Center, East Falls Church, and Ballston.

Buildings in the three locations with New Urbanism characteristics have leased up at an average pace of 5,221 square feet per month, compared to 3,949 square feet in the other locations. This is a 32% faster lease-up pace for the New Urbanism locations. See Appendix C.

We conclude that office buildings in locations with New Urbanism characteristics lease up at a pace that is up to 32% faster than buildings in locations without New Urbanism characteristics.

ANALYSIS OF VALUE

The value of office space is directly related to the income, or rent, that it generates, so buildings that achieve the highest rents can be expected to sell for the highest prices. As demonstrated in the

95

analysis above, office space in settings with New Urbanism characteristics, like the proposed plan for the subject, can achieve higher rents than space in locations without New Urbanism characteristics.

In order to test whether office buildings in New Urbanism locations achieve higher sale prices, we have compared recent sales in Clarendon, Carlyle/King Street Station, and Shirlington to sales in Braddock Place and other Alexandria locations without New Urbanism characteristics. Although we identified eleven sales in the New Urbanism locations, we found only three in the other locations, which we believe is too small a sample on which to base an estimate of the sale price premium. However, we can estimate that the sale price premium of space in New Urbanism locations is at least 11%, based on our estimated 11% rent premium for office space in those locations. See Appendix D.

Therefore, we conclude that the value of the space proposed to be transferred at Potomac Yard will be at least 11% higher than under the existing plan.

REAL ESTATE TAX REVENUE

The estimated value premium that can be achieved by the space proposed to be transferred at the subject site should translate directly into a higher assessed value and higher real estate tax revenue for the City of Alexandria.

We estimate that the transferred office space in the proposed plan for the subject will generate at least 11% greater tax revenue for the City of Alexandria than it would under the existing plan.

METRO LOCATION PREMIUM

We estimate that office space proximate to a Metro station can achieve a rent premium of 7% to 8% compared to locations that are not Metro-served. Metro proximity is defined as being within ½ mile of a Metro station. The estimated premium is based on surveys of asking rents for office space in Metro-served submarkets compared to submarkets without Metro access. Table E-1 in Appendix E indicates that office rents in Ballston, which is Metro-served, have averaged 8% higher than Tysons Corner rents since 1994. Although there may be other factors reflected in the rents in these two submarkets, we believe that the largest share of the difference is attributable to Metro accessibility. Our estimated Metro premium for office space compares closely to the results of our previous research on the Metro proximity premium for apartments, which has been demonstrated to be 7%, as shown in Table E-2.

COMPARISON WITH OTHER TOWN CENTERS AND URBAN CONCENTRATIONS

Appendix F presents a quantitative and qualitative analysis of several town center developments and urban concentrations in Alexandria and Arlington, in comparison to the proposed plan for Potomac Yard. The locations analyzed are Shirlington, Clarendon, Crystal City, and Pentagon City in Arlington, and Carlyle in Alexandria. In addition to a comparison of the physical size and types and quantities of space, we have assessed the aesthetic qualities of these locations in comparison to the potential aesthetic qualities of Potomac Yard.

Mr. Matthew Robinson
MRP Realty
April 23, 2008
Page 7

The Potomac Yard plan is generally comparable to the other locations, the principal difference being that the mix of uses will be less heavily weighted toward retail and more toward office space. This assessment does not take the existing retail at Potomac Yard Center into account, however.

We believe all of the comparative locations are successful from an economic standpoint, in that they have performed well in terms of sales, leasing, occupancy, rents, and sale prices in relation to the rest of the market. Most of them are successful from a design standpoint, the exception being Crystal City, which still reflects the principal urban design standards of 40 years ago, with some recent adaptations.

We believe that the proposed plan for Potomac Yard will be aesthetically superior to most of the comparable locations, however, because its size will allow New Urbanism design principles to be incorporated in every aspect of the plan without many of the compromises required by infill development on a smaller scale. It has the potential to exceed the recognized aesthetic success that has been achieved at established town center developments such as Shirlington and Clarendon.

* * * * *

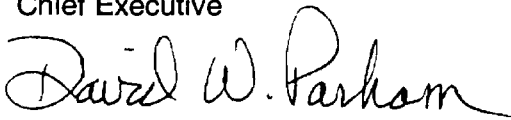
It has been a pleasure undertaking this assignment for you. Please do not hesitate to contact us if you wish to discuss these matters further or if you have any questions regarding our findings.

Respectfully submitted,

DELTA ASSOCIATES



Gregory H. Leisch, CRE
Chief Executive



David W. Parham
Senior Vice President and Project Director



Ann Thompson
Senior Associate

NOTICE

Delta Associates (DA) considers that it is essential to the reader's examination of this document, and projections contained herein, to understand the use of data, the methodology involved, the role of judgments as distinct from calculations in the methodology, factors which affect current projections, and the impact, if any, of change over time.

The purpose of market, economic and financial projections, together with the basis for the projections, is to make available a considered opinion on potential economic returns from the project so that those who utilize these results can evaluate them in terms of methodology employed, data applied as well as judgments made and identified. All prospective data are subject to uncertainties. As actual market and economic factors affecting the project materialize, they may differ somewhat from the basis projected herein. Unforeseen changes in laws may also affect real estate market performance and value. Accordingly, although the projections in this report are those one would reasonably expect to occur given the conditions existing at the time of this writing, actual market and financial results may differ from the projections.

Similarly, projections herein have been prepared utilizing the information, assumptions and calculations outlined in this report. Select information utilized in the projection process is on occasion from sources other than DA; where such information is from published sources, DA has identified the source and assumed such information to be accurate as presented. Where such information is from unpublished sources, DA has reviewed the information for reasonableness and consistency before including same herein. No representations are made by DA as regards property ownership, size, zoning conformance, occupancy and lease terms, availability of utilities, soil conditions, flood hazard, environmental problems, or any other matters. All such property specific data has been supplied to DA by the property owner and/or its agents and DA has assumed this data to be accurate as provided.

DA's principal business activity is the evaluation of real estate development economics, including the analysis of market potentials, evaluation of projected operating and financial results, and valuations. In the course of each year the firm typically performs more than a hundred assignments for building and development organizations, financial institutions, property owners and the like. The firm considers that it is "expert" in this field, and it is DA's belief that the methodology and other procedures employed by it constitute valid and accepted methods of evaluating and valuing real estate. However, it is pointed out that procedures used herein rely on judgments dependent on the accuracy of data and influenced by external circumstances which can change quickly with time and substantially affect the project and hence its value. DA recommends that its clients recognize these limitations inherent in using the projections of this report when making business decisions.

Finally, the reader is hereby advised that Delta Associates is the trade name of Transwestern Delta Associates L.L.C., a Delaware limited liability company. As such, DA is part of the Transwestern (TW) family of real estate service companies that broker, finance, manage, advise, and develop real estate throughout the United States. This disclosure is made so as to (1) avoid the appearance of a conflict and (2) to assure the client of confidentiality and impartiality. Delta Associates is independently operated by its principals and separately officed in Old Town Alexandria. In no way does Delta Associates' TW affiliation affect the judgments expressed herein.

98

APPENDICES

Appendix A:

Summary of Existing Plan and Proposed Density Transfer

TABLE A-1

**SUMMARY OF EXISTING PLAN AND PROPOSED DENSITY TRANSFER
POTOMAC YARD
ALEXANDRIA, VIRGINIA**

	Existing CDD Approval			Proposed CDD Amendment			Change in Use from Existing CDD		
	Office	Retail	DU	Office	Retail	DU	Office	Retail	DU
Town Center	800,000	80,000	414	800,000	80,000	414	-	-	-
Landbay H	60,000	5,000	232	825,000	5,000	232	765,000	-	-
Landbay I	104,000	10,000	407	104,000	10,000	407	-	-	-
Landbay J	463,000	15,000	272	171,000	15,000	272	(292,000)	-	-
Landbay L	473,000	10,000	358	-	10,000	358	(473,000)	-	-
Total for Landbays H, I, J, L	1,100,000	40,000	1,269	1,100,000	40,000	1,269	0	-	-
TOTAL	1,900,000	120,000	1,683	1,900,000	120,000	1,683	0	-	-

Note: The Town Center will include 625 hotel rooms.

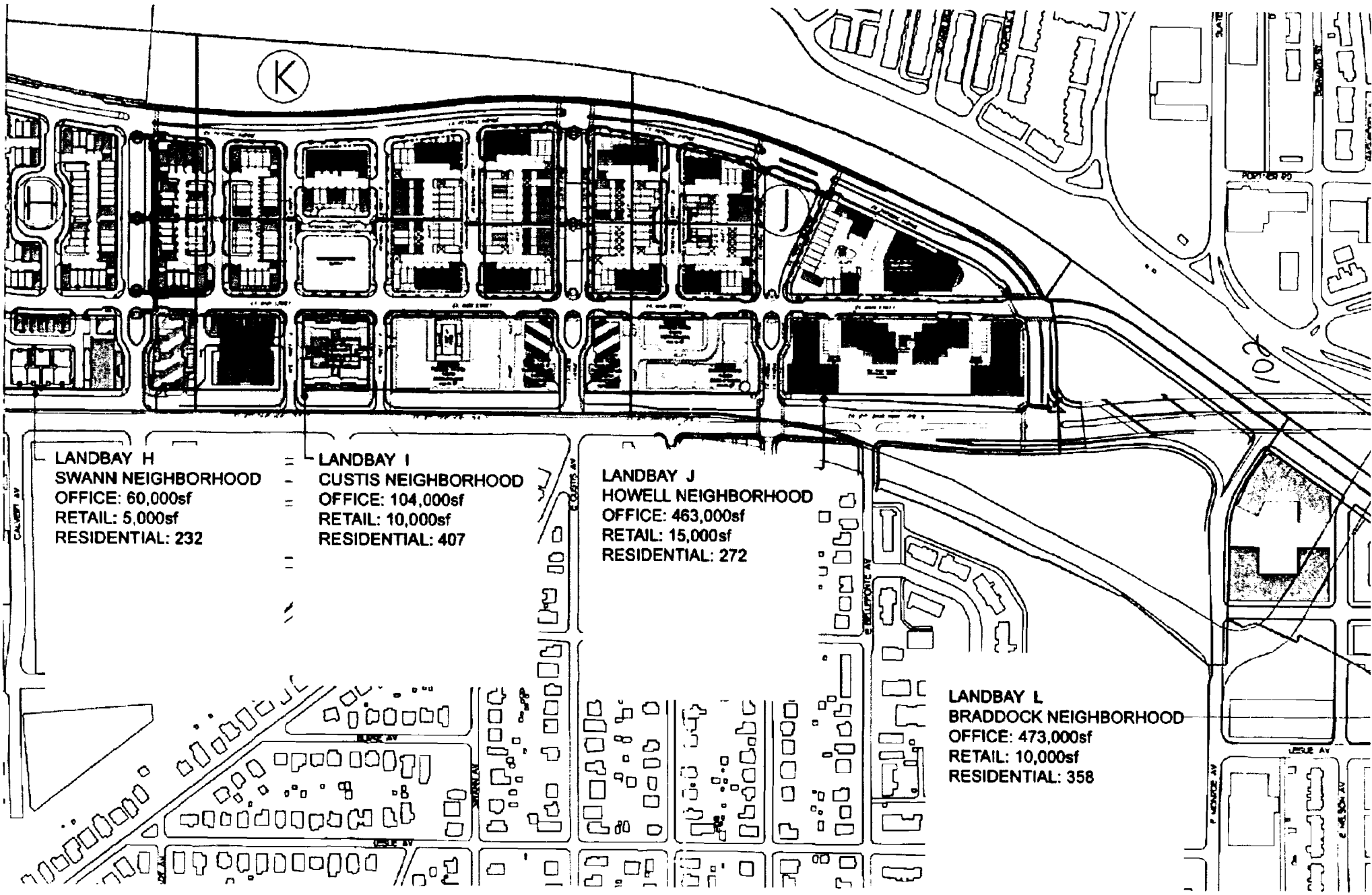
(K)

LANDBAY H
SWANN NEIGHBORHOOD
OFFICE: 60,000sf
RETAIL: 5,000sf
RESIDENTIAL: 232

LANDBAY I
CUSTIS NEIGHBORHOOD
OFFICE: 104,000sf
RETAIL: 10,000sf
RESIDENTIAL: 407

LANDBAY J
HOWELL NEIGHBORHOOD
OFFICE: 463,000sf
RETAIL: 15,000sf
RESIDENTIAL: 272

LANDBAY L
BRADDOCK NEIGHBORHOOD
OFFICE: 473,000sf
RETAIL: 10,000sf
RESIDENTIAL: 358



Appendix B:
Analysis of Office Rents

TABLE B-1

**CLASS A OFFICE BUILDING LEASE COMPARABLES
SHIRLINGTON COMPARED TO MARK CENTER AND PARK CENTER
ARLINGTON AND ALEXANDRIA, VIRGINIA**

Lease #	Address	Bldg Size	# Flrs	Yr Blt	Lease Type	SF Leased	Lease Term (Mos)	Lease Effective Date	Base Rent/SF	Escal.	TI PSF ^{1/}	Free Rent (Mos)	Effective Rent/SF	Rate Type	Adjustments			Total % Adjustment	Adjusted Effective Rent/SF
															Time ^{2/}	Age ^{3/}	New Urbanism		
Shirlington (A Location with New Urbanism Characteristics)																			
1	2800 Shirlington Road	206,993	12	1986	New Lease	4,321	60	3/14/05	\$26.00	3%	\$7.00	0	\$28.60	FS	8.0%	37.8%	5.5%	51.3%	\$43.28
2	2800 Shirlington Road	206,993	12	1986	Expansion/Renewal	6,544	60	8/5/05	\$26.00	3%	\$11.25	0	\$23.75	FS	6.9%	37.8%	5.5%	50.2%	\$35.68
3	2800 Shirlington Road	206,993	12	1986	Renewal	3,057	60	2/14/07	\$28.00	3%	\$5.00	1.5	\$26.30	FS	2.5%	37.8%	5.5%	45.8%	\$38.34
4	2800 Shirlington Road	206,993	12	1986	New Lease	9,938	60	4/21/07	\$28.25	2%	Paint & carpet	2	\$30.31	FS	2.1%	37.8%	5.5%	45.4%	\$44.07
5	2800 Shirlington Road	206,993	12	1986	New Lease	1,518	24	8/20/07	\$27.50	3%	As-is	0	\$37.50	FS	1.3%	37.8%	5.5%	44.6%	\$54.24
6	2800 Shirlington Road	206,993	12	1986	New Lease	6,429	60	10/1/07	\$29.50	3%	\$25.00	0	\$28.50	FS	1.0%	37.8%	5.5%	44.3%	\$41.11
7	2800 Shirlington Road	206,993	12	1986	New Lease	2,443	60	3/7/08	\$31.00	3%	Paint & carpet	0	\$34.00	FS	0.0%	37.8%	5.5%	43.3%	\$48.72
8	2900 South Quincy St.	233,240	9	2001	New Lease	13,507	49	5/20/04	\$26.25	2.5%	\$30.00	0	\$23.80	FS	5.7%	10.8%	0.0%	16.5%	\$27.73
9	2900 South Quincy St.	233,240	9	2001	New Lease	26,746	72	8/14/06	\$29.50	3%	As-is	2	\$32.01	FS	3.6%	10.8%	0.0%	14.4%	\$36.63
10	2900 South Quincy St.	233,240	9	2001	Expansion/Renewal	9,734	120	3/20/07	\$31.75	3%	\$28.00	0	\$30.95	FS	2.3%	10.8%	0.0%	13.1%	\$35.00
AVERAGE		214,867	-	-		8,424			\$28.38				\$29.57					36.9%	\$40.48
Mark Center / Park Center (Locations Without New Urbanism Characteristics)																			
1	4900 Seminary Road	199,005	12	1986	New Lease	1,954	60	7/25/05	\$24.50	3%	\$24.75	2	\$22.73	FS	7.1%	37.8%	0.0%	44.9%	\$32.95
2	4900 Seminary Rd	199,005	12	1986	New Lease	100,000	60	6/1/04	\$24.50	3%	\$25.00	0	\$23.50	FS	5.6%	37.8%	0.0%	43.4%	\$33.69
3	2001 N Beauregard St	239,945	12	1990	New Lease	122,529	120	4/15/04	\$24.50	3%	\$25.00	0	\$24.00	FS	5.8%	30.6%	0.0%	36.4%	\$32.74
4	4401 Ford Avenue	217,304	14	1985	Expansion	1,050	37	6/17/04	\$23.58	2.5%	Paint & carpet	1	\$27.81	FS	5.6%	39.6%	0.0%	45.2%	\$40.37
5	4401 Ford Avenue	217,304	14	1985	Renewal	571	35.75	8/17/04	\$24.16	2.5%	N/A	0	\$24.16	FS	5.6%	39.6%	0.0%	45.2%	\$35.07
6	4401 Ford Avenue	217,304	14	1985	New Lease	9,943	60	11/22/04	\$25.00	3%	\$20.00	5	\$22.92	FS	5.0%	39.6%	0.0%	44.6%	\$33.13
7	4401 Ford Avenue	217,304	14	1985	New Lease	2,431	73	3/1/05	\$24.50	3%	\$15.00	1	\$24.99	FS	8.0%	39.6%	0.0%	47.6%	\$36.89
8	4401 Ford Avenue	217,304	14	1985	New Lease	3,269	60	6/5/05	\$25.50	3%	Turnkey	0	\$25.50	FS	7.4%	39.6%	0.0%	47.0%	\$37.48
9	4401 Ford Avenue	217,304	14	1985	New Lease	21,645	63	8/8/05	\$25.00	2.5%	\$20.00	5	\$23.02	FS	6.9%	39.6%	0.0%	46.5%	\$33.72
10	4401 Ford Avenue	217,304	14	1985	New Lease	12,085	125	10/4/05	\$25.00	2.5%	\$33.00	5	\$22.75	FS	6.5%	39.6%	0.0%	46.1%	\$33.23
11	4401 Ford Avenue	217,304	14	1985	Expansion	5,245	63	11/1/05	\$25.00	2.5%	\$20.00	5	\$23.02	FS	6.2%	39.6%	0.0%	45.8%	\$33.57
12	4401 Ford Avenue	217,304	14	1985	New Lease	16,768	84	2/16/06	\$26.50	2.5%	\$10.00	6	\$26.04	FS	4.8%	39.6%	0.0%	44.4%	\$37.59
13	4401 Ford Avenue	217,304	14	1985	New Lease	2,999	60	4/1/06	\$25.75	3%	\$22.50	0	\$25.25	FS	4.4%	39.6%	0.0%	44.0%	\$36.36
14	4401 Ford Avenue	217,304	14	1985	Sublease	2,405	37	6/17/06	\$24.00	4%	As-is, furniture	1	\$23.35	FS	4.0%	39.6%	0.0%	43.6%	\$33.53
15	4501 Ford Avenue	235,000	14	1988	Renewal	108,114	6	1/1/05	\$25.19	NA	n/a	0	\$25.19	FS	8.5%	34.2%	0.0%	42.7%	\$35.94
16	4501 Ford Avenue	235,000	14	1988	Renewal	99,168	120	6/28/05	\$29.25	n/a	n/a	0	\$29.25	FS	7.4%	34.2%	0.0%	41.6%	\$41.41
17	4501 Ford Avenue	235,000	14	1988	New Lease	1,515	36	3/28/06	\$26.50	3%	As-is	1	\$32.43	FS	4.6%	34.2%	0.0%	38.8%	\$45.01
18	4501 Ford Avenue	235,000	14	1988	Expansion	3,639	55	4/18/06	\$25.75	3%	\$15.00	0	\$26.84	FS	4.4%	34.2%	0.0%	38.6%	\$37.20
19	4501 Ford Avenue	235,000	14	1988	Expansion	16,768	120	5/31/06	\$27.20	3%	\$29.50	0	\$26.25	FS	4.2%	34.2%	0.0%	38.4%	\$36.33
AVERAGE		221,226				28,005			\$25.34				\$25.21					43.3%	\$36.12
NEW URBANISM PREMIUM																			
12.1%																			

1/ We estimate normal TIs to be \$35/SF for new space, \$20/SF for relet space, and \$0/SF for a lease renewal.
 2/ Based on rent growth trends at the submarket level. See Table B-4.
 3/ Building age adjusted at 1.8% per year, a common appraisal standard.
 Note: Class A buildings as defined by CoStar.

B - 1

104

Delta Associates

TABLE B-2

**CLASS A OFFICE BUILDING LEASE COMPARABLES
CLARENDON/COURTHOUSE COMPARED TO BRADDOCK PLACE
ARLINGTON AND ALEXANDRIA, VIRGINIA**

Lease #	Address	Bldg Size	# Flrs	Yr Blt	Lease Type	SF Leased	Lease Term (Mos)	Lease Effective Date	Base Rent/SF	Escal.	TI PSF ^{1/}	Free Rent (Mos)	Effective Rent/SF	Rate Type	Adjustments		Total % Adjustment	Adjusted Effective Rent/SF
															Time ^{2/}	Age ^{3/}		
Clarendon / Courthouse (Locations with New Urbanism Characteristics)																		
1	3101 N Wilson Blvd	212,441	9	2003	New Lease	17,583	120	4/1/04	\$31.50	2.5%	\$40.00	0	\$31.00	FS	16.1%	7.2%	23.3%	\$38.23
2	3101 N Wilson Blvd	212,441	9	2003	New Lease	38,453	120	5/1/04	\$33.00	2.5%	\$40.00	0	\$32.50	FS	15.8%	7.2%	23.0%	\$39.97
3	2300 Clarendon Blvd	272,516	14	1990	Expansion/Renewal	22,000	84	5/5/04	\$30.00	3%	\$30.00	0	\$28.57	FS	15.8%	30.6%	46.4%	\$41.83
4	2200 Clarendon Blvd	334,279	14	1988	New Lease	2,610	12	6/6/04	\$30.00	3%	N/A	0	\$30.00	FS	15.4%	34.2%	49.6%	\$44.89
5	3101 N Wilson Blvd	212,441	9	2003	New Lease	4,408	60	9/1/04	\$32.75	2.5%	Turnkey	0	\$32.75	FS	14.4%	7.2%	21.6%	\$39.83
6	1515 N. Courthouse Rd	249,709	12	2000	Sublease	15,000	55	9/8/04	\$28.00	3%	n/a	0	\$28.00	FS	14.4%	12.6%	27.0%	\$35.56
7	2300 Clarendon Blvd	272,516	14	1990	New Lease	6,800	60	12/1/04	\$29.50	3%	\$25.00	4	\$26.53	FS	13.4%	30.6%	44.0%	\$38.20
8	1515 N. Courthouse Rd	249,709	12	2000	Sublease	10,500	6	12/12/04	\$35.50	None	As-is	0	\$35.50	FS	13.4%	12.6%	26.0%	\$44.72
9	2107 Wilson Blvd	224,978	11	1999	New Lease	12,063	49	12/26/04	\$32.00	3%	\$32.00	1	\$28.41	FS	13.4%	14.4%	27.8%	\$36.30
10	2110 Washington Blvd	161,560	4	1991	Renewal	60,501	60	1/14/05	\$27.75	2.5%	\$20.00	0	\$23.75	FS	13.1%	28.8%	41.9%	\$33.69
11	2101 Wilson Boulevard	245,663	12	1988	Expansion	4,058	70	3/1/05	\$32.00	3%	\$15.16	0	\$32.83	FS	12.4%	34.2%	46.6%	\$48.12
12	2300 Wilson Blvd.	196,004	7	2005	New Lease	36,533	125	3/4/05	\$34.89	2.5%	\$35.00	6	\$33.22	FS	12.4%	3.6%	16.0%	\$38.52
13	2000 North 15th Street	193,657	11	1985	Renewal	1,234	12	4/1/05	\$31.38	n/a	N/A	0	\$31.38	FS	12.0%	39.6%	51.6%	\$47.58
14	2300 Wilson Blvd.	196,004	7	2005	New Lease	30,898	120	4/25/05	\$35.39	None	N/A	0	\$36.89	FS	12.0%	3.6%	15.6%	\$42.66
15	2300 Wilson Blvd.	196,004	7	2005	New Lease	30,898	120	4/25/05	\$35.39	none	N/A	0	\$36.89	FS	12.0%	3.6%	15.6%	\$42.66
16	2300 Clarendon Blvd	272,516	14	1990	New Lease	3,373	63	5/15/05	\$31.00	2.8%	\$25.00	0	\$30.05	FS	11.7%	30.6%	42.3%	\$42.76
17	2101 Wilson Boulevard	245,663	12	1988	New Lease	4,424	51	5/24/05	\$33.00	2.5%	\$5.00	0.5	\$36.21	FS	11.7%	34.2%	45.9%	\$52.82
18	2300 Wilson Blvd.	196,004	7	2005	New Lease	1,866	126	6/8/05	\$41.04	2.5%	\$34.00	0	\$41.14	FS	11.3%	3.6%	14.9%	\$47.28
19	2300 Wilson Blvd.	196,004	7	2005	New Lease	30,056	126	6/8/05	\$34.54	2.5%	\$34.00	6	\$32.99	FS	11.3%	3.6%	14.9%	\$37.92
20	2300 Wilson Blvd.	196,004	7	2005	New Lease	18,144	124	6/17/05	\$34.25	2.5%	\$45.00	4	\$32.18	FS	11.3%	3.6%	14.9%	\$36.99
21	3101 N Wilson Blvd	212,441	9	2003	New Lease	4,939	96	6/22/05	\$33.50	2.5%	\$42.50	0	\$32.56	FS	11.3%	7.2%	18.5%	\$38.60
22	2107 Wilson Blvd	224,978	11	1999	New Lease	17,910	84	6/29/05	\$34.04	None	\$0	0	\$36.90	FS	11.3%	14.4%	25.7%	\$46.40
23	3101 N Wilson Blvd	212,441	9	2003	New Lease	24,550	120	7/3/05	\$33.56	n/a	n/a	0	\$33.56	FS	11.0%	7.2%	18.2%	\$39.67
24	2107 Wilson Blvd	224,978	11	1999	New Lease	5,007	84	7/6/05	\$32.75	3%	\$5.00	0	\$34.89	FS	11.0%	14.4%	25.4%	\$43.76
25	2107 Wilson Blvd	224,978	11	1999	New Lease	6,224	48	8/1/05	\$33.00	3%	\$5.00	0	\$36.75	FS	10.7%	14.4%	25.1%	\$45.96
26	3101 N Wilson Blvd	212,441	9	2003	New Lease	9,700	84	10/1/05	\$33.25	2.5%	\$42.50	0	\$32.18	FS	10.0%	7.2%	17.2%	\$37.70
27	2300 Clarendon Blvd	272,516	14	1990	Expansion/Renewal	11,265	84	10/5/05	\$32.00	2.5%	\$14.00	0	\$32.86	FS	10.0%	30.6%	40.6%	\$46.19
28	2111 Wilson Boulevard	248,245	12	1986	New Lease	21,393	120	11/1/05	\$33.00	2.5%	\$12.00	0	\$33.80	FS	9.6%	37.8%	47.4%	\$49.83
29	3100 Clarendon Blvd	238,014	14	1987	Renewal	1,217	38	12/1/05	\$33.50	3%	None	0	\$33.50	FS	9.3%	36.0%	45.3%	\$48.67
30	2300 Clarendon Blvd	272,516	14	1990	New Lease	5,527	36	4/1/06	\$31.50	3.0%	As-is	0	\$31.50	FS	8.2%	30.6%	38.8%	\$43.72
31	2107 Wilson Blvd	245,663	12	1988	Sublease	4,860	52	7/1/06	\$29.12	4%	As-is	0	\$29.12	FS	7.1%	34.2%	41.3%	\$41.16
32	2300 Clarendon Blvd	272,516	14	1990	New Lease	3,293	48	7/1/06	\$33.50	3%	\$15	0	\$34.75	FS	7.1%	30.6%	37.7%	\$47.86
33	2107 Wilson Blvd	224,978	11	1999	Sublease	8,372	36	7/19/06	\$33.50	2.5%	\$0	1	\$32.57	FS	7.1%	14.4%	21.5%	\$39.58
34	2300 Clarendon Blvd	272,516	14	1990	Renewal	20,888	12	8/21/06	\$33.50	n/a	As-is	0	\$33.50	FS	6.8%	30.6%	37.4%	\$46.02
35	2200 Clarendon Blvd	334,279	14	1988	New Lease	1,262	36	9/15/06	\$33.00	3%	\$15.00	0	\$34.67	FS	6.4%	34.2%	40.6%	\$48.75
36	2300 Clarendon Blvd	272,516	14	1990	New Lease	9,100	120	10/31/06	\$33.50	3%	n/a	0	\$33.50	FS	6.1%	30.6%	36.7%	\$45.78
37	1515 N. Courthouse Rd	249,709	12	2000	New Lease	21,593	61	2/5/08	\$36.50	2.5%	\$35	0	\$33.55	FS	0.4%	12.6%	13.0%	\$37.90
AVERAGE		236,536				14,284			\$32.85				\$32.73				30.3%	\$42.65
Braddock Place (A Location Without New Urbanism Characteristics)																		
1	1330 Braddock Pl	86,268	7	1985	Renewal	7,778	60	1/20/04	\$26.50	3%	\$20.00	3	\$21.18	FS	9.2%	39.6%	48.8%	\$31.51
2	1310 Braddock Pl	36,874	4	1985	New Lease	34,050	120	2/15/05	\$28.00	3%	\$35.00	0	\$26.50	FS	6.2%	39.6%	45.8%	\$38.63
3	1340 Braddock Pl	85,173	7	1985	New Lease	3,537	14	8/1/06	\$27.60	n/a	None	0	\$27.60	FS	3.5%	39.6%	43.1%	\$39.50
4	1330 Braddock Pl	86,268	7	1985	New Lease	3,537	36	7/1/07	\$31.00	3%	As-is	0	\$31.00	FS	1.5%	39.6%	41.1%	\$43.74
AVERAGE		73,646				12,226			\$28.28				\$26.57				44.3%	\$38.35
NEW URBANISM PREMIUM																		11.2%

1/ We estimate normal TIs to be \$35/SF for new space, \$20/SF for retail space, and \$0/SF for a lease renewal.

2/ Based on rent growth trends at the submarket level. See Table B-4.

3/ Building age adjusted at 1.8% per year, a common appraisal standard.

Note: Class A buildings as defined by CoStar.

B - 2

105

Delta Associates

TABLE B-3

**CLASS A OFFICE BUILDING LEASE COMPARABLES
CARLYLE/KING STREET COMPARED TO BRADDOCK PLACE
ALEXANDRIA, VIRGINIA**

Lease #	Address	Bldg Size	# Flrs	Yr Blt	Lease Type	SF Leased	Lease Term (Mos)	Lease Effective Date	Base Rent/SF	Escalation	TI PSF ^{1/}	Free Rent (Mos)	Effective Rent/SF	Rate Type	Adjustments		Total % Adjustment	Adjusted Effective Rent/SF
															Time ^{2/}	Age ^{3/}		
Carlyle / King Street (Locations with New Urbanism Characteristics)																		
1	2051 Jamieson Ave	139,194	6	2004	New Lease	14,683	86	6/1/04	\$36.00	3%	\$40.00	0	\$35.30	FS	8.3%	5.4%	13.7%	\$40.92
2	2051 Jamieson Ave	139,194	6	2004	New Lease	32,852	60	12/1/04	\$39.00	None	\$37.00	2	\$37.30	FS	7.2%	5.4%	12.6%	\$43.90
3	1725 Duke Street	148,069	7	1989	ReLet	15,884	64	12/21/04	\$34.25	3%	\$32.00	0	\$32.00	FS	7.2%	32.4%	39.6%	\$47.80
4	2000 Duke Street	156,123	5	1997	New Lease	35,000	60	2/1/05	\$36.00	n/a	\$15.00	0	\$37.00	FS	6.2%	18.0%	24.2%	\$44.71
5	2051 Jamieson Ave	139,194	6	2004	New Lease	35,582	60	3/15/05	\$39.00	None	\$37.00	2	\$37.30	FS	6.0%	5.4%	11.4%	\$43.45
6	1725 Duke Street	148,069	7	1989	New Lease	1,328	21	3/31/05	\$30.00	3%	\$0.00	2	\$38.57	FS	6.0%	32.4%	38.4%	\$41.53
7	1725 Duke Street	148,069	7	1989	New Lease	5,532	86	4/14/05	\$32.00	n/a	\$32.00	2	\$29.58	FS	5.9%	32.4%	38.3%	\$44.24
8	225 Reinekers Lane	131,328	7	1988	New Lease	2,332	60	10/1/05	\$31.50	3%	\$28.00	0	\$29.90	FS	4.9%	34.2%	39.1%	\$43.80
9	225 Reinekers Lane	131,328	7	1988	New Lease	2,505	60	11/1/05	\$31.00	3%	\$25.00	0	\$30.00	FS	4.7%	34.2%	38.9%	\$43.05
10	2000 Duke Street	156,123	5	1997	Renewal	41,004	120	12/5/05	\$35.00	3% after 3 yrs	\$30.00	0	\$32.00	FS	4.5%	18.0%	22.5%	\$42.88
11	1725 Duke Street	148,069	7	1989	New Lease	4,527	120	5/1/06	\$36.50	3.00%	\$20.00	0	\$36.50	FS	4.1%	32.4%	36.5%	\$49.82
12	225 Reinekers Lane	131,328	7	1988	New Lease	4,852	72	7/1/06	\$33.50	3.0%	\$20.00	0	\$33.50	FS	3.7%	34.2%	37.9%	\$46.20
13	2051 Jamieson Ave	139,194	6	2004	Expansion	5,399	69	9/30/06	\$37.66	3%	\$0.00	0	\$43.75	FS	3.3%	5.4%	8.7%	\$40.95
14	1925 Ballenger Ave	176,101	5	2006	New Lease	32,000	84	11/1/07	\$42.00	3.0%	\$42.00	0	\$41.00	FS	0.7%	1.8%	2.5%	\$43.07
15	1800 Diagonal Road	149,080	6	1984/2004	New Lease	2,231	60	8/1/06	\$33.50	3%	\$10.00	0	\$35.50	FS	3.5%	41.4%	44.9%	\$48.55
16	1800 Diagonal Road	149,080	6	1984/2007	Sublease	2,530	54	9/1/06	\$28.50	4%	As-is	0	\$28.50	FS	3.3%	41.4%	44.7%	\$41.25
17	1737 King Street	141,048	6	1998	Sublease	5,688	60	12/30/04	\$28.00	\$1.00 / yr.	\$7.00	1	\$26.13	FS	7.2%	16.2%	23.4%	\$34.54
18	1737 King Street	141,048	6	1998	New Lease	3,323	61	2/10/05	\$31.00	3.0%	\$15.00	1	\$31.48	FS	6.2%	16.2%	22.4%	\$37.94
19	1737 King Street	141,048	6	1998	New Lease	3,665	120	4/1/05	\$29.00	3%	\$20.00	0	\$29.00	FS	5.9%	16.2%	22.1%	\$35.40
20	1800 Diagonal Road	149,080	6	1984/2005	Sublease	8,198	60	7/1/04	\$29.75	2.75%	\$8.00	2	\$27.16	FS	8.1%	41.4%	49.5%	\$44.47
21	1737 King Street	141,048	6	1998	Sublease	7,070	108	12/2/04	\$25.46	3.75%	\$15.56	1	\$23.50	FS	7.2%	16.2%	23.4%	\$31.41
AVERAGE		144,896	-	-	-	12,675	-	-	\$33.27	-	-	-	\$33.09	-	-	-	27.4%	\$42.38
Braddock Place (A Location Without New Urbanism Characteristics)																		
1	1330 Braddock Pl	86,268	7	1985	Renewal	7,778	60	1/20/04	\$26.50	3%	\$20.00	3	\$21.18	FS	9.2%	39.6%	48.8%	\$31.51
2	1310 Braddock Pl	36,874	4	1985	New Lease	34,050	120	2/15/05	\$28.00	3%	\$35.00	0	\$26.50	FS	6.2%	39.6%	45.8%	\$38.63
3	1340 Braddock Pl	85,173	7	1985	New Lease	3,537	14	8/1/06	\$27.60	n/a	None	0	\$27.60	FS	3.5%	39.6%	43.1%	\$39.50
4	1330 Braddock Pl	86,268	7	1985	New Lease	3,537	36	7/1/07	\$31.00	3%	As-is	0	\$31.00	FS	1.5%	39.6%	41.1%	\$43.74
AVERAGE		73,646	-	-	-	12,226	-	-	\$28.28	-	-	-	\$26.57	-	-	-	44.3%	\$38.35
NEW URBANISM PREMIUM																		10.5%

1/ We estimate normal TIs to be \$35/SF for new space, \$20/SF for relet space, and \$0/SF for a lease renewal.

2/ Based on rent growth trends at the submarket level. See Table B-4.

3/ Building age adjusted at 1.8% per year, a common appraisal standard.

Note: Class A buildings as defined by CoStar.

B - 3

106

Delta Associates

TABLE B-4

**EFFECTIVE RENT TRENDS
SELECT NORTHERN VIRGINIA OFFICE SUBMARKETS
2004 - 2007**

Submarket	Effective Rent per SF				2004 - 2007		2005 - 2007	
	2004	2005	2006	2007	Change	Average	Change	Average
Rosslyn, Cthse, Ballston	\$30.35	\$31.50	\$32.70	\$34.10	\$3.75	\$1.25	\$2.60	\$1.30
Crystal/Pentagon Cities	\$31.90	\$30.70	\$31.95	\$31.95	\$0.05	\$0.02	\$1.25	\$0.63
Old Town Alexandria	\$27.95	\$28.65	\$29.15	\$29.80	\$1.85	\$0.62	\$1.15	\$0.58
Eisenhower Ave, I-395 Corr.	\$23.55	\$23.35	\$24.05	\$24.60	\$1.05	\$0.35	\$1.25	\$0.63

Submarket	Change in Rent per SF				2004 - 2007		2005 - 2007	
	2004	2005	2006	2007	Change	Average	Change	Average
Rosslyn, Cthse, Ballston	-	3.8%	3.8%	4.3%	12.4%	4.1%	8.3%	4.1%
Crystal/Pentagon Cities	-	-3.8%	4.1%	0.0%	0.2%	0.1%	4.1%	2.0%
Old Town Alexandria	-	2.5%	1.7%	2.2%	6.6%	2.2%	4.0%	2.0%
Eisenhower Ave, I-395 Corr.	-	-0.8%	3.0%	2.3%	4.5%	1.5%	5.4%	2.7%

Source: Delta Associates, April 2008.

DA28238
Appdx BB-4 Rent Trends
4/28/2008

TABLE B-5

SUMMARY OF NEW URBANISM PREMIUM ANALYSIS
FOR APARTMENTS
WASHINGTON METRO AREA

COMPARABLE SET:	Difference in Rent per SF Between Urban Amenities Projects and Other Projects
COLUMBIA, MD: ^{1/}	13.4%
GAITHERSBURG, MD: ^{2/}	9.1%
AVERAGE OF URBAN AMENITIES PREMIUM:	11.2%
DELTA'S ESTIMATE OF URBAN AMENITIES PREMIUM IN COMPARISON TO THE SUBJECT:	11.0%

1/ See Table B-6.

