ATTACHMENT A

Final Report

BWI Hotel Site Selection Study

Prepared for

Maryland Department of Transportation
Maryland Aviation Administration
Office of Planning and Environmental Services

Prepared by

PARSONS BRINCKERHOFF

June 2006

Hotel Image Developed by Gresham Smith & Partners

HOTEL SITE SELECTION STUDY

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1.0 INTRODUCTION

Over the last ten years, BWI has been one of the fastest growing airports in the U.S. and strong growth is projected for the remainder of the decade. According to the FAA's 20-year Terminal Area Forecast, BWI is anticipated to have over 36 million passengers by 2025. In addition to strong air passenger growth, the local office, research, and industrial/warehouse space market has grown significantly, with a parallel increase in local employment and business activity. Currently, there is one hotel located on airport property, located approximately three-quarters of a mile from the main terminal. The Maryland Aviation Administration (MAA) has identified the need for a second hotel on airport property. Specifically, MAA identified the need for a full-service, first-class hotel to serve the business, group and meeting, and leisure travel market segments. The need for a new hotel was supported by two recent studies prepared for the MAA; these include a 2004 Ernst & Associates hotel market study and a 2004 Edwards & Kelcey hotel feasibility study. Highlights from the Ernst & Associates study and the Edwards & Kelcey study are included in Section's 1.1 and 2.7, respectively.

Therefore, MAA has requested a site selection study to identify a preferred location for this proposed airport hotel. The location for a new hotel will be selected from a current inventory of MAA owned land. The study will provide an evaluation of alternative locations, a recommended site, and a draft purpose and need statement of the project. These elements will assist the MAA in advancing the project to the environmental study and preliminary design phases as well as obtaining the necessary funding for the project.

1.1 Background

As indicated above, the number of air passengers using BWI has increased rapidly over the last decade. Development of office, research, and industrial/warehouse space has also increased substantially in the recent past with new and expanding business parks such as the Airport Square Technology Park and BWI Technology Park. Martin Associates prepared an economic estimate report in the year 2001 for MAA which indicated that approximately 36 percent of the new jobs created in Maryland were in Anne Arundel County during the year 2000. With this tremendous growth has come an increased demand for hotel rooms and meeting space. A number of hotels have been constructed in the market area. To further analyze the need for additional hotels in the market area, MAA commissioned Ernst & Associates to conduct a hotel market analysis which was completed in October 2004. This analysis focused on the hotel market within the immediate airport vicinity. To better understand some of the key elements included in the hotel market study, multiple passages describing the local economy, employment base, competing hotels and project vision have been included. These passages helped craft the overall purpose and need for the Hotel Site Selection Study.

> "*The county's economy is supported by a diverse set of economic drivers such as professional and business services, trade and distribution and the government sector. With key economic factors signaling the emergence from a 'recessionary' environment in the Baltimore-Washington D.C. region, most real estate experts agree that a moderate recovery began in 2003 and is expected to continue*

throughout 2004. Fourth quarter job growth figures moved into positive territory for the first time in 2002 and marked improvement was shown in the sale of durable goods and consumer confidence. Industries such as defense, security and healthcare are primed to be the economic drivers for continued recovery trends in 2004. The overall strength of the Baltimore-Washington region remains its business diversity. Key industries such as bioscience, finance, insurance, telecommunications and the federal government support the anticipated growth within the region. Over 65 percent of total demand for lodging is generated from the individual business traveler."

..."Anne Arundel County's diverse employment base is one of the primary reasons for this area's resiliency to economic cycles". Anne Arundel County is considered to have excellent transportation facilities; including access to air, rail and water transportation. The growth of the airport has also fueled economic growth within the county and brought new industry to the area. Overall, the economic and demographic indices for the county and the macro area all point to excellent growth trends for the foreseeable future".

"It would appear that they (3 star hotels near the airport) were developed to serve a growing force of light industrial and research and development uses surrounding BWI. However, as this market has grown and matured, a number of very large, prominent employers have opened corporate offices in the area, fueling demand at a higher level and commanding full-service, first class facilities.."

"During the period of 1997-2002, we note that there has been no increase in the number of on-airport guest rooms. The only hotel located on airport grounds is the 201 room Sheraton Hotel. This property opened in 1966. This would indicate that substantial demand has been turned away from the Sheraton due to the lack of available rooms and modern first-class facilities/amenities. As a result, a first class, full service hotel at BWI would compete directly with the other full-service hotels in the defined market area".

"The market area is realizing significant growth, and with it, many new corporate users have entered the market. It is envisioned that this growth trend will continue. With the expansion of the airport, growth trends will be positively impacted. Therefore, we conclude that currently there is a lack of full-service hotels to meet the needs of the current and future demand."