2/ See Table B-7.

TABLE B-6

NEW URBANISM PREMIUM ADJUSTMENT TABLE
APARTMENTS IN COLUMBIA, MARYLAND

Comp. #	Project Name/Location	Year Opened	Total Units	Unit Types	Average Size (GLA) S.F.	Monthly Eff. Rents	Effective Rents Per S.F.	Difference in Rent per SF Between Urban Amenities Projects and Other Projects			
								Dollar	Percent		
COLUMBIA TOWN CENTER/COLUMBIA, MARYLAND											
	Columbia Town Center 10360 Swiftstream Place Columbia, Maryland (Urban Amenities Project)	2001	531	1BR/1B	732	\$1,150	\$1.57	--	--		
				1BR/1B	854	\$1,200	\$1.41	--	--		
				1BR/1B	911	\$1,285	\$1.41	--	--		
				2BR/2B	1,042	\$1,460	\$1.40	--	--		
				2BR/2B	1,136	\$1,490	\$1.31	--	--		
				2BR/2B	1,185	\$1,600	\$1.35	--	--		
				3BR/2B	1,403	\$1,800	\$1.28	--	--		
	SIMPLE AVERAGE ARCHSTONE COLUMBIA TOWN CENTER:				1,038	\$1,426	\$1.39				
1.	Stonehaven 7030 Gentle Shade Columbia, Maryland (No Urban Amenities)	1998	200	1BR/1B	757	\$1,015	\$1.34	(Price Diff. Between Similar-Sized Units)	(% Diff. Between Similar-Sized Units)		
				2BR/2B	990	\$1,250	\$1.26			\$0.23	17.2%
				3BR/2B	1,150	\$1,480	\$1.29			\$0.14	11.1%
				Average:	966	\$1,248	\$1.30			\$0.13	9.9%
2.	Columbia Commons 7601 Wood Park Lane Columbia, Maryland (No Urban Amenities)	1991	200	1BR/1B	710	\$945	\$1.33				
				2BR/1.5B	910	\$1,100	\$1.21			\$0.24	18.0%
				2BR/2B	960	\$1,155	\$1.20			\$0.20	16.5%
				3BR/2B	1,230	\$1,440	\$1.17			\$0.21	17.5%
	Average:	953	\$1,160	\$1.23	\$0.18	15.4%	\$0.21	16.9%			
AVERAGE COLUMBIA TOWN CENTER URBAN AMENITIES PREMIUM:								\$0.17	13.4%		

Source: Delta Associates, April 2008.

109

TABLE B-7

**NEW URBANISM PREMIUM ADJUSTMENT TABLE
APARTMENTS IN KENTLANDS/OLD TOWNE GAITHERSBURG, MARYLAND**

Comp. #	Project Name/ Location	Year Opened	Total Units	Unit Types	Average Size (GLA SF)	Monthly Effective Rents	Effective Rents Per SF	Difference in Rent per SF Between Urban Amenities Projects and Other Projects	
								Dollar	Percent
KENTLANDS/GAITHERSBURG, MARYLAND									
	Courts of Devon 501 Main St. Gaithersburg, Maryland (Urban Amenities Project)	1999	170	1BR/1B(a-1) 1BR/1B(a-1a) 1BR/1B (a-2) 1BR/1B(a-2a) 1BR/1B(a-3) 1BR/1B/Den(b-6) 2BR/2B(b-2) 2BR/2B(b-2a) 2BR/2B(b-7) 3BR/2B(c-1) 1BR/1B/Loft(l-1)	761 767 780 833 845 908 1,048 1,034 1,091 1,292 985	\$1,216 \$1,225 \$1,239 \$1,263 \$1,272 \$1,402 \$1,495 \$1,476 \$1,495 \$1,890 \$1,420	\$1.80 \$1.60 \$1.59 \$1.52 \$1.51 \$1.54 \$1.43 \$1.43 \$1.37 \$1.31 \$1.44	-- -- -- -- -- -- -- -- -- -- --	-- -- -- -- -- -- -- -- -- -- --
Simple Average Courts of Devon:					940	\$1,381	\$1.49	--	--
1.	Avalon Fields - Phase I 15717 Winners Drive Gaithersburg, Maryland (No Urban Amenities)	1995	48	1BR/1B Average:	821 821	\$1,123 \$1,123	\$1.37 \$1.37	\$0.15 -- -- --	10.1% -- -- 10.1%
	Avalon Fields - Phase II 15717 Winners Drive Gaithersburg, Maryland (No Urban Amenities)	1996	86	1BR/1B/Loft 2BR/2B 2BR/2B/Loft 3BR/2B Average:	929 1,072 1,264 1,238 1,126	\$1,279 \$1,348 \$1,627 \$1,558 \$1,453	\$1.38 \$1.26 \$1.29 \$1.26 \$1.30	\$0.16 \$0.11 \$0.02 \$0.05 \$0.09	-- -- -- -- 5.7%
2.	Bayberry Apartments 9905 Boysenberry Way Gaithersburg, Maryland (No Urban Amenities)	1989	122	1BR/1B 1BR/1B/Den 1BR/1B/Loft Average:	762 892 926 860	\$655 \$1,320 \$1,370 \$1,182	\$1.12 \$1.48 \$1.48 \$1.36	\$0.48 \$0.06 (\$0.04) \$0.17	-- -- -- 11.2%
3.	Villas at Bayberry II 9905 Boysenberry Way (No Urban Amenities)	1996	0	2BR/2B/Den 3BR/2B Average:	1,347 1,347 1,347	\$1,725 \$1,755 \$1,740	\$1.28 \$1.30 \$1.29	\$0.03 \$0.01 \$0.02	-- -- 1.3%
COURTS OF DEVON URBAN AMENITIES PREMIUM:								--	7.1%
KENTLANDS/GAITHERSBURG, MARYLAND									
	Beacon Place 916 Beacon Square Court Gaithersburg, Maryland (Urban Amenities Project)	1991	0	1BR/1B 1BR/1B 1BR/1B/Den 2BR/2B 2BR/2B	650 730 922 1,066 1,122	\$1,119 \$1,165 \$1,333 \$1,463 \$1,560	\$1.72 \$1.60 \$1.45 \$1.37 \$1.39	-- -- -- -- --	-- -- -- -- --
Simple Average Beacon Place:					898	\$1,328	\$1.51		
1.	Avalon Fields - Phase I 15717 Winners Drive Gaithersburg, Maryland Average:	1995	0	2BR/2B Average:	1,171 1,171	\$1,403 \$1,403	\$1.20 \$1.20	\$0.19	12.8%
2.	Avalon Fields - Phase II 15717 Winners Drive Gaithersburg, Maryland Average:	1996	0	1BR/1B 1BR/1B/Loft 2BR/2B Average:	706 929 1,072 902	\$1,086 \$1,279 \$1,348 \$1,238	\$1.54 \$1.38 \$1.26 \$1.39	\$0.06 \$0.07 \$0.11 \$0.08	-- -- -- 5.3%
3.	Bayberry Apartments 9905 Boysenberry Way Gaithersburg, Maryland (No Urban Amenities) Average:	1989	0	1BR/1B/Junior 1BR/1B 1BR/1B/Den 1BR/1B/Loft Average:	870 782 892 926 813	\$829 \$855 \$1,320 \$1,370 \$1,094	\$1.24 \$1.12 \$1.48 \$1.48 \$1.33	\$0.48 \$0.48 -\$0.03 -\$0.03 \$0.23	-- -- -- -- 14.9%
BEACON PLACE URBAN AMENITIES PREMIUM:								--	11.0%
OVERALL AVERAGE GAITHERSBURG URBAN AMENITIES PREMIUM								--	9.1%

Source: Delta Associates, April 2008.

110

Appendix C:

Analysis of Office Building Lease-Up Pace

TABLE C-1

**CLASS A OFFICE BUILDING LEASE-UP PACE ANALYSIS
BASED ON NEW URBANISM CHARACTERISTICS ^{1/}
ALEXANDRIA AND ARLINGTON, VIRGINIA**

LOCATIONS WITH NEW URBANISM CHARACTERISTICS

Building Address	Location	Year Built/Renov.	Bldg. Size	Occupied Sq. Ft.	Occupancy Rate	Start Date	Stabilized Date	Months Marketing	Sq. Ft. Leased per Month
Carlyle/King St. Station									
2051 Jamieson Avenue	Alexandria	2004	139,194	134,174	96%	Aug-04	Nov-06	27	4,898
1925 Ballenger Avenue	Alexandria	2006	176,101	63,721	36%	Sep-06	Present	19	3,354
1800 Diagonal Road	Alexandria	1984/2004	149,080	147,376	99%	Feb-04	Nov-07	45	3,147
1940 Duke Street	Alexandria	2003	212,890	212,890	100%	Jan-03	Feb-05	25	8,090
Clarendon/Courthouse									
2300 Wilson Boulevard	Arlington	2005	196,004	164,082	84%	Sep-05	Present	31	5,293
3101 N. Wilson Blvd.	Arlington	2003	212,441	212,441	100%	Jul-03	May-06	34	5,936
1515 N. Courthouse Rd.	Arlington	2000	249,709	217,616	87%	Oct-00	May-05	55	4,313
3434 Washington Blvd	Arlington	2006	205,372	201,285	98%	Jul-04	Jul-06	24	8,129
Shirlington									
2900 South Quincy St	Arlington	2001	240,250	235,685	98%	Apr-01	Aug-04	40	5,706
Overall Lease-Up Pace in Settings With New Urbanism Characteristics									5,221

LOCATIONS WITHOUT NEW URBANISM CHARACTERISTICS

Building Address	Location	Year Built/Renov.	Bldg. Size	Occupied Sq. Ft.	Occupancy Rate	Start Date	Stabilized Date	Months Marketing	Sq. Ft. Leased per Month
Crystal City									
2733 Crystal Drive	Arlington	2006	310,741	139,657	45%	Jan-06	Present	27	5,172
2711 Jefferson Davis Hwy	Arlington	1980/2003	134,297	117,314	87%	Feb-03	Present	62	1,892
2121 Crystal Drive	Arlington	1985/2006	503,938	37,148	7%	Sep-06	Present	19	1,955
I-395 (Mark Center)									
4825 Mark Center Dr	Alexandria	2000	216,482	216,482	100%	Jan-99	Oct-00	21	9,793
4850 Mark Center Dr	Alexandria	2002	258,412	258,412	100%	Oct-99	Jan-02	27	9,092
1801 N. Beauregard St	Alexandria	1982/2003	123,853	123,853	100%	Feb-03	Feb-05	24	4,903
East Falls Church									
1625 N George Mason Dr	Arlington	2004	300,000	292,500	98%	Apr-03	Apr-07	48	5,938
Ballston									
3865 Wilson Blvd	Arlington	2002	136,688	134,993	99%	Oct-00	Jul-04	45	2,886
3811 N Fairfax Dr	Arlington	2001	158,230	158,230	100%	Jul-99	Oct-03	51	2,947
4300 Wilson Blvd	Arlington	2003	260,601	250,099	96%	Jan-01	Present	87	2,846
801 N Quincy	Arlington	2002	110,900	110,900	100%	Jan-02	May-05	40	2,634
Overall Lease-Up Pace in Settings Without New Urbanism Characteristics									3,949

LEASE-UP PACE ADVANTAGE FOR BUILDINGS IN NEW URBANISM SETTINGS	32.2%
---	--------------

^{1/} New Urbanism means a walkable, mixed-use environment close to jobs, shopping, entertainment, and other services.

112

Appendix D:

Analysis of Office Building Sales

TABLE D-1

**CLASS A OFFICE BUILDING SALE TRANSACTION ANALYSIS
 BASED ON NEW URBANISM CHARACTERISTICS^{1/}
 ALEXANDRIA AND ARLINGTON, VIRGINIA**

LOCATIONS WITH NEW URBANISM CHARACTERISTICS

Building	Yr Built	Total SF	% Leased	Avg Rent at Sale	Lease Type	Sale Price	Price per SF	Sale Date	Adjustments		Total % Adjustment	Adjusted Price/SF
									Time ^{2/}	Age ^{3/}		
CLARENDON												
2500 Wilson Blvd	1986	100,000	30.1%	\$41.07	fs	\$33,650,000	\$337	Dec-07	-	37.8%	37.8%	\$464
3100 Clarendon Blvd	1987	230,000	99.0%	\$40.00	N/A	\$83,800,000	\$364	Dec-04	72.8%	36.0%	108.8%	\$760
Average							\$351					\$612
CARLYLE/KING STREET												
1900 Duke St., 333 John Carlyle St.	1999	250,000	N/A	N/A	fs	\$84,500,000	\$338	Feb-04	72.8%	14.4%	87.2%	\$633
2051 Jamieson Ave	2004	139,194	96.4%	\$38.00	fs	\$54,600,000	\$392	Jun-05	44.9%	5.4%	50.3%	\$589
1725 Duke St	1989	148,473	N/A	N/A	fs	\$61,625,000	\$415	Feb-06	32.9%	32.4%	65.3%	\$686
124 S West St	2006	31,690	47.9%	\$32.00	fs	\$10,000,000	\$316	Oct-06	32.9%	1.8%	34.7%	\$426
1940 Duke St	2002	210,000	100.0%	\$26.00	nnn	\$124,466,368	\$593	Jun-07	-	9.0%	9.0%	\$646
2000 Duke St	1997	156,123	97.0%	\$37.00	fs	\$92,533,632	\$593	Jun-07	-	18.0%	18.0%	\$700
1725 Duke St	1989	148,473	87.1%	\$34.96	fs	\$80,540,000	\$542	Jul-07	-	32.4%	32.4%	\$718
Average							\$456					\$628
SHIRLINGTON												
2800 Shirlington Dr	1986/2003	206,993	98.2%	\$30.76	fs	\$62,500,000	\$302	Mar-08	-	37.8%	37.8%	\$416
2900 S Quincy	2001	233,240	98.1%	\$27.00	fs	\$68,784,230	\$295	Jul-05	44.9%	10.8%	55.7%	\$459
Average							\$299					\$438
OVERALL AVERAGE												\$691

LOCATIONS WITHOUT NEW URBANISM CHARACTERISTICS

Building	Yr Built	Total SF	% Leased	Avg Rent at Sale	Lease Type	Sale Price	Price per SF	Sale Date	Adjustments		Total % Adjustment	Adjusted Price/SF
									Time ^{2/}	Age ^{3/}		
BRADDOCK PLACE												
Braddock Place	1985	339,762	100.0%	\$20.81	fs	\$79,982,500	\$235	May-05	44.9%	39.6%	84.5%	\$434
Average							\$235					\$434
OTHER ALEXANDRIA LOCATIONS												
1001 N Fairfax Dr	1983	115,000	84.7%	NA	fs	\$22,750,000	\$198	Jan-05	44.9%	43.2%	88.1%	\$372
635 Slaters Lane	1986	56,500	100.0%	\$27.50	fs	\$13,650,000	\$242	May-07	-	37.8%	37.8%	\$333
Average							\$220					\$363
OVERALL AVERAGE												\$380

1/ New Urbanism means a walkable, mixed-use environment close to jobs, shopping, entertainment, and other services.
 2/ Based on office building sale price trends in Northern Virginia. See Table D-2.
 3/ Building age adjusted at 1.8% per year, a common appraisal standard.

114

TABLE D-2

OFFICE BUILDING SALES PRICE TRENDS
NORTHERN VIRGINIA
2004-2007

	2004	2005	2006	2007	2004-2007	2005-2007
Avg. Price/SF	\$213	\$254	\$277	\$368	-	-
\$ Change	-	\$41	\$23	\$91	\$155	\$114
% Change	-	19.2%	9.1%	32.9%	72.8%	44.9%

Source: Delta Associates, April 2008.

DA28238
Appdx DD-2 Price Trends
4/28/2008

115

Appendix E:
Analysis of Metro Impact

TABLE E-1

RENT PREMIUM ANALYSIS FOR METRO ORIENTED OFFICE SPACE
NORTHERN VIRGINIA OFFICE SUBMARKETS

	Asking Rents	
	1994	2008
<u>Metro Served Submarkets</u>		
Ballston	\$20.15	\$39.34
<u>Non-Metro Served Submarkets</u>		
Tysons Corner	\$19.00	\$35.55
Premium:	6.1%	10.7%
	Say:	8.0%

Source: CoStar, Delta Associates, April 2008.

DA23238
 Appdx EE-1 Metro1
 4/28/2008

117

TABLE E-2

**APARTMENT RENT ADJUSTMENT ANALYSIS FOR
PROXIMITY TO A METRO STATION**

Company	Access to a Metro Station: Impact on Apartment Rents	Range	
		Low	High
Lincoln Property Co.	Believe that Metro has a 5% to 10% impact.	5.0%	10.0%
Bozzuto Group	Estimates 10% increase in rent premium.	10.0%	10.0%
Post Apartment Development	Believes this to be a very important factor. Estimates 7% to 8% more per month.	7.0%	8.0%
Charles E. Smith	Urban High-rise = 5%-10% of base. Walking Distance = 3% -10% of base.	3.0%	10.0%
Confidential	A lot of variables involved, but estimate \$50.	3.2%	3.2%
Trammell Crow Residential	It is a definite amenity and a plus. Metro locations are a priority for us. We think it might add \$0.10 to \$0.15 per SF.	6.0%	9.0%
	Average:	5.7%	8.4%
	Mid-Point:	7.0%	

Source: Delta Associates, April 2008.

DA28238
E-2 Metro2 Appdx E
4/28/2008

118

Appendix F:

Comparative Town Centers and Urban Concentrations

TABLE F-1

**COMPARATIVE SUMMARY
TOWN CENTERS/URBAN CONCENTRATIONS IN ARLINGTON AND ALEXANDRIA
COMPARED TO POTOMAC YARD PLAN
AS OF APRIL 2008**

Location	Size (Acres)	Total Floor Area (SF)		Residential Units ^{1/}	Hotel Rooms ^{1/}	Is It Successful?		Aesthetic Comparison to Potomac Yard
		Office	Retail			Economics	Design	
Shirlington	NA	588,000	361,000	1,842	0	Yes	Yes	Inferior
Clarendon	212	801,000	463,000	1,543	0	Yes	Yes	Inferior
Crystal City	390	11,356,000	881,000	5,833	4,601	Somewhat	No	Inferior
Pentagon City	234	1,449,000	1,724,000	4,324	644	Yes	Yes	Inferior
Carlyle	76	4,000,000	79,000	2,192	319	Yes	Yes	Equal
POTOMAC YARD	167	1,900,000	120,000	1,683	625	-	-	-

1/ Arlington locations equal development within 1/4 mi. of Metro since 1960.

MIPA 2008-0003
TA 2008-0003
CDO 2008-0001

**POTOMAC YARD
DENSITY TRANSFER TRAFFIC ANALYSIS
ALEXANDRIA, VIRGINIA**

Prepared for:
Potomac Yard LLC

Prepared by:
Wells & Associates, LLC

April 22, 2008



**POTOMAC YARD
DENSITY TRANSFER TRAFFIC ANALYSIS
ALEXANDRIA, VIRGINIA**

TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Background Data	6
Public Road Network	6
Transit Services and Facilities	10
Site Access Concept	10
Existing Traffic Volumes	11
Traffic Analysis	13
Existing Levels of Service	13
Traffic Diversions	13
Other Development Traffic	15
Trip Distribution Analysis	15
Background Traffic Growth Rates	15
Background Traffic Forecasts	17
Site Trip Generation Analysis	17
Option Analysis to Convert Office Space to Retail Space. . .	20
Site Trip Generation Analysis with Metro Station.	20
Total Future Traffic Forecasts	25
Total Future Levels of Service.	30
Conclusions	33

122

**POTOMAC YARD
DENSITY TRANSFER TRAFFIC ANALYSIS
ALEXANDRIA, VIRGINIA**

LIST OF APPENDICES

- A. Existing Peak Hour Traffic Counts
- B. Existing Intersection Levels of Service Worksheets
- C. Existing Diverted Trips
- D. Trip Generation Tables
- E. Future Intersection Levels of Service Worksheets
- F. Future Intersection Levels of Service with Density Transfer Worksheets

**POTOMAC YARD
DENSITY TRANSFER TRAFFIC ANALYSIS
ALEXANDRIA, VIRGINIA**

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	Site Location	5
2	Existing Lane Use and Traffic Control . . .	7
3	Future Lane Use and Traffic Control	9
4	Existing Peak Hour Traffic Volumes	12
5	Other Development Peak Hour Traffic Assignments	18
6	Site Generated Peak Hour Traffic Volumes	24
7	Site Generated Peak Hour Traffic Volumes With Proposed Density Transfer	26
8	Total Future Peak Hour Traffic Forecasts	28
9	Total Future Peak Hour Traffic Forecasts With Proposed Density Transfer	29

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
1	Existing Intersection Levels of Service	14
2	Other Development Trip Generation	16
3	Program Summary.	19
4	Site-generated External Auto Trips	21
5	Approved CDD Trips by Land Bay	22
6	Proposed Density Transfer Trips by Land Bay.	23
7	Site-generated External Auto Trips With New Potomac Yard Station.	27
8	Total Future Intersection Levels of Service . . .	31

124

INTRODUCTION

This report presents the results of a traffic analysis that evaluates the transportation impacts of a proposal by Potomac Yard Development, LLC (PYD) and Mid Atlantic Realty Partners, LLC (MRP) to transfer commercial density from Land Bays J and L to Land Bay H within Potomac Yard located in Alexandria, Virginia. For purposes of this analysis, Potomac Yard includes Land Bays G - L, bounded by Jefferson Davis Highway (U.S. Route 1) on the west, the CSX railroad on the east, the existing Potomac Yard Centre to the north, and south of Monroe Avenue, as shown on Figure 1.

Potomac Yard is an approved Coordinated Development District (CDD) which includes a mix of residential, office, retail, and hotel uses. The overall approved development program for Potomac Yard includes 1,900,000 square feet (S.F.) of office space, 625 hotel rooms, 120,000 S.F. of retail space, and 1,683 residential dwelling units. PYD, owner of Land Bays H – L, and MRP, owner of Land Bay G and contract purchaser for Land Bay H, proposed to transfer a total of 765,000 square feet of office density from Land Bays J and L to Land Bay H. The overall approved development program will remain the same with the proposed density transfer. For purposes of this traffic analysis, these uses were assumed to be fully developed and occupied by 2020.

The City's east-west and north-south grid street network is being extended through Potomac Yard. Route 1 will be improved along the Potomac Yard frontage. The Monroe Avenue Bridge on Route 1 is currently being straightened. Potomac Avenue is being constructed as a new, four-lane, divided roadway, connecting Route 1 north of Monroe Avenue in Alexandria with Crystal Drive at 27th Street in Arlington County. A connected network of framework streets, including Main Street, Custis Avenue, Howell Avenue, Swann Avenue and East Glebe Road are also being built within Potomac Yard.

The purpose of this traffic analysis is to determine any transportation impacts that may occur to the planned roadway network as a result of the density transfer.

Tasks undertaken in this study included the following:

1. Review proposed development plans, previous traffic studies, and other background data.
2. A field reconnaissance of existing roadway and intersection geometrics, traffic controls, speed limits, pedestrian facilities, and transit services and facilities.
3. Discussions with City of Alexandria staff regarding the scope of this traffic analysis.
4. Counts of existing traffic at six (6) intersections on Route 1.
5. Analysis of existing levels of service.
6. Forecasts of other approved but incomplete development projects, and background traffic growth.
7. Estimates of the number of AM and PM peak hour vehicle-trips that would be generated by Potomac Yard with and without the density transfer based on Institute of Transportation Engineers (ITE) trip generation rates, estimates of transit usage, and ridesharing mode splits promoted through a Travel Demand Management (TDM) program.
8. Forecasts of total future traffic forecasts with and without the density transfer based on background traffic forecasts plus site traffic assignments.
9. Calculation of total future levels of service at each key intersection with and without the density transfer based on total future traffic forecasts, future traffic controls, and intersection geometrics.

10. Identify traffic operations and/or roadway improvements, if any, required to adequately accommodate total future traffic forecasts.

Sources of data for this analysis included traffic counts conducted by Wells & Associates, the Institute of Transportation Engineers (ITE), the City of Alexandria, the Washington Metropolitan Area Transit Authority (WMATA), the Washington Metropolitan Council of Governments (WMCOG), and the Potomac Yard project team.

The conclusions of this traffic analysis are as follows:

- 1. The public street network generally operates well during peak hours. All study intersections currently operate at an overall level of service (LOS) "D" or better during both the AM and PM peak hours.**
- 2. The approved but un-built projects in the study area would generate a total of 1,227 AM peak hour vehicle-trips and 1,674 PM peak hour vehicle-trips upon completion and full occupancy.**
- 3. Potomac Avenue is being constructed with the project and is expected to divert existing traffic destined to points north from Route 1.**
- 4. The approved density for Potomac Yard, which contains 1,900,000 S.F. of office space, 625 hotel rooms, 120,000 S.F. of retail space, and 1,683 residential dwelling units would generate approximately 1,624 AM peak hour vehicle trips and 1,954 PM peak hour vehicle trips, upon completion and full occupancy.**
- 5. The density transfer would have relatively few impacts to the study intersections with no decreases in operation within the unacceptable range (below LOS "D"). The study intersections would continue to operate at an overall acceptable LOS "D" or better in the AM and PM peak hour with the exception of Route 1/East Glebe Road which would operate at a LOS "E" during the PM peak hour with or without the commercial density transfer.**
- 6. The analysis suggests that the traditional grid pattern being constructed within Potomac Yard provides many opportunities and diffuses traffic to allow an acceptable operation across the entire project with and without the density transfer.**
- 7. If a new Potomac Yard Metro Station is built in the reservation area adjacent to Land Bays G and H, an additional 15% reduction in external vehicle trips beyond the current transit and TMP assumptions without the station would be expected.**

L:\Projects\4001 - 4500\4127 - P.Y Density Transfer Study\Graphics\Fig.1.dwg

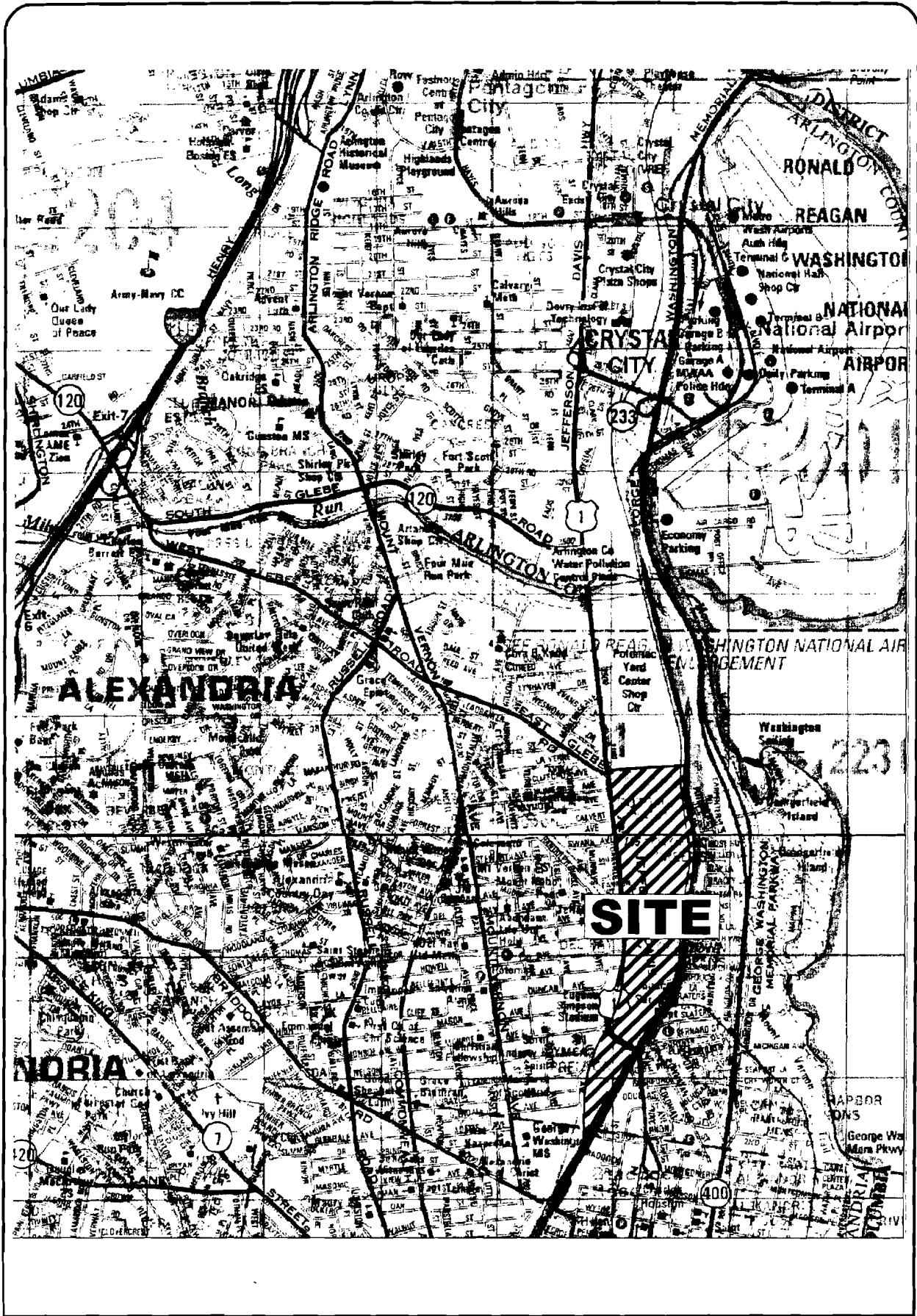


Figure 1
Site Location

129



BACKGROUND DATA

Public Road Network

Existing Network. Regional access to Potomac Yard presently is provided by Jefferson Davis Highway (U.S. Route 1), the George Washington Memorial Parkway, East Glebe Road, Slaters Lane, and Monroe Avenue. Existing intersection lane use and traffic control at key intersections in the immediate site vicinity are shown on Figure 2.

U.S. Route 1 is a four-lane, median-divided, arterial roadway along the Potomac Yard frontage in the City of Alexandria. Traffic signals are located on Route 1 at East Glebe Road, Hume Avenue, Swann Avenue, Custis Avenue, Howell Avenue, Monroe Avenue, and Slaters Avenue. These signals operate on 128-second cycles. North of Four Mile Run in Arlington County, Route 1 becomes a six-lane roadway.

Various highway-related commercial uses are located on the west side of Route 1, across from Potomac Yard. The residential neighborhoods of Mount Jefferson, Lynhaven, and Del Ray also are located west of Route 1.

The George Washington Memorial Parkway is a four-lane, median-divided, limited-access, arterial roadway with restricted truck use. At Slaters Lane, the Parkway ends and becomes Washington Street, the major north-south street through Old Town Alexandria. Washington Street is a six-lane roadway with the right lanes reserved for high-occupancy vehicles (HOV) during peak periods. The lane is used for parking during off-peak periods.

East Glebe Road is a two- to four-lane, undivided, collector roadway with a traffic signal at Route 1. East Glebe Road generally is aligned in an east-west direction, connecting South Glebe Road and Route 1.

Monroe Avenue is a two-lane, undivided, collector street. The Monroe Avenue Bridge is currently under construction and will connect Route 1 (Patrick and Henry Streets) on the south with Route 1 (Jefferson Davis Highway) on the north.

L:\Projects\4001 - 4500\4127 - PY Density Transfer Study\Graphics\Fig 2.4.dwg

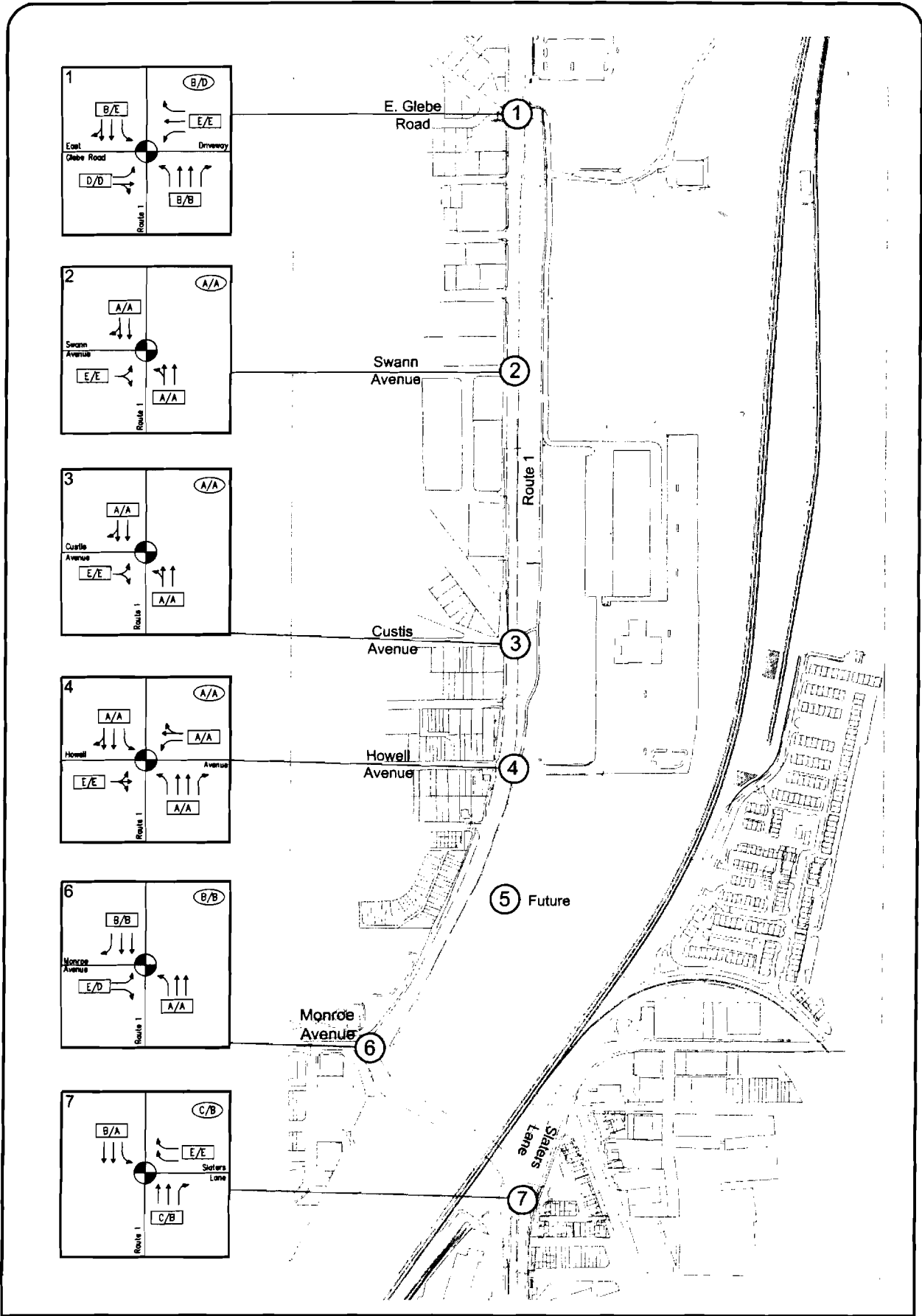


Figure 2
Existing Lane Use and Traffic Control

Level of Service

Overall

Approach

← Represents One Travel Lane

⊙ Signalized Intersection

— Stop Sign



North



Slaters Lane consists of a one-way roadway pair. This one-way pair functions as a collector street, providing an east-west connection between George Washington Parkway and Route 1. The Northeast neighborhood is located south of Slaters Lane, between Route 1 and Washington Street.

Programmed Improvements. Route 1 frontage improvements and the construction of Potomac Avenue have been completed as part of the infrastructure improvements for the National Gateway at Potomac Yard project in Arlington County. In Arlington, Potomac Avenue will form the fourth leg of the Crystal Drive/27th Street intersection.

Planned Improvements. The following roadway improvements are planned in the area:

- **Potomac Avenue** is a new four-lane, divided roadway that is being constructed east of, and parallel to, Route 1. When completed, Potomac Avenue will connect Route 1 north of Monroe Street to Crystal Drive at 27th Street in Arlington County. The roadway will provide direct access to Potomac Yard from both Alexandria and Arlington. The roadway also is anticipated to divert existing traffic from Route 1.
- **Route 1** will be improved along the Potomac Yard site frontage. Left turn lanes will ultimately be provided and new or modified traffic signals will be built at East Glebe Road, Swann Avenue, Custis Avenue, Howell Avenue, and Slaters Lane. The Hume Avenue location will be removed and operate as a right-in/right-out intersection with the Bus Rapid Transit (BRT) improvements to Route 1. As previously noted, Route 1, between Monroe Avenue and Slaters Lane, is currently being straightened and Monroe Avenue will be connected to Main Street.
- **Main Street** is a new, two-lane, north-south, local, street that is being constructed between Route 1 and Potomac Avenue. Main Street will provide on-street parking and local access to adjacent office, retail, and residential uses. The roadway is designed to be pedestrian friendly, carrying only low-volume, low-speed vehicular traffic.

Figure 3 illustrates the planned future lane use and traffic control for the study intersections.

L:\Projects\4001 - 4500\4127 - PY Density Transfer Study\Graphics\Fig.3.5-9. C-1, C-2.dwg

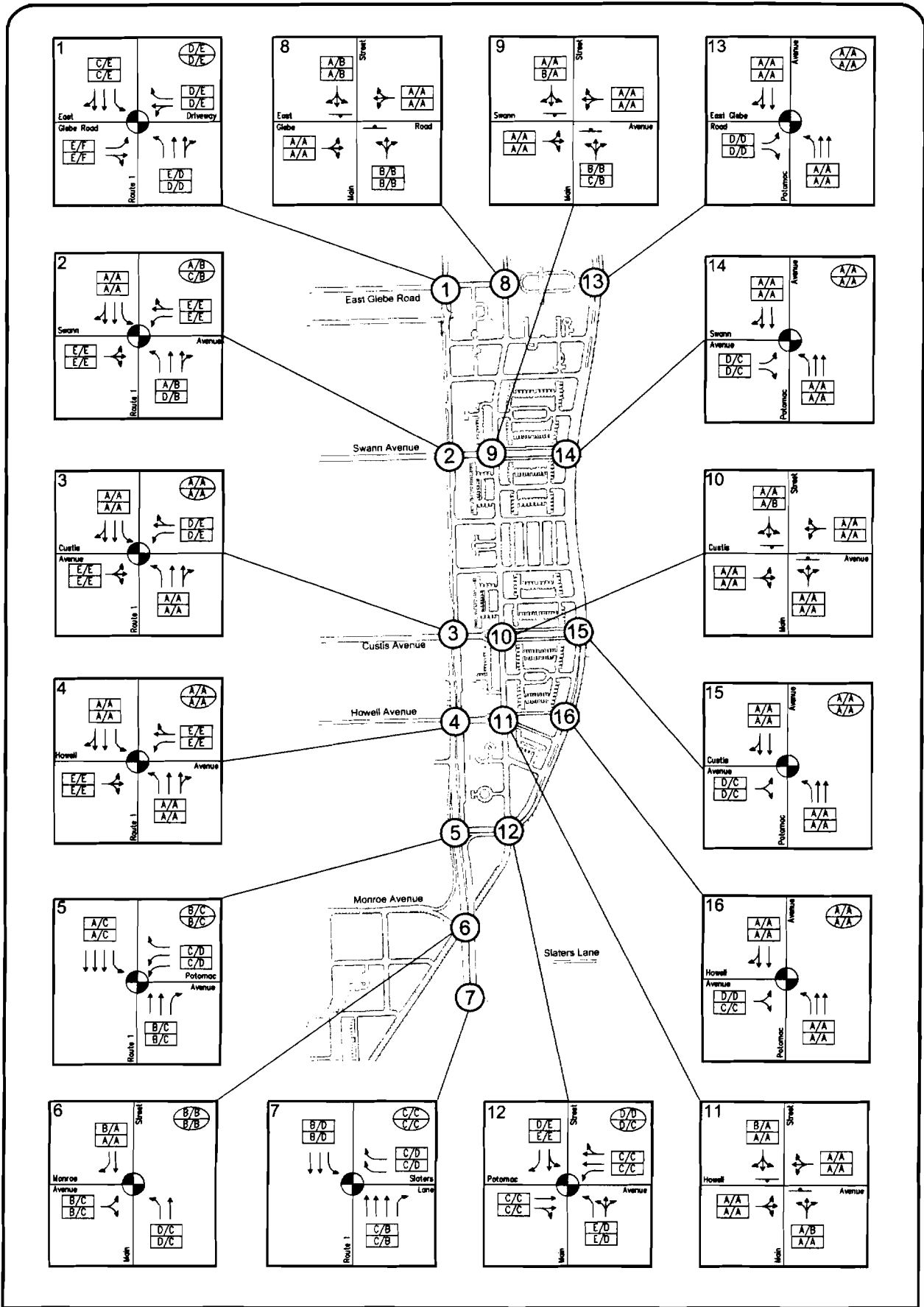


Figure 3
Future Lane Use and Traffic Controls

Level of Service
 Overall $\frac{A/A}{A/A}$ Approved Proposed
 Approach $\frac{B/B}{B/B}$ Approved Proposed

← Represents One Travel Lane
 ⊙ Signalized Intersection
 — Stop Sign



Transit Services and Facilities

Three (3) bus stops are located along Route 1 and adjacent to Potomac Yard. The Metrobus Line 9: Fort Belvoir- Pentagon has seven (7) branches that provide excellent service between Fort Belvoir, the Huntington Metro Station, Old Town Alexandria, Crystal City, and the Pentagon. This line operates nearly 24 hours a day, seven days a week, on 20- to 30-minute weekday headways and 30-minute weekend headways.

The nearest existing Metrorail stations are located in Crystal City to the north and at Braddock Road to the south. Virginia Railway Express (VRE) service is provided at the Crystal City Metro station. The development of Potomac Yard in Alexandria and Arlington is designed to facilitate better access to the existing Crystal City and Braddock Road Metro Stations. Right-of-way and preliminary planning have established a reservation of land to be dedicated for a new Potomac Yard Metro Station located near Land Bays G and H.

Site Access Concept

Vehicular Access is proposed via an interconnected roadway system within a traditional oriented land use pattern. The access system will consist of the eastward extension of East Glebe Road, Swann Avenue, Custis Avenue, and Howell Avenue. These roadways will provide access to and from Route 1, Main Street, and Potomac Avenue.

Public Transit Access was initially planned via a shuttle bus service. Transit service is now proposed with a Bus Rapid Transit (BRT) system that would connect Potomac Yard with the Braddock Road Metrorail Station and National Gateway at Potomac Yard in Arlington with the Crystal City Metro and VRE station. The BRT Route would travel along Route 1, turn onto N. Glebe Road, and turn on Potomac Avenue toward Arlington. In Arlington, the BRT would connect with Potomac Avenue and follow the extension of South Glebe Road (Route 120) before turning northward along Route 1 and Crystal Drive into Crystal City. Along Route 1, stations are planned at Potomac Avenue, Custis Avenue, Swann Avenue, and E. Glebe Road.

Pedestrian Access is provided by a network of sidewalks and street crossings internal to the site. The sidewalk network includes attractive amenities such as landscaping, street furniture, urban art, building overhangs, connections to public open spaces, and pedestrian plazas.

Existing Traffic Volumes

Intersection Counts. Existing AM and PM peak hour traffic counts were conducted on Thursday, November 29, 2007, prior to the current traffic control on Route 1 for the bridge widening. The counts were taken at the following intersections:

1. Route 1 and East Glebe Road
2. Route 1 and Swann Avenue
3. Route 1 and Custis Avenue
4. Route 1 and Howell Avenue
5. Route 1 and Monroe Avenue
6. Route 1 and Slaters Lane

The results are included in Appendix A and summarized on Figure 4. Figure 4 indicates that Route 1 presently carries 3,013 AM peak hour trips (973 southbound and 2,040 northbound) and 3,233 PM peak hour trips (1,627 southbound and 1,606 northbound). The peak hours occurred between 7:45 AM – 8:45 AM and 5:00 PM – 6:00 PM. These counts are very similar to the counts completed by Wells + Associates for the Infrastructure Traffic Analysis Study, dated December 2, 2005.

L:\Projects\4001 - 4500\4127 - PY Density Transfer Study\Graphics\Fig.2.4.dwg

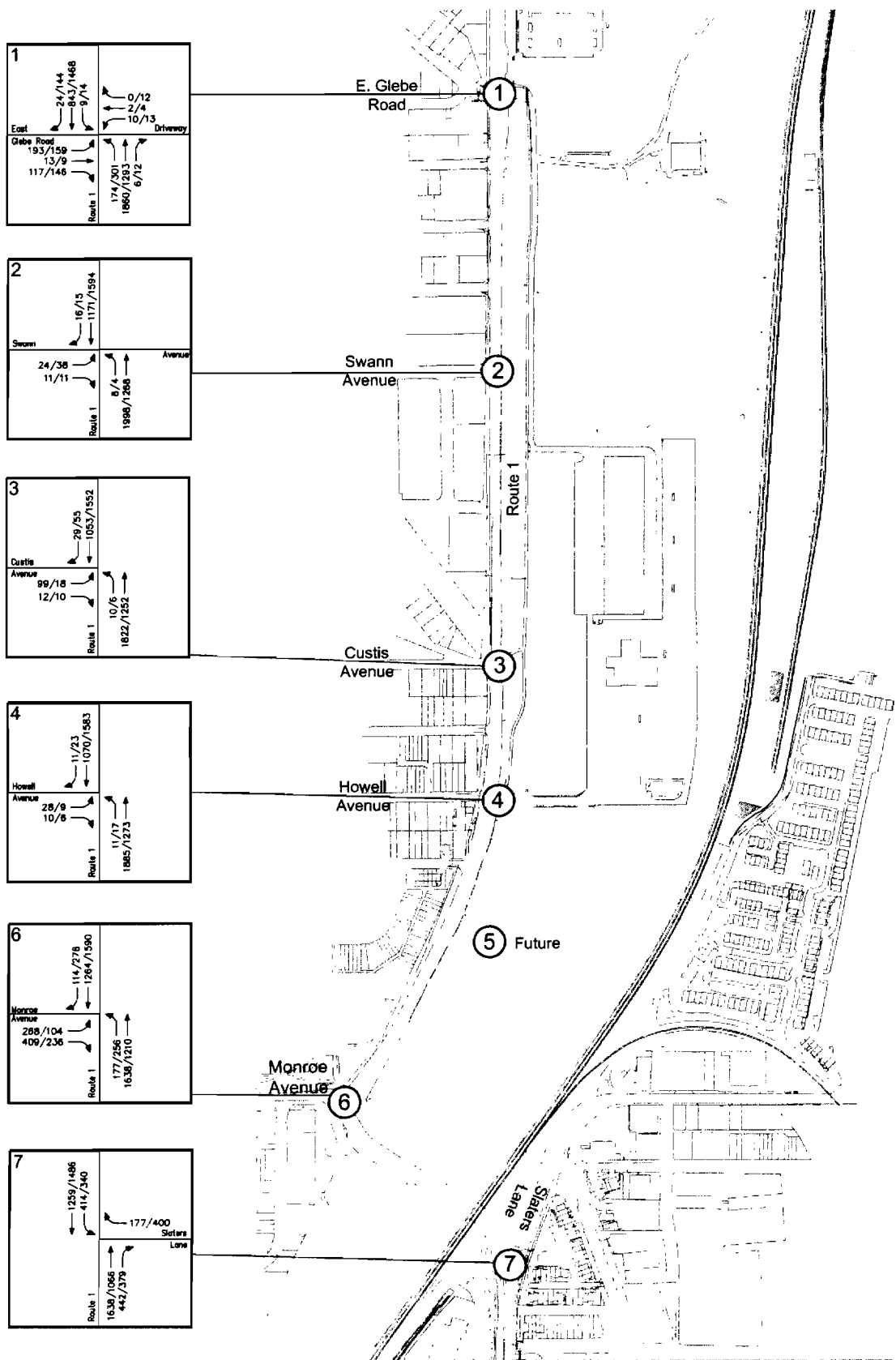


Figure 4
Existing Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000/000



TRAFFIC ANALYSIS

Existing Levels of Service

Existing peak hour levels of service were calculated at the six existing Route 1 intersections based on the existing lane usage and traffic control shown on Figure 2, the existing traffic volumes shown on Figure 4, and the Highway Capacity Manual (HCM) analysis methodology. The results are presented in Appendix B and summarized in Table I.

Table I indicates that each of the study intersections presently operates at an overall level of service (LOS) "D" or better during both the AM and PM peak hours.

Traffic Diversions

The addition of Potomac Avenue will effectively increase the number of north-south through lanes in the Route 1 corridor from four (4) to eight (8). Potomac Avenue will be particularly attractive to Crystal City bound traffic that would otherwise use Route 1.

Diversions for Route 1 were estimated with the December 2, 2005, Wells + Associates Infrastructure Traffic Analysis Report and since existing counts are in the same magnitude, the same diversion for Route 1 were used with this evaluation. The study estimated that approximately 24 percent of AM traffic and 20 percent of PM Route 1 traffic would divert to Potomac Avenue.

Other diversions are expected on a local basis with the reconfiguration of Monroe Avenue and the straightening of the Route 1 Bridge. These existing trips are likely to use Potomac Avenue via Main Street. Appendix C provides a summary of the traffic diversion assumptions made with this traffic study.

Table I
Existing Peak Hour Intersection Levels of Service ⁽¹⁾

Intersection	Control	Approach / Movement	AM Peak Hour	PM Peak Hour
Route 1 / East Glebe Road	Signal	EB	D (49.8)	D (49.1)
		WB	E (60.8)	E (60.0)
		NB	B (13.9)	B (16.1)
		SB	<u>B (12.6)</u>	<u>E (63.9)</u>
		Overall	B (17.3)	D (41.1)
Route 1 / Swann Avenue	Signal	EB	E (61.1)	E (59.6)
		NB	A (2.8)	A (1.1)
		SB	<u>A (1.1)</u>	<u>A (2.0)</u>
		Overall	A (2.8)	A (2.6)
Route 1 / Custis Avenue	Signal	EB	E (58.5)	E (60.9)
		NB	A (4.1)	A (1.7)
		SB	<u>A (1.5)</u>	<u>A (0.7)</u>
		Overall	A (5.2)	A (1.7)
Route 1 / Howell Avenue	Signal	EB	E (62.7)	E (65.4)
		WB	A (0.0)	A (0.0)
		NB	A (2.8)	A (1.1)
		SB	<u>A (0.5)</u>	<u>A (0.6)</u>
		Overall	A (2.7)	A (1.1)
Route 1 / Monroe Avenue	Signal	EB	E (54.3)	D (54.4)
		NB	A (4.4)	A (9.8)
		SB	<u>B (17.8)</u>	<u>B (15.5)</u>
		Overall	B (17.9)	B (16.8)
Route 1 / Slaters Lane	Signal	WB	E (58.1)	E (58.6)
		NB	C (34.3)	B (11.9)
		SB	<u>B (10.8)</u>	<u>A (4.5)</u>
		Overall	C (25.4)	B (13.3)

Note: (1) Numbers in parentheses represent average delays, in seconds per vehicle at signalized intersections

Other Development Traffic

The number of peak hour trips that would be generated by other development projects were estimated based on approved studies for each project. These other development projects consist of the National Gateway at Potomac Yard project located in Arlington County, just north of the City boundaries. As shown in Table 2, it is estimated that these projects will generate a total of 1,227 to 1,674 peak hour vehicle-trips, upon completion.

Trip Distribution Analysis

The distribution of peak hour trips generated by Potomac Yard and other approved projects was determined based on previous transportation studies conducted by the City of Alexandria as part of the Potomac Yard/Potomac Green Small Area Plan. This distribution was based on the regional distribution of trip productions and attractions, as follows:

<u>To/From</u>	<u>Percent</u>
North via Route 1	41.6 %
North via GW Memorial Pkwy	2.4 %
West Via Reed Ave and N. Glebe Rd	17.0 %
West Via Custis and Monroe Ave	12.8 %
South Via Route 1 and Washington St	<u>26.2 %</u>
Total	100.0 %

Background Traffic Growth Rate

Background traffic growth was estimated at 1.73 percent per year from 2004 to 2016 compounded, based on historical traffic trends determined through an analysis completed as part of the Potomac Yard Infrastructure Traffic Analysis, completed December 2, 2005. This growth rate was used for this analysis and applied to the through movements on Route 1 through 2020. The total background traffic growth was estimated at 23 percent over a 12-year build-out period.

Table 2
Other Development Trip Generation (1)

Development / Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
I. National Gateway at Potomac Yard (2)								
Office	2,106,876	S.F.	828	20	848	48	835	883
Hotel	625	Rooms	40	29	69	35	37	72
Retail	178,910	S.F.	10	15	25	210	191	401
Residential	1,548	D.U.	44	241	285	207	111	318
Total			922	305	1,227	500	1,174	1,674

Notes: (1) Based on ITE, 7th Edition, trip generation equations and Arlington County TMP Requirements.

(2) Includes One Potomac Yard (Land Bay "A") & The Eclipse on Center Park (Land Bay "F")

16
 141

Background Traffic Forecasts

The trips generated by other approved but un-built developments shown in Table 2 were assigned to the future road network according the directional distribution described above. The resulting other development traffic assignments are shown on Figure 5.

Site Vehicle-Trip Generation Analysis

The Potomac Yard development consists of 1,900,000 square feet of office space, 625 Hotel rooms, 120,000 square feet of retail space, and 1,683 dwelling units. The approved Potomac Yard Coordinated Development District (CDD) distributed the office program with 800,000 square feet in Land Bay G, 60,000 square feet in Land Bay H, 104,000 square feet in Land Bay I, 463,000 square feet in Land Bay J, and the remaining 473,000 square feet in Land Bay L.

The proposed density transfer would shift all of the 473,000 square feet of office from Land Bay L and 292,000 square feet from Land Bay J to Land Bay H. Land Bay H would increase by 765,000 square feet for a total of 825,000 square feet of office space. Table 3 provides a program summary of the density transfer by Land Bay.

The total number of vehicle-trips that would be generated by the approved density and the proposed density transfer would be the same and was estimated based on ITE vehicle-trip generation rates, estimates of transit and rideshare mode splits, and internal trip making.

In each case, approximately 30 percent of all site-generated person-trips were assumed to be made by some mode other than private auto, such as Metrorail, Metrobus, shuttle, walk, or bicycle. Auto-transit mode splits were estimated for each use in each Land Bay based on distance to the nearest Metrorail station and mode split/distance relationships developed by WMATA based on surveys of comparable uses at other Metrorail stations. The average auto occupancy was assumed to be 1.4 persons per vehicle. These trip reduction goals are consistent with previously approved traffic studies prepared for Potomac Yard and found to be achievable through elements of the project's Transportation Management Plan (TMP).

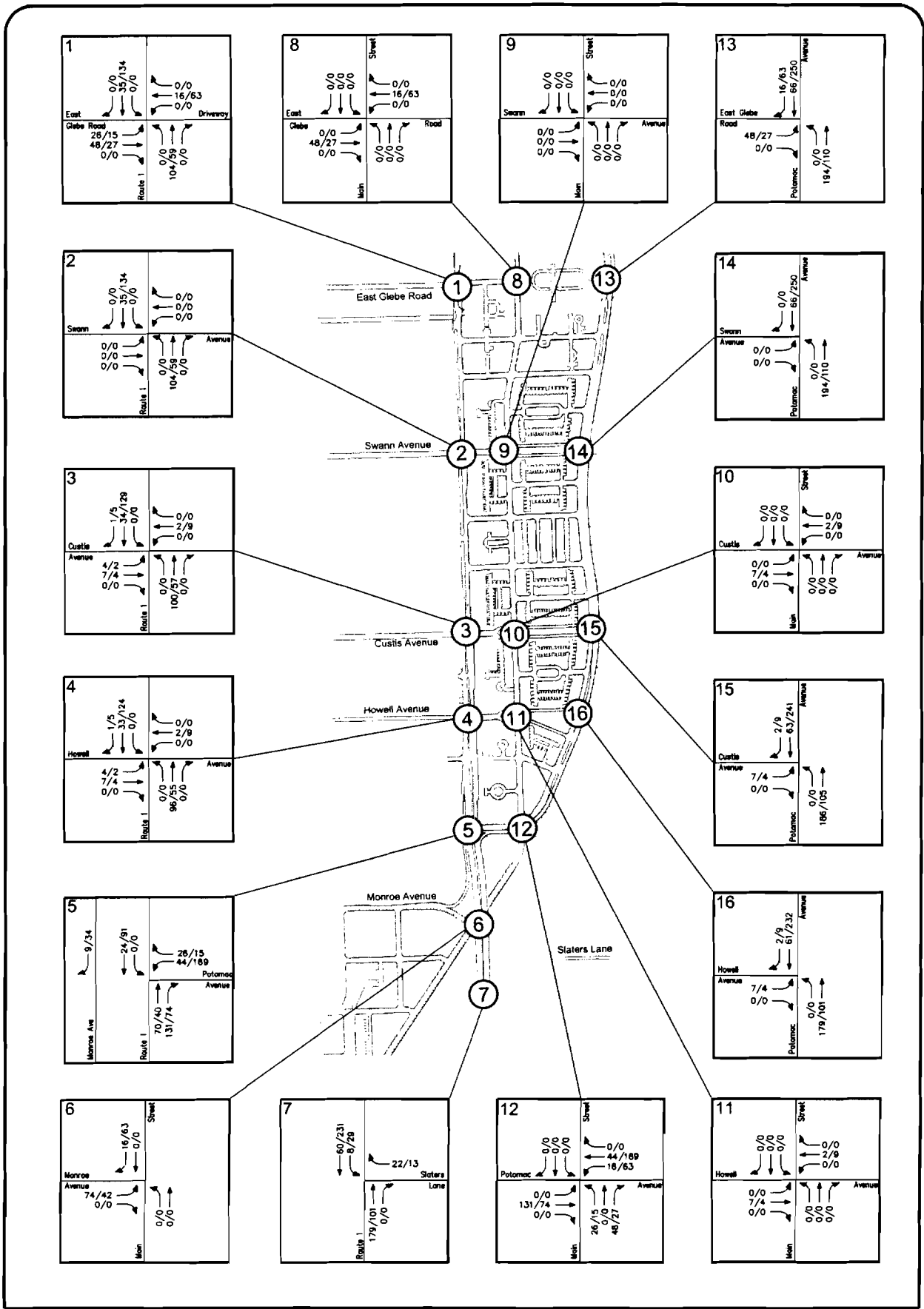


Figure 5
Other Development Peak Hour Traffic Volumes

All Peak Hour
Per Peak Hour
000/000



Table 3
Program Summary

Land Bay/ Land Use	Approved CDD Amount	Proposed Density Transfer Amount	Difference Approved vs. Proposed Amount	Unit
<u>Land Bay G</u>				
Office	800,000	800,000	-	S.F.
Hotel	625	625	-	Rooms
Retail	80,000	80,000	-	S.F.
Residential	414	414	-	D.U.
<u>Land Bay H</u>				
Office	60,000	825,000	765,000	S.F.
Retail	5,000	5,000	-	S.F.
Residential	232	232	-	D.U.
<u>Land Bay I</u>				
Office	104,000	104,000	-	S.F.
Retail	10,000	10,000	-	S.F.
Residential	407	407	-	D.U.
<u>Land Bay J</u>				
Office	463,000	171,000	(292,000)	S.F.
Retail	15,000	15,000	-	S.F.
Residential	272	272	-	D.U.
<u>Land Bay L</u>				
Office	473,000	0	(473,000)	S.F.
Retail	10,000	10,000	-	S.F.
Residential	358	358	-	D.U.
<u>Summary</u>				
Office	1,900,000	1,900,000	-	S.F.
Hotel	625	625	-	Rooms
Retail	120,000	120,000	-	S.F.
Residential	1,683	1,683	-	D.U.

In addition, the mixed-use project would promote internal trip making which is estimated to account for an overall 15 percent reduction of all site-generated trips. The results of the trip generation analysis are presented in Appendix D and summarized in Table 4.

Table 4 indicates this development would generate approximately 1,624 AM peak hour vehicle-trips and 1,954 PM peak hour vehicle-trips, upon completion and occupancy. Table 5 provides an estimate of the trips by Land Bay for the Approved CDD and Table 6 provides an estimate of the trips by Land Bay for the Proposed Density Transfer.

The site-generated traffic volumes shown in Tables 5 and 6 were assigned to the public road network according to the directional distribution described above and the uses in each Land Bay. The resulting site traffic assignments are shown on Figures 6 and 7 for the Approved CDD program and the Proposed Density Transfer program, respectively.

Analysis of Option to Convert Office Space to Retail Space

As part of the transfer of commercial density within Potomac Yard, the owners are requesting the flexibility to convert office square footage to retail square footage through the Special Use Permit Process. The specific location and amount of any such conversion would be evaluated from a traffic perspective during the Special Use Permit process for that particular Land Bay or development project. Although a complete analysis of the affect of any conversion is not being performed at this time, it is expected that due to different peak hours of use and different traffic directions, the conversion of office to retail space may improve peak weekday AM and PM peak levels of service.

Site Vehicle-Trip Generation Analysis with New Metro Station

A review of the trips that would be generated by Potomac Yard with the proposed density transfer and existing overall development levels should a new Metro Station be located near Land Bays G and H was completed. It should be noted that the addition of a Metro station at Potomac Yard is not part of the proposal to transfer density. The additional office space would be in close proximity to the new Metro station, thus increasing the potential for ridership and use of the station.

Table 4
Site Generated External Auto Vehicle-Trips, By Land Use
With TMP

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour			Average Daily Trips ⁽¹⁾
			In	Out	Total	In	Out	Total	
Office	1,900,000	S.F.	897	33	930	114	922	1,036	6,046
Hotel	625	Rooms	126	77	203	74	55	129	2,812
Retail	120,000	S.F.	6	25	31	127	182	309	2,285
Residential	1,683	D.U.	<u>123</u>	<u>337</u>	<u>460</u>	<u>312</u>	<u>168</u>	<u>480</u>	<u>4,878</u>
		Total	1,152	472	1,624	627	1,327	1,954	16,021

Notes: (1) Estimated as a percentage of the PM Peak hour relative to ITE unadjusted values.

21
145

Table 5
External Vehicle Trips, By Land Bay and Land Use
With TMP

Land Bay/ Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Land Bay G</u>								
Office	800,000	S.F.	378	14	392	48	388	436
Hotel	625	Rooms	126	77	203	74	55	129
Retail	80,000	S.F.	4	17	20	85	121	206
Residential	414	D.U.	<u>30</u>	<u>83</u>	<u>113</u>	<u>77</u>	<u>41</u>	<u>118</u>
Subtotal			538	191	728	284	605	889
<u>Land Bay H</u>								
Office	60,000	S.F.	28	1	29	4	29	33
Retail	5,000	S.F.	0	1	1	5	8	13
Residential	232	D.U.	<u>17</u>	<u>46</u>	<u>63</u>	<u>43</u>	<u>23</u>	<u>66</u>
Subtotal			45	48	93	52	60	112
<u>Land Bay I</u>								
Office	104,000	S.F.	49	2	51	6	51	56
Retail	10,000	S.F.	1	3	4	11	15	26
Residential	407	D.U.	<u>30</u>	<u>81</u>	<u>111</u>	<u>75</u>	<u>41</u>	<u>116</u>
Subtotal			80	86	166	92	107	198
<u>Land Bay J</u>								
Office	463,000	S.F.	219	8	227	28	225	253
Retail	15,000	S.F.	1	3	4	16	23	39
Residential	272	D.U.	<u>20</u>	<u>54</u>	<u>74</u>	<u>50</u>	<u>27</u>	<u>78</u>
Subtotal			240	65	305	94	275	370
<u>Land Bay L</u>								
Office	473,000	S.F.	223	8	231	28	229	257
Retail	10,000	S.F.	0	2	3	11	15	26
Residential	358	D.U.	<u>26</u>	<u>72</u>	<u>98</u>	<u>66</u>	<u>36</u>	<u>102</u>
Subtotal			249	82	332	105	280	385
Total Trips			1,152	472	1,624	627	1,327	1,954

Table 6
External Vehicle Trips, By Land Bay and Land Use
With TMP

Land Bay/ Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Land Bay G</u>								
Office	800,000	S.F.	377	14	392	48	388	436
Hotel	625	Rooms	126	77	203	74	55	129
Retail	80,000	S.F.	4	17	20	85	121	206
Residential	414	D.U.	<u>30</u>	<u>83</u>	<u>113</u>	<u>77</u>	<u>41</u>	<u>118</u>
Subtotal			537	191	728	284	605	889
<u>Land Bay H</u>								
Office	825,000	S.F.	391	15	405	50	400	450
Retail	5,000	S.F.	0	1	1	5	8	13
Residential	232	D.U.	<u>17</u>	<u>46</u>	<u>63</u>	<u>43</u>	<u>23</u>	<u>66</u>
Subtotal			408	62	469	98	431	529
<u>Land Bay I</u>								
Office	104,000	S.F.	49	2	51	6	51	57
Retail	10,000	S.F.	0	2	3	11	15	26
Residential	407	D.U.	<u>30</u>	<u>81</u>	<u>111</u>	<u>75</u>	<u>41</u>	<u>116</u>
Subtotal			79	85	165	92	107	199
<u>Land Bay J</u>								
Office	171,000	S.F.	81	3	84	10	83	93
Retail	15,000	S.F.	1	3	4	16	23	39
Residential	272	D.U.	<u>20</u>	<u>54</u>	<u>74</u>	<u>50</u>	<u>27</u>	<u>78</u>
Subtotal			102	60	162	76	133	210
<u>Land Bay L</u>								
Office	0	S.F.	0	0	0	0	0	0
Retail	10,000	S.F.	0	2	3	11	15	26
Residential	358	D.U.	<u>26</u>	<u>72</u>	<u>98</u>	<u>66</u>	<u>36</u>	<u>102</u>
Subtotal			26	74	101	77	51	128
Total Trips			1,152	472	1,625	627	1,327	1,955

L:\Projects\4001 - 4500\4127 - PY Density Transfer Study\Graphics\Fig.3.5-9. C-1. C-2.dwg

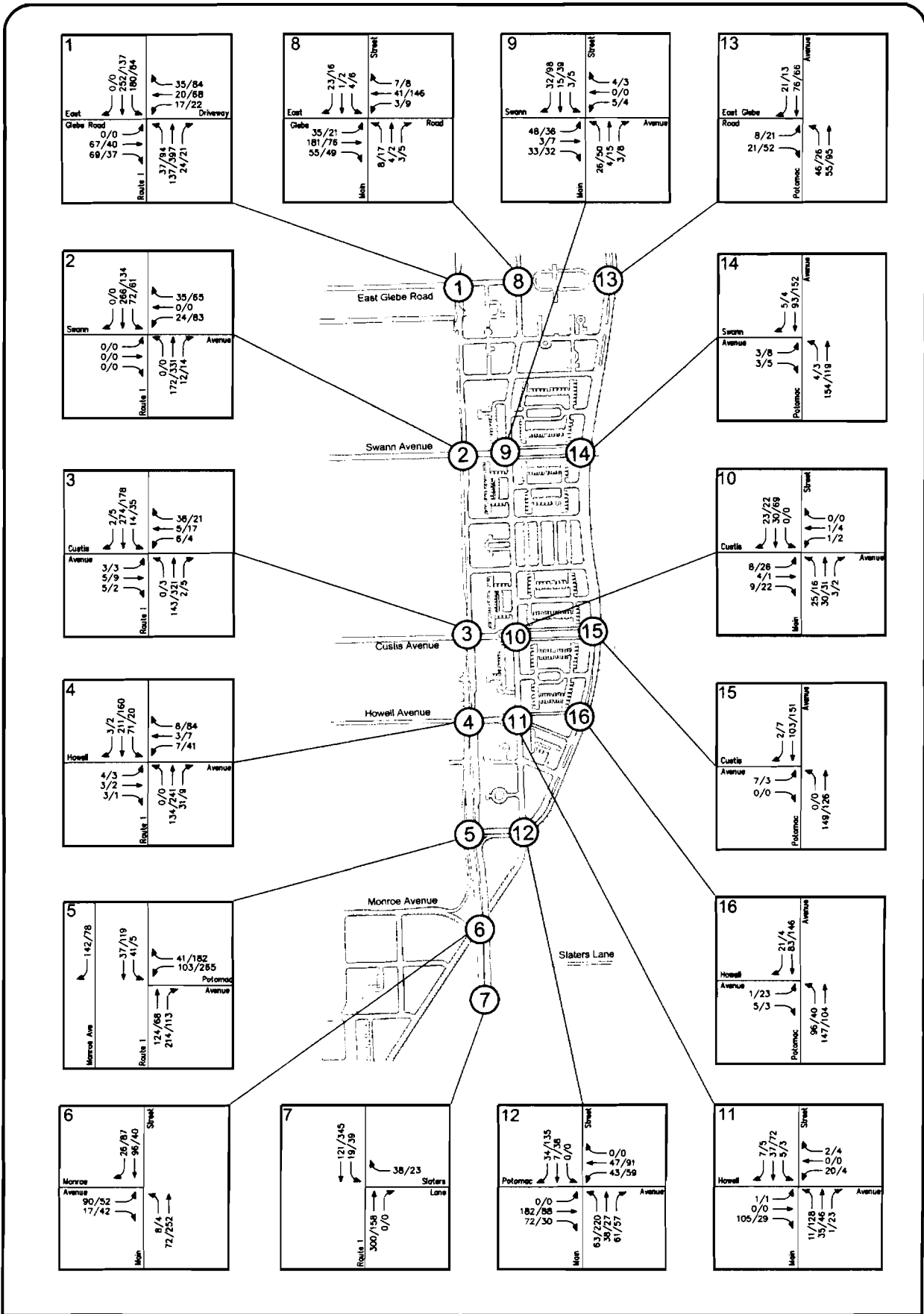


Figure 6
Site Generated Peak Hour Traffic Volumes
CDD Approved

All Peak Hour
PM Peak Hour
000/000



With a new Metro station, approximately 40 percent of all site-generated person-trips were assumed to be made by some mode other than private auto, such as Metrorail, Metrobus, shuttle, walk, or bicycle. Auto-transit mode splits were estimated for each use in each Land Bay based on distance to the nearest Metrorail station and mode split/distance relationships developed by WMATA based on surveys of comparable uses at other Metrorail stations. The average auto occupancy was assumed to be 1.4 persons per vehicle. As with the base condition, internal trip making would occur and is estimated to account for an overall 15 percent reduction of all site-generated trips. The resulting trip generation analysis are presented in Appendix E and summarized in Table 7.

With a Metro Station just east of Land Bay G and H, Table 7 indicates this development would generate approximately 1,377 AM peak hour vehicle-trips and 1,698 PM peak hour vehicle-trips, upon completion and occupancy. The analysis indicates that with the existing overall development levels 247 **fewer** AM peak hour trips and 256 **fewer** PM peak hour trips would be generated with a Metro station, a decrease of 13 to 15 percent.

Total Future Traffic Forecasts

The site generated traffic assignments shown in Figures 6 and 7 were added to counts of existing traffic plus background traffic growth to yield total future peak hour traffic forecasts for approved and proposed density transfer conditions. The resulting traffic volumes are shown on Figure 8 for Approved CDD and Figure 9 with the Density Transfer.

L:\Projects\4001 - 4500\4127 - PY Density Transfer Study\Graphics\Fig.3.5-9, C-1, C-2.dwg

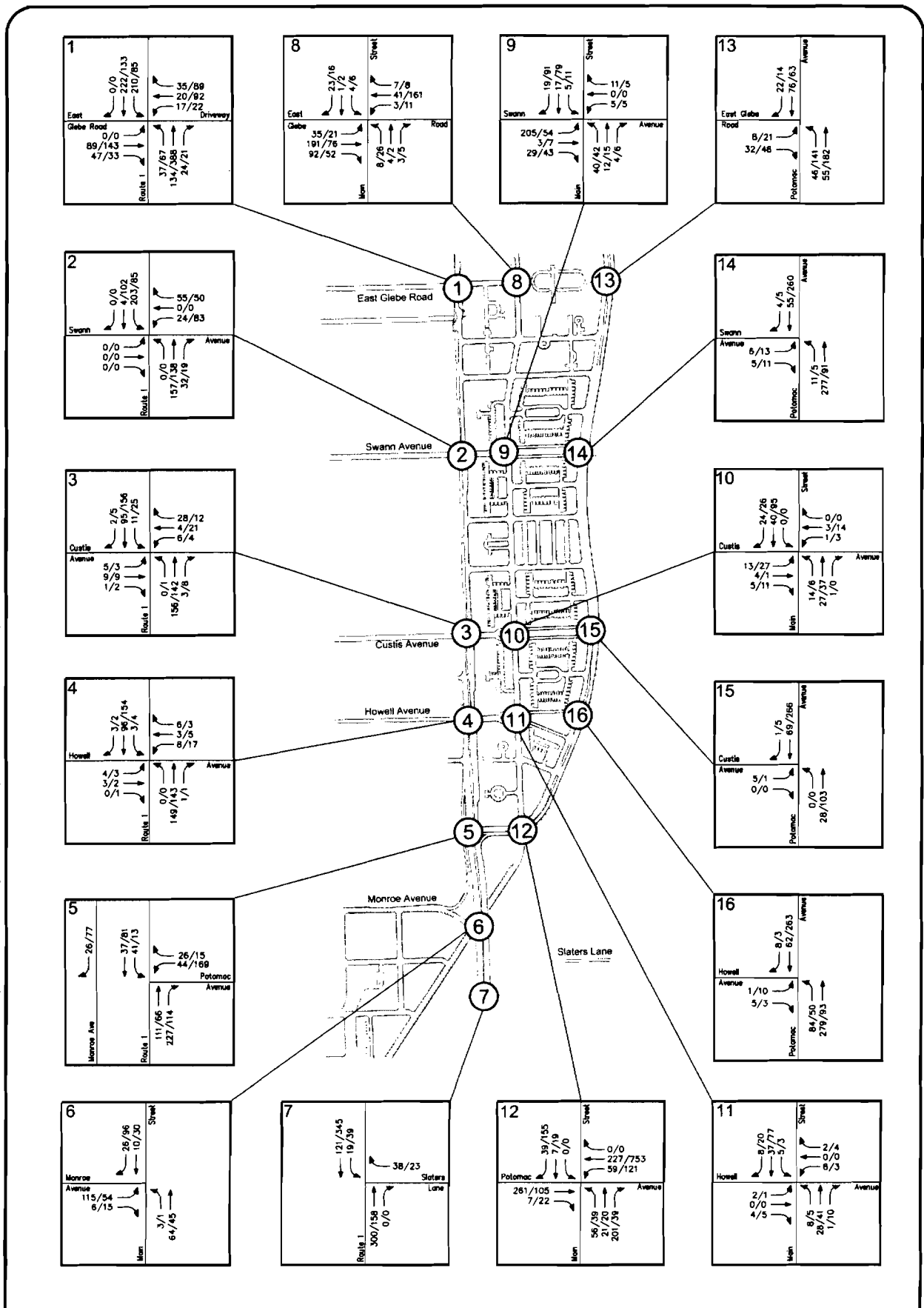


Figure 7
Site Generated Peak Hour Traffic Volumes
Proposed Density Transfer

AM PEAK HOUR
PM PEAK HOUR
000,000



Table 7

Site Generated External Auto Vehicle-Trips, By Land Use With New Potomac Yard Station With TMP and Comparison

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Office	1,900,000	S.F.	769	28	797	98	790	888
Hotel	625	Rooms	108	66	174	63	47	110
Retail	120,000	S.F.	6	25	31	127	182	309
Residential	1,683	D.U.	<u>101</u>	<u>274</u>	<u>375</u>	<u>254</u>	<u>137</u>	<u>391</u>
		Total	983	393	1,377	542	1,156	1,698
Site Trips Without Metro (Table 4)			1,152	472	1,624	627	1,327	1,954
Without vs With Metro			(169)	(79)	(247)	(85)	(171)	(256)
% Change					-15.2%			-13.1%