"The majority of the demand captured by the BWI Airport hotels is generated from the commercial segment. The commercial market segment is composed of individuals visiting firms in the BWI Airport market area. Business travelers are usually not particularly rate sensitive and tend to use a hotel's food and beverage outlets and recreational facilities. The commercial segment represents a highly desirable and lucrative market that provides a consistent level of demand at relatively high room rates. Based on our review of the area's economic and demographic data and considering the expected growth at BWI Airport and surrounding market, we have anticipated commercial demand to increase at a base rate of 3 percent, increasing to between 5 and 6 percent during 2005-2006 and 3 percent thereafter."

"We are of the opinion that if first-class meeting facilities were available, they would be readily absorbed. This would appear to be the opinion of the developers of the proposed 300 room Hilton, slated for the BWI Airport market. A recent press release from the Capital Online, dated 10/19/2003, indicated that "A Virginia real estate developer plans to build a hotel and conference center near the BWI Airport, creating one of the largest meeting spaces in the country. The conference center will include an 8,600 square foot ballroom that can hold up to 1,000 people. Based on the relevant economic forces and the cyclical nature of convention business, we have estimated growth in this segment of 2 percent in the early years of the projection period, increasing to between 3-5 percent per year in the later years of the projection period."

"Considering all factors, we recommend that a 350-450 room, first-class, full-service hotel be constructed at the BWI Airport. There is a lack of full-service, first-class hotels in the market. In addition, we found a significant lack in full-service hotels that feature an appropriate complement of meeting and banquet space."

"When developed, we assume that the proposed hotel will be one of the highest quality lodging facilities in the competitive supply. In addition, it will enjoy a superior location at BWI Airport. We have assumed that the hotel will be affiliated with a well-recognized hotel company, with national as well as international presence. Based on our research in the competitive market, the analysis of market factors and the proposed location, we believe that there is an existing and potential future demand to support the proposed hotel at the BWI Airport. The proposed hotel will have one of the best, if not the best, locations in the BWI Airport market. Its location at the BWI Airport will set it apart from the competition. It will provide unsurpassed convenience to travelers making connecting flights, or corporate travelers doing business in the area."

As indicated in the passages above, Ernst & Associates concluded that there continues to be market support for a 450-room, first class, full-service hotel located on airport property. Currently, there is a Sheraton hotel on airport property, located just to the west of the new Daily Garage. The Sheraton hotel has 201 rooms and was opened in 1966. It is the oldest 3-star hotel in the market area. While it is in the terminal core area, it is not directly connected to the airport terminal or any other airport facilities. Shuttle bus service is provided between the Sheraton and the terminal.

1.2 Hotel Project Vision

Based on the market study results and internal discussions, MAA has developed a proposal for the new hotel as a minimum 450 room first-class, full-service commercial hotel with a recognized international brand. The hotel would include the following amenities: at least one full-service restaurant facility that can serve both hotel guests and airport patrons; a business center; swimming pool; fitness center; room service, around-the-clock maid service; and facsimile/modem/data communications access in every room.

MAA has developed a set of goals for the proposed hotel, which include the following:

- Develop a first-class, full-service, internationally recognized brand, commercial hotel;
- Meet the needs of the traveling public through a high level of customer service, and enhance the Airport's image;
- Maximize the Administration's revenue stream from the proposed hotel;
- Seek to realize a rental revenue stream that is equal to or greater than historical returns from BWI Airport Hotel operations;
- Minimize or eliminate the need for the Administration to incur any operating costs for the proposed hotel; and
- Complete the proposed hotel and have it open for use in a timely fashion.

1.3 Study Elements and Purpose

There are six primary study elements:

1. Prepare a statement of project purpose and need;
2. Review and refine the project definition;
3. Select appropriate MAA owned sites for evaluation;
4. Select evaluation criteria to compare one site to another;
5. Assess and compare the benefits and drawbacks of each site; and
6. Select a preferred hotel development site.

The study identifies five potential hotel development sites on airport property with the ultimate goal of recommending a preferred site for the project.

1.4 Project Purpose and Need

The purpose of the proposed hotel project is to achieve excellence in meeting the hospitality, restaurant, service, and meeting space needs of BWI air passengers and other BWI customers including tenants and partners in a manner that maximizes revenue for BWI and enhances the image of BWI and the region. The major needs for the project are outlined below.

1. There is a current shortage of first-class, full-service hotels with appropriate meeting space. The 2004 hotel market study concluded that "There is a lack of full-service, first-class hotels in this market. In addition, we found a significant lack in full-service hotels that feature an appropriate complement of meeting and banquet space." It also stated that there is "market support for a 450-room, first class, full-service hotel." This shortage of first-class, full-service hotel rooms reduces customer service and convenience for BWI air passengers. There are also no hotels within a reasonable and convenient walking distance of the main terminal.