26
151

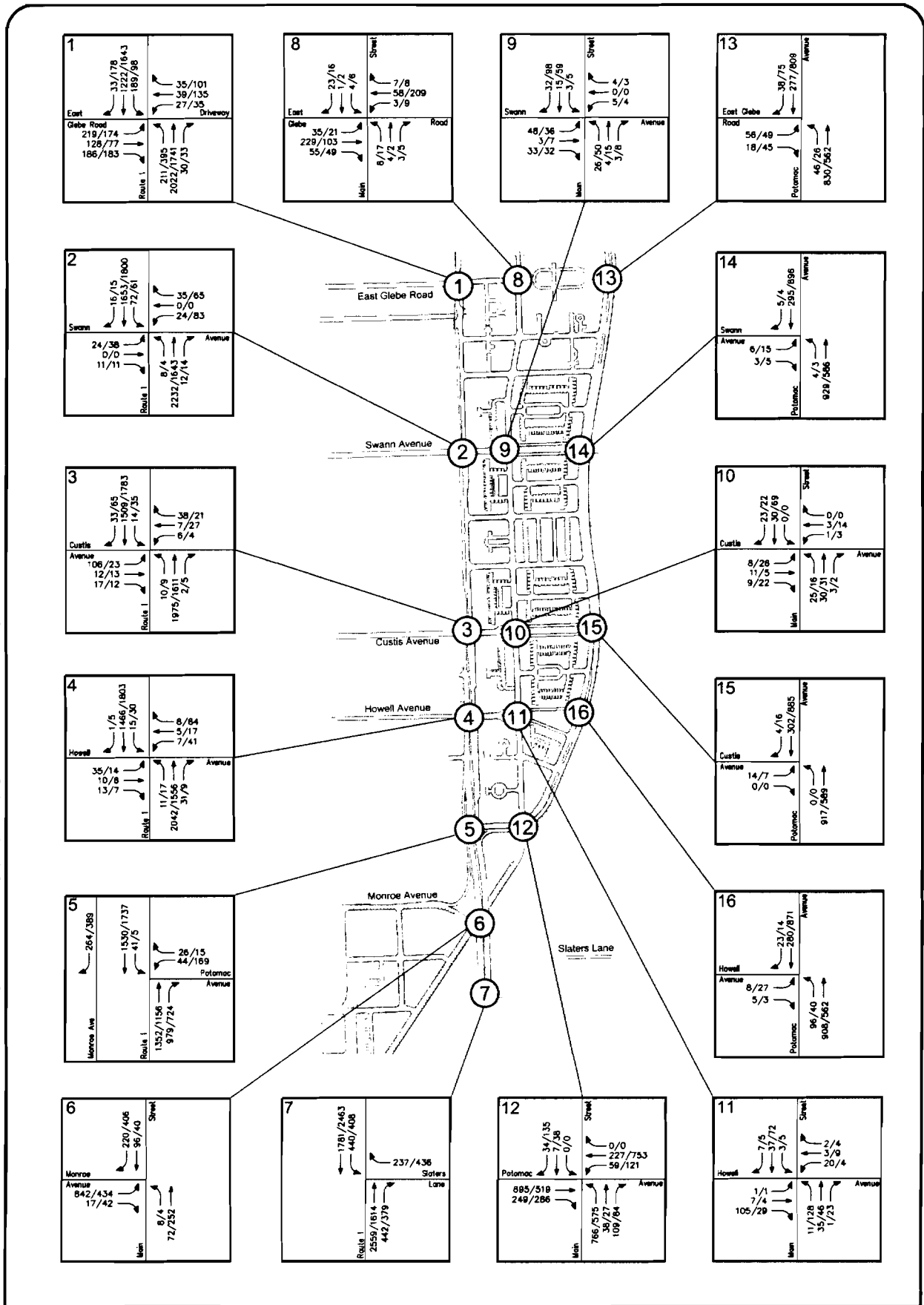


Figure 8
Total Future Peak Hour Traffic Forecasts
CDD Approved

000/000
AM PEAK HOUR
PM PEAK HOUR



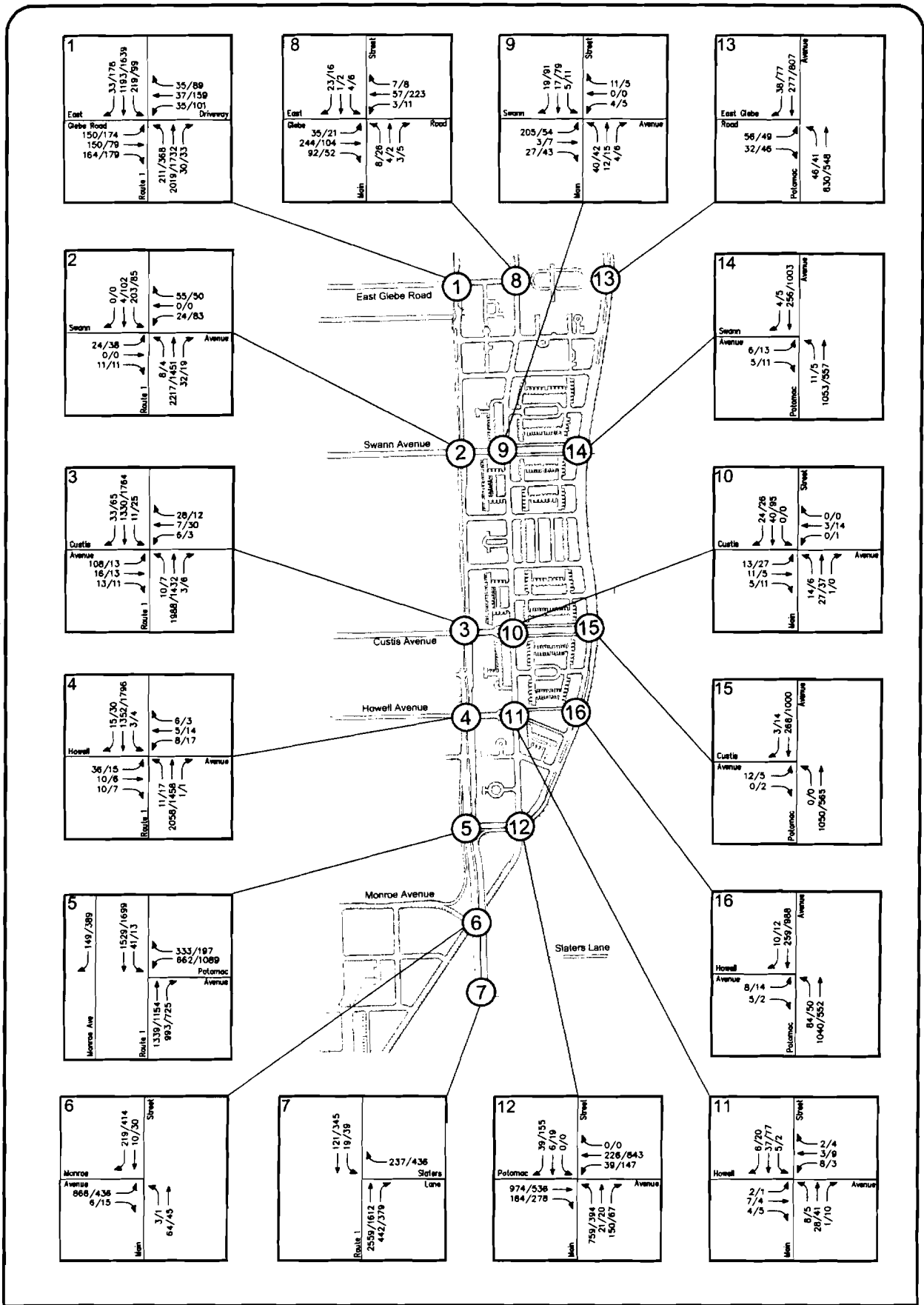


Figure 9
Total Future Peak Hour Traffic Forecasts
With Proposed Density Transfer

MI PEAK HOUR
PM PEAK HOUR
000,000



Total Future Intersection Levels of Service

Future peak hour levels of service with Potomac Yard and Potomac Yard Proposed Density Transfer were estimated at the key intersections in the study area based on the future lane usage and traffic control shown on Figure 3, the total future traffic forecasts shown on Figures 8 and 9, and the Highway Capacity Manual (HCM) analysis procedures. The results are presented in Appendices F and G and summarized in Table 8.

Table 8 indicates that each of the study intersections would operate at an overall acceptable LOS "D" or better during the AM and PM peak hours, with the planned improvements proposed with Potomac Yard with the exception of the Route 1/East Glebe Road intersection. This intersection was previously shown to operate at a LOS "E" during the PM peak hour and will continue to operate at this level with and without the density transfer. In many urban and downtown areas, a LOS "E" is the lower threshold for acceptability.

Comparing the LOS with and without the density transfer, Table 8 indicates that the study intersections accommodate the density transfer with relatively few impacts. As might be expected, some intersections improve with a decrease in seconds of delay, while other intersections deteriorate with an increase in seconds of delay. Most notably, the Route 1/Swann Avenue intersection would deteriorate from an overall LOS "A" to LOS "C" during the AM peak hour primarily due to the inbound southbound left turn volume turning against the northbound Route 1 through traffic. The decrease in LOS, however, does not extend into the unacceptable region. The analysis suggests that the traditional grid pattern being constructed within Potomac Yard provides many opportunities and diffuses project traffic to allow an acceptable operation across the entire project.

Table 8

Total Future Peak Hour Intersection Levels of Service ⁽¹⁾

Intersection	Control	Approach/ Movement	APPROVED CDD		PROPOSED CDD	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Route 1 / East Glebe Road	Signal	EB	E (72.4)	F (95.5)	E (69.8)	F (100.8)
		WB	D (53.8)	E (76.3)	D (51.3)	E (72.5)
		NB	E (56.7)	D (47.0)	D (54.0)	D (48.2)
		SB	<u>C (25.1)</u>	<u>E (67.3)</u>	<u>C (28.5)</u>	<u>E (66.6)</u>
		Overall	D (48.0)	E (61.2)	D (47.4)	E (61.8)
Route 1 / Swann Avenue	Signal	EB	E (66.1)	E (59.5)	E (66.5)	E (59.2)
		WB	E (63.8)	E (62.0)	E (63.7)	E (62.6)
		NB	A (7.2)	B (11.2)	D (44.6)	B (12.3)
		SB	<u>A (5.2)</u>	<u>A (3.9)</u>	<u>A (9.0)</u>	<u>A (3.6)</u>
		Overall	A (7.7)	B (10.2)	C (30.3)	B (10.2)
Route 1 / Custis Avenue	Signal	EB	E (70.1)	E (66.7)	E (70.0)	E (66.7)
		WB	D (53.0)	E (62.9)	D (53.1)	E (64.3)
		NB	A (1.7)	A (1.0)	A (3.2)	A (0.7)
		SB	<u>A (3.1)</u>	<u>A (2.2)</u>	<u>A (2.9)</u>	<u>A (1.8)</u>
		Overall	A (5.5)	A (3.4)	A (6.2)	A (3.2)
Route 1 / Howell Avenue	Signal	EB	E (67.7)	E (64.5)	E (67.6)	E (68.3)
		WB	E (57.5)	E (62.4)	E (57.9)	E (65.3)
		NB	A (7.2)	A (2.4)	A (5.1)	A (1.6)
		SB	<u>A (4.5)</u>	<u>A (3.1)</u>	<u>A (3.0)</u>	<u>A (2.4)</u>
		Overall	A (7.3)	A (5.6)	A (5.5)	A (3.2)
Main Street / Monroe Avenue	Signal	EB	B (11.0)	C (23.9)	B (11.5)	C (23.2)
		NB	D (47.6)	C (29.1)	D (46.9)	C (24.8)
		SB	<u>B (16.0)</u>	<u>A (1.5)</u>	<u>A (2.6)</u>	<u>A (2.2)</u>
		Overall	B (14.6)	B (16.6)	B (11.9)	B (17.9)
		Route 1 / Slaters Lane	Signal	WB	C (34.3)	D (37.6)
NB	C (24.7)			B (16.0)	C (24.7)	B (15.9)
SB	<u>B (18.5)</u>			<u>D (39.4)</u>	<u>B (18.2)</u>	<u>D (39.0)</u>
Overall	C (22.6)			C (30.5)	C (22.5)	C (30.2)
Route 1 / Potomac Avenue	Signal			WB	C (28.8)	D (44.8)
		NB	B (13.5)	C (28.8)	B (14.2)	C (27.7)
		SB	<u>A (7.2)</u>	<u>C (26.6)</u>	<u>A (7.9)</u>	<u>C (26.2)</u>
		Overall	B (14.6)	C (32.4)	B (14.5)	C (30.9)

Note: (1)

Numbers in parentheses represent average delay, in seconds per vehicle at signalized intersections
 Numbers in brackets represent average delay, in seconds per vehicle at unsignalized intersections

155

Table 8 (Cont.)

Total Future Peak Hour Intersection Levels of Service ⁽¹⁾

Intersection	Control	Approach/ Movement	APPROVED CDD		PROPOSED CDD	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Main Street / Potomac Avenue	Signal	EB	C (20.6)	C (29.2)	C (20.9)	C (27.7)
		WB	C (23.3)	C (24.1)	C (20.1)	C (21.4)
		NB	E (64.0)	D (53.2)	E (63.0)	D (54.3)
		SB	<u>D (50.9)</u>	<u>E (66.3)</u>	<u>E (59.6)</u>	<u>E (64.0)</u>
		Overall	D (38.1)	D (36.5)	D (37.9)	C (33.0)
Main Street / East Glebe Road	STOP	EBL	A [1.0]	A [1.1]	A [0.9]	A [1.1]
		WBL	A [0.4]	A [0.4]	A [0.4]	A [0.4]
		NB	B [11.9]	B [11.8]	B [12.3]	B [12.3]
		SB	A [9.4]	B [10.5]	A [9.4]	B [10.6]
		Overall	A (1.7)	A (1.6)	A (1.8)	A (2.1)
Main Street / Swann Avenue	STOP	EBL	A [4.3]	A [3.6]	A [6.8]	A [3.9]
		WBL	A [4.1]	A [4.2]	A [2.0]	A [3.7]
		NB	B [10.0]	B [11.1]	C [15.0]	B [11.9]
		SB	A [9.1]	A [9.5]	B [10.7]	B [10.5]
		Overall	A (1.7)	A (1.6)	A (1.8)	A (2.1)
Main Street / Custis Avenue	STOP	EBL	A [2.1]	A [3.6]	A [3.3]	A [4.6]
		WBL	A [1.8]	A [1.3]	A [0.0]	A [0.5]
		NB	A [9.5]	A [10.0]	A [9.5]	A [9.9]
		SB	A [9.1]	A [9.9]	A [9.1]	B [10.1]
		Overall	A (1.7)	A (1.6)	A (1.8)	A (2.1)
Main Street / Howell Avenue	STOP	EBL	A [0.1]	A [0.2]	A [1.1]	A [0.7]
		WBL	A [6.0]	A [1.7]	A [4.5]	A [1.4]
		NB	A [10.0]	B [10.5]	A [9.4]	A [9.3]
		SB	B [10.1]	A [9.7]	A [9.3]	A [9.5]
		Overall	A (1.7)	A (1.6)	A (1.8)	A (2.1)
Potomac Ave / East Glebe Rd	Signal	EB	D (39.7)	D (38.0)	D (44.9)	D (38.1)
		NB	A (1.6)	A (2.5)	A (1.5)	A (2.6)
		SB	<u>A (4.0)</u>	<u>A (4.9)</u>	<u>A (4.0)</u>	<u>A (5.5)</u>
		Overall	A (4.4)	A (6.0)	A (5.1)	A (6.4)
		Overall	A (1.7)	A (1.6)	A (1.8)	A (2.1)
Potomac Avenue / Swann Avenue	Signal	EB	D (37.2)	C (33.5)	D (37.5)	C (33.9)
		NB	A (1.6)	A (1.2)	A (1.7)	A (1.1)
		SB	<u>A (0.9)</u>	<u>A (1.7)</u>	<u>A (0.8)</u>	<u>A (1.8)</u>
		Overall	A (1.7)	A (1.6)	A (1.8)	A (2.1)
		Overall	A (1.7)	A (1.6)	A (1.8)	A (2.1)
Potomac Avenue / Custis Avenue	Signal	EB	D (42.6)	C (32.8)	D (46.7)	C (29.8)
		NB	A (0.7)	A (0.3)	A (0.5)	A (0.3)
		SB	<u>A (0.4)</u>	<u>A (0.8)</u>	<u>A (0.9)</u>	<u>A (0.9)</u>
		Overall	A (1.1)	A (0.7)	A (1.0)	A (0.7)
		Overall	A (1.1)	A (0.7)	A (1.0)	A (0.7)
Potomac Avenue / Howell Avenue	Signal	EB	D (37.4)	D (37.4)	C (33.4)	C (32.9)
		NB	A (0.6)	A (0.3)	A (0.5)	A (0.5)
		SB	<u>A (1.0)</u>	<u>A (4.3)</u>	<u>A (1.3)</u>	<u>A (5.5)</u>
		Overall	A (1.0)	A (3.4)	A (1.0)	A (3.9)
		Overall	A (1.0)	A (3.4)	A (1.0)	A (3.9)

Note: (1)

Numbers in parentheses represent average delay, in seconds per vehicle at signalized intersections

Numbers in brackets represent average delay, in seconds per vehicle at unsignalized intersections

CONCLUSIONS

The conclusions of this traffic analysis are as follows:

1. The public street network generally operates well during peak hours. All study intersections currently operate at an overall level of service (LOS) "D" or better during both the AM and PM peak hours.
2. The approved but un-built projects in the study area would generate a total of 1,227 AM peak hour vehicle-trips and 1,674 PM peak hour vehicle-trips upon completion and full occupancy.
3. Potomac Avenue is being constructed with the project and is expected to divert existing traffic destined to points north from Route 1.
4. The approved density for Potomac Yard, which contains 1,900,000 S.F. of office space, 625 hotel rooms, 120,000 S.F. of retail space, and 1,683 residential dwelling units would generate approximately 1,624 AM peak hour vehicle trips and 1,954 PM peak hour vehicle trips, upon completion and full occupancy.
5. The density transfer would have relatively few impacts to the study intersections with no decreases in operation within the unacceptable range (below LOS "D"). The study intersections would continue to operate at an overall acceptable LOS "D" or better in the AM and PM peak hour with the exception of Route 1/East Glebe Road which would operate at a LOS "E" during the PM peak hour with or without the commercial density transfer.
6. The analysis suggests that the traditional grid pattern being constructed within Potomac Yard provides many opportunities and diffuses traffic to allow an acceptable operation across the entire project with and without the density transfer.
7. If a new Potomac Yard Metro Station is built in the reservation area adjacent to Land Bays G and H, an additional 15% reduction in external vehicle trips beyond the current transit and TMP assumptions without the station would be expected.

Appendix A

Existing Peak Hour Traffic Counts

Appendix B

Existing Intersection Levels of Service

165

HCM Signalized Intersection Capacity Analysis
 1: E. Glebe Road & US Route 1

Existing AM
 4/22/2008



Lane Configurations	↖	↗	↖	↗	↖	↗	↑↑	↖	↗	↖	↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Flt	1.00	0.87		1.00	1.00		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1612		1770	1863		1770	3539	1583	1770	3525	
Flt Permitted	0.44	1.00		0.78	1.00		0.25	1.00	1.00	0.05	1.00	
Satd. Flow (perm)	819	1612		1461	1863		463	3539	1583	99	3525	
Volume (vph)	193	13	117	10	2	0	174	1860	6	9	843	24
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	203	14	123	11	2	0	183	1958	6	9	887	25
RTOR Reduction (vph)	0	99	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	203	38	0	11	2	0	183	1958	6	9	911	0
Turn Type	pm+pt		Perm				pm+pt		Perm pm+pt			
Protected Phases	7	4					5	2	1 6			
Permitted Phases	4		8				2		2 6			
Actuated Green, G (s)	24.4	24.4	4.1 4.1				93.6	87.4	87.4	80.5	79.3	
Effective Green, g (s)	25.4	25.4	5.1 5.1				94.6	88.4	88.4	82.5	80.3	
Actuated g/C Ratio	0.20	0.20	0.04 0.04				0.74	0.69	0.69	0.64	0.63	
Clearance Time (s)	5.0	5.0	5.0 5.0				5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0 3.0				3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	284	320	58 74				447	2444	1093	93	2211	
v/s Ratio Prot	c0.09	0.02	0.00				c0.03	c0.55	0.00 0.26			
v/s Ratio Perm	c0.05		0.01				0.27		0.00 0.06			
v/c Ratio	0.71	0.12	0.19 0.03				0.41	0.80	0.01	0.10	0.41	
Uniform Delay, d1	46.5	42.1	59.5 59.1				6.6	13.7	6.1	15.0	12.0	
Progression Factor	1.00	1.00	1.00 1.00				1.61	0.88	1.09	1.00	1.00	
Incremental Delay, d2	8.3	0.2	1.6 0.1				0.4	2.1	0.0	0.5	0.6	
Delay (s)	54.8	42.3	61.0 59.2				11.0	14.1	6.7	15.4	12.6	
Level of Service	D	D	E E				B	B	A	B	B	
Approach Delay (s)	49.8		60.8				13.9		12.6			
Approach LOS	D		E				B		B			

HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

1666

HCM Signalized Intersection Capacity Analysis
 2: Swann Ave. & US Route 1

Existing AM
 4/22/2008



Item	EB	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	
Lane Configurations	↕							↕↕		↕↕		↕↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0							4.0		4.0		4.0	
Lane Util. Factor	1.00							0.95		0.95		0.95	
Frt	0.96							1.00		1.00		1.00	
Flt Protected	0.97							1.00		1.00		1.00	
Satd. Flow (prot)	1723							3539		3532		3532	
Flt Permitted	0.97							0.95		1.00		1.00	
Satd. Flow (perm)	1723							3359		3532		3532	
Volume (vph)	24	0	11	0	0	0	0	8	1998	0	0	1171	16
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	0	12	0	0	0	0	8	2103	0	0	1233	17
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	26	0	0	0	0	0	0	2111	0	0	1250	0
Turn Type	Perm							Perm					
Protected Phases	4							2		6			
Permitted Phases	4							2					
Actuated Green, G (s)	5.1							112.9		112.9			
Effective Green, g (s)	6.1							113.9		113.9			
Actuated g/C Ratio	0.05							0.89		0.89			
Clearance Time (s)	5.0							5.0		5.0			
Vehicle Extension (s)	3.0							3.0		3.0			
Lane Grp Cap (vph)	82							2989		3143			
v/s Ratio Prot										0.35			
v/s Ratio Perm	0.01							0.63					
v/c Ratio	0.31							0.71		0.40			
Uniform Delay, d1	58.9							2.1		1.2			
Progression Factor	1.00							0.81		0.62			
Incremental Delay, d2	2.2							1.1		0.4			
Delay (s)	61.1							2.8		1.1			
Level of Service	E							A		A			
Approach Delay (s)	61.1							0.0		2.8		1.1	
Approach LOS	E							A		A		A	

HCM Average Control Delay	2.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

167

HCM Signalized Intersection Capacity Analysis
 3: Custis Ave. & US Route 1

Existing AM
 4/22/2008



Signalized Intersection Capacity Analysis													
Lane Configurations								↕↕			↕↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)								4.0			4.0		
Lane Util. Factor								1.00			0.95		
Flt								0.98			1.00		
Flt Protected								0.96			1.00		
Satd. Flow (prot)								1757			3538		
Flt Permitted								0.96			0.95		
Satd. Flow (perm)								1757			3347		
Volume (vph)	99	0	12	0	0	0	10	1822	0	0	1053	29	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	104	0	13	0	0	0	11	1918	0	0	1108	31	
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	1	0	
Lane Group Flow (vph)	0	113	0	0	0	0	0	1929	0	0	1138	0	
Turn Type	Perm						Perm						
Protected Phases	4						2						
Permitted Phases	4						2						
Actuated Green, G (s)	13.1						104.9						
Effective Green, g (s)	14.1						105.9						
Actuated g/C Ratio	0.11						0.83						
Clearance Time (s)	5.0						5.0						
Vehicle Extension (s)	3.0						3.0						
Lane Grp Cap (vph)	194						2769						
v/s Ratio Prot							0.32						
v/s Ratio Perm	0.06						c0.58						
v/c Ratio	0.58						0.70						
Uniform Delay, d1	54.1						4.5						
Progression Factor	1.00						0.64						
Incremental Delay, d2	4.4						1.2						
Delay (s)	58.5						4.1						
Level of Service	E						A						
Approach Delay (s)	58.5				0.0		4.1				1.5		
Approach LOS	E				A		A				A		

HCM Average Control Delay	5.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

168

HCM Signalized Intersection Capacity Analysis
 4: Howell Ave. & US Route 1

Existing AM
 4/22/2008



	1	2	3	4	5	6	7	8	9	10	11	12
Lane Configurations		↕		↖	↗		↖	↗	↖	↗	↕	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	0.95				0.95
Flt		0.96					1.00	1.00				1.00
Flt Protected		0.97					0.95	1.00				1.00
Satd. Flow (prot)		1731					1770	3539				3534
Flt Permitted		0.79					0.24	1.00				1.00
Satd. Flow (perm)		1409					452	3539				3534
Volume (vph)	28	0	10	0	0	0	11	1885	0	0	1070	11
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	0	11	0	0	0	12	1984	0	0	1126	12
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	30	0	0	0	0	12	1984	0	0	1138	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		5.5					112.5	112.5				112.5
Effective Green, g (s)		6.5					113.5	113.5				113.5
Actuated g/C Ratio		0.05					0.89	0.89				0.89
Clearance Time (s)		5.0					5.0	5.0				5.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		72					401	3138				3134
v/s Ratio Prot								c0.56				0.32
v/s Ratio Perm		c0.02					0.03					
v/c Ratio		0.41					0.03	0.63				0.36
Uniform Delay, d1		58.9					0.8	1.9				1.2
Progression Factor		1.00					1.00	1.00				0.15
Incremental Delay, d2		3.8					0.1	1.0				0.3
Delay (s)		62.7					1.0	2.8				0.5
Level of Service		E					A	A				A
Approach Delay (s)		62.7			0.0			2.8				0.5
Approach LOS		E			A			A				A

HCM Average Control Delay	2.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

169

HCM Signalized Intersection Capacity Analysis
 5: Monroe Ave & US Route 1

Existing AM
 4/22/2008



Lane Configurations	↖	↗	↖	↑↑	↑↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.12	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	225	3539	3539	1583
Volume (vph)	268	409	177	1638	1264	114
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	282	431	186	1724	1331	120
RTOR Reduction (vph)	0	206	0	0	0	19
Lane Group Flow (vph)	282	225	186	1724	1331	101
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	25.6	25.6	92.4	92.4	75.1	75.1
Effective Green, g (s)	26.6	26.6	93.4	93.4	76.1	76.1
Actuated g/C Ratio	0.21	0.21	0.73	0.73	0.59	0.59
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	368	329	325	2582	2104	941
v/s Ratio Prot	c0.16		0.06	c0.49	0.38	
v/s Ratio Perm		0.14	0.36			0.06
v/c Ratio	0.77	0.68	0.57	0.67	0.63	0.11
Uniform Delay, d1	47.8	46.8	13.5	9.1	16.9	11.2
Progression Factor	1.00	1.00	2.06	0.11	1.00	1.00
Incremental Delay, d2	9.2	5.8	1.2	0.7	1.5	0.2
Delay (s)	57.0	52.6	29.0	1.7	18.3	11.5
Level of Service	E	D	C	A	B	B
Approach Delay (s)	54.3			4.4	17.8	
Approach LOS	D			A	B	

HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Slaters Lane & US Route 1

Existing AM
4/22/2008



Measure	WB	EB	SB	NB	SB	WB
Lane Configurations		↗↗	↑↑	↖	↘	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.88	0.95	1.00	1.00	0.95
Fr _t		0.85	1.00	0.85	1.00	1.00
Fl _t Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		2787	3539	1583	1770	3539
Fl _t Permitted		1.00	1.00	1.00	0.06	1.00
Satd. Flow (perm)		2787	3539	1583	105	3539
Volume (vph)	0	177	1638	442	414	1259
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	186	1724	465	436	1325
RTOR Reduction (vph)	0	177	0	142	0	0
Lane Group Flow (vph)	0	9	1724	323	436	1325
Turn Type		custom		Perm	pm+pt	
Protected Phases			2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)		5.5	66.0	66.0	112.5	112.5
Effective Green, g (s)		6.5	67.0	67.0	113.5	113.5
Actuated g/C Ratio		0.05	0.52	0.52	0.89	0.89
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		142	1852	829	646	3138
v/s Ratio Prot			c0.49		c0.22	0.37
v/s Ratio Perm		c0.00		0.20	0.37	
v/c Ratio		0.07	0.93	0.39	0.67	0.42
Uniform Delay, d ₁		57.9	28.3	18.3	32.0	1.3
Progression Factor		1.00	1.00	1.00	1.09	1.41
Incremental Delay, d ₂		0.2	9.9	1.4	2.0	0.3
Delay (s)		58.1	38.3	19.6	36.9	2.2
Level of Service		E	D	B	D	A
Approach Delay (s)	58.1		34.3			10.8
Approach LOS	E		C			B

Intersection Summary				
HCM Average Control Delay	25.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	76.2%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

171

HCM Signalized Intersection Capacity Analysis
 1: E. Glebe Road & US Route 1

Existing PM
 4/22/2008



Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗	↖	↗	↖	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Flt	1.00	0.86		1.00	0.89		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1599		1770	1649		1770	3539	1583	1770	3492	
Flt Permitted	0.44	1.00		0.70	1.00		0.06	1.00	1.00	0.20	1.00	
Satd. Flow (perm)	817	1599		1307	1649		116	3539	1583	372	3492	
Volume (vph)	159	9	146	13	4	12	301	1293	12	14	1468	144
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	167	9	154	14	4	13	317	1361	13	15	1545	152
RTOR Reduction (vph)	0	126	0	0	12	0	0	0	1	0	5	0
Lane Group Flow (vph)	167	37	0	14	5	0	317	1361	12	15	1692	0
Turn Type	pm+pt			Perm			pm+pt		Perm	pm+pt		
Protected Phases	7	4			8		5	2		2	6	
Permitted Phases	4			8			2		2		6	
Actuated Green, G (s)	22.3	22.3		4.7	4.7		95.7	88.2	88.2	61.7	59.2	
Effective Green, g (s)	23.3	23.3		5.7	5.7		96.7	89.2	89.2	63.7	60.2	
Actuated g/C Ratio	0.18	0.18		0.04	0.04		0.76	0.70	0.70	0.50	0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	250	291		58	73		508	2466	1103	223	1642	
v/s Ratio Prot	c0.07	0.02			0.00		c0.16	0.38		0.00	c0.48	
v/s Ratio Perm	c0.05			0.01			0.31		0.01	0.03		
v/c Ratio	0.67	0.13		0.24	0.06		0.62	0.55	0.01	0.07	1.03	
Uniform Delay, d1	47.4	43.8		59.1	58.6		43.4	9.6	5.9	16.8	33.9	
Progression Factor	1.00	1.00		1.00	1.00		0.95	0.94	0.88	1.00	1.00	
Incremental Delay, d2	6.6	0.2		2.2	0.4		2.3	0.8	0.0	0.1	30.5	
Delay (s)	54.0	44.0		61.2	59.0		43.5	9.8	5.2	17.0	64.4	
Level of Service	D	D		E	E		D	A	A	B	E	
Approach Delay (s)		49.1			60.0			16.1			63.9	
Approach LOS		D			E			B			E	

HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

172

HCM Signalized Intersection Capacity Analysis
 2: Swann Ave. & US Route 1

Existing PM
 4/22/2008



Movement	EBL	EBT	EBL+T	WBL	WBT	WBL+T	WBL	WBT	WBL+T	WBL	WBT	WBL+T
Lane Configurations		↕						↕			↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		1.00						0.95			0.95	
Frt		0.97						1.00			1.00	
Flt Protected		0.96						1.00			1.00	
Satd. Flow (prot)		1738						3539			3534	
Flt Permitted		0.96						0.95			1.00	
Satd. Flow (perm)		1738						3362			3534	
Volume (vph)	38	0	11	0	0	0	4	1268	0	0	1594	15
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	0	12	0	0	0	4	1335	0	0	1678	16
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	41	0	0	0	0	0	1339	0	0	1694	0
Turn Type		Perm						Perm				
Protected Phases		4						2			6	
Permitted Phases	4							2				
Actuated Green, G (s)		7.1						110.9			110.9	
Effective Green, g (s)		8.1						111.9			111.9	
Actuated g/C Ratio		0.06						0.87			0.87	
Clearance Time (s)		5.0						5.0			5.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		110						2939			3089	
v/s Ratio Prot											c0.48	
v/s Ratio Perm		0.02						0.40				
v/c Ratio		0.37						0.46			0.55	
Uniform Delay, d1		57.5						1.7			1.9	
Progression Factor		1.00						0.40			0.90	
Incremental Delay, d2		2.1						0.5			0.2	
Delay (s)		59.6						1.1			2.0	
Level of Service		E						A			A	
Approach Delay (s)		59.6			0.0			1.1			2.0	
Approach LOS		E			A			A			A	

Intersection Summary			
HCM Average Control Delay	2.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 3: Custis Ave. & US Route 1

Existing PM
 4/22/2008



	EB				WB				NB			
Lane Configurations	↕				↕				↕			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0				4.0				4.0			
Lane Util. Factor	1.00				0.95				0.95			
Frt	0.95				1.00				0.99			
Flt Protected	0.97				1.00				1.00			
Satd. Flow (prot)	1716				3538				3521			
Flt Permitted	0.97				0.95				1.00			
Satd. Flow (perm)	1716				3346				3521			
Volume (vph)	18	0	10	0	0	0	6	1252	0	0	1552	55
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	19	0	11	0	0	0	6	1318	0	0	1634	58
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	19	0	0	0	0	0	1324	0	0	1691	0
Turn Type	Perm				Perm				Perm			
Protected Phases	4				2				6			
Permitted Phases	4				2				2			
Actuated Green, G (s)	4.7				113.3				113.3			
Effective Green, g (s)	5.7				114.3				114.3			
Actuated g/C Ratio	0.04				0.89				0.89			
Clearance Time (s)	5.0				5.0				5.0			
Vehicle Extension (s)	3.0				3.0				3.0			
Lane Grp Cap (vph)	76				2988				3144			
v/s Ratio Prot									c0.48			
v/s Ratio Perm	0.01				0.40				0.40			
v/c Ratio	0.26				0.44				0.54			
Uniform Delay, d1	59.1				1.2				1.4			
Progression Factor	1.00				1.00				0.08			
Incremental Delay, d2	1.8				0.4				0.6			
Delay (s)	60.9				1.7				0.7			
Level of Service	E				A				A			
Approach Delay (s)	60.9				0.0				1.7			
Approach LOS	E				A				A			

HCM Average Control Delay	1.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

174

HCM Signalized Intersection Capacity Analysis
 4: Howell Ave. & US Route 1

Existing PM
 4/22/2008



Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	
Lane Configurations		↔		↙	↘		↙	↕	↘	↙	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Fr't		0.95					1.00	1.00			1.00	
Flt Protected		0.97					0.95	1.00			1.00	
Satd. Flow (prot)		1711					1770	3539			3532	
Flt Permitted		1.00					0.14	1.00			1.00	
Satd. Flow (perm)		1762					252	3539			3532	
Volume (vph)	9	0	6	0	0	0	17	1273	0	0	1583	23
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	0	6	0	0	0	18	1340	0	0	1666	24
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	9	0	0	0	0	18	1340	0	0	1690	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		1.6					116.4	116.4			116.4	
Effective Green, g (s)		2.6					117.4	117.4			117.4	
Actuated g/C Ratio		0.02					0.92	0.92			0.92	
Clearance Time (s)		5.0					5.0	5.0			5.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		36					231	3246			3240	
v/s Ratio Prot								0.38			c0.48	
v/s Ratio Perm	c0.01						0.07					
v/c Ratio	0.25						0.08	0.41			0.52	
Uniform Delay, d1		61.7					0.5	0.7			0.8	
Progression Factor		1.00					1.00	1.00			0.04	
Incremental Delay, d2		3.7					0.7	0.4			0.5	
Delay (s)		65.4					1.1	1.1			0.6	
Level of Service		E					A	A			A	
Approach Delay (s)		65.4		0.0				1.1			0.6	
Approach LOS		E		A				A			A	

Intersection Summary			
HCM Average Control Delay	1.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

175

HCM Signalized Intersection Capacity Analysis
5: Monroe & US Route 1

Existing PM
4/22/2008



	↖	↗	↖	↑	↓	↗
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Fr _t	1.00	0.85	1.00	1.00	1.00	0.85
Fl _t Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Fl _t Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	139	3539	3539	1583
Volume (vph)	104	236	256	1210	1590	278
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	109	248	269	1274	1674	293
RTOR Reduction (vph)	0	222	0	0	0	38
Lane Group Flow (vph)	109	26	269	1274	1674	255
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	12.6	12.6	105.4	105.4	82.7	82.7
Effective Green, g (s)	13.6	13.6	106.4	106.4	83.7	83.7
Actuated g/C Ratio	0.11	0.11	0.83	0.83	0.65	0.65
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	188	168	354	2942	2314	1035
v/s Ratio Prot	c0.06		c0.11	0.36	0.47	
v/s Ratio Perm		0.02	c0.52			0.16
v/c Ratio	0.58	0.16	0.76	0.43	0.72	0.25
Uniform Delay, d ₁	54.5	52.0	33.8	2.8	14.5	9.1
Progression Factor	1.00	1.00	1.28	0.19	1.00	1.00
Incremental Delay, d ₂	4.3	0.4	8.1	0.4	2.0	0.6
Delay (s)	58.8	52.4	51.4	1.0	16.6	9.7
Level of Service	E	D	D	A	B	A
Approach Delay (s)	54.4			9.8	15.5	
Approach LOS	D			A	B	

HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

176

HCM Signalized Intersection Capacity Analysis
6: Slaters Lane & US Route 1

Existing PM
4/22/2008



Movement	North	West	North	East	South	
Lane Configurations	↑↑	↑↑	↑	↓	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.88	0.95	1.00	1.00	0.95	
Flt	0.85	1.00	0.85	1.00	1.00	
Flt Protected	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2787	3539	1583	1770	3539	
Flt Permitted	1.00	1.00	1.00	0.19	1.00	
Satd. Flow (perm)	2787	3539	1583	353	3539	
Volume (vph)	0	400	1066	379	340	1486
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	421	1122	399	358	1564
RTOR Reduction (vph)	0	400	0	123	0	0
Lane Group Flow (vph)	0	21	1122	276	358	1564
Turn Type	custom		Perm pm+pt			
Protected Phases	2		1			
Permitted Phases	8		6			
Actuated Green, G (s)	5.5	81.8	81.8	112.5	112.5	
Effective Green, g (s)	6.5	82.8	82.8	113.5	113.5	
Actuated g/C Ratio	0.05	0.65	0.65	0.89	0.89	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	142	2289	1024	609	3138	
v/s Ratio Prot		0.32		c0.12	0.44	
v/s Ratio Perm	c0.01		0.17	c0.40		
v/c Ratio	0.15	0.49	0.27	0.59	0.50	
Uniform Delay, d1	58.1	11.7	9.7	9.0	1.5	
Progression Factor	1.00	1.00	1.00	1.06	1.82	
Incremental Delay, d2	0.5	0.8	0.6	1.0	0.4	
Delay (s)	58.6	12.4	10.3	10.6	3.1	
Level of Service	E	B	B	B	A	
Approach Delay (s)	58.6	11.9			4.5	
Approach LOS	E	B			A	

HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix C
Existing Diverted Trips

178

L:\Projects\4001 - 4500\4127 - PY Density Transfer Study\Graphics\Fig.3.5-9, C-1, C-2.dwg

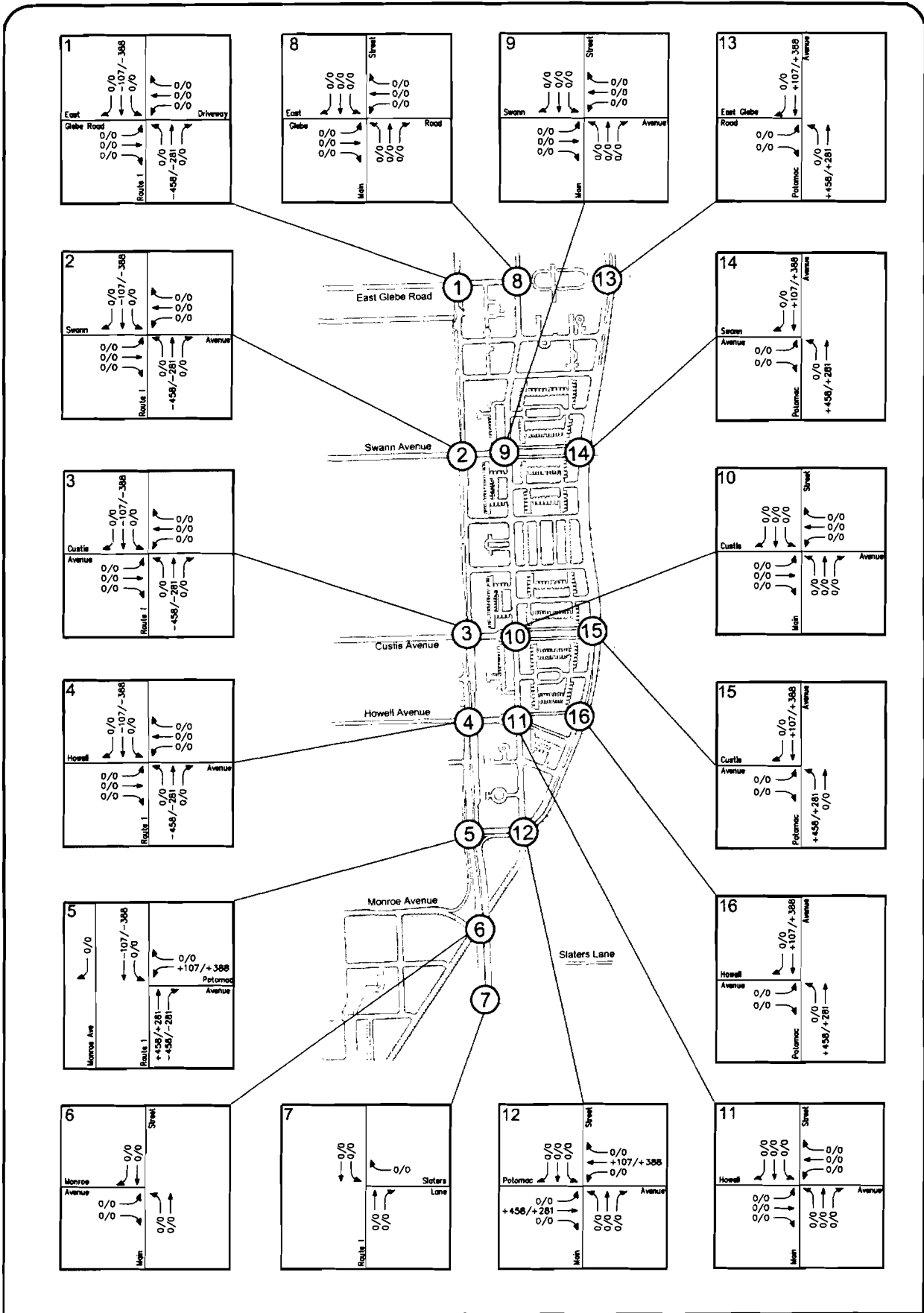


Figure C-1
Potomac Avenue Existing Diversions

All Peak Hour
000/000



L:\Projects\4001 - 4500\4127 - PY Density Transfer Study\Graphics\Fig.3.5-9, C-1, C-2.dwg

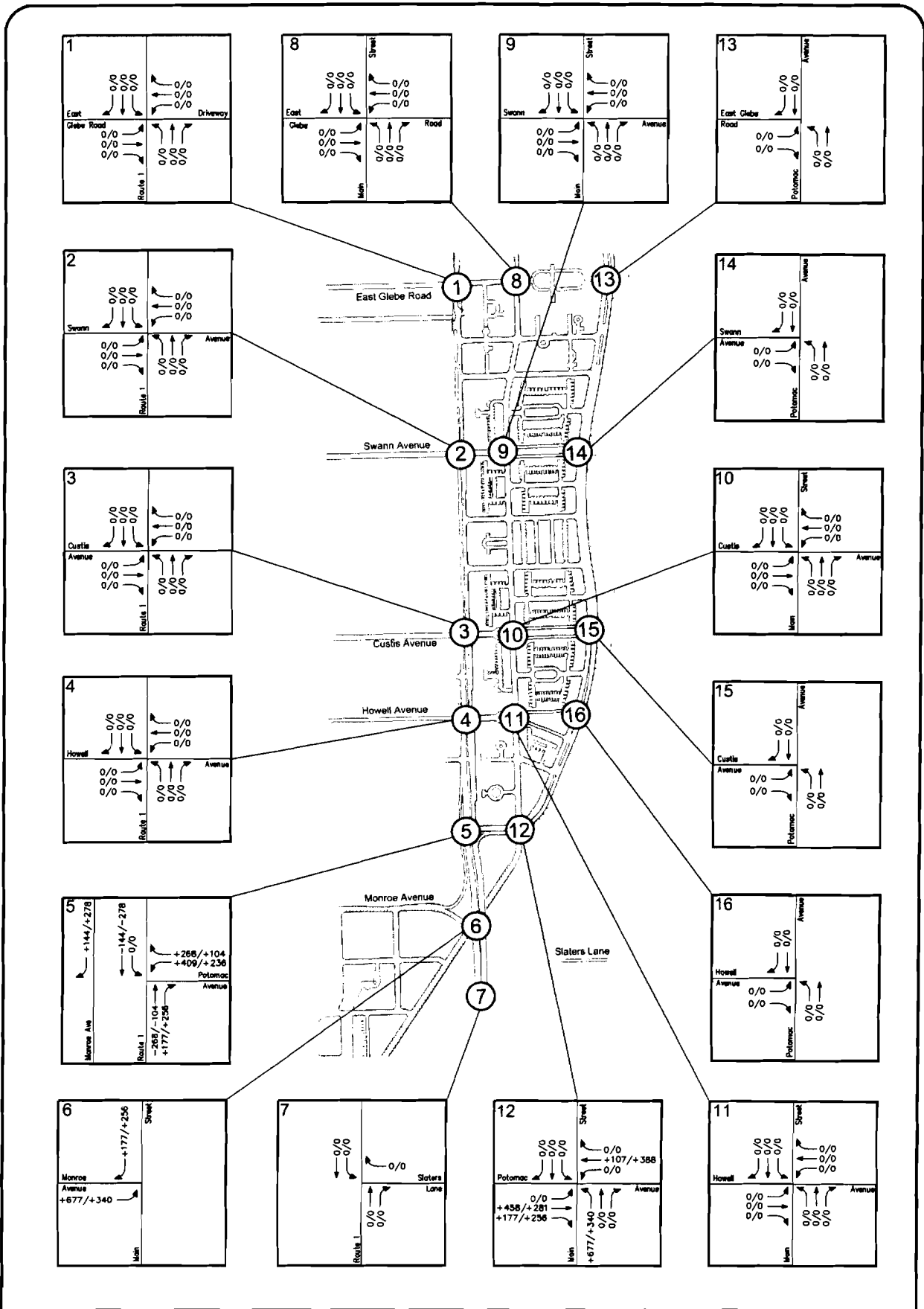


Figure C-2
Monroe Avenue Existing Diversions

10/ 20/24/ 100/24
100/000



Appendix D
Trip Generation Tables

181

Table I
Potomac Yard Development Program
PY Alexandria

Land Use	<u>Alexandria (2)</u> Main Yard
Office (S.F.)	1,900,000
Hotel (Rooms)	625
Retail (S.F.) (2)	120,000
Residential (D.U.)	1,683

Notes: (1) Source: Potomac Yard Development.
(2) Does not include existing Potomac Yard Centre.

Table 2
Potomac Yard Analysis Parameters

Land Use	Parameter	Value
Office	ITE Land Use Code:	710
	HBW Trips:	0% AM exiting and PM entering
		90% AM entering and PM exiting
	Transit:	0% Base Case
		30% Assumed
	Vehicle Occupancy:	1.15 Base Case
		1.40 Assumed
Hotel	ITE Land Use Code:	310
	Transit:	0% Base Case
		30% Assumed
	Vehicle Occupancy:	1.40 Base Case
		1.40 Assumed
Retail	ITE Land Use Code:	820
	Transit:	0% Base Case
		30% Assumed
	Vehicle Occupancy:	1.60 Base Case
		1.60 Assumed
Community Uses	All trips are assumed to be off-peak.	
Residential	ITE Land Use Code:	220
	HBW Trips:	90% AM exiting
		67% PM entering
		0% AM entering and PM exiting
	Transit:	0% Base Case
		30% Assumed
	Vehicle Occupancy:	1.35 Base Case
1.40 Assumed		

Table 3
Potomac Yard Vehicle-Trips
PY Alexandria

Land Use	<u>AM Peak Hour</u>			<u>PM Peak Hour</u>		
	In	Out	Total	In	Out	Total
Office	1,740	237	1,978	375	1,832	2,207
Hotel	299	245	544	175	175	350
Retail	107	68	175	339	367	706
Community Uses	0	0	0	0	0	0
Residential	<u>231</u>	<u>623</u>	<u>854</u>	<u>612</u>	<u>376</u>	<u>988</u>
Total	2,377	1,173	3,550	1,502	2,749	4,251

Table 4
Potomac Yard Metrorail Person-Trips
PY Alexandria

Land Use	<u>AM Peak Hour</u>			<u>PM Peak Hour</u>		
	In	Out	Total	In	Out	Total
Office	2,001	273	2,274	431	2,106	2,538
Hotel	419	343	761	245	245	490
Retail	170	109	279	542	587	1,130
Community Use	0	0	0	0	0	0
Residential	<u>312</u>	<u>841</u>	<u>1,153</u>	<u>827</u>	<u>507</u>	<u>1,334</u>
Total	2,903	1,565	4,468	2,046	3,446	5,491

185

Table 5A
Potomac Yard Internal/External Person-Trips
AM Peak Hour
PY Alexandria

From\To	<u>Internal Trips</u>				External Trips	Total Outs	External As Percent of Total
	Residential	Office	Retail	Hotel			
<u>Internal Trips</u>							
Residential	0	84	34	21	709	848	83%
Office	27	0	55	126	65	273	82%
Retail	11	22	0	21	55	109	25%
Hotel	17	103	69	0	154	343	53%
<u>External Trips</u>	<u>257</u>	<u>1,793</u>	<u>13</u>	<u>251</u>			
<u>Total Ins</u>	312	2,001	170	419			
<u>Summary:</u>	Internal Trips		589	15.1%			
	External Trips						
	In		2,314	59.5%			
	Out		<u>984</u>	<u>25.3%</u>			
	Subtotal		3,298	100.0%			
	Total Trip Ends		4,476				

Table 5B
Potomac Yard Internal/External Person-Trips
PM Peak Hour
PY Alexandria

From\To	<u>Internal Trips</u>				External Trips	Total Outs	External As Percent of Total
	Residential	Office	Retail	Hotel			
<u>Internal Trips</u>							
Residential	0	43	101	12	350	507	75%
Office	83	0	108	73	1,842	2,106	82%
Retail	83	86	0	12	406	587	61%
Hotel	12	73	49	0	110	245	53%
<u>External Trips</u>	<u>649</u>	<u>229</u>	<u>283</u>	<u>147</u>			
<u>Total Ins</u>	<u>827</u>	<u>431</u>	<u>542</u>	<u>245</u>			
<u>Summary:</u>	<u>Internal Trips</u>		<u>737</u>	<u>15.5%</u>			
	<u>External Trips</u>						
		<u>In</u>	<u>1,308</u>	<u>27.5%</u>			
		<u>Out</u>	<u>2,709</u>	<u>57.0%</u>			
		<u>Subtotal</u>	<u>4,017</u>	<u>100.0%</u>			
	<u>Total Trip Ends</u>		<u>5,491</u>				

Table 6
Potomac Yard External Person-Trips
PY Alexandria

Land Use	<u>AM Peak Hour</u>			<u>PM Peak Hour</u>		
	In	Out	Total	In	Out	Total
<u>Main Yard</u>						
Office	1,793	65	1,858	229	1,842	2,070
Hotel	251	154	405	147	110	257
Retail	13	55	69	283	406	690
Residential	<u>257</u>	<u>702</u>	<u>959</u>	<u>649</u>	<u>350</u>	<u>1,000</u>
Total	2,314	977	3,291	1,308	2,709	4,017

Table 7
Potomac Yard Transit Person-Trips, By Neighborhood and Land Use
With TMP
PY Alexandria

Neighborhood/ Land Use	Amount	Units	Nearest Metro Station	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
<u>Town Center</u>									
Office	800,000	S.F.	Braddock Road	226	8	235	29	233	262
Hotel	625	Rooms	Braddock Road	75	46	122	44	33	77
Retail	80,000	S.F.	Braddock Road	3	11	14	57	81	138
Residential	414	D.U.	Braddock Road	19	52	71	48	26	74
<u>Swann and Custis Neighborhood</u>									
Office	164,000	S.F.	Braddock Road	46	2	48	6	48	54
Hotel	0	Rooms	Braddock Road	0	0	0	0	0	0
Retail	15,000	S.F.	Braddock Road	0	2	3	11	15	26
Residential	639	D.U.	Braddock Road	29	80	109	74	40	114
<u>Howell Neighborhood</u>									
Office	463,000	S.F.	Braddock Road	131	5	136	17	135	151
Hotel	0	Rooms	Braddock Road	0	0	0	0	0	0
Retail	15,000	S.F.	Braddock Road	0	2	3	11	15	26
Residential	272	D.U.	Braddock Road	13	37	50	34	18	52
<u>Braddock Neighborhood</u>									
Office	473,000	S.F.	Braddock Road	134	5	139	17	138	155
Hotel	0	Rooms	Braddock Road	0	0	0	0	0	0
Retail	10,000	S.F.	Braddock Road	0	1	2	7	10	17
Residential	358	D.U.	Braddock Road	23	62	85	57	31	88
<u>Total</u>									
Office	1,900,000	S.F.		538	20	557	69	553	621
Hotel	625	Rooms		75	46	122	44	33	77
Retail	120,000	S.F.		4	17	21	85	122	207
Residential	1,683	D.U.		84	231	315	213	115	328
Total				702	313	1,015	411	823	1,233

189

Table 8
Potomac Yard External Transit Person-Trips, By Land Use
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Main Yard</u>								
Office	1,900,000	S.F.	538	20	557	69	553	621
Hotel	625	Rooms	75	46	122	44	33	77
Retail	120,000	S.F.	4	17	21	85	122	207
Residential	1,683	D.U.	<u>84</u>	<u>231</u>	<u>315</u>	<u>213</u>	<u>115</u>	<u>328</u>
Subtotal			702	313	1,015	411	823	1,233

Table 9
Potomac Yard Transit Mode Splits (Percent), by Land Use
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Office	1,900,000 S.F.		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Hotel	625 Rooms		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Retail	120,000 S.F.		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Residential	1,683 D.U.		32.8%	32.8%	32.8%	32.8%	32.8%	32.8%
Total			30.3%	32.0%	30.8%	31.4%	30.4%	30.7%

Table 10
Total Project Walk Person-Trips
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Office	1,900,000	S.F.	53	2	55	7	54	61
Hotel	625	Rooms	7	5	12	4	3	8
Retail	120,000	S.F.	0	2	2	8	12	20
Residential	1,683	D.U.	8	23	31	21	11	32
Total			69	31	100	40	81	121

Table 11
Potomac Yard Metrorail Person-Trips
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Office	1,900,000 S.F.		395	14	409	50	405	456
Hotel	625 Rooms		55	34	89	32	24	57
Retail	120,000 S.F.		3	12	15	62	89	152
Residential	1,683 D.U.		62	169	231	156	84	241
Total			515	230	744	301	603	905

Table 12
Potomac Yard Bus Person-Trips
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Office	1,900,000	S.F.	53	2	55	7	55	61
Hotel	625	Rooms	7	5	12	4	3	8
Retail	120,000	S.F.	0	2	2	8	12	20
Residential	1,683	D.U.	8	23	31	21	11	32
Total			69	31	100	41	81	122

194

Table 13
Potomac Yard "Other" Transit Person-Trips
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Office	1,900,000	S.F.	37	1	39	5	38	43
Hotel	625	Rooms	5	3	8	3	2	5
Retail	120,000	S.F.	0	1	1	6	8	14
Residential	1,683	D.U.	6	16	22	15	8	23
Total			49	22	70	28	57	85

195

Table 14
Potomac Yard External SOV Auto Person-Trips, By Land Use
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Main Yard</u>								
Office	1,900,000	S.F.	659	24	683	84	677	761
Hotel	625	Rooms	92	57	149	54	41	95
Retail	120,000	S.F.	4	15	19	79	114	193
Residential	1,683	D.U.	91	247	338	229	123	352
Total			846	344	1,189	446	955	1,401
Percent of All External Person-Trips			37%	35%	36%	34%	35%	35%

Table 15
Potomac Yard HOV Person-Trips, By Land Use
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<u>Total</u>								
Office	1,900,000 S.F.		596	22	618	76	612	688
Hotel	625 Rooms		84	51	135	49	37	86
Retail	120,000 S.F.		6	23	29	119	171	290
Residential	1,683 D.U.		82	224	306	207	112	319
Total			767	320	1,087	451	931	1,382
Percent of All External Person-Trips			33%	33%	33%	34%	34%	34%

Table 16
Potomac Yard Person-Trips, By Land Use and Mode Split
With TMP
PY Alexandria

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Office	1,900,000	S.F.						
Internal			209	207	416	203	265	468
Walk			53	2	55	7	54	61
Metro Rail			395	14	409	50	405	456
Bus			53	2	55	7	55	61
Other			37	1	39	5	38	43
Auto - HOV			596	22	618	76	612	688
Auto - SOV			<u>659</u>	<u>24</u>	<u>683</u>	<u>84</u>	<u>677</u>	<u>761</u>
Total			2,001	273	2,274	431	2,106	2,538
Hotel	625	Rooms						
Internal			167	188	356	98	135	233
Walk			7	5	12	4	3	8
Metro Rail			55	34	89	32	24	57
Bus			7	5	12	4	3	8
Other			5	3	8	3	2	5
Auto - HOV			84	51	135	49	37	86
Auto - SOV			<u>92</u>	<u>57</u>	<u>149</u>	<u>54</u>	<u>41</u>	<u>95</u>
Total			419	343	761	245	245	490
Retail	120,000	S.F.						
Internal			157	54	211	259	181	440
Walk			0	2	2	8	12	20
Metro Rail			3	12	15	62	89	152
Bus			0	2	2	8	12	20
Other			0	1	1	6	8	14
Auto - HOV			6	23	29	119	171	290
Auto - SOV			<u>4</u>	<u>15</u>	<u>19</u>	<u>79</u>	<u>114</u>	<u>193</u>
Total			170	109	279	542	587	1,130
Residential	1,683	D.U.						
Internal			55	139	194	178	157	334
Walk			8	23	31	21	11	32
Metro Rail			62	169	231	156	84	241
Bus			8	23	31	21	11	32
Other			6	16	22	15	8	23
Auto - HOV			82	224	306	207	112	319
Auto - SOV			<u>91</u>	<u>247</u>	<u>338</u>	<u>229</u>	<u>123</u>	<u>352</u>
Total			312	841	1,153	827	507	1,334
Total								
Internal			589	589	1,177	737	737	1,475
Walk			69	31	100	40	81	121
Metro Rail			515	230	744	301	603	905
Bus			69	31	100	41	81	122
Other			49	22	70	28	57	85
Auto - HOV			767	320	1,087	451	931	1,382
Auto - SOV			<u>846</u>	<u>344</u>	<u>1,189</u>	<u>446</u>	<u>955</u>	<u>1,401</u>
Total			2,903	1,565	4,468	2,046	3,446	5,491
Percent								
Internal			20.3%	37.6%	26.3%	36.0%	21.4%	26.9%
Walk			2.4%	2.0%	2.2%	2.0%	2.3%	2.2%
Metro Rail			17.7%	14.7%	16.7%	14.7%	17.5%	16.5%
Bus			2.4%	2.0%	2.2%	2.0%	2.4%	2.2%
Other			1.7%	1.4%	1.6%	1.4%	1.7%	1.6%
Auto - HOV			26.4%	20.4%	24.3%	22.0%	27.0%	25.2%
Auto - SOV			<u>29.1%</u>	<u>22.0%</u>	<u>26.6%</u>	<u>21.8%</u>	<u>27.7%</u>	<u>25.5%</u>
Total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 17
Potomac Yard Metrorail Person-Trips, By Neighborhood and Land Use
With TMP
PY Alexandria

Neighborhood/ Land Use	Amount	Units	Nearest Metro Station	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
<u>Town Center</u>									
Office	800,000	S.F.	Braddock Road	166	6	172	21	171	192
Hotel	625	Rooms	Braddock Road	55	34	89	32	24	57
Retail	80,000	S.F.	Braddock Road	2	8	10	42	60	101
Residential	414	D.U.	Braddock Road	14	38	52	35	19	54
<u>Swann and Custis Neighborhoods</u>									
Office	164,000	S.F.	Braddock Road	34	1	35	4	35	39
Hotel	0	Rooms	Braddock Road	0	0	0	0	0	0
Retail	15,000	S.F.	Braddock Road	0	2	2	8	11	19
Residential	639	D.U.	Braddock Road	21	59	80	54	29	84
<u>Howell Neighborhood</u>									
Office	463,000	S.F.	Braddock Road	96	4	100	12	99	111
Hotel	0	Rooms	Braddock Road	0	0	0	0	0	0
Retail	15,000	S.F.	Braddock Road	0	2	2	8	11	19
Residential	272	D.U.	Braddock Road	10	27	37	25	13	38
<u>Braddock Neighborhood</u>									
Office	473,000	S.F.	Braddock Road	98	4	102	13	101	113
Hotel	0	Rooms	Braddock Road	0	0	0	0	0	0
Retail	10,000	S.F.	Braddock Road	0	1	1	5	7	13
Residential	358	D.U.	Braddock Road	17	46	62	42	23	65
<u>Total</u>									
Office	1,900,000	S.F.		395	14	409	50	405	456
Hotel	625	Rooms		55	34	89	32	24	57
Retail	120,000	S.F.		3	12	15	62	89	152
Residential	1,683	D.U.		62	169	231	156	84	241
Total				515	230	744	301	603	905

Table 18
Mode Shares by Transit Mode ⁽¹⁾
PY Alexandria

Building	Percent of All Trips					Percent of All Transit Trips				
	Rail	Bus	Walk	Other	Total	Rail	Bus	Walk	Other	Total
1300 N. 17th Street	19.2%	0.0%	0.7%	0.8%	20.7%	92.8%	0.0%	3.4%	3.9%	100.0%
AM Building	24.3%	0.8%	0.8%	0.0%	25.9%	93.8%	3.1%	3.1%	0.0%	100.0%
Air Force Association	13.3%	0.0%	1.5%	0.0%	14.8%	89.9%	0.0%	10.1%	0.0%	100.0%
Crystal Mall I	16.3%	1.0%	1.2%	0.2%	18.7%	87.2%	5.3%	6.4%	1.1%	100.0%
Crystal Square 2	17.4%	2.1%	2.7%	0.7%	22.9%	76.0%	9.2%	11.8%	3.1%	100.0%
2711 Jeff-Davis	5.4%	2.3%	0.8%	1.9%	10.4%	51.9%	22.1%	7.7%	18.3%	100.0%
Van Ness Station	21.1%	3.8%	1.4%	0.1%	26.4%	79.9%	14.4%	5.3%	0.4%	100.0%
IntelSat	27.9%	1.3%	2.5%	0.0%	31.7%	88.0%	4.1%	7.9%	0.0%	100.0%
1100 Wayne Avenue	19.5%	4.2%	0.5%	0.0%	24.2%	80.6%	17.4%	2.1%	0.0%	100.0%
Silver Spring Metro Center	19.7%	4.5%	5.3%	6.1%	35.6%	55.3%	12.6%	14.9%	17.1%	100.0%
Ballston	12.0%	1.1%	3.1%	5.1%	21.3%	56.3%	5.2%	14.6%	23.9%	100.0%
Bell Atlantic	11.0%	0.5%	1.9%	1.4%	14.8%	74.3%	3.4%	12.8%	9.5%	100.0%
East West Towers	13.3%	3.3%	0.0%	0.0%	16.6%	80.1%	19.9%	0.0%	0.0%	100.0%
Bethesda Metro Center	14.5%	0.0%	1.6%	1.6%	17.7%	81.9%	0.0%	9.0%	9.0%	100.0%
Twinbrook	7.6%	1.1%	0.5%	0.5%	9.7%	78.4%	11.3%	5.2%	5.2%	100.0%
Parklawn	4.7%	3.0%	3.4%	1.4%	12.5%	37.6%	24.0%	27.2%	11.2%	100.0%
Crystal Square II	16.4%	1.4%	2.7%	3.7%	24.2%	67.8%	5.8%	11.2%	15.3%	100.0%
Bethesda Office Center	10.0%	4.1%	5.0%	1.4%	20.5%	48.8%	20.0%	24.4%	6.8%	100.0%
Average	15.2%	1.9%	2.0%	1.4%	20.5%	73.4%	9.9%	9.8%	6.9%	100.0%

Note: (1) Source: Development-Related Ridership Survey II, WMATA, December 1989

200

Table 19
Potomac Yard Metrorail Person-Trips, By Station and Direction
With TMP
PY Alexandria

Station	Direction	Percent		AM Peak Hour			PM Peak Hour		
		Employment	Residential	In	Out	Total	In	Out	Total
Braddock Road	From/To North	88%	98%	465	223	688	288	544	832
	From/To South	12%	2%	50	7	57	17	62	79
	Total			515	230	745	305	605	911

2013

Table 20**Metrail Station Patronage Generated by Potomac Yard, With and Without TMP
PY Alexandria**

Station/ Direction	Peak Hour Patronage				Daily Patronage	
	<u>Without TMP</u>		<u>With TMP</u>		Without TMP	With TMP
	AM	PM	AM	PM		
Braddock Road						
Boardings						
Northbound	266	202	465	288	2,098	3,431
Southbound	26	9	50	17	203	153
Alightings						
Northbound	5	30	7	62	60	329
Southbound	<u>182</u>	<u>298</u>	<u>223</u>	<u>544</u>	<u>2,240</u>	<u>3,255</u>
Total	478	538	745	911	4,601	7,167

Notes: (1) Peak Hour as a Percent of Day: 10.4%

Appendix E

Future Intersections Levels of Service

203

HCM Signalized Intersection Capacity Analysis

1: E. Glebe Road & US Route 1

AM
4/22/2008



	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Lane Configurations	↖	↗			↖	↗	↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Flt	1.00	0.91			1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1697			1826	1583	1770	3531		1770	3525	
Flt Permitted	0.55	1.00			0.51	1.00	0.13	1.00		0.05	1.00	
Satd. Flow (perm)	1030	1697			952	1583	238	3531		91	3525	
Volume (vph)	219	128	186	27	39	35	211	2022	30	189	1222	33
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	231	135	196	28	41	37	222	2128	32	199	1286	35
RTOR Reduction (vph)	0	40	0	0	0	13	0	1	0	0	1	0
Lane Group Flow (vph)	231	291	0	0	69	24	222	2159	0	199	1320	0
Turn Type	pm+pt			Perm		pm+ov	pm+pt			pm+pt		
Protected Phases	7	4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	28.6	28.6			16.8	33.6	95.0	79.6		97.8	81.0	
Effective Green, g (s)	29.6	29.6			17.8	35.6	97.0	80.6		99.8	82.0	
Actuated g/C Ratio	0.21	0.21			0.13	0.25	0.69	0.58		0.71	0.59	
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	259	359			121	448	344	2033		278	2065	
v/s Ratio Prot	c0.05	0.17				0.01	0.08	c0.61		c0.09	0.37	
v/s Ratio Perm	c0.14				0.07	0.01	0.37			0.42		
v/c Ratio	0.89	0.81			0.57	0.05	0.65	1.06		0.72	0.64	
Uniform Delay, d1	53.4	52.5			57.5	39.5	15.7	29.7		45.8	19.2	
Progression Factor	1.00	1.00			0.99	0.93	1.30	0.86		1.00	1.00	
Incremental Delay, d2	29.4	12.7			6.3	0.1	2.3	34.6		8.5	1.5	
Delay (s)	82.8	65.2			63.1	36.7	22.5	60.2		54.3	20.7	
Level of Service	F	E			E	D	C	E		D	C	
Approach Delay (s)		72.4			53.8			56.7			25.1	
Approach LOS		E			D			E			C	

Intersection Summary			
HCM Average Control Delay	48.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

204

HCM Signalized Intersection Capacity Analysis
 2: Swann Ave. & US Route 1

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Flt		0.96		1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1723		1770	1583		1770	3536		1770	3534	
Flt Permitted		0.77		0.80	1.00		0.12	1.00		0.03	1.00	
Satd. Flow (perm)		1380		1484	1583		221	3536		65	3534	
Volume (vph)	24	0	11	24	0	35	8	2232	12	72	1653	16
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	0	12	25	0	37	8	2349	13	76	1740	17
RTOR Reduction (vph)	0	11	0	0	35	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	26	0	25	2	0	8	2362	0	76	1757	0
Turn Type	Perm		Perm			pm+pt		pm+pt				
Protected Phases	4		8			5		2		1		6
Permitted Phases	4		8			2				6		
Actuated Green, G (s)	6.8		6.8			111.2		110.0		123.2		117.0
Effective Green, g (s)	7.8		7.8			113.2		111.0		124.2		118.0
Actuated g/C Ratio	0.06		0.06			0.81		0.79		0.89		0.84
Clearance Time (s)	5.0		5.0			5.0		5.0		5.0		5.0
Vehicle Extension (s)	3.0		3.0			3.0		3.0		3.0		3.0
Lane Grp Cap (vph)	77		83			88		203		2804		170
v/s Ratio Prot						0.00		c0.67		c0.03		c0.50
v/s Ratio Perm	c0.02		0.02			0.03				0.37		
v/c Ratio	0.33		0.30			0.02		0.04		0.84		0.45
Uniform Delay, d1	63.6		63.5			62.5		3.1		9.0		32.6
Progression Factor	1.00		1.00			1.00		1.07		0.53		1.95
Incremental Delay, d2	2.6		2.0			0.1		0.1		2.4		1.6
Delay (s)	66.1		65.5			62.6		3.4		7.2		65.1
Level of Service	E		E			E		A		A		E
Approach Delay (s)	66.1					63.8				7.2		5.2
Approach LOS	E		E			E		A		A		A

Intersection Summary

HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

265

HCM Signalized Intersection Capacity Analysis
 3: Custis Ave & US Route 1

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Flt		0.98		1.00	0.87		1.00	1.00		1.00	1.00	
Flt Protected		0.96		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1762		1770	1625		1770	3539		1770	3528	
Flt Permitted		0.74		0.73	1.00		0.12	1.00		0.06	1.00	
Satd. Flow (perm)		1357		1368	1625		231	3539		116	3528	
Volume (vph)	106	12	17	6	7	38	10	1975	2	14	1509	33
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	112	13	18	6	7	40	11	2079	2	15	1588	35
RTOR Reduction (vph)	0	4	0	0	15	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	139	0	6	32	0	11	2081	0	15	1622	0
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases	4		8		8		2		6		6	
Permitted Phases	4		8		8		2		6		6	
Actuated Green, G (s)	18.8		18.8		18.8		111.2		111.2		111.2	
Effective Green, g (s)	19.8		19.8		19.8		112.2		112.2		112.2	
Actuated g/C Ratio	0.14		0.14		0.14		0.80		0.80		0.80	
Clearance Time (s)	5.0		5.0		5.0		5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)	192		193		230		185		2836		93	
v/s Ratio Prot					0.02		c0.59				0.46	
v/s Ratio Perm	c0.10		0.00				0.05		0.13			
v/c Ratio	0.72		0.03		0.14		0.06		0.73		0.16	
Uniform Delay, d1	57.5		51.8		52.6		2.9		6.7		3.2	
Progression Factor	1.00		1.01		1.00		0.20		0.10		0.43	
Incremental Delay, d2	12.6		0.1		0.3		0.4		1.0		3.1	
Delay (s)	70.1		52.4		53.1		1.0		1.7		4.5	
Level of Service	E		D		D		A		A		A	
Approach Delay (s)	70.1				53.0		1.7				3.1	
Approach LOS	E				D		A				A	

Intersection Summary

HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

206

HCM Signalized Intersection Capacity Analysis
 4: Howell Ave. & US Route 1

AM
 4/22/2008



Movement	EB1	EB2	EB3	WB1	WB2	WB3	NB1	NB2	NB3	SB1	SB2	SB3	
Lane Configurations		↕		↖	↗		↖	↕		↖	↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95		
Fr _t		0.97		1.00	0.91		1.00	1.00		1.00	1.00		
Fl _t Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1754		1770	1691		1770	3531		1770	3534		
Fl _t Permitted		0.81		0.69	1.00		0.15	1.00		0.04	1.00		
Satd. Flow (perm)		1462		1288	1691		273	3531		84	3534		
Volume (vph)	35	10	13	7	5	8	11	2042	31	71	1466	15	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	37	11	14	7	5	8	12	2149	33	75	1543	16	
RTOR Reduction (vph)	0	9	0	0	7	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	53	0	7	6	0	12	2182	0	75	1559	0	
Turn Type	Perm		Perm			pm+pt		pm+pt					
Protected Phases	8		4			5		2		1		6	
Permitted Phases	8		4			2				6			
Actuated Green, G (s)	8.7		8.7			110.6		108.3		121.3		114.0	
Effective Green, g (s)	9.7		9.7			112.6		109.3		122.3		115.0	
Actuated g/C Ratio	0.07		0.07			0.80		0.78		0.87		0.82	
Clearance Time (s)	5.0		5.0			5.0		5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0			3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)	101		89			117		255		2757		182	2903
v/s Ratio Prot			0.00			0.00		c0.62		c0.03		0.44	
v/s Ratio Perm	c0.04		0.01			0.04				0.34			
v/c Ratio	0.52		0.08			0.05		0.05		0.79		0.41	0.54
Uniform Delay, d1	62.9		61.0			60.8		3.2		8.8		20.9	4.0
Progression Factor	1.00		0.94			0.94		0.96		0.59		1.58	0.63
Incremental Delay, d2	4.8		0.4			0.2		0.1		2.1		1.3	0.6
Delay (s)	67.7		57.9			57.2		3.1		7.3		34.2	3.1
Level of Service	E		E			E		A		A		C	A
Approach Delay (s)	67.7		57.5			7.2						4.5	
Approach LOS	E		E			A						A	

Intersection Summary

HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

267

HCM Signalized Intersection Capacity Analysis
5: Potomac Ave & US Route 1

AM
4/22/2008



Movement	WBL	WBR	NBT	NBS	SBL	SBS
Lane Configurations	↙↘	↗	↕↕	↗	↙	↕↕↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Flt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	5085
Flt Permitted	0.95	1.00	1.00	1.00	0.10	1.00
Satd. Flow (perm)	3433	1583	3539	1583	187	5085
Volume (vph)	663	335	1352	979	41	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	698	353	1423	1031	43	1611
RTOR Reduction (vph)	0	27	0	63	0	0
Lane Group Flow (vph)	698	326	1423	968	43	1611
Turn Type	custom		custom pm+pt			
Protected Phases	4		2		1	6
Permitted Phases		4 1		2 4		6
Actuated Green, G (s)	38.7	48.9	83.1	125.8	93.3	93.3
Effective Green, g (s)	38.7	48.9	83.1	125.8	93.3	93.3
Actuated g/C Ratio	0.28	0.35	0.59	0.90	0.67	0.67
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	949	553	2101	1422	195	3389
v/s Ratio Prot	c0.20		0.40		0.01	0.32
v/s Ratio Perm		c0.21		c0.61	0.14	
v/c Ratio	0.74	0.59	0.68	0.68	0.22	0.48
Uniform Delay, d1	46.0	37.3	19.3	1.9	14.7	11.4
Progression Factor	0.72	0.42	0.30	11.82	0.62	0.59
Incremental Delay, d2	1.9	1.0	1.0	0.7	0.5	0.4
Delay (s)	34.9	16.8	6.8	22.6	9.6	7.2
Level of Service	C	B	A	C	A	A
Approach Delay (s)	28.8		13.5			7.2
Approach LOS	C		B			A

Intersection Summary

HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

208

HCM Signalized Intersection Capacity Analysis
 6: Monroe Ave & Main St

AM
 4/22/2008



Movement	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations	↖		↗	↕	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Fr _t	1.00		1.00	1.00	1.00	0.85
Fl _t Protected	0.95		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1771		1770	1863	1863	1583
Fl _t Permitted	0.95		0.63	1.00	1.00	1.00
Satd. Flow (perm)	1771		1167	1863	1863	1583
Volume (vph)	842	17	8	72	96	220
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	886	18	8	76	101	232
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	903	0	8	76	101	232
Turn Type			Perm			pm+ov
Protected Phases	4			2	6	4
Permitted Phases			2			6
Actuated Green, G (s)	102.9		27.1	27.1	27.1	130.0
Effective Green, g (s)	103.9		28.1	28.1	28.1	132.0
Actuated g/C Ratio	0.74		0.20	0.20	0.20	0.94
Clearance Time (s)	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1314		234	374	374	1583
v/s Ratio Prot	c0.51			0.04	c0.05	0.11
v/s Ratio Perm			0.01			0.04
v/c Ratio	0.69		0.03	0.20	0.27	0.15
Uniform Delay, d ₁	9.5		45.0	46.6	47.3	0.3
Progression Factor	1.00		1.00	1.00	1.07	1.00
Incremental Delay, d ₂	1.5		0.3	1.2	1.4	0.0
Delay (s)	11.0		45.3	47.8	52.0	0.3
Level of Service	B		D	D	D	A
Approach Delay (s)	11.0			47.6	16.0	
Approach LOS	B			D	B	

Intersection Summary

HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

209

HCM Signalized Intersection Capacity Analysis
7: Slaters Lane & US Route 1

AM
4/22/2008



Movement	WB	WB P	NB	NB P	SB	SB P
Lane Configurations		↗↗	↕↕↕	↗	↘	↕↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.88	0.91	1.00	1.00	0.95
Flt		0.85	1.00	0.85	1.00	1.00
Flt Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		2787	5085	1583	1770	3539
Flt Permitted		1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		2787	5085	1583	1770	3539
Volume (vph)	0	237	2559	442	440	1781
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	249	2694	465	463	1875
RTOR Reduction (vph)	0	2	0	84	0	0
Lane Group Flow (vph)	0	247	2694	381	463	1875
Turn Type		custom		Perm	Prot	
Protected Phases			2		1 8	6
Permitted Phases		8 1		2		
Actuated Green, G (s)		45.7	84.3	84.3	45.7	100.0
Effective Green, g (s)		46.7	85.3	85.3	46.7	101.0
Actuated g/C Ratio		0.33	0.61	0.61	0.33	0.72
Clearance Time (s)			5.0	5.0		5.0
Vehicle Extension (s)			3.0	3.0		3.0
Lane Grp Cap (vph)		930	3098	964	590	2553
v/s Ratio Prot			c0.53		c0.26	0.53
v/s Ratio Perm		0.09		0.24		
v/c Ratio		0.27	0.87	0.40	0.78	0.73
Uniform Delay, d1		34.1	22.7	14.1	42.1	11.6
Progression Factor		1.00	1.00	1.00	1.09	0.75
Incremental Delay, d2		0.2	3.6	1.2	5.8	1.6
Delay (s)		34.3	26.4	15.3	51.8	10.3
Level of Service		C	C	B	D	B
Approach Delay (s)	34.3		24.7			18.5
Approach LOS	C		C			B

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 8: E. Glebe Road & Main St

AM
 4/22/2008



Movement	EBE	EBT	EBRT	WBE	WBT	WBRT	NBE	NBT	NBR	SBE	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	35	229	55	3	58	7	8	4	3	4	1	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	37	241	58	3	61	7	8	4	3	4	1	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	380			517								
pX, platoon unblocked				0.96			0.96			0.96		
vC, conflicting volume	68			299			439			418		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68			271			417			395		
tC, single (s)	4.1			4.1			7.1			6.5		
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5			4.0		
p0 queue free %	98			100			98			99		
cM capacity (veh/h)	1533			1243			501			507		

Direction	Lane #	EB T	WB T	NB T	SB T
Volume Total		336	72	16	29
Volume Left		37	3	8	4
Volume Right		58	7	3	24
cSH		1533	1243	540	857
Volume to Capacity		0.02	0.00	0.03	0.03
Queue Length 95th (ft)		2	0	2	3
Control Delay (s)		1.0	0.4	11.9	9.4
Lane LOS		A	A	B	A
Approach Delay (s)		1.0	0.4	11.9	9.4
Approach LOS				B	A

Intersection Summary				
Average Delay		1.8		
Intersection Capacity Utilization	37.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
 9: Swann Ave. & Main St

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR												
Lane Configurations	↕			↕			↕			↕														
Sign Control	Free			Free			Stop			Stop														
Grade	0%			0%			0%			0%														
Volume (veh/h)	48	3	33	5	0	4	26	4	3	3	15	32												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95												
Hourly flow rate (vph)	51	3	35	5	0	4	27	4	3	3	16	34												
Pedestrians																								
Lane Width (ft)																								
Walking Speed (ft/s)																								
Percent Blockage																								
Right turn flare (veh)																								
Median type							None			None														
Median storage (veh)																								
Upstream signal (ft)	305			453																				
pX, platoon unblocked																								
vC, conflicting volume	4			38			176			136			21			139			152			2		
vC1, stage 1 conf vol																								
vC2, stage 2 conf vol																								
vCu, unblocked vol	4			38			176			136			21			139			152			2		
tC, single (s)	4.1			4.1			7.1			6.5			6.2			7.1			6.5			6.2		
tC, 2 stage (s)																								
tF (s)	2.2			2.2			3.5			4.0			3.3			3.5			4.0			3.3		
p0 queue free %	97			100			96			99			100			100			98			97		
cM capacity (veh/h)	1617			1572			730			729			1057			803			715			1082		

Direction	EB	WB	NB	SB
Volume Total	88	9	35	53
Volume Left	51	5	27	3
Volume Right	35	4	3	34
cSH	1617	1572	751	921
Volume to Capacity	0.03	0.00	0.05	0.06
Queue Length 95th (ft)	2	0	4	5
Control Delay (s)	4.3	4.1	10.0	9.1
Lane LOS	A	A	B	A
Approach Delay (s)	4.3	4.1	10.0	9.1
Approach LOS			B	A

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 10: Custis Ave & Main St

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↕			↕			↕			↕				
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Volume (veh/h)	8	11	9	1	3	0	25	30	3	0	30	23		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly flow rate (vph)	8	12	9	1	3	0	26	32	3	0	32	24		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type							None			None				
Median storage veh														
Upstream signal (ft)	282			463										
pX, platoon unblocked														
vC, conflicting volume	3				21				78	38	16	57	43	3
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	3				21				78	38	16	57	43	3
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99				100				97	96	100	100	96	98
cM capacity (veh/h)	1619				1595				861	849	1063	906	844	1081

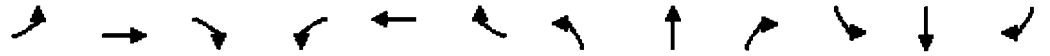
Direction	EB	WB	NB	SB
Volume Total	29	4	61	56
Volume Left	8	1	26	0
Volume Right	9	0	3	24
cSH	1619	1595	863	932
Volume to Capacity	0.01	0.00	0.07	0.06
Queue Length 95th (ft)	0	0	6	5
Control Delay (s)	2.1	1.8	9.5	9.1
Lane LOS	A	A	A	A
Approach Delay (s)	2.1	1.8	9.5	9.1
Approach LOS			A	A

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

213

HCM Unsignalized Intersection Capacity Analysis
 11: Howell Ave. & Main St

AM
 4/22/2008



Movement	EB	EB RT	EB LT	WB	WB RT	WB LT	NB	NB RT	NB LT	SB	SB RT	SB LT
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	1	7	105	20	3	2	11	35	1	5	37	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	7	111	21	3	2	12	37	1	5	39	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	280			375								
pX, platoon unblocked												
vC, conflicting volume	5			118			138	112	63	131	166	4
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5			118			138	112	63	131	166	4
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	95	100	99	95	99
cM capacity (veh/h)	1616			1470			784	766	1002	801	716	1079

Direction Lane	EB	WB	NB	SB
Volume Total	119	26	49	52
Volume Left	1	21	12	5
Volume Right	111	2	1	7
cSH	1616	1470	774	760
Volume to Capacity	0.00	0.01	0.06	0.07
Queue Length 95th (ft)	0	1	5	5
Control Delay (s)	0.1	6.0	10.0	10.1
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	6.0	10.0	10.1
Approach LOS	A		B	

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		

214

HCM Signalized Intersection Capacity Analysis
 12: Potomac Ave & Main St

AM
 4/22/2008



Movement	EBE	EBF	EBR	WBE	WBF	WBR	NBE	NBF	NBR	SBE	SBF	SBR
Lane Configurations		↑↑		↑	↑↑		↑	↑↓			↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		0.95	0.95			1.00	1.00
Fr _t		0.97		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (prot)		3424		1770	3539		1681	1649			1863	1583
Flt Permitted		1.00		0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (perm)		3424		1770	3539		1681	1649			1863	1583
Volume (vph)	0	895	249	59	227	0	766	38	109	0	7	34
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	942	262	62	239	0	806	40	115	0	7	36
RTOR Reduction (vph)	0	14	0	0	0	0	0	8	0	0	0	35
Lane Group Flow (vph)	0	1190	0	62	239	0	492	461	0	0	7	1
Turn Type				Prot			Split			Split		Perm
Protected Phases		2		1			3	3		4		4
Permitted Phases					6							4
Actuated Green, G (s)		68.3		9.3	81.6		42.2	42.2			4.2	4.2
Effective Green, g (s)		68.3		9.3	81.6		42.2	42.2			4.2	4.2
Actuated g/C Ratio		0.49		0.07	0.58		0.30	0.30			0.03	0.03
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		1670		118	2063		507	497			56	47
v/s Ratio Prot		c0.35		c0.04			c0.29	0.28			c0.00	
v/s Ratio Perm					0.07							0.00
v/c Ratio		0.71		0.53	0.12		0.97	0.93			0.12	0.02
Uniform Delay, d1		28.1		63.2	13.1		48.3	47.4			66.1	65.9
Progression Factor		0.66		0.96	0.95		0.85	0.85			0.89	0.74
Incremental Delay, d2		2.1		4.2	0.1		27.4	19.1			1.0	0.2
Delay (s)		20.6		64.8	12.5		68.5	59.3			59.7	49.2
Level of Service		C		E	B		E	E			E	D
Approach Delay (s)		20.6			23.3			64.0			50.9	
Approach LOS		C			C			E			D	

Intersection Summary

HCM Average Control Delay	38.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

215

HCM Signalized Intersection Capacity Analysis
 13: E. Glebe Road & Potomac Ave

AM
 4/22/2008



Movement	EB	EBR	NBT	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frnt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3475	
Flt Permitted	0.95	1.00	0.51	1.00	1.00	
Satd. Flow (perm)	1770	1583	948	3539	3475	
Volume (vph)	56	18	46	830	277	38
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	19	48	874	292	40
RTOR Reduction (vph)	0	17	0	0	7	0
Lane Group Flow (vph)	59	2	48	874	325	0
Turn Type	Perm pm+pt					
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	4.6	4.6	55.4	55.4	46.8	
Effective Green, g (s)	5.6	5.6	56.4	56.4	47.8	
Actuated g/C Ratio	0.08	0.08	0.81	0.81	0.68	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	142	127	818	2851	2373	
v/s Ratio Prot	c0.03		0.00	c0.25	0.09	
v/s Ratio Perm		0.00	0.04			
v/c Ratio	0.42	0.01	0.06	0.31	0.14	
Uniform Delay, d1	30.6	29.7	1.5	1.8	3.9	
Progression Factor	1.15	1.67	0.63	0.78	1.00	
Incremental Delay, d2	1.2	0.0	0.0	0.3	0.1	
Delay (s)	36.4	49.6	1.0	1.6	4.0	
Level of Service	D	D	A	A	A	
Approach Delay (s)	39.7			1.6	4.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	4.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

216

HCM Signalized Intersection Capacity Analysis
 14: Swann Ave. & Potomac Ave

AM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Flt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3531	
Flt Permitted	0.95	1.00	0.56	1.00	1.00	
Satd. Flow (perm)	1770	1583	1043	3539	3531	
Volume (vph)	6	3	4	929	295	5
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	3	4	978	311	5
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	6	0	4	978	316	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	1.2	1.2	58.8	58.8	58.8	
Effective Green, g (s)	2.2	2.2	59.8	59.8	59.8	
Actuated g/C Ratio	0.03	0.03	0.85	0.85	0.85	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	56	50	891	3023	3016	
v/s Ratio Prot	c0.00			c0.28	0.09	
v/s Ratio Perm		0.00	0.00			
v/c Ratio	0.11	0.00	0.00	0.32	0.10	
Uniform Delay, d1	32.9	32.8	0.7	1.0	0.8	
Progression Factor	1.09	1.15	1.11	1.31	0.96	
Incremental Delay, d2	0.8	0.0	0.0	0.3	0.1	
Delay (s)	36.8	37.9	0.8	1.6	0.9	
Level of Service	D	D	A	A	A	
Approach Delay (s)	37.2			1.6	0.9	
Approach LOS	D			A	A	

Intersection Summary

HCM Average Control Delay	1.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

217

HCM Signalized Intersection Capacity Analysis
 15: Custis Ave & Potomac Ave

AM
 4/22/2008



Movement	EB	EB	NB	NB	SB	SB
Lane Configurations	↘		↙		↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	
Lane Util. Factor	1.00		0.95		0.95	
Flt	1.00		1.00		1.00	
Flt Protected	0.95		1.00		1.00	
Satd. Flow (prot)	1770		3539		3533	
Flt Permitted	0.95		1.00		1.00	
Satd. Flow (perm)	1770		3539		3533	
Volume (vph)	14	0	0	917	302	4
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	0	0	965	318	4
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	15	0	0	965	322	0
Turn Type	Perm					
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.3			58.7	58.7	
Effective Green, g (s)	2.3			59.7	59.7	
Actuated g/C Ratio	0.03			0.85	0.85	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	58			3018	3013	
v/s Ratio Prot	c0.01			c0.27	0.09	
v/s Ratio Perm						
v/c Ratio	0.26			0.32	0.11	
Uniform Delay, d1	33.0			1.0	0.8	
Progression Factor	1.22			0.38	0.45	
Incremental Delay, d2	2.2			0.3	0.1	
Delay (s)	42.6			0.7	0.4	
Level of Service	D			A	A	
Approach Delay (s)	42.6			0.7	0.4	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	1.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 16: Howell Ave. & Potomac Ave

AM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SBL	SBR
Lane Configurations	Y		Y	↑↑	↑↓	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Fr _t	0.95		1.00	1.00	0.99	
Fl _t Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1713		1770	3539	3499	
Fl _t Permitted	0.97		0.52	1.00	1.00	
Satd. Flow (perm)	1713		963	3539	3499	
Volume (vph)	8	5	96	908	280	23
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	5	101	956	295	24
RTOR Reduction (vph)	5	0	0	0	3	0
Lane Group Flow (vph)	8	0	101	956	316	0
Turn Type			pm+pt			
Protected Phases	8		5	2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.3		58.7	58.7	49.2	
Effective Green, g (s)	2.3		59.7	59.7	50.2	
Actuated g/C Ratio	0.03		0.85	0.85	0.72	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	56		885	3018	2509	
v/s Ratio Prot	c0.00		0.01	c0.27	0.09	
v/s Ratio Perm			0.09			
v/c Ratio	0.15		0.11	0.32	0.13	
Uniform Delay, d1	32.9		0.9	1.0	3.1	
Progression Factor	1.10		0.47	0.36	0.29	
Incremental Delay, d2	1.2		0.0	0.2	0.1	
Delay (s)	37.4		0.5	0.6	1.0	
Level of Service	D		A	A	A	
Approach Delay (s)	37.4			0.6	1.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	1.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

219

HCM Signalized Intersection Capacity Analysis
 1: E. Glebe Road & US Route 1

PM
 4/22/2008



Movement	EBL	EBT	EBP	WBL	WBT	WBP	NBL	NBT	NBP	SEB	SEB	SEB
Lane Configurations	↖	↗			↖	↗	↖	↗		↖	↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Flt	1.00	0.89			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1666			1844	1583	1770	3529		1770	3487	
Flt Permitted	0.30	1.00			0.71	1.00	0.05	1.00		0.05	1.00	
Satd. Flow (perm)	566	1666			1320	1583	97	3529		102	3487	
Volume (vph)	174	77	183	35	135	101	395	1741	33	98	1643	178
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	183	81	193	37	142	106	416	1833	35	103	1729	187
RTOR Reduction (vph)	0	65	0	0	0	16	0	1	0	0	6	0
Lane Group Flow (vph)	183	209	0	0	179	90	416	1867	0	103	1910	0
Turn Type	pm+pt			Perm		pm+ov	pm+pt			pm+pt		
Protected Phases	7	4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	28.9	28.9			19.9	29.2	101.1	86.8		81.3	72.0	
Effective Green, g (s)	29.9	29.9			20.9	31.2	102.1	87.8		83.3	73.0	
Actuated g/C Ratio	0.21	0.21			0.15	0.22	0.73	0.63		0.59	0.52	
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	164	356			197	398	371	2213		183	1818	
v/s Ratio Prot	c0.04	0.13				0.02	c0.20	0.53		0.04	0.55	
v/s Ratio Perm	c0.20				0.14	0.04	c0.62			0.29		
v/c Ratio	1.12	0.59			0.91	0.23	1.12	0.84		0.56	1.05	
Uniform Delay, d1	55.8	49.5			58.6	44.5	50.2	20.7		24.0	33.5	
Progression Factor	1.00	1.00			0.97	0.95	1.18	1.09		1.00	1.00	
Incremental Delay, d2	104.7	2.5			39.1	0.3	81.1	3.7		3.9	35.9	
Delay (s)	160.6	52.0			96.1	42.8	140.4	26.3		27.9	69.4	
Level of Service	F	D			F	D	F	C		C	E	
Approach Delay (s)		95.5			76.3			47.0			67.3	
Approach LOS		F			E			D			E	

Intersection Summary

HCM Average Control Delay	61.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	113.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: Swann Ave. & US Route 1

PM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Flt		0.97		1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected		0.96		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1738		1770	1583		1770	3535		1770	3535	
Flt Permitted		0.71		0.75	1.00		0.10	1.00		0.09	1.00	
Satd. Flow (perm)		1281		1396	1583		185	3535		172	3535	
Volume (vph)	38	0	11	83	0	65	4	1643	14	61	1800	15
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	0	12	87	0	68	4	1729	15	64	1895	16
RTOR Reduction (vph)	0	9	0	0	61	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	43	0	87	7	0	4	1744	0	64	1911	0
Turn Type	Perm		Perm			Perm			pm+pt			
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.6		13.6	13.6		105.5	105.5		116.4	116.4	
Effective Green, g (s)		14.6		14.6	14.6		106.5	106.5		117.4	117.4	
Actuated g/C Ratio		0.10		0.10	0.10		0.76	0.76		0.84	0.84	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		134		146	165		141	2689		223	2964	
v/s Ratio Prot					0.00			0.49		0.01	c0.54	
v/s Ratio Perm		0.03		c0.06			0.02			0.23		
v/c Ratio		0.32		0.60	0.04		0.03	0.65		0.29	0.64	
Uniform Delay, d1		58.1		59.9	56.4		4.1	7.9		7.7	4.0	
Progression Factor		1.00		1.00	1.00		1.67	1.29		4.34	0.66	
Incremental Delay, d2		1.4		6.4	0.1		0.3	1.1		0.2	0.3	
Delay (s)		59.5		66.3	56.5		7.2	11.3		33.6	2.9	
Level of Service		E		E	E		A	B		C	A	
Approach Delay (s)		59.5			62.0			11.2			3.9	
Approach LOS		E			E			B			A	

Intersection Summary

HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Custis Ave & US Route 1

PM
4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBR
Lane Configurations		↕		↙	↘		↙	↕		↙	↕	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Flt		0.97		1.00	0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1757		1770	1740		1770	3538		1770	3521	
Flt Permitted		0.82		0.70	1.00		0.09	1.00		0.13	1.00	
Satd. Flow (perm)		1484		1307	1740		174	3538		236	3521	
Volume (vph)	23	13	12	4	27	21	9	1611	5	35	1785	65
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	24	14	13	4	28	22	9	1696	5	37	1879	68
RTOR Reduction (vph)	0	10	0	0	21	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	41	0	4	29	0	9	1701	0	37	1946	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7		7.7	7.7		122.3	122.3		122.3	122.3	
Effective Green, g (s)		8.7		8.7	8.7		123.3	123.3		123.3	123.3	
Actuated g/C Ratio		0.06		0.06	0.06		0.88	0.88		0.88	0.88	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		92		81	108		153	3116		208	3101	
v/s Ratio Prot					0.02			0.48			c0.55	
v/s Ratio Perm		c0.03		0.00			0.05			0.16		
v/c Ratio		0.44		0.05	0.27		0.06	0.55		0.18	0.63	
Uniform Delay, d1		63.3		61.8	62.6		1.1	1.9		1.2	2.2	
Progression Factor		1.00		1.01	0.98		0.28	0.21		0.72	0.64	
Incremental Delay, d2		3.4		0.3	1.4		0.6	0.6		1.4	0.7	
Delay (s)		66.7		62.6	62.9		0.9	1.0		2.3	2.2	
Level of Service		E		E	E		A	A		A	A	
Approach Delay (s)		66.7			62.9			1.0			2.2	
Approach LOS		E			E			A			A	

Intersection Summary

HCM Average Control Delay	3.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Howell Ave. & US Route 1

PM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Flt		0.97		1.00	0.88		1.00	1.00		1.00	1.00	
Flt Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1753		1770	1631		1770	3536		1770	3530	
Flt Permitted		0.53		0.84	1.00		0.08	1.00		0.12	1.00	
Satd. Flow (perm)		962		1564	1631		158	3536		226	3530	
Volume (vph)	14	6	7	41	17	84	17	1556	9	20	1803	30
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	6	7	43	18	88	18	1638	9	21	1898	32
RTOR Reduction (vph)	0	7	0	0	75	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	21	0	43	31	0	18	1647	0	21	1930	0
Turn Type	Perm		Perm			pm+pt		pm+pt				
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.9		8.9	8.9		115.0	112.7		117.2	113.8	
Effective Green, g (s)		9.9		9.9	9.9		117.0	113.7		119.2	114.8	
Actuated g/C Ratio		0.07		0.07	0.07		0.84	0.81		0.85	0.82	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		68		111	115		170	2872		241	2895	
v/s Ratio Prot					0.02		0.00	0.47		c0.00	c0.55	
v/s Ratio Perm		0.02		c0.03			0.09			0.07		
v/c Ratio		0.32		0.39	0.27		0.11	0.57		0.09	0.67	
Uniform Delay, d1		61.8		62.2	61.6		4.9	4.6		3.4	5.0	
Progression Factor		1.00		0.99	0.98		0.95	0.38		0.63	0.43	
Incremental Delay, d2		2.7		2.2	1.3		0.2	0.7		0.1	1.0	
Delay (s)		64.5		63.8	61.8		4.9	2.4		2.3	3.1	
Level of Service		E		E	E		A	A		A	A	
Approach Delay (s)		64.5			62.4			2.4			3.1	
Approach LOS		E			E			A			A	

Intersection Summary

HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 5: Potomac Ave & US Route 1

PM
 4/22/2008



Movement	WBL	WBR	NBT	NBR	SBL	SBR
Lane Configurations	↔↔	↔	↕↕	↔	↔	↕↕↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Flt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	5085
Flt Permitted	0.95	1.00	1.00	1.00	0.10	1.00
Satd. Flow (perm)	3433	1583	3539	1583	184	5085
Volume (vph)	1058	300	1156	724	5	1737
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1114	316	1217	762	5	1828
RTOR Reduction (vph)	0	17	0	86	0	0
Lane Group Flow (vph)	1114	299	1217	676	5	1828
Turn Type	custom		custom pm+pt			
Protected Phases	4		2		1	6
Permitted Phases		4 1		2 4		6
Actuated Green, G (s)	53.5	64.3	66.7	124.2	78.5	78.5
Effective Green, g (s)	53.5	65.3	66.7	124.2	78.5	78.5
Actuated g/C Ratio	0.38	0.47	0.48	0.89	0.56	0.56
Clearance Time (s)	4.0		4.0		5.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1312	738	1686	1404	192	2851
v/s Ratio Prot	c0.32		c0.34		0.00	c0.36
v/s Ratio Perm		0.19		0.43	0.01	
v/c Ratio	0.85	0.41	0.72	0.48	0.03	0.64
Uniform Delay, d1	39.6	24.6	29.2	1.6	19.5	21.1
Progression Factor	1.16	1.03	0.71	24.08	1.21	1.22
Incremental Delay, d2	4.4	0.3	2.3	0.2	0.0	0.9
Delay (s)	50.2	25.6	23.2	37.7	23.7	26.6
Level of Service	D	C	C	D	C	C
Approach Delay (s)	44.8		28.8			26.6
Approach LOS	D		C			C

Intersection Summary

HCM Average Control Delay	32.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 6: Monroe & Main

PM
 4/22/2008



Movement	SE	SW	NE	EW	SW	SE
Lane Configurations	↖	↖	↗	↖	↖	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Fr _t	0.99		1.00	1.00	1.00	0.85
Fl _t Protected	0.96		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1760		1770	1863	1863	1583
Fl _t Permitted	0.96		0.73	1.00	1.00	1.00
Satd. Flow (perm)	1760		1359	1863	1863	1583
Volume (vph)	434	42	4	252	40	406
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	457	44	4	265	42	427
RTOR Reduction (vph)	2	0	0	0	0	0
Lane Group Flow (vph)	499	0	4	265	42	427
Turn Type			Perm		pm+ov	
Protected Phases	6			4	8	6
Permitted Phases			4			8
Actuated Green, G (s)	73.0		57.0	57.0	57.0	130.0
Effective Green, g (s)	74.0		58.0	58.0	58.0	132.0
Actuated g/C Ratio	0.53		0.41	0.41	0.41	0.94
Clearance Time (s)	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	930		563	772	772	1583
v/s Ratio Prot	c0.28			c0.14	0.02	0.14
v/s Ratio Perm			0.00			0.13
v/c Ratio	0.54		0.01	0.34	0.05	0.27
Uniform Delay, d1	21.7		24.1	28.0	24.6	0.3
Progression Factor	1.00		1.00	1.00	0.39	1.00
Incremental Delay, d2	2.2		0.0	1.2	0.1	0.4
Delay (s)	23.9		24.1	29.2	9.7	0.7
Level of Service	C		C	C	A	A
Approach Delay (s)	23.9			29.1	1.5	
Approach LOS	C			C	A	

Intersection Summary

HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

225

HCM Signalized Intersection Capacity Analysis
 7: Slaters Lane & US Route 1

PM
 4/22/2008



Movement	WB	WB	NB	NB	SB	SB
Lane Configurations		↗↗	↑↑↑	↗	↘	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.88	0.91	1.00	1.00	0.95
Frt		0.85	1.00	0.85	1.00	1.00
Flt Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		2787	5085	1583	1770	3539
Flt Permitted		1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		2787	5085	1583	1770	3539
Volume (vph)	0	436	1614	379	408	2463
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	459	1699	399	429	2593
RTOR Reduction (vph)	0	18	0	105	0	0
Lane Group Flow (vph)	0	441	1699	294	429	2593
Turn Type		custom		Perm	Prot	
Protected Phases			2		1 8	6
Permitted Phases		8 1		2		
Actuated Green, G (s)		45.3	84.7	84.7	45.3	100.5
Effective Green, g (s)		46.3	85.7	85.7	46.3	101.5
Actuated g/C Ratio		0.33	0.61	0.61	0.33	0.72
Clearance Time (s)			5.0	5.0		5.0
Vehicle Extension (s)			3.0	3.0		3.0
Lane Grp Cap (vph)		922	3113	969	585	2566
v/s Ratio Prot			0.33		c0.24	c0.73
v/s Ratio Perm		0.16		0.19		
v/c Ratio		0.48	0.55	0.30	0.73	1.01
Uniform Delay, d1		37.2	15.8	12.9	41.4	19.2
Progression Factor		1.00	1.00	1.00	1.07	1.07
Incremental Delay, d2		0.4	0.7	0.8	3.4	17.5
Delay (s)		37.6	16.5	13.7	47.7	38.1
Level of Service		D	B	B	D	D
Approach Delay (s)	37.6		16.0			39.4
Approach LOS	D		B			D

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 8: E. Glebe Road & Main St

PM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	21	103	49	9	209	8	17	2	5	6	2	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	22	108	52	9	220	8	18	2	5	6	2	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (ft)	380			517								
pX, platoon unblocked				1.00			1.00			1.00		
vC, conflicting volume	228			160			439			426		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	228			159			439			425		
tC, single (s)	4.1			4.1			7.1			6.5		
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5			4.0		
p0 queue free %	98			99			96			100		
cM capacity (veh/h)	1340			1419			506			508		

Direction Lane #	EBL	WBL	NBL	SBL
Volume Total	182	238	25	25
Volume Left	22	9	18	6
Volume Right	52	8	5	17
cSH	1340	1419	558	683
Volume to Capacity	0.02	0.01	0.05	0.04
Queue Length 95th (ft)	1	1	4	3
Control Delay (s)	1.1	0.4	11.8	10.5
Lane LOS	A	A	B	B
Approach Delay (s)	1.1	0.4	11.8	10.5
Approach LOS			B	B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		

227

HCM Unsignalized Intersection Capacity Analysis
 9: Swann Ave. & Main St

PM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	36	7	32	4	0	3	50	15	8	5	39	98
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	38	7	34	4	0	3	53	16	8	5	41	103
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	305			453								
pX, platoon unblocked												
vC, conflicting volume	3			41			234	112	24	126	127	2
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3			41			234	112	24	126	127	2
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			91	98	99	99	94	90
cM capacity (veh/h)	1619			1568			612	758	1052	811	744	1083

Direction	EB	WB	NB	SB
Volume Total	79	7	77	149
Volume Left	38	4	53	5
Volume Right	34	3	8	103
cSH	1619	1568	670	952
Volume to Capacity	0.02	0.00	0.11	0.16
Queue Length 95th (ft)	2	0	10	14
Control Delay (s)	3.6	4.2	11.1	9.5
Lane LOS	A	A	B	A
Approach Delay (s)	3.6	4.2	11.1	9.5
Approach LOS			B	A

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 10: Custis Ave & Main St

PM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB	
Lane Configurations	↕			↕			↕			↕			
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Volume (veh/h)	26	5	22	3	14	0	16	31	2	0	69	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	27	5	23	3	15	0	17	33	2	0	73	23	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None			None			
Median storage (veh)													
Upstream signal (ft)	282			463									
pX, platoon unblocked													
vC, conflicting volume	15				28			152	93	17	111	104	15
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	15				28			152	93	17	111	104	15
tC, single (s)	4.1				4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2				2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98				100			98	96	100	100	91	98
cM capacity (veh/h)	1603				1585			729	782	1062	826	771	1065

Direction	EBL	WBL	NBL	SB
Volume Total	56	18	52	96
Volume Left	27	3	17	0
Volume Right	23	0	2	23
cSH	1603	1585	772	826
Volume to Capacity	0.02	0.00	0.07	0.12
Queue Length 95th (ft)	1	0	5	10
Control Delay (s)	3.6	1.3	10.0	9.9
Lane LOS	A	A	A	A
Approach Delay (s)	3.6	1.3	10.0	9.9
Approach LOS			A	A

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

229

HCM Unsignalized Intersection Capacity Analysis
 11: Howell Ave. & Main St

PM
 4/22/2008



Movement	EBU	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	1	4	29	4	9	4	128	46	23	3	72	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	4	31	4	9	4	135	48	24	3	76	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (ft)	280			375								
pX, platoon unblocked												
vC, conflicting volume	14			35			85	44	19	90	57	12
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	14			35			85	44	19	90	57	12
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			84	94	98	100	91	100
cM capacity (veh/h)	1605			1577			833	845	1059	834	831	1069

Direction	EB	WB	NB	SB
Volume Total	36	18	207	84
Volume Left	1	4	135	3
Volume Right	31	4	24	5
cSH	1605	1577	857	843
Volume to Capacity	0.00	0.00	0.24	0.10
Queue Length 95th (ft)	0	0	24	8
Control Delay (s)	0.2	1.7	10.5	9.7
Lane LOS	A	A	B	A
Approach Delay (s)	0.2	1.7	10.5	9.7
Approach LOS			B	A

Intersection Summary			
Average Delay	8.8		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
 12: Potomac Ave & Main St

PM
 4/22/2008



Movement	EBE	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBE	SBT	SBR
Lane Configurations		↑↑		↙	↑↑		↙	↕		↙	↕	↙
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		0.95	0.95			1.00	1.00
Flt		0.95		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (prot)		3351		1770	3539		1681	1648			1863	1583
Flt Permitted		1.00		0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (perm)		3351		1770	3539		1681	1648			1863	1583
Volume (vph)	0	519	286	121	753	0	575	27	84	0	38	135
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	546	301	127	793	0	605	28	88	0	40	142
RTOR Reduction (vph)	0	44	0	0	0	0	0	9	0	0	0	81
Lane Group Flow (vph)	0	803	0	127	793	0	370	342	0	0	40	61
Turn Type				Prot			Split			Split		Perm
Protected Phases		2		1			3	3		4		4
Permitted Phases					6							4
Actuated Green, G (s)		59.6		15.5	80.1		37.5	37.5			10.4	10.4
Effective Green, g (s)		59.6		16.5	80.1		37.5	37.5			10.4	10.4
Actuated g/C Ratio		0.43		0.12	0.57		0.27	0.27			0.07	0.07
Clearance Time (s)		4.0		5.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		1427		209	2025		450	441			138	118
v/s Ratio Prot		c0.24		c0.07			c0.22	0.21			0.02	
v/s Ratio Perm					0.22							c0.04
v/c Ratio		0.56		0.61	0.39		0.82	0.78			0.29	0.52
Uniform Delay, d1		30.4		58.7	16.5		48.1	47.4			61.3	62.4
Progression Factor		0.91		0.99	1.05		0.93	0.92			1.00	1.01
Incremental Delay, d2		1.5		4.8	0.6		10.5	7.5			1.2	4.1
Delay (s)		29.2		62.9	17.9		55.0	51.3			62.6	67.4
Level of Service		C		E	B		E	D			E	E
Approach Delay (s)		29.2			24.1			53.2			66.3	
Approach LOS		C			C			D			E	

Intersection Summary

HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: E. Glebe Road & Potomac Ave

PM
 4/22/2008



Movement	EB	EBB	NBT	NBT	SB	SBA
Lane Configurations	↘	↗	↘	↑↑	↑↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Flt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3494	
Flt Permitted	0.95	1.00	0.26	1.00	1.00	
Satd. Flow (perm)	1770	1583	485	3539	3494	
Volume (vph)	49	45	26	562	809	75
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	47	27	592	852	79
RTOR Reduction (vph)	0	43	0	0	5	0
Lane Group Flow (vph)	52	4	27	592	926	0
Turn Type		Perm	pm+pt			
Protected Phases	8		5	2	6	
Permitted Phases		8	2			
Actuated Green, G (s)	4.7	4.7	55.3	55.3	47.7	
Effective Green, g (s)	5.7	5.7	56.3	56.3	48.7	
Actuated g/C Ratio	0.08	0.08	0.80	0.80	0.70	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	144	129	456	2846	2431	
v/s Ratio Prot	c0.03		0.00	c0.17	c0.27	
v/s Ratio Perm		0.00	0.04			
v/c Ratio	0.36	0.03	0.06	0.21	0.38	
Uniform Delay, d1	30.4	29.6	1.8	1.6	4.4	
Progression Factor	1.05	1.46	1.26	1.48	1.00	
Incremental Delay, d2	1.3	0.1	0.1	0.2	0.5	
Delay (s)	33.2	43.3	2.4	2.6	4.9	
Level of Service	C	D	A	A	A	
Approach Delay (s)	38.0			2.5	4.9	
Approach LOS	D			A	A	

Intersection Summary

HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: Swann Ave. & Potomac Ave

PM
 4/22/2008



Movement	EBL	EBR	NSL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑↑	↑↑	↙
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Fr _t	1.00	0.85	1.00	1.00	1.00	
Fl _t Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3537	
Fl _t Permitted	0.95	1.00	0.30	1.00	1.00	
Satd. Flow (perm)	1770	1583	563	3539	3537	
Volume (vph)	15	5	3	586	896	4
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	5	3	617	943	4
RTOR Reduction (vph)	0	5	0	0	0	0
Lane Group Flow (vph)	16	0	3	617	947	0
Turn Type		Perm	Perm			
Protected Phases	8			2	6	
Permitted Phases		8	2			
Actuated Green, G (s)	1.4	1.4	58.6	58.6	58.6	
Effective Green, g (s)	2.4	2.4	59.6	59.6	59.6	
Actuated g/C Ratio	0.03	0.03	0.85	0.85	0.85	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	61	54	479	3013	3012	
v/s Ratio Prot	c0.01			0.17	c0.27	
v/s Ratio Perm		0.00	0.01			
v/c Ratio	0.26	0.00	0.01	0.20	0.31	
Uniform Delay, d1	32.9	32.6	0.8	0.9	1.1	
Progression Factor	0.97	0.96	1.19	1.17	0.85	
Incremental Delay, d2	2.3	0.0	0.0	0.2	0.3	
Delay (s)	34.2	31.3	0.9	1.2	1.2	
Level of Service	C	C	A	A	A	
Approach Delay (s)	33.5			1.2	1.2	
Approach LOS	C			A	A	

Intersection Summary

HCM Average Control Delay	1.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 15: Custis Ave & Potomac Ave

PM
 4/22/2008



Movement	EBC	EBN	NBL	NBT	SBT	SBP
Lane Configurations	↘		↙	↑↑	↑↓	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			0.95	0.95	
Fr _t	1.00			1.00	1.00	
Fl _t Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1770			3539	3530	
Fl _t Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1770			3539	3530	
Volume (vph)	7	0	0	589	885	16
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	7	0	0	620	932	17
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	0	620	949	0
Turn Type			Perm			
Protected Phases	8			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.2			58.8	58.8	
Effective Green, g (s)	2.2			59.8	59.8	
Actuated g/C Ratio	0.03			0.85	0.85	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	56			3023	3016	
v/s Ratio Prot	c0.00			0.18	c0.27	
v/s Ratio Perm						
v/c Ratio	0.12			0.21	0.31	
Uniform Delay, d ₁	33.0			0.9	1.0	
Progression Factor	0.97			0.21	0.50	
Incremental Delay, d ₂	1.0			0.2	0.3	
Delay (s)	32.8			0.3	0.8	
Level of Service	C			A	A	
Approach Delay (s)	32.8			0.3	0.8	
Approach LOS	C			A	A	

Intersection Summary

HCM Average Control Delay	0.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 16: Howell Ave. & Potomac Ave

PM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Fr _t	0.99		1.00	1.00	1.00	
Fl _t Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	1759		1770	3539	3531	
Fl _t Permitted	0.96		0.27	1.00	1.00	
Satd. Flow (perm)	1759		498	3539	3531	
Volume (vph)	27	3	40	562	871	14
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	3	42	592	917	15
RTOR Reduction (vph)	3	0	0	0	1	0
Lane Group Flow (vph)	28	0	42	592	931	0
Turn Type			pm+pt			
Protected Phases	8		5	2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.5		58.5	58.5	50.2	
Effective Green, g (s)	2.5		59.5	59.5	51.2	
Actuated g/C Ratio	0.04		0.85	0.85	0.73	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	63		501	3008	2583	
v/s Ratio Prot	c0.02		0.01	c0.17	c0.26	
v/s Ratio Perm			0.07			
v/c Ratio	0.45		0.08	0.20	0.36	
Uniform Delay, d ₁	33.1		1.2	0.9	3.4	
Progression Factor	0.98		0.24	0.23	1.14	
Incremental Delay, d ₂	5.0		0.1	0.1	0.4	
Delay (s)	37.4		0.3	0.3	4.3	
Level of Service	D		A	A	A	
Approach Delay (s)	37.4			0.3	4.3	
Approach LOS	D			A	A	

Intersection Summary

HCM Average Control Delay	3.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

235

Appendix F

Future Intersection Levels of Service
with Density Transfer

HCM Signalized Intersection Capacity Analysis
 1: E. Glebe Road & US Route 1

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Lane Configurations	↘	↗			↖	↗	↘	↖↗		↘	↖↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Fr _t	1.00	0.92			1.00	0.85	1.00	1.00		1.00	1.00	
Fl _t Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1717			1825	1583	1770	3531		1770	3525	
Fl _t Permitted	0.56	1.00			0.53	1.00	0.13	1.00		0.05	1.00	
Satd. Flow (perm)	1047	1717			996	1583	239	3531		93	3525	
Volume (vph)	219	150	164	27	37	35	211	2019	30	219	1193	33
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	231	158	173	28	39	37	222	2125	32	231	1256	35
RTOR Reduction (vph)	0	30	0	0	0	13	0	1	0	0	1	0
Lane Group Flow (vph)	231	301	0	0	67	24	222	2156	0	231	1290	0
Turn Type	pm+pt		Perm			pm+ov	pm+pt		pm+pt			
Protected Phases	7	4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	29.2	29.2			17.2	34.0	95.6	79.0		96.0	79.2	
Effective Green, g (s)	30.2	30.2			18.2	36.0	97.6	80.0		98.0	80.2	
Actuated g/C Ratio	0.22	0.22			0.13	0.26	0.70	0.57		0.70	0.57	
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	267	370			129	452	359	2018		278	2019	
v/s Ratio Prot	0.05	c0.18				0.01	0.08	c0.61		c0.11	0.37	
v/s Ratio Perm	c0.14				0.07	0.01	0.35			0.48		
v/c Ratio	0.87	0.81			0.52	0.05	0.62	1.07		0.83	0.64	
Uniform Delay, d ₁	52.6	52.2			56.8	39.2	15.6	30.0		48.0	20.1	
Progression Factor	1.00	1.00			0.99	0.93	1.46	0.84		1.00	1.00	
Incremental Delay, d ₂	24.0	12.8			3.5	0.0	0.3	32.0		18.6	1.6	
Delay (s)	76.6	65.1			59.6	36.3	23.2	57.2		66.6	21.7	
Level of Service	E	E			E	D	C	E		E	C	
Approach Delay (s)		69.8			51.3			54.0			28.5	
Approach LOS		E			D			D			C	

Intersection Summary

HCM Average Control Delay	47.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

237

HCM Signalized Intersection Capacity Analysis

2: Swann Ave. & US Route 1

AM
4/22/2008



Movement	EB	EBT	EBR	WB	WBT	WBR	NB	NBT	NBR	SB	SBT	SB
Lane Configurations		↕		↗	↖		↗	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frts		0.96		1.00	0.85		1.00	1.00		1.00	1.00	
Fit Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1723		1770	1583		1770	3532		1770	3533	
Fit Permitted		0.72		0.80	1.00		0.16	1.00		0.04	1.00	
Satd. Flow (perm)		1288		1483	1583		303	3532		79	3533	
Volume (vph)	24	0	11	24	0	55	8	2217	32	203	1470	16
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	0	12	25	0	58	8	2334	34	214	1547	17
RTOR Reduction (vph)	0	11	0	0	51	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	26	0	25	7	0	8	2367	0	214	1564	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.9		6.9	6.9		90.1	89.0		123.1	117.0	
Effective Green, g (s)		7.9		7.9	7.9		92.1	90.0		124.1	118.0	
Actuated g/C Ratio		0.06		0.06	0.06		0.66	0.64		0.89	0.84	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		73		84	89		221	2271		434	2978	
v/s Ratio Prot					0.00		0.00	c0.67		c0.11	c0.44	
v/s Ratio Perm		c0.02		0.02			0.02			0.33		
v/c Ratio		0.35		0.30	0.08		0.04	1.04		0.49	0.53	
Uniform Delay, d1		63.6		63.4	62.6		8.4	25.0		42.0	3.1	
Progression Factor		1.00		1.00	1.00		0.70	0.65		1.41	0.47	
Incremental Delay, d2		2.9		2.0	0.4		0.0	28.4		0.8	0.6	
Delay (s)		66.5		65.4	63.0		5.9	44.7		60.0	2.0	
Level of Service		E		E	E		A	D		E	A	
Approach Delay (s)		66.5			63.7			44.6			9.0	
Approach LOS		E			E			D			A	

Intersection Summary

HCM Average Control Delay	30.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: Custis Ave & US Route 1

AM
4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBW
Lane Configurations		↕		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Flt		0.99		1.00	0.88		1.00	1.00		1.00	1.00	
Flt Protected		0.96		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1769		1770	1638		1770	3538		1770	3526	
Flt Permitted		0.75		0.74	1.00		0.16	1.00		0.06	1.00	
Satd. Flow (perm)		1375		1371	1638		295	3538		112	3526	
Volume (vph)	108	16	13	6	7	28	10	1988	3	11	1330	33
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	114	17	14	6	7	29	11	2093	3	12	1400	35
RTOR Reduction (vph)	0	3	0	0	15	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	142	0	6	21	0	11	2096	0	12	1434	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.9		18.9	18.9		111.1	111.1		111.1	111.1	
Effective Green, g (s)		19.9		19.9	19.9		112.1	112.1		112.1	112.1	
Actuated g/C Ratio		0.14		0.14	0.14		0.80	0.80		0.80	0.80	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		195		195	233		236	2833		90	2823	
v/s Ratio Prot					0.01			c0.59			0.41	
v/s Ratio Perm		c0.10		0.00			0.04			0.11		
v/c Ratio		0.73		0.03	0.09		0.05	0.74		0.13	0.51	
Uniform Delay, d1		57.4		51.7	52.2		2.9	6.8		3.1	4.7	
Progression Factor		1.00		1.02	1.02		0.26	0.28		0.45	0.49	
Incremental Delay, d2		12.6		0.1	0.2		0.3	1.3		2.7	0.6	
Delay (s)		70.0		52.9	53.1		1.0	3.2		4.1	2.9	
Level of Service		E		D	D		A	A		A	A	
Approach Delay (s)		70.0			53.1			3.2			2.9	
Approach LOS		E			D			A			A	

Intersection Summary

HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: Howell Ave. & US Route 1

AM
 4/22/2008



Movement	EBL	EBT	EBA	WBL	WBT	WBA	NBL	NBT	NBR	SBL	SBT	SB
Lane Configurations	↕			↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt		0.98		1.00	0.92		1.00	1.00		1.00	1.00	
Flt Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1761		1770	1710		1770	3539		1770	3533	
Flt Permitted		0.80		0.71	1.00		0.16	1.00		0.06	1.00	
Satd. Flow (perm)		1456		1320	1710		298	3539		111	3533	
Volume (vph)	36	10	10	8	5	6	11	2058	1	3	1352	15
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	11	11	8	5	6	12	2166	1	3	1423	16
RTOR Reduction (vph)	0	7	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	53	0	8	5	0	12	2167	0	3	1439	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		8.8		8.8	8.8		117.4	115.1		115.0	113.9	
Effective Green, g (s)		9.8		9.8	9.8		119.4	116.1		117.0	114.9	
Actuated g/C Ratio		0.07		0.07	0.07		0.85	0.83		0.84	0.82	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		102		92	120		289	2935		118	2900	
v/s Ratio Prot					0.00		c0.00	c0.61		0.00	0.41	
v/s Ratio Perm	c0.04			0.01			0.03			0.02		
v/c Ratio	0.52			0.09	0.05		0.04	0.74		0.03	0.50	
Uniform Delay, d1		62.9		60.9	60.7		2.4	5.3		6.6	3.8	
Progression Factor		1.00		0.97	0.93		1.04	0.69		1.20	0.65	
Incremental Delay, d2		4.8		0.4	0.2		0.1	1.5		0.1	0.5	
Delay (s)		67.6		59.5	56.8		2.6	5.1		8.0	3.0	
Level of Service		E		E	E		A	A		A	A	
Approach Delay (s)		67.6			57.9			5.1			3.0	
Approach LOS		E			E			A			A	

Intersection Summary

HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

240

HCM Signalized Intersection Capacity Analysis
 5: Potomac Ave & US Route 1

AM
 4/22/2008



Movement	WBL	WBT	NBT	NBR	SBL	SBT
Lane Configurations	↵↵	↵	↕↕	↵	↵	↕↕↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Fr _t	1.00	0.85	1.00	0.85	1.00	1.00
Fl _t Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	5085
Fl _t Permitted	0.95	1.00	1.00	1.00	0.10	1.00
Satd. Flow (perm)	3433	1583	3539	1583	187	5085
Volume (vph)	663	333	1339	993	41	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	698	351	1409	1045	43	1611
RTOR Reduction (vph)	0	28	0	63	0	0
Lane Group Flow (vph)	698	323	1409	982	43	1611
Turn Type	custom		custom		pm+pt	
Protected Phases	4		2		1	6
Permitted Phases		4 1		2 4		6
Actuated Green, G (s)	39.8	49.9	82.1	125.9	92.2	92.2
Effective Green, g (s)	39.8	49.9	82.1	125.9	92.2	92.2
Actuated g/C Ratio	0.28	0.36	0.59	0.90	0.66	0.66
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	976	564	2075	1424	192	3349
v/s Ratio Prot	0.20		0.40		0.01	0.32
v/s Ratio Perm		c0.20		c0.62	0.14	
v/c Ratio	0.72	0.57	0.68	0.69	0.22	0.48
Uniform Delay, d1	45.0	36.4	19.9	1.9	15.1	11.9
Progression Factor	0.66	0.37	0.30	12.36	0.63	0.61
Incremental Delay, d2	1.6	0.9	1.0	0.8	0.6	0.5
Delay (s)	31.2	14.5	7.0	23.9	10.1	7.8
Level of Service	C	B	A	C	B	A
Approach Delay (s)	25.6		14.2			7.9
Approach LOS	C		B			A

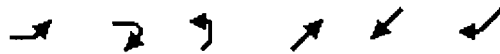
Intersection Summary

HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

241

HCM Signalized Intersection Capacity Analysis
6: Monroe Ave & Main St

AM
4/22/2008



Movement	EB	EB	NB	NB	SW	SW
Lane Configurations	↘		↘	↑	↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	0.95		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1773		1770	1863	1863	1583
Flt Permitted	0.95		0.75	1.00	1.00	1.00
Satd. Flow (perm)	1773		1398	1863	1863	1583
Volume (vph)	866	6	8	64	10	220
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	912	6	8	67	11	232
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	918	0	8	67	11	232
Turn Type			Perm			pm+ov
Protected Phases	4			2	6	4
Permitted Phases			2			6
Actuated Green, G (s)	102.6		27.4	27.4	27.4	130.0
Effective Green, g (s)	103.6		28.4	28.4	28.4	132.0
Actuated g/C Ratio	0.74		0.20	0.20	0.20	0.94
Clearance Time (s)	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1312		284	378	378	1583
v/s Ratio Prot	c0.52			c0.04	0.01	0.11
v/s Ratio Perm			0.01			0.04
v/c Ratio	0.70		0.03	0.18	0.03	0.15
Uniform Delay, d1	9.8		44.7	46.1	44.7	0.3
Progression Factor	1.00		1.00	1.00	1.13	1.00
Incremental Delay, d2	1.7		0.2	1.0	0.1	0.0
Delay (s)	11.5		44.9	47.2	50.6	0.3
Level of Service	B		D	D	D	A
Approach Delay (s)	11.5			46.9	2.6	
Approach LOS	B			D	A	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 7: Slaters Lane & US Route 1

AM
 4/22/2008



Movement	WSL	WBR	NBT	NBR	SBL	SRT
Lane Configurations		↗↗	↑↑↑	↘	↘	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.88	0.91	1.00	1.00	0.95
Fr _t		0.85	1.00	0.85	1.00	1.00
Fl _t Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		2787	5085	1583	1770	3539
Fl _t Permitted		1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		2787	5085	1583	1770	3539
Volume (vph)	0	237	2559	442	440	1781
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	249	2694	465	463	1875
RTOR Reduction (vph)	0	2	0	84	0	0
Lane Group Flow (vph)	0	247	2694	381	463	1875
Turn Type		custom		Perm	Prot	
Protected Phases			2		1 8	6
Permitted Phases		8 1		2		
Actuated Green, G (s)		45.7	84.3	84.3	45.7	100.0
Effective Green, g (s)		46.7	85.3	85.3	46.7	101.0
Actuated g/C Ratio		0.33	0.61	0.61	0.33	0.72
Clearance Time (s)			5.0	5.0		5.0
Vehicle Extension (s)			3.0	3.0		3.0
Lane Grp Cap (vph)		930	3098	964	590	2553
v/s Ratio Prot			c0.53		c0.26	0.53
v/s Ratio Perm		0.09		0.24		
v/c Ratio		0.27	0.87	0.40	0.78	0.73
Uniform Delay, d1		34.1	22.7	14.1	42.1	11.6
Progression Factor		1.00	1.00	1.00	1.12	0.69
Incremental Delay, d2		0.2	3.6	1.2	5.8	1.6
Delay (s)		34.3	26.4	15.3	52.9	9.6
Level of Service		C	C	B	D	A
Approach Delay (s)	34.3		24.7			18.2
Approach LOS	C		C			B

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 8: E. Glebe Road & Main St

AM
 4/22/2008



Movement	EB	EBT	EBR	WB	WBT	WBR	NB	NBT	NBR	SB	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	35	244	92	3	58	7	8	4	3	4	1	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	37	257	97	3	61	7	8	4	3	4	1	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	380			517								
pX, platoon unblocked				0.95			0.95			0.95		
vC, conflicting volume	68			354			475	454	305	455	498	65
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68			317			445	423	266	425	470	65
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			98	99	100	99	100	98
cM capacity (veh/h)	1533			1177			473	482	731	495	453	999

Direction	EB	WB	NB	SB
Volume Total	391	72	16	29
Volume Left	37	3	8	4
Volume Right	97	7	3	24
cSH	1533	1177	511	841
Volume to Capacity	0.02	0.00	0.03	0.04
Queue Length 95th (ft)	2	0	2	3
Control Delay (s)	0.9	0.4	12.3	9.4
Lane LOS	A	A	B	A
Approach Delay (s)	0.9	0.4	12.3	9.4
Approach LOS			B	A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

244

HCM Unsignalized Intersection Capacity Analysis
 9: Swann Ave. & Main St

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	205	3	27	4	0	11	40	12	4	5	17	39
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	216	3	28	4	0	12	42	13	4	5	18	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	305			453								
pX, platoon unblocked				0.99			0.99			0.99		
vC, conflicting volume	12			32				513	469	17	474	477
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	12			24				509	465	10	470	473
tC, single (s)	4.1			4.1				7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2				3.5	4.0	3.3	3.5	4.0
p0 queue free %	87			100				89	97	100	99	96
cM capacity (veh/h)	1607			1579				392	424	1063	436	419

Direction Lane	EB	WB	NB	SB
Volume Total	247	16	59	64
Volume Left	216	4	42	5
Volume Right	28	12	4	41
cSH	1607	1579	418	692
Volume to Capacity	0.13	0.00	0.14	0.09
Queue Length 95th (ft)	12	0	12	8
Control Delay (s)	6.8	2.0	15.0	10.7
Lane LOS	A	A	C	B
Approach Delay (s)	6.8	2.0	15.0	10.7
Approach LOS			C	B

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

245

HCM Unsignalized Intersection Capacity Analysis
 10: Custis Ave & Main St

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	13	11	5	0	3	0	14	27	1	0	30	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	14	12	5	0	3	0	15	28	1	0	32	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	282			463								
pX, platoon unblocked												
vC, conflicting volume	3			17			85			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3			17			85			45		
tC, single (s)	4.1			4.1			7.1			6.5		
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5			4.0		
p0 queue free %	99			100			98			97		
cM capacity (veh/h)	1619			1600			851			840		

Direction	EB	WB	NB	SB
Volume Total	31	3	44	56
Volume Left	14	0	15	0
Volume Right	5	0	1	24
cSH	1619	1600	848	928
Volume to Capacity	0.01	0.00	0.05	0.06
Queue Length 95th (ft)	1	0	4	5
Control Delay (s)	3.3	0.0	9.5	9.1
Lane LOS	A		A	A
Approach Delay (s)	3.3	0.0	9.5	9.1
Approach LOS			A	A

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		

246

HCM Unsignalized Intersection Capacity Analysis
 11: Howell Ave. & Main St

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEL	SET	SEB		
Lane Configurations	↕			↕			↕			↕				
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Volume (veh/h)	2	7	4	8	3	2	8	28	1	5	37	8		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly flow rate (vph)	2	7	4	8	3	2	8	29	1	5	39	8		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type							None			None				
Median storage veh														
Upstream signal (ft)	280			375										
pX, platoon unblocked														
vC, conflicting volume	5				12				63	36	9	51	37	4
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	5				12				63	36	9	51	37	4
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				99				99	97	100	99	95	99
cM capacity (veh/h)	1616				1607				888	851	1072	918	850	1079

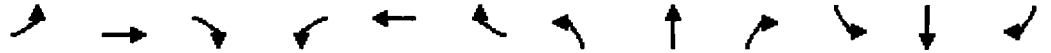
Direction	Lane #	EB	WB	NB	SB
Volume Total		14	14	39	53
Volume Left		2	8	8	5
Volume Right		4	2	1	8
cSH		1616	1607	864	887
Volume to Capacity		0.00	0.01	0.05	0.06
Queue Length 95th (ft)		0	0	4	5
Control Delay (s)		1.1	4.5	9.4	9.3
Lane LOS		A	A	A	A
Approach Delay (s)		1.1	4.5	9.4	9.3
Approach LOS				A	A

Intersection Summary				
Average Delay			7.8	
Intersection Capacity Utilization	16.0%		ICU Level of Service	
Analysis Period (min)	15		A	

247

HCM Signalized Intersection Capacity Analysis
 12: Potomac Ave & Main St

AM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SRT
Lane Configurations		↑↑		↑	↑↑		↑	↑↑			↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		0.95	0.95			1.00	1.00
Flt		0.98		1.00	1.00		1.00	0.95			1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (prot)		3455		1770	3539		1681	1631			1863	1583
Flt Permitted		1.00		0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (perm)		3455		1770	3539		1681	1631			1863	1583
Volume (vph)	0	974	184	39	226	0	759	21	150	0	6	39
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1025	194	41	238	0	799	22	158	0	6	41
RTOR Reduction (vph)	0	9	0	0	0	0	0	13	0	0	0	39
Lane Group Flow (vph)	0	1210	0	41	238	0	505	461	0	0	6	2
Turn Type				Prot			Split			Split		Perm
Protected Phases		2		1			3	3		4		4
Permitted Phases					6							4
Actuated Green, G (s)		68.1		7.6	79.7		43.0	43.0			5.3	5.3
Effective Green, g (s)		68.1		7.6	79.7		43.0	43.0			5.3	5.3
Actuated g/C Ratio		0.49		0.05	0.57		0.31	0.31			0.04	0.04
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		1681		96	2015		516	501			71	60
v/s Ratio Prot		c0.35		c0.02			c0.30	0.28			c0.00	
v/s Ratio Perm					0.07							0.00
v/c Ratio		0.72		0.43	0.12		0.98	0.92			0.08	0.03
Uniform Delay, d1		28.4		64.1	13.9		48.0	46.8			65.0	64.9
Progression Factor		0.66		0.97	0.88		0.84	0.84			0.94	0.91
Incremental Delay, d2		2.1		3.0	0.1		28.5	17.6			0.5	0.2
Delay (s)		20.9		64.9	12.3		69.0	56.7			61.7	59.3
Level of Service		C		E	B		E	E			E	E
Approach Delay (s)		20.9			20.1			63.0			59.6	
Approach LOS		C			C			E			E	

Intersection Summary

HCM Average Control Delay	37.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 13: E. Glebe Road & Potomac Ave

AM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑↑	↑↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Fr _t	1.00	0.85	1.00	1.00	0.98	
Fl _t Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3475	
Fl _t Permitted	0.95	1.00	0.51	1.00	1.00	
Satd. Flow (perm)	1770	1583	948	3539	3475	
Volume (vph)	56	32	46	830	277	38
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	34	48	874	292	40
RTOR Reduction (vph)	0	31	0	0	7	0
Lane Group Flow (vph)	59	3	48	874	325	0
Turn Type	Perm pm+pt					
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	4.7	4.7	55.3	55.3	46.8	
Effective Green, g (s)	5.7	5.7	56.3	56.3	47.8	
Actuated g/C Ratio	0.08	0.08	0.80	0.80	0.68	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	144	129	815	2846	2373	
v/s Ratio Prot	c0.03		0.00	c0.25	0.09	
v/s Ratio Perm		0.00	0.04			
v/c Ratio	0.41	0.02	0.06	0.31	0.14	
Uniform Delay, d1	30.6	29.6	1.5	1.8	3.9	
Progression Factor	1.19	1.96	0.66	0.69	1.00	
Incremental Delay, d2	1.0	0.0	0.0	0.3	0.1	
Delay (s)	37.2	58.1	1.0	1.5	4.0	
Level of Service	D	E	A	A	A	
Approach Delay (s)	44.9			1.5	4.0	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	5.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

249

HCM Signalized Intersection Capacity Analysis
 14: Swann Ave. & Potomac Ave

AM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SBT	SBS
Lane Configurations	↵	↗	↵	↕↗	↕↘	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Fr _t	1.00	0.85	1.00	1.00	1.00	
Fl _t Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3531	
Fl _t Permitted	0.95	1.00	0.58	1.00	1.00	
Satd. Flow (perm)	1770	1583	1087	3539	3531	
Volume (vph)	6	5	11	1053	256	4
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	5	12	1108	269	4
RTOR Reduction (vph)	0	5	0	0	0	0
Lane Group Flow (vph)	6	0	12	1108	273	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	1.2	1.2	58.8	58.8	58.8	
Effective Green, g (s)	2.2	2.2	59.8	59.8	59.8	
Actuated g/C Ratio	0.03	0.03	0.85	0.85	0.85	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	56	50	929	3023	3016	
v/s Ratio Prot	c0.00			c0.31	0.08	
v/s Ratio Perm		0.00	0.01			
v/c Ratio	0.11	0.00	0.01	0.37	0.09	
Uniform Delay, d ₁	32.9	32.8	0.8	1.1	0.8	
Progression Factor	1.08	1.18	1.05	1.28	0.94	
Incremental Delay, d ₂	0.8	0.0	0.0	0.3	0.1	
Delay (s)	36.5	38.7	0.8	1.7	0.8	
Level of Service	D	D	A	A	A	
Approach Delay (s)	37.5			1.7	0.8	
Approach LOS	D			A	A	

Intersection Summary

HCM Average Control Delay	1.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 15: Custis Ave & Potomac Ave

AM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			0.95	0.95	
Frt	1.00			1.00	1.00	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1770			3539	3534	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1770			3539	3534	
Volume (vph)	12	0	0	1050	268	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	13	0	0	1105	282	3
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	13	0	0	1105	285	0
Turn Type			Perm			
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.2			58.8	58.8	
Effective Green, g (s)	2.2			59.8	59.8	
Actuated g/C Ratio	0.03			0.85	0.85	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	56			3023	3019	
v/s Ratio Prot	c0.01			c0.31	0.08	
v/s Ratio Perm						
v/c Ratio	0.23			0.37	0.09	
Uniform Delay, d1	33.1			1.1	0.8	
Progression Factor	1.36			0.17	0.99	
Incremental Delay, d2	1.9			0.3	0.1	
Delay (s)	46.7			0.5	0.9	
Level of Service	D			A	A	
Approach Delay (s)	46.7			0.5	0.9	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	1.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

251

HCM Signalized Intersection Capacity Analysis
 16: Howell Ave. & Potomac Ave

AM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SEB	SEB
Lane Configurations	Y		Y	↑↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Fr _t	0.95		1.00	1.00	0.99	
Fl _t Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1713		1770	3539	3519	
Fl _t Permitted	0.97		0.54	1.00	1.00	
Satd. Flow (perm)	1713		997	3539	3519	
Volume (vph)	8	5	84	1040	259	10
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	5	88	1095	273	11
RTOR Reduction (vph)	5	0	0	0	2	0
Lane Group Flow (vph)	8	0	88	1095	282	0
Turn Type			pm+pt			
Protected Phases	8		5	2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.2		58.8	58.8	49.3	
Effective Green, g (s)	2.2		59.8	59.8	50.3	
Actuated g/C Ratio	0.03		0.85	0.85	0.72	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	54		912	3023	2529	
v/s Ratio Prot	c0.00		0.01	c0.31	0.08	
v/s Ratio Perm			0.07			
v/c Ratio	0.15		0.10	0.36	0.11	
Uniform Delay, d ₁	33.0		0.9	1.1	3.0	
Progression Factor	0.97		0.32	0.30	0.40	
Incremental Delay, d ₂	1.3		0.0	0.2	0.1	
Delay (s)	33.4		0.3	0.5	1.3	
Level of Service	C		A	A	A	
Approach Delay (s)	33.4			0.5	1.3	
Approach LOS	C			A	A	

Intersection Summary

HCM Average Control Delay	1.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

252

HCM Signalized Intersection Capacity Analysis
 1: E. Glebe Road & US Route 1

PM
 4/22/2008



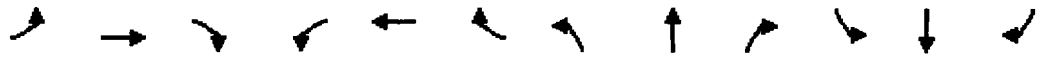
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Lane Configurations	↖	↗			↖	↗	↖	↕		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Fr _t	1.00	0.90			1.00	0.85	1.00	1.00		1.00	0.99	
Fl _t Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1669			1846	1583	1770	3529		1770	3487	
Fl _t Permitted	0.27	1.00			0.77	1.00	0.05	1.00		0.05	1.00	
Satd. Flow (perm)	502	1669			1434	1583	97	3529		102	3487	
Volume (vph)	174	79	179	35	159	101	368	1732	33	99	1639	178
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	183	83	188	37	167	106	387	1823	35	104	1725	187
RTOR Reduction (vph)	0	61	0	0	0	15	0	1	0	0	6	0
Lane Group Flow (vph)	183	210	0	0	204	91	387	1857	0	104	1906	0
Turn Type	pm+pt			Perm		pm+ov	pm+pt			pm+pt		
Protected Phases	7	4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	30.3	30.3			21.3	30.6	99.7	85.4		81.3	72.0	
Effective Green, g (s)	31.3	31.3			22.3	32.6	100.7	86.4		83.3	73.0	
Actuated g/C Ratio	0.22	0.22			0.16	0.23	0.72	0.62		0.59	0.52	
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	158	373			228	414	353	2178		183	1818	
v/s Ratio Prot	c0.04	0.13				0.02	c0.19	0.53		0.04	0.55	
v/s Ratio Perm	c0.22				0.14	0.04	c0.60			0.30		
v/c Ratio	1.16	0.56			0.89	0.22	1.10	0.85		0.57	1.05	
Uniform Delay, d ₁	55.1	48.3			57.7	43.4	50.4	21.7		25.0	33.5	
Progression Factor	1.00	1.00			0.97	0.95	1.18	1.20		1.00	1.00	
Incremental Delay, d ₂	120.5	1.9			32.7	0.3	74.7	4.2		4.0	35.1	
Delay (s)	175.6	50.2			88.6	41.6	134.4	30.3		29.0	68.6	
Level of Service	F	D			F	D	F	C		C	E	
Approach Delay (s)		100.8			72.5			48.2			66.6	
Approach LOS		F			E			D			E	

Intersection Summary

HCM Average Control Delay	61.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Swann Ave. & US Route 1

PM
4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB	
Lane Configurations		↔		↑	↑		↑	↑↑		↑	↑↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95		
Flt		0.97		1.00	0.85		1.00	1.00		1.00	1.00		
Flt Protected		0.96		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1738		1770	1583		1770	3532		1770	3535		
Flt Permitted		0.75		0.75	1.00		0.10	1.00		0.12	1.00		
Satd. Flow (perm)		1348		1396	1583		196	3532		227	3535		
Volume (vph)	38	0	11	83	0	50	4	1451	19	85	1769	15	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	40	0	12	87	0	53	4	1527	20	89	1862	16	
RTOR Reduction (vph)	0	9	0	0	47	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	43	0	87	6	0	4	1547	0	89	1878	0	
Turn Type	Perm		Perm			Perm		pm+pt					
Protected Phases	4		8			2		2		1		6	
Permitted Phases	4		8			2		6					
Actuated Green, G (s)	13.6		13.6			13.6		104.3		104.3		116.4	116.4
Effective Green, g (s)	14.6		14.6			14.6		105.3		105.3		117.4	117.4
Actuated g/C Ratio	0.10		0.10			0.10		0.75		0.75		0.84	0.84
Clearance Time (s)	5.0		5.0			5.0		5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0			3.0		3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	141		146			165		147		2657		280	2964
v/s Ratio Prot						0.00		0.44		0.02		c0.53	
v/s Ratio Perm	0.03		c0.06					0.02		0.25			
v/c Ratio	0.31		0.60			0.03		0.03		0.58		0.32	0.63
Uniform Delay, d1	58.0		59.9			56.4		4.4		7.6		6.0	3.9
Progression Factor	1.00		1.00			1.00		1.87		1.49		3.95	0.61
Incremental Delay, d2	1.2		6.4			0.1		0.3		0.8		0.2	0.2
Delay (s)	59.2		66.3			56.4		8.5		12.3		24.0	2.6
Level of Service	E		E			E		A		B		C	A
Approach Delay (s)	59.2					62.6				12.3			3.6
Approach LOS	E					E				B			A

Intersection Summary

HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Custis Ave & US Route 1

PM
4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↘		↗	↕		↗	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt		0.97		1.00	0.96		1.00	1.00		1.00	0.99	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1760		1770	1782		1770	3537		1770	3517	
Flt Permitted		0.82		0.71	1.00		0.14	1.00		0.16	1.00	
Satd. Flow (perm)		1486		1320	1782		264	3537		295	3517	
Volume (vph)	23	13	11	3	30	12	7	1432	6	25	1464	65
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	24	14	12	3	32	13	7	1507	6	26	1541	68
RTOR Reduction (vph)	0	10	0	0	12	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	40	0	3	33	0	7	1513	0	26	1608	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.6		7.6	7.6		122.4	122.4		122.4	122.4	
Effective Green, g (s)		8.6		8.6	8.6		123.4	123.4		123.4	123.4	
Actuated g/C Ratio		0.06		0.06	0.06		0.88	0.88		0.88	0.88	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		91		81	109		233	3118		260	3100	
v/s Ratio Prot					0.02			0.43			c0.46	
v/s Ratio Perm	c0.03			0.00			0.03			0.09		
v/c Ratio	0.44			0.04	0.30		0.03	0.49		0.10	0.52	
Uniform Delay, d1		63.4		61.8	62.8		1.0	1.7		1.1	1.8	
Progression Factor		1.00		1.02	1.00		0.15	0.11		0.72	0.72	
Incremental Delay, d2		3.3		0.2	1.6		0.2	0.5		0.6	0.5	
Delay (s)		66.7		63.0	64.4		0.4	0.7		1.4	1.8	
Level of Service		E		E	E		A	A		A	A	
Approach Delay (s)		66.7			64.3			0.7			1.8	
Approach LOS		E			E			A			A	

Intersection Summary

HCM Average Control Delay	3.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

255

HCM Signalized Intersection Capacity Analysis
 4: Howell Ave. & US Route 1

PM
 4/22/2008



Movement	EBL	EBT	EBT	WBL	WBT	WBT	NBL	NBT	NBT	SBT	SBT	SBT
Lane Configurations		↔		↑	↑		↑	↑↑		↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt		0.97		1.00	0.97		1.00	1.00		1.00	1.00	
Flt Protected		0.97		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1754		1770	1816		1770	3539		1770	3530	
Flt Permitted		0.82		0.88	1.00		0.09	1.00		0.15	1.00	
Satd. Flow (perm)		1475		1638	1816		162	3539		284	3530	
Volume (vph)	15	6	7	17	14	3	17	1458	1	4	1796	30
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	6	7	18	15	3	18	1535	1	4	1891	32
RTOR Reduction (vph)	0	7	0	0	3	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	22	0	18	15	0	18	1536	0	4	1923	0
Turn Type		Perm		Perm			pm+pt			pm+pt		
Protected Phases		4		8			5	2		1	6	
Permitted Phases		4		8			2			6		
Actuated Green, G (s)		5.1		5.1	5.1		122.1	118.8		117.7	116.6	
Effective Green, g (s)		6.1		6.1	6.1		124.1	119.8		119.7	117.6	
Actuated g/C Ratio		0.04		0.04	0.04		0.89	0.86		0.86	0.84	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		64		71	79		193	3028		265	2965	
v/s Ratio Prot					0.01		c0.00	0.43		0.00	c0.54	
v/s Ratio Perm		c0.02		0.01			0.08			0.01		
v/c Ratio		0.35		0.25	0.19		0.09	0.51		0.02	0.65	
Uniform Delay, d1		65.0		64.7	64.6		3.8	2.6		1.9	3.9	
Progression Factor		1.00		0.99	0.99		1.58	0.42		0.68	0.34	
Incremental Delay, d2		3.3		1.9	1.2		0.2	0.5		0.0	1.0	
Delay (s)		68.3		65.7	64.8		6.1	1.6		1.3	2.4	
Level of Service		E		E	E		A	A		A	A	
Approach Delay (s)		68.3			65.3			1.6			2.4	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM Average Control Delay	3.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

256

HCM Signalized Intersection Capacity Analysis
5: Potomac Ave & US Route 1

PM
4/22/2008

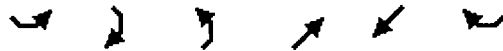


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕	↗	↘	↕↕↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.91
Fr _t	1.00	0.85	1.00	0.85	1.00	1.00
Fl _t Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	5085
Fl _t Permitted	0.95	1.00	1.00	1.00	0.10	1.00
Satd. Flow (perm)	3433	1583	3539	1583	183	5085
Volume (vph)	1089	197	1154	725	13	1699
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1146	207	1215	763	14	1788
RTOR Reduction (vph)	0	17	0	80	0	0
Lane Group Flow (vph)	1146	190	1215	683	14	1788
Turn Type	custom		custom pm+pt			
Protected Phases	4		2		1	6
Permitted Phases		4 1		2 4	6	
Actuated Green, G (s)	54.8	64.5	66.5	125.3	77.2	77.2
Effective Green, g (s)	54.8	65.5	66.5	125.3	77.2	77.2
Actuated g/C Ratio	0.39	0.47	0.48	0.89	0.55	0.55
Clearance Time (s)	4.0		4.0		5.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	1344	741	1681	1417	177	2804
v/s Ratio Prot	c0.33		c0.34		0.00	c0.35
v/s Ratio Perm		0.12		0.43	0.04	
v/c Ratio	0.85	0.26	0.72	0.48	0.08	0.64
Uniform Delay, d1	38.9	22.5	29.4	1.4	20.3	21.7
Progression Factor	1.04	1.03	0.71	25.41	1.16	1.17
Incremental Delay, d2	4.8	0.2	2.3	0.2	0.2	0.9
Delay (s)	45.1	23.5	23.3	34.7	23.6	26.2
Level of Service	D	C	C	C	C	C
Approach Delay (s)	41.8		27.7			26.2
Approach LOS	D		C			C

Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Monroe & Main

PM
4/22/2008



Movement	SE	SE	NE	NE	SW	SW
Lane Configurations	↙		↘	↑	↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Fr _t	1.00		1.00	1.00	1.00	0.85
Fl _t Protected	0.95		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1769		1770	1863	1863	1583
Fl _t Permitted	0.95		0.74	1.00	1.00	1.00
Satd. Flow (perm)	1769		1372	1863	1863	1583
Volume (vph)	436	15	1	45	30	141
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	459	16	1	47	32	148
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	474	0	1	47	32	148
Turn Type			Perm		pm+ov	
Protected Phases	6			4	8	6
Permitted Phases			4			8
Actuated Green, G (s)	73.0		57.0	57.0	57.0	130.0
Effective Green, g (s)	74.0		58.0	58.0	58.0	132.0
Actuated g/C Ratio	0.53		0.41	0.41	0.41	0.94
Clearance Time (s)	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	935		568	772	772	1583
v/s Ratio Prot	c0.27			0.03	0.02	c0.05
v/s Ratio Perm			0.00			0.04
v/c Ratio	0.51		0.00	0.06	0.04	0.09
Uniform Delay, d1	21.3		24.0	24.6	24.4	0.3
Progression Factor	1.00		1.00	1.00	0.44	1.00
Incremental Delay, d2	2.0		0.0	0.2	0.1	0.1
Delay (s)	23.2		24.0	24.8	10.7	0.3
Level of Service	C		C	C	B	A
Approach Delay (s)	23.2			24.8	2.2	
Approach LOS	C			C	A	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: Slaters Lane & US Route 1

PM
4/22/2008

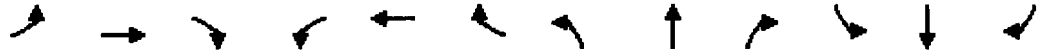


Movement	WBL	WBR	NBT	NBR	SBZ	SBT
Lane Configurations		↑↑	↑↑↑	↑	↓	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.88	0.91	1.00	1.00	0.95
Fr _t		0.85	1.00	0.85	1.00	1.00
Fl _t Protected		1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)		2787	5085	1583	1770	3539
Fl _t Permitted		1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)		2787	5085	1583	1770	3539
Volume (vph)	0	436	1614	379	408	2463
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	459	1699	399	429	2593
RTOR Reduction (vph)	0	18	0	104	0	0
Lane Group Flow (vph)	0	441	1699	295	429	2593
Turn Type		custom		Perm	Prot	
Protected Phases			2		1 8	6
Permitted Phases		8 1		2		
Actuated Green, G (s)		45.1	84.9	84.9	45.1	100.6
Effective Green, g (s)		46.1	85.9	85.9	46.1	101.6
Actuated g/C Ratio		0.33	0.61	0.61	0.33	0.73
Clearance Time (s)			5.0	5.0		5.0
Vehicle Extension (s)			3.0	3.0		3.0
Lane Grp Cap (vph)		918	3120	971	583	2568
v/s Ratio Prot			0.33		c0.24	c0.73
v/s Ratio Perm		0.16		0.19		
v/c Ratio		0.48	0.54	0.30	0.74	1.01
Uniform Delay, d1		37.4	15.7	12.8	41.6	19.2
Progression Factor		1.00	1.00	1.00	1.09	1.05
Incremental Delay, d2		0.4	0.7	0.8	3.4	17.3
Delay (s)		37.8	16.4	13.7	48.7	37.4
Level of Service		D	B	B	D	D
Approach Delay (s)	37.8		15.9			39.0
Approach LOS	D		B			D

Intersection Summary			
HCM Average Control Delay	30.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 8: E. Glebe Road & Main St

PM
 4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	21	103	52	11	223	8	26	2	5	6	2	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	22	108	55	12	235	8	27	2	5	6	2	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	380			517								
pX, platoon unblocked				1.00			1.00			1.00		
vC, conflicting volume	243				163	460			446	136	448	469
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	243				161	459			445	134	447	468
tC, single (s)	4.1				4.1	7.1			6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2				2.2	3.5			4.0	3.3	3.5	4.0
p0 queue free %	98				99	94			100	99	99	100
cM capacity (veh/h)	1323				1415	489			494	913	506	479

Direction	EBL	WBL	NBL	SBL
Volume Total	185	255	35	25
Volume Left	22	12	27	6
Volume Right	55	8	5	17
cSH	1323	1415	527	666
Volume to Capacity	0.02	0.01	0.07	0.04
Queue Length 95th (ft)	1	1	5	3
Control Delay (s)	1.1	0.4	12.3	10.6
Lane LOS	A	A	B	B
Approach Delay (s)	1.1	0.4	12.3	10.6
Approach LOS			B	B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

9: Swann Ave. & Main St

PM

4/22/2008



Movement	EB	EBT	EB	WB	WBT	WB	NB	NBT	NB	SB	SBT	SB
Lane Configurations	↕		↕		↕		↕		↕		↕	
Sign Control	Free		Free		Free		Stop		Stop		Stop	
Grade	0%		0%		0%		0%		0%		0%	
Volume (veh/h)	54	7	43	5	0	5	42	15	6	11	79	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	57	7	45	5	0	5	44	16	6	12	83	96
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	305		453									
pX, platoon unblocked												
vC, conflicting volume	5			53			294	159	30	171	179	3
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5			53			294	159	30	171	179	3
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			92	98	99	98	88	91
cM capacity (veh/h)	1616			1553			528	705	1044	751	687	1081

Direction Lane	EB	WB	NB	SB
Volume Total	109	11	66	191
Volume Left	57	5	44	12
Volume Right	45	5	6	96
cSH	1616	1553	591	847
Volume to Capacity	0.04	0.00	0.11	0.23
Queue Length 95th (ft)	3	0	9	22
Control Delay (s)	3.9	3.7	11.9	10.5
Lane LOS	A	A	B	B
Approach Delay (s)	3.9	3.7	11.9	10.5
Approach LOS			B	B

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

261

HCM Unsignalized Intersection Capacity Analysis
10: Custis Ave & Main St

PM
4/22/2008



Movement	EBE	EBT	EBR	WBE	WBT	WBR	NBE	NBT	NBR	SBE	SBT	SBR		
Lane Configurations	↕			↕			↕			↕				
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Volume (veh/h)	27	5	11	1	14	0	6	37	2	0	95	26		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly flow rate (vph)	28	5	12	1	15	0	6	39	2	0	100	27		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type							None			None				
Median storage (veh)														
Upstream signal (ft)	282			463										
pX, platoon unblocked														
vC, conflicting volume	15				17				162	85	11	106	91	15
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	15				17				162	85	11	106	91	15
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98				100				99	95	100	100	87	97
cM capacity (veh/h)	1603				1600				696	791	1070	827	785	1065

Direction Lane	EB	WB	NB	SB
Volume Total	45	16	47	127
Volume Left	28	1	6	0
Volume Right	12	0	2	27
cSH	1603	1600	786	832
Volume to Capacity	0.02	0.00	0.06	0.15
Queue Length 95th (ft)	1	0	5	13
Control Delay (s)	4.6	0.5	9.9	10.1
Lane LOS	A	A	A	B
Approach Delay (s)	4.6	0.5	9.9	10.1
Approach LOS			A	B

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

262

HCM Unsignalized Intersection Capacity Analysis
11: Howell Ave. & Main St

PM
4/22/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↕			↕			↕			↕				
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Volume (veh/h)	1	4	5	3	9	4	5	41	10	2	77	20		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly flow rate (vph)	1	4	5	3	9	4	5	43	11	2	81	21		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type							None			None				
Median storage (veh)														
Upstream signal (ft)	280			375										
pX, platoon unblocked														
vC, conflicting volume	14				9				88	29	7	59	29	12
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	14				9				88	29	7	59	29	12
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				100				99	95	99	100	91	98
cM capacity (veh/h)	1605				1610				814	862	1076	891	861	1069

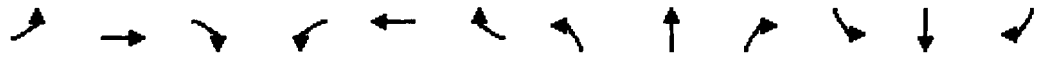
Direction Lane #	EB	WB	NB	SB
Volume Total	11	17	59	104
Volume Left	1	3	5	2
Volume Right	5	4	11	21
cSH	1605	1610	889	897
Volume to Capacity	0.00	0.00	0.07	0.12
Queue Length 95th (ft)	0	0	5	10
Control Delay (s)	0.7	1.4	9.3	9.5
Lane LOS	A	A	A	A
Approach Delay (s)	0.7	1.4	9.3	9.5
Approach LOS			A	A

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

263

HCM Signalized Intersection Capacity Analysis
 12: Potomac Ave & Main St

PM
 4/22/2008



Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Lane Configurations		↑↓		↑	↑↓		↑	↑↓		↑	↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		0.95	0.95			1.00	1.00
Flt		0.95		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (prot)		3358		1770	3539		1681	1642			1863	1583
Flt Permitted		1.00		0.95	1.00		0.95	0.97			1.00	1.00
Satd. Flow (perm)		3358		1770	3539		1681	1642			1863	1583
Volume (vph)	0	536	278	147	843	0	394	20	67	0	19	155
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	564	293	155	887	0	415	21	71	0	20	163
RTOR Reduction (vph)	0	38	0	0	0	0	0	11	0	0	0	101
Lane Group Flow (vph)	0	819	0	155	887	0	260	236	0	0	20	62
Turn Type				Prot			Split			Split		Perm
Protected Phases		2		1			3	3		4		4
Permitted Phases					6							4
Actuated Green, G (s)		61.9		18.4	85.3		32.1	32.1			10.6	10.6
Effective Green, g (s)		61.9		19.4	85.3		32.1	32.1			10.6	10.6
Actuated g/C Ratio		0.44		0.14	0.61		0.23	0.23			0.08	0.08
Clearance Time (s)		4.0		5.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		1485		245	2156		385	376			141	120
v/s Ratio Prot		c0.24		c0.09			c0.15	0.14			0.01	
v/s Ratio Perm					0.25							c0.04
v/c Ratio		0.55		0.63	0.41		0.68	0.63			0.14	0.52
Uniform Delay, d1		28.8		56.9	14.3		49.2	48.6			60.5	62.2
Progression Factor		0.92		0.99	0.97		1.03	1.04			0.99	0.98
Incremental Delay, d2		1.3		5.0	0.6		4.2	2.9			0.5	3.8
Delay (s)		27.7		61.6	14.4		55.1	53.6			60.4	64.5
Level of Service		C		E	B		E	D			E	E
Approach Delay (s)		27.7			21.4			54.3			64.0	
Approach LOS		C			C			D			E	

Intersection Summary

HCM Average Control Delay	33.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

264

HCM Signalized Intersection Capacity Analysis
 13: E. Glebe Road & Potomac Ave

PM
 4/22/2008



Movement	EB	EB	NB	NB	SB	SB
Lane Configurations	↘	↗	↘	↑↑	↑↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Flt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3493	
Flt Permitted	0.95	1.00	0.26	1.00	1.00	
Satd. Flow (perm)	1770	1583	478	3539	3493	
Volume (vph)	49	46	41	548	807	77
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	48	43	577	849	81
RTOR Reduction (vph)	0	44	0	0	5	0
Lane Group Flow (vph)	52	4	43	577	925	0
Turn Type		Perm	pm+pt			
Protected Phases	8		5	2	6	
Permitted Phases		8	2			
Actuated Green, G (s)	4.7	4.7	55.3	55.3	46.4	
Effective Green, g (s)	5.7	5.7	56.3	56.3	47.4	
Actuated g/C Ratio	0.08	0.08	0.80	0.80	0.68	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	144	129	475	2846	2365	
v/s Ratio Prot	c0.03		0.01	c0.16	c0.26	
v/s Ratio Perm		0.00	0.07			
v/c Ratio	0.36	0.03	0.09	0.20	0.39	
Uniform Delay, d1	30.4	29.6	1.9	1.6	5.0	
Progression Factor	1.04	1.47	1.24	1.54	1.00	
Incremental Delay, d2	1.3	0.1	0.1	0.2	0.5	
Delay (s)	33.0	43.6	2.5	2.6	5.5	
Level of Service	C	D	A	A	A	
Approach Delay (s)	38.1			2.6	5.5	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

265

HCM Signalized Intersection Capacity Analysis
 14: Swann Ave. & Potomac Ave

PM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SBT	SEB
Lane Configurations	↶	↷	↶	↷	↷	↶
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Flt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3537	
Flt Permitted	0.95	1.00	0.27	1.00	1.00	
Satd. Flow (perm)	1770	1583	497	3539	3537	
Volume (vph)	13	11	5	557	1003	5
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	14	12	5	586	1056	5
RTOR Reduction (vph)	0	12	0	0	0	0
Lane Group Flow (vph)	14	0	5	586	1061	0
Turn Type		Perm	Perm			
Protected Phases	8			2	6	
Permitted Phases		8	2			
Actuated Green, G (s)	1.3	1.3	58.7	58.7	58.7	
Effective Green, g (s)	2.3	2.3	59.7	59.7	59.7	
Actuated g/C Ratio	0.03	0.03	0.85	0.85	0.85	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	58	52	424	3018	3017	
v/s Ratio Prot	c0.01			0.17	c0.30	
v/s Ratio Perm		0.00	0.01			
v/c Ratio	0.24	0.01	0.01	0.19	0.35	
Uniform Delay, d1	33.0	32.7	0.8	0.9	1.1	
Progression Factor	0.99	1.00	1.14	1.08	1.38	
Incremental Delay, d2	2.2	0.1	0.1	0.1	0.3	
Delay (s)	34.9	32.7	0.9	1.1	1.8	
Level of Service	C	C	A	A	A	
Approach Delay (s)	33.9			1.1	1.8	
Approach LOS	C			A	A	

Intersection Summary

HCM Average Control Delay	2.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

264

HCM Signalized Intersection Capacity Analysis
 15: Custis Ave & Potomac Ave

PM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SEB	SEB
Lane Configurations	Y		↑↑		↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	
Lane Util. Factor	1.00		0.95		0.95	
Frt	1.00		1.00		1.00	
Flt Protected	0.95		1.00		1.00	
Satd. Flow (prot)	1770		3539		3532	
Flt Permitted	0.95		1.00		1.00	
Satd. Flow (perm)	1770		3539		3532	
Volume (vph)	5	0	0	565	1000	14
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	0	0	595	1053	15
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	5	0	0	595	1068	0
Turn Type	Perm					
Protected Phases	8		2		6	
Permitted Phases			2			
Actuated Green, G (s)	1.2		58.8		58.8	
Effective Green, g (s)	2.2		59.8		59.8	
Actuated g/C Ratio	0.03		0.85		0.85	
Clearance Time (s)	5.0		5.0		5.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	56		3023		3017	
v/s Ratio Prot	c0.00		0.17		c0.30	
v/s Ratio Perm						
v/c Ratio	0.09		0.20		0.35	
Uniform Delay, d1	32.9		0.9		1.1	
Progression Factor	0.88		0.12		0.52	
Incremental Delay, d2	0.7		0.1		0.3	
Delay (s)	29.8		0.3		0.9	
Level of Service	C		A		A	
Approach Delay (s)	29.8		0.3		0.9	
Approach LOS	C		A		A	

Intersection Summary			
HCM Average Control Delay	0.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

267

HCM Signalized Intersection Capacity Analysis
 16: Howell Ave. & Potomac Ave

PM
 4/22/2008



Movement	EBL	EBR	NBL	NBT	SBL	SBR
Lane Configurations	Y		Y	↑↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Fr _t	0.98		1.00	1.00	1.00	
Fl _t Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	1756		1770	3539	3533	
Fl _t Permitted	0.96		0.23	1.00	1.00	
Satd. Flow (perm)	1756		430	3539	3533	
Volume (vph)	14	2	50	552	988	12
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	2	53	581	1040	13
RTOR Reduction (vph)	2	0	0	0	1	0
Lane Group Flow (vph)	15	0	53	581	1052	0
Turn Type			pm+pt			
Protected Phases	8		5	2	6	
Permitted Phases			2			
Actuated Green, G (s)	1.4		58.6	58.6	50.2	
Effective Green, g (s)	2.4		59.6	59.6	51.2	
Actuated g/C Ratio	0.03		0.85	0.85	0.73	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	60		450	3013	2584	
v/s Ratio Prot	c0.01		0.01	c0.16	c0.30	
v/s Ratio Perm			0.09			
v/c Ratio	0.25		0.12	0.19	0.41	
Uniform Delay, d ₁	32.9		1.4	0.9	3.6	
Progression Factor	0.93		1.70	0.23	1.40	
Incremental Delay, d ₂	2.2		0.1	0.1	0.5	
Delay (s)	32.9		2.4	0.3	5.5	
Level of Service	C		A	A	A	
Approach Delay (s)	32.9			0.5	5.5	
Approach LOS	C			A	A	

Intersection Summary

HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

268

13
6-14-08

Docket Item #18 A-C
Revisions to Conditions requested by Mid-Atlantic Realty Partners LLC
June 12, 2008

The Applicant respectfully requests the following amendments to the conditions:

Concept Plan Amendment 2008-0001:

3A A preliminary development and/or any associated development and/or zoning applications for Landbay L. shall not be submitted for review to the City prior to a comprehensive analysis by the City of Potomac Yard including but not limited to Landbay L and all associated and applicable Master Plan and/or zoning approvals have been approved by the City. In the event the City has not approved all necessary Master Plan and/or zoning approvals as part of the comprehensive review of Potomac Yard including but not limited to Landbay L by June 1, 2010, Potomac Yard Development LLC (“PYD”), or its successors shall be permitted to file a development plan for Landbay L which shall be subject to all applicable provisions of the CDD Concept Plan, Transportation Management Plan, Potomac Yard Design Guidelines and Zoning Ordinance. In no event shall the comprehensive analysis of Landbay L reduce the approved development levels below those resulting from the transfer of density in CDD Concept Plan Amendment #2008-0001

Master Plan Amendment #2008-0003:

“The residential buildings within Potomac Yard, shall consist of a variety of buildings types and heights which should include townhouses, stacked-townhomes and multi-family units.”

Deleted: and each Landbay

13

6-14-08



David Fromm or Amy Slack
<alsdmf@earthlink.net>

06/13/2008 04:09 PM

To Bill Euille <alexvamayor@aol.com>, Jackie Henderson
<jackie.henderson@alexandriava.gov>
cc Del Pepper <delpepper@aol.com>, Rob Krupicka
<Rob@krupicka.com>, Justin Wilson
<justin.wilson@alexandriava.gov>, Tim Lovain
bcc

Subject Land Use committee letter, di 13

History: This message has been forwarded.

Mr. Mayor, Ms Vice Mayor, and members of City Council,

Attached is a letter of support from the members of the Del Ray Citizens Association Land Use committee in support of the density transfer and increase height proposed in docket item 13.



CC_huc_PY density transfer.doc

Amy

Amy Slack
alsdmf@earthlink.net
703.549.3412

June 13, 2008

Mayor and City Council
City Hall, Room 2300
Alexandria, VA 22314

Hearing date: June 14, 2008, docket item #13
Subject: Master Plan Amendment #2008-0003, Text Amendment #2008-0003, and CDD
Concept Plan #2008-0001

Dear Mayor Euille, Vice Mayor Pepper, and Honorable members of City Council,

At their meeting last night, the Land Use committee members voted to support the proposed transfer of commercial/office density from Landbays J (292,00 sf loss) and L (473,000 sf loss) to Landbay H, an increase in height limits in Landbay H to account for the increased density, and the conversion of office space to retail with a special use permit. We make no comment on the request to eliminate language requiring a specified mix of townhouse, multi-family, and stacked townhouse.

The committee is a recommending body and normally we would not petition Council directly but the timing of our review of and discussion on the proposal prevented us from the opportunity to take it to the Executive Board and the membership prior to public hearings. Still we feel the proposal warrants our support. We relish the opportunity to reexamine land uses in Landbay L, particularly how the uses relate to Simpson Field and Park and to George Washington Middle School.

Thank you for your consideration and we ask that you support the proposal.

Sincerely,
Amy Slack
Co-Chair
Land Use Committee

cc:
City Council
Director of Planning and Zoning



13

6-14-08

RREEF Alternative Investments

875 North Michigan Avenue, 41st Floor
Chicago, IL 60611
T 312.266.9300
F 312.266.9346
www.rreef.com

June 12, 2008

The Honorable Mayor and Members of the City Council
City of Alexandria, Virginia
City Hall
301 King Street
Alexandria, VA 22314

RE: City Council Public Hearing, June 14, 2008; Docket No. 13 Potomac Yard Development, Master Plan Amendment #2008-0003, Text Amendment #2008-0003, CDD Concept Amendment #2008-0001

Dear Mr. Mayor and Members of the City Council:

RREEF is the investment advisor for Potomac Yard Shopping Center (“Center”), a 600,000 square foot retail development on approximately 69 acres in Alexandria, Virginia. As you know, in 1999 our property became a part of the approved Potomac Yard Conceptual Design Plan. At that time entitlements were granted for the remaining parcels to the south, but not granted for our parcel, Land Bay F. RREEF’s studies indicate that Land Bay F could support similar densities and uses to those already entitled to the south. We are ready to move ahead to seek entitlements for redevelopment of Land Bay F, and suggest that a Conceptual Design Plan amendment be utilized to expedite the integrated planning of our site within Potomac Yard. New entitlements allowing for the redevelopment of our property will provide the best possibility of establishing a new Potomac Yard Metro Station.

MRP APPLICATION

The application before the Council changes the allowable land uses and densities to the south of our property. We have no objection to the transfer of office density to Land Bay H. RREEF anticipates proposing office uses on the southern portion of our property when it is redeveloped and the combined office buildings on Land Bays F, G and H will create a comprehensive business district within the Potomac Yard Development which will be adjacent to the proposed new Metro Station.

When RREEF acquired the Center in 2004, compelling factors to purchase the asset included its dominant retail position within Potomac Yard, the possibility for its future redevelopment, and the known entitlements which had been granted the adjoining parcels. RREEF has reviewed the special use permit process proposed by MRP and recommended by the Planning Staff to convert office space to retail space on Land Bays G and H. RREEF can only support this provision if (1) Council limits the total amount of retail as recommended by the



The Honorable Mayor and Members of the City Council
June 12, 2008
Page Two

Planning Staff and Planning Commission in the Recommended Conditions and (2) the City continues to require a retail study prior to approving any conversion to retail in Lands Bays G and H. The limitation on the total amount of retail, the requirement of a retail study and the opportunity for RREEF to coordinate with MRP's special use permit process should provide a comprehensive planning process for all parties.

PLANNING OF LAND BAY F

The larger issue, for the City as well as RREEF, is the future planning of Land Bay F. RREEF proposes an acceleration of the entitlement process for our parcel. Over the past year we have been in discussions with senior City officials as well as the Planning Staff. We recently learned that the Staff has recommended proceeding with a lengthy Small Area Planning process for the entire Potomac Yard area, and is not able to start that process for 18 months. We recommend that the planning of Land Bay F be initiated immediately with an amendment to the Conceptual Design Plan and involve the City Staff, the general public and the RREEF development team to create a mixed use development plan for Land Bay F.

We have also analyzed, in cooperation with City Staff, the financial feasibility of a new Metro Station serving Potomac Yard. It is apparent that a new Metro Station will only be economically feasible if and when our parcel is planned and redeveloped in coordination with Land Bays G and H. We stand ready to participate in the planning of this much needed amenity as we seek new entitlements for our property.

Thank you for your consideration.

Sincerely,

A handwritten signature in cursive script that reads 'Pamela Boneham'.

Pamela Boneham
Managing Director, RREEF

cc: Faroll Hamer, Director, Dept. of Planning & Zoning
Jeffrey Farner, Asst. Director, Development Division, Dept. of Planning & Zoning
Juan Cameron, V. President, Development, McCaffery Interests, Inc.
Joseph Antunovich, President, Antunovich Associates
J. Howard Middleton, Esq., Reed Smith LLP



13
6-14-08

June 12, 2008

Mayor William Euille
City of Alexandria
City Hall
301 King Street suite 2100
Alexandria, VA 22314

Dear Mayor Euille,

The Alexandria Economic Development Partnership (AEDP) **strongly supports** the staff recommendation approving the proposed amendments to the Potomac Yard Master Plan and Coordinated Development District (CDD).

At its May 29, 2008 Board Meeting, the Board of AEDP voted unanimously to support the proposal by MRP Realty to relocate office density in Potomac Yard from Landbays J and L to Landbay H adjacent to the Town Center. As revealed in the economic impact analysis prepared by Delta Associates, **Landbay H is a superior office location** to Landbays J and L. It provides office tenants better access and visibility as well as proximity to the Town Center and the existing retail at Potomac Yard Center. As such, the office in Landbay H will be **more marketable, resulting in quicker occupancy and more day-time tenants in proximity to the Town Center**; workers will walk to the Town Center to dine and shop, thereby creating additional retail tax revenue for the City.

The fiscal impact analysis also emphasizes that the density transfer will **result in higher tax revenues** than would be realized if the office remained in Landbays J and L. Specifically, the transferred 765,000 square feet of office will be 11% more valuable in Landbay H, resulting in an assessed value 11% higher and thus **11% greater property tax revenue for the City of Alexandria**. This point is of special importance to the AEDP Board, as one of our chief goals is to increase economic activity that will result in a 50/50 balance of the assessed property values throughout the City. This is also a goal of the City Council, reflected in their adoption of the Economic Sustainability Recommendations at the end of 2007.

1729 King Street, Suite 410

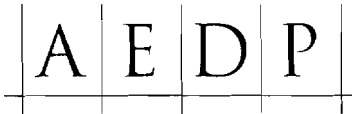
Alexandria, Virginia 22314

ph. 703.739.3820 fax. 703.739.1384

info@alexecon.org

www.alexecon.org





AEDP believes that placing high density office in this location would help set the stage for **achieving a Metrorail station at Potomac Yard**. The additional workers will help provide the necessary ridership and the additional tax revenue could be put toward a TIF, or other financial mechanism, to help pay for the transit station.

AEDP believes that the proposed amendment for this project promotes other goals of the Economic Sustainability Workgroup Report as well. We are pleased that **staff has included a fiscal analysis** as part of the land use evaluation process, as recommended in the Report. AEDP believes this project is in line with the directive to **capture the full economic development potential** of the City's Metro stations, both existing and future, and the Board of AEDP is in agreement that the placement of higher density adjacent to the reserved metro site will better **encourage the building of a new Metrorail station**.

We therefore respectfully request that you support this proposal so that the development process can move forward as soon as possible.

Sincerely yours,

Lynn Hampton
Vice Chair - AEDP

Cc: Members of the City Council
Board Members - AEDP



SPEAKER'S FORM

DOCKET ITEM NO. 13



PLEASE COMPLETE THIS FORM AND GIVE IT TO THE CITY CLERK BEFORE YOU SPEAK ON A DOCKET ITEM

PLEASE ANNOUNCE THE INFORMATION SPECIFIED BELOW PRIOR TO SPEAKING.

- 1. NAME: JOE ANTUNOVICH
- 2. ADDRESS: 224 WEST HURON STREET, CHICAGO, ILLINOIS 60610
TELEPHONE NO. 312.266.1126 E-MAIL ADDRESS: Jantunovich@antunovich.com
- 3. WHOM DO YOU REPRESENT, IF OTHER THAN YOURSELF? BREEF / ANTUNOVICH ASSOCIATES
- 4. WHAT IS YOUR POSITION ON THE ITEM?
FOR: AGAINST: _____ OTHER: _____
- 5. NATURE OF YOUR INTEREST IN ITEM (PROPERTY OWNER, ATTORNEY, LOBBYIST, CIVIC INTEREST, ETC.):
ARCHITECT & PLANNER WITH BREEF / OWNERS OF ADJACENT PARCEL
- 6. ARE YOU RECEIVING COMPENSATION FOR THIS APPEARANCE BEFORE COUNCIL?
YES NO _____

This form shall be kept as a part of the permanent record in those instances where financial interest or compensation is indicated by the speaker.

A maximum of three minutes will be allowed for your presentation, except that one officer or other designated member speaking on behalf of each *bona fide* neighborhood civic association or unit owners' association desiring to be heard on a docket item shall be allowed five minutes. In order to obtain five minutes, you must identify yourself as a designated speaker, and identify the neighborhood civic association or unit owners' association you represent, at the start of your presentation. If you have a prepared statement, please leave a copy with the Clerk.

Additional time not to exceed 15 minutes may be obtained with the consent of the majority of the council present; provided notice requesting additional time with reasons stated is filed with the City Clerk in writing before 5:00 p.m. of the day preceding the meeting.

The public normally may speak on docket items only at public hearing meetings, and not at regular legislative meetings. Public hearing meetings are usually held on the Saturday following the second Tuesday in each month; regular legislative meetings on the second and fourth Tuesdays in each month. The rule with respect to when a person may speak to a docket item at a legislative meeting can be waived by a majority vote of council members present but such a waiver is not normal practice. When a speaker is recognized, the rules of procedures for speakers at public hearing meetings shall apply. If an item is docketed *for public hearing* at a regular legislative meeting, the public may speak to that item, and the rules of procedures for speakers at public hearing meetings shall apply.

In addition, the public may speak on matters which are not on the docket during the Public Discussion Period at public hearing meetings. The mayor may grant permission to a person, who is unable to participate in public discussion at a public hearing meeting for medical, religious, family emergency or other similarly substantial reasons, to speak at a regular legislative meeting. When such permission is granted, the rules of procedures for public discussion at public hearing meetings shall apply.

Guidelines for the Public Discussion Period

- (a) All speaker request forms for the public discussion period must be submitted by the time the item is called by the city clerk.
- (b) No speaker will be allowed more than three minutes; except that one officer or other designated member speaking on behalf of each *bona fide* neighborhood civic association or unit owners' association desiring to be heard during the public discussion period shall be allowed five minutes. In order to obtain five minutes, you must identify yourself as a designated speaker, and identify the neighborhood civic association or unit owners' association you represent, at the start of your presentation.
- (c) If more speakers are signed up than would be allotted for in 30 minutes, the mayor will organize speaker requests by subject or position, and allocated appropriate times, trying to ensure that speakers on unrelated subjects will also be allowed to speak during the 30 minute public discussion period.
- (d) If speakers seeking to address council on the same subject cannot agree on a particular order or method that they would like the speakers to be called on, the speakers shall be called in the chronological order of their request forms' submission.
- (e) Any speakers not called during the public discussion period will have the option to speak at the conclusion of the meeting, after all docketed items have been heard.

SPEAKER'S FORM
DOCKET ITEM NO. 13

did not speak

**PLEASE COMPLETE THIS FORM AND GIVE IT TO THE CITY CLERK
BEFORE YOU SPEAK ON A DOCKET ITEM**



PLEASE ANNOUNCE THE INFORMATION SPECIFIED BELOW PRIOR TO SPEAKING.

1. NAME: PAMELA BONEHAM
2. ADDRESS: 875 N MICHIGAN AVE, CHICAGO, ILL 60611
- TELEPHONE NO. 312-278-6420 E-MAIL ADDRESS: _____
3. WHOM DO YOU REPRESENT, IF OTHER THAN YOURSELF? RREEF
-
4. WHAT IS YOUR POSITION ON THE ITEM?
FOR: _____ AGAINST: _____ OTHER:
5. NATURE OF YOUR INTEREST IN ITEM (PROPERTY OWNER, ATTORNEY, LOBBYIST, CIVIC INTEREST, ETC.):
ADJACENT PROPERTY OWNER
6. ARE YOU RECEIVING COMPENSATION FOR THIS APPEARANCE BEFORE COUNCIL?
YES NO _____

This form shall be kept as a part of the permanent record in those instances where financial interest or compensation is indicated by the speaker.

A maximum of three minutes will be allowed for your presentation, except that one officer or other designated member speaking on behalf of each *bona fide* neighborhood civic association or unit owners' association desiring to be heard on a docket item shall be allowed five minutes. In order to obtain five minutes, you must identify yourself as a designated speaker, and identify the neighborhood civic association or unit owners' association you represent, at the start of your presentation. If you have a prepared statement, please leave a copy with the Clerk.

Additional time not to exceed 15 minutes may be obtained with the consent of the majority of the council present; provided notice requesting additional time with reasons stated is filed with the City Clerk in writing before 5:00 p.m. of the day preceding the meeting.

The public normally may speak on docket items only at public hearing meetings, and not at regular legislative meetings. Public hearing meetings are usually held on the Saturday following the second Tuesday in each month; regular legislative meetings on the second and fourth Tuesdays in each month. The rule with respect to when a person may speak to a docket item at a legislative meeting can be waived by a majority vote of council members present but such a waiver is not normal practice. When a speaker is recognized, the rules of procedures for speakers at public hearing meetings shall apply. If an item is docketed *for public hearing* at a regular legislative meeting, the public may speak to that item, and the rules of procedures for speakers at public hearing meetings shall apply.

In addition, the public may speak on matters which are not on the docket during the Public Discussion Period at public hearing meetings. The mayor may grant permission to a person, who is unable to participate in public discussion at a public hearing meeting for medical, religious, family emergency or other similarly substantial reasons, to speak at a regular legislative meeting. When such permission is granted, the rules of procedures for public discussion at public hearing meetings shall apply.

Guidelines for the Public Discussion Period

- (a) All speaker request forms for the public discussion period must be submitted by the time the item is called by the city clerk.
- (b) No speaker will be allowed more than three minutes; except that one officer or other designated member speaking on behalf of each *bona fide* neighborhood civic association or unit owners' association desiring to be heard during the public discussion period shall be allowed five minutes. In order to obtain five minutes, you must identify yourself as a designated speaker, and identify the neighborhood civic association or unit owners' association you represent, at the start of your presentation.
- (c) If more speakers are signed up than would be allotted for in 30 minutes, the mayor will organize speaker requests by subject or position, and allocated appropriate times, trying to ensure that speakers on unrelated subjects will also be allowed to speak during the 30 minute public discussion period.
- (d) If speakers seeking to address council on the same subject cannot agree on a particular order or method that they would like the speakers to be called on, the speakers shall be called in the chronological order of their request forms' submission.
- (e) Any speakers not called during the public discussion period will have the option to speak at the conclusion of the meeting, after all docketed items have been heard.

SPEAKER'S FORM

DOCKET ITEM NO. 13

PLEASE COMPLETE THIS FORM AND GIVE IT TO THE CITY CLERK BEFORE YOU SPEAK ON A DOCKET ITEM

PLEASE ANNOUNCE THE INFORMATION SPECIFIED BELOW PRIOR TO SPEAKING. ✓

1. NAME: M Catharine Puskar

2. ADDRESS: 2200 Clarendon Blvd Ste 1300 Arl, VA

TELEPHONE NO. 703-528-4700 E-MAIL ADDRESS: cpuskar@arlandlawyers.com

3. WHOM DO YOU REPRESENT, IF OTHER THAN YOURSELF? _____

MidAtlantic Realty Partners LLC

4. WHAT IS YOUR POSITION ON THE ITEM?
FOR: AGAINST: _____ OTHER: _____

5. NATURE OF YOUR INTEREST IN ITEM (PROPERTY OWNER, ATTORNEY, LOBBYIST, CIVIC INTEREST, ETC.):
Attorney

6. ARE YOU RECEIVING COMPENSATION FOR THIS APPEARANCE BEFORE COUNCIL?
YES NO _____

This form shall be kept as a part of the permanent record in those instances where financial interest or compensation is indicated by the speaker.

A maximum of three minutes will be allowed for your presentation, except that one officer or other designated member speaking on behalf of each *bona fide* neighborhood civic association or unit owners' association desiring to be heard on a docket item shall be allowed five minutes. In order to obtain five minutes, you must identify yourself as a designated speaker, and identify the neighborhood civic association or unit owners' association you represent, at the start of your presentation. If you have a prepared statement, please leave a copy with the Clerk.

Additional time not to exceed 15 minutes may be obtained with the consent of the majority of the council present; provided notice requesting additional time with reasons stated is filed with the City Clerk in writing before 5:00 p.m. of the day preceding the meeting.

The public normally may speak on docket items only at public hearing meetings, and not at regular legislative meetings. Public hearing meetings are usually held on the Saturday following the second Tuesday in each month; regular legislative meetings on the second and fourth Tuesdays in each month. The rule with respect to when a person may speak to a docket item at a legislative meeting can be waived by a majority vote of council members present but such a waiver is not normal practice. When a speaker is recognized, the rules of procedures for speakers at public hearing meetings shall apply. If an item is docketed *for public hearing* at a regular legislative meeting, the public may speak to that item, and the rules of procedures for speakers at public hearing meetings shall apply.

In addition, the public may speak on matters which are not on the docket during the Public Discussion Period at public hearing meetings. The mayor may grant permission to a person, who is unable to participate in public discussion at a public hearing meeting for medical, religious, family emergency or other similarly substantial reasons, to speak at a regular legislative meeting. When such permission is granted, the rules of procedures for public discussion at public hearing meetings shall apply.

Guidelines for the Public Discussion Period

(a) All speaker request forms for the public discussion period must be submitted by the time the item is called by the city clerk.

(b) No speaker will be allowed more than three minutes; except that one officer or other designated member speaking on behalf of each *bona fide* neighborhood civic association or unit owners' association desiring to be heard during the public discussion period shall be allowed five minutes. In order to obtain five minutes, you must identify yourself as a designated speaker, and identify the neighborhood civic association or unit owners' association you represent, at the start of your presentation.

(c) If more speakers are signed up than would be allotted for in 30 minutes, the mayor will organize speaker requests by subject or position, and allocated appropriate times, trying to ensure that speakers on unrelated subjects will also be allowed to speak during the 30 minute public discussion period.

(d) If speakers seeking to address council on the same subject cannot agree on a particular order or method that they would like the speakers to be called on, the speakers shall be called in the chronological order of their request forms' submission.

(e) Any speakers not called during the public discussion period will have the option to speak at the conclusion of the meeting, after all docketed items have been heard.

APPLICATION

CDD DEVELOPMENT CONCEPT PLAN

CDD # ~~10~~ 2008-0001

[must use black ink or type]

PROPERTY LOCATION: Potomac Yard

TAX MAP REFERENCE: 25.01-05-01; 25.03-03-01.02, 03, 04; 35.04-06-01, 35.01-12-01; 35.04-05-01; 35.03-10-01; 44.01-07-01,02; 44.03-07-01,02 **ZONE** CDD #10

APPLICANT'S NAME: MidAtlantic Realty Partners, LLC

ADDRESS: 1133 21st Street, NW, Suite 720
Washington, DC 20036

PROPERTY OWNER NAME: Potomac Yard Development, LLC

ADDRESS: 2403 Jefferson Davis Highway, Alexandria, VA 22301

REQUEST: Amend the CDD Concept Plan to relocate office density from Landbays J & L to Landbay H and to permit office use to be converted to retail use through the SUP process.

THE UNDERSIGNED hereby applies for CDD Development Concept Plan approval in accordance with the provisions of Section 5-600 of the 1992 Zoning Ordinance of the City of Alexandria, Virginia

THE UNDERSIGNED, having obtained permission from the property owner, hereby grants permission to the City of Alexandria to post placard notice on the property for which this application is requested, pursuant to Article XI, Section 11-301(B) of the 1992 Zoning Ordinance of the City of Alexandria, Virginia

THE UNDERSIGNED hereby attests that all of the information herein provided and specifically including all surveys, drawings, etc., required to be furnished by the applicant are true, correct and accurate to the best of their knowledge and belief. The applicant is hereby notified that any written materials, drawings or illustrations submitted in support of this application and any specific oral representations made to the Planning Commission or City Council in the course of public hearings on this application will be binding on the applicant unless those materials or representations are clearly stated to be non-binding or illustrative of general plans and intentions, subject to substantial revision, pursuant to Article XI, Section 11-207(A)(10), of the 1992 Zoning Ordinance of the City of Alexandria, Virginia

M. Catharine Puskar, Attorney/Agent

Print Name of Applicant or Agent
Walsh, Colucci, Lubeley, Emrich & Walsh PC
2200 Clarendon Boulevard, Suite 1300
Mailing/Street Address
Arlington, VA 22201
City and State

M. Catharine Puskar
Signature
703-528-4700 703-525-3197
Telephone # Fax #
22201 3/25/2008
Zip Code Date

DO NOT WRITE IN THIS SPACE - OFFICE USE ONLY

Application Received: _____	Date and Fee Paid: _____ \$ _____
ACTION - PLANNING COMMISSION: <u>Recommended approval 6-0 6-3-08</u>	ACTION - CITY COUNCIL <u>CC approved PC recommendation</u> <u>7-0 6/14/08 (See attached)</u>

73



APPLICATION

MPA 2008-0003

Master Plan Amendment MPA# _____

Zoning Map Amendment REZ# _____

PROPERTY LOCATION: Potomac Yard

APPLICANT

Name: MidAtlantic Realty Partners, LLC

Address: 1133 21st Street NW, Suite 720, Washington, DC 20036

PROPERTY OWNER:

Name: Potomac Yard Development, LLC

Address: 2403 Jefferson Davis Highway, Alexandria, VA 22301

Interest in property:

- Owner Contract Purchaser
- Developer Lessee Other _____

If property owner or applicant is being represented by an authorized agent such as an attorney, a realtor, or other person for which there is some form of compensation, does this agent or the business in which they are employed have a business license to operate in Alexandria, VA:

yes: If yes, provide proof of current City business license.

N/A

no: If no, said agent shall obtain a business license prior to filing application.

THE UNDERSIGNED certifies that the information supplied for this application is complete and accurate, and, pursuant to Section 11-301B of the Zoning Ordinance, hereby grants permission to the City of Alexandria, Virginia, to post placard notice on the property which is the subject of this application.

M. Catharine Puskar, Attorney/Agent

M Catharine Puskar

Print Name of Applicant or Agent
Walsh, Colucci, Lubeley, Emrich & Walsh, PC
2200 Clarendon Boulevard, Suite 1300

Signature

Mailing/Street Address

703-528-4700 703-525-3197

Telephone # Fax #

Arlington, VA 22201

3/25/2008

Date

City and State

Zip Code

Date

DO NOT WRITE IN THIS SPACE - OFFICE USE ONLY

Application Received: _____ Fee Paid: \$ _____

Legal advertisement: _____

ACTION - PLANNING COMMISSION _____ ACTION - CITY COUNCIL: CC approved PC

Resolution Adopted 4-2 6-3-08 recommendation 7-0 6/14/08

373

guide, and to accept the language with regard to redevelopment of entire blocks.
Council Action: _____

12. TEXT AMENDMENT #2008-0006
DEVELOPMENT SPECIAL USE PERMIT #2007-0034
3750 JEFFERSON DAVIS HIGHWAY
ALEXANDRIA TOYOTA
Public Hearing and Consideration of a request for: (1) a text amendment to the CDD #7 table in the City's Zoning Ordinance and; (2) a development special use permit, with site plan, to construct an auto detailing building and the installation of auto lifts; zoned CDD-7/Coordinated Development District #7. Applicant: Alexandria Toyota by Harry Hart, attorney

PLANNING COMMISSION ACTION: Recommend Approval 6-0

City Council approved the Planning Commission recommendation, with a request for staff to come back with a clarification of exactly what the trash can policy is, who is asked to pay what, when and how.
Council Action: _____

13. MASTER PLAN AMENDMENT #2008-0003
TEXT AMENDMENT #2008-0003
CDD CONCEPT PLAN #2008-0001
POTOMAC YARD DEVELOPMENT
(Potomac Yard is bordered by the Arlington County line to the north, Jefferson Davis Highway to the east, George Washington Parkway to the west and Braddock Road to the south.)
Public Hearing and Consideration of a request to amend the City's Master Plan, Zoning Ordinance and the CDD #10 Concept Plan to relocate office density from Landbays J and L to Landbay H, revise use map and height limits for Landbay H, delete language regarding mix of residential uses, and permit office use to be converted to retail through the SUP process; zoned CDD #10/Coordinated Development District. Applicant: MidAtlantic Realty Partners, LLC by M. Catharine Puskar, attorney

PLANNING COMMISSION ACTION: MPA: Resolution Adopted 4-2
CDD & TA: Recommend Approval 4-2

City Council approved the Planning Commission recommendation, with the following amendments: with the amendment submitted by Mid-Atlantic Realty to correct condition 3A, and to amend condition 3B(d) to read: "unless otherwise determined by the City retail study." ³
Council Action: _____

14. DEVELOPMENT SPECIAL USE PERMIT #2006-0013
POTOMAC YARD - LANDBAY K