2. Air passenger traffic is expected to increase approximately from 20 million passengers per year to nearly 36 million passengers per year over the next 20 years. This will result in an increase in the demand for hospitality services in the

area. MAA needs to promote development that will provide a high level of service to these passengers.

3. Development in the BWI Region has grown significantly over the last 20 years as presented in the 2003 BWI / Linthicum Small Area Plan. Key markets have included office, high-tech/research, government office, industry, and warehouse. Strong future growth is projected for the market due to the national and regional emphasis on safety, security, and high-technology fields. This new development and the associated increase in regional employment increases demand for sufficient hospitality space and facilities.

4. MAA continues to require additional revenue to support current and future operations and maintenance needs. MAA also has land available that could be used to generate additional revenue in support of BWI. A first-class, full-service hotel with meeting space could play an important role in enhancing revenue generation to MAA, while also promoting BWI as the airport of choice in the region.

5. Additional hospitality space will further promote BWI as the 'Easy-Come, Easy-Go" airport.

6. BWI would benefit from a major new development that could promote the image of BWI as a world-class airport. [Depending on design and location, this development would be viewed by landside passengers].

1.5 Report Sections

This report has been divided into six sections:

Section 1: Introduction
Section 2: Project Definition
Section 3: Site Descriptions
Section 4: Evaluation Criteria
Section 5: Detailed Site Evaluation
Section 6: Summary and Conclusions

2.0 PROJECT DEFINITION

In 2003-2004 MAA commissioned a hotel market analysis to evaluate the demand for a first-class hotel at BWI. The market analysis made specific recommendations regarding the number of rooms and types of facilities and amenities that should be included in a new hotel at BWI. The project definition provided here is based on those recommendations.

The proposed hotel is defined as one of the highest quality overnight lodging facilities in the market area. Key amenities proposed for the new hotel include spacious guest rooms, group meeting space, food and beverage facilities, business services, and recreational facilities. The combination of these amenities and its location at BWI are expected to make the new hotel a desired place to stay for both business and leisure travelers.

2.1 Guest Rooms

According to the 2004 Market Analysis, the new hotel should provide a minimum of 350 to 450 guest rooms. Each room was recommended to be a minimum of 375 to 400 square feet, with 10 percent of the rooms designed as suites. High quality furniture, fixtures and equipment were recommended with an emphasis on accommodating the busy corporate traveler, as well as the domestic and international leisure traveler. For this site evaluation study, it was assumed that the hotel would include 450 rooms with an average room size of 400 square feet.

2.2 Group Meeting Space

The market study also recommended approximately 40 to 50 square feet of meeting space per guest room. Therefore, with 450 rooms, the total allocation of meeting space would range from 18,000 to 22,500 square feet for the new hotel. The meeting space should be designed as flexible space in order to accommodate various meeting needs. The meeting facilities would include a large functional type ballroom (divisible), junior ballrooms, and at least six to eight smaller meeting rooms able to accommodate groups of between 30 and 75 people. In addition, several guest suites were proposed to provide meeting space for even smaller groups. For this study, it was assumed that the hotel would include 22,500 square feet of meeting room space.

2.3 Food and Beverage Facilities

The 2004 market study recommended the following food and beverage facilities:

- A 150 to 175 seat all purpose restaurant, serving breakfast, lunch and dinner in a casual setting;
- A 60 to 75 seat fine-dining restaurant and cocktail lounge;
- A small deli/bakery outlet, providing quick and convenient food service to travelers;
- A 60-75 seat lobby lounge; and
- 24-hour room service.

2.4 Business and Recreational Facilities

In addition to the facilities previously identified, business and recreational facilities are also necessary in order to ensure the proposed hotel's competitive position in the marketplace. The recommended facilities include:

- A fitness center, with steam and sauna, exercise machines and whirlpool bath;
- A heated indoor swimming pool;
- A business center;
- A small gift and sundry shop;
- A travel desk; and
- Concierge desk in the lobby.

The study also recommended that the hotel be linked to the proposed automated people mover (APM). This link was not included in the building size estimates presented below, but the possibility of such a connection was assessed in the evaluation.

2.5 Estimated Hotel Building Size

Several planning assumptions were made in order to estimate the total square footage required for the proposed hotel. These assumptions were based on information provided in the 2004 market analysis as well as concept planning level architecture assumptions for each of the support facilities. A 35 percent factor was used to estimate support, service, and common areas not already listed. These spaces would include items such as stairs, elevators, hallways, mechanical rooms, and public bathrooms. **Table 2.1** presents the estimated space requirements for each of the proposed facilities in the new hotel as well as an overall total. Approximately 300,000 square feet of space is needed to accommodate the recommended hotel facilities.

Table 2.1: Estimated Hotel Building Size

Item	Quantity	Unit	Space per Unit (square feet)	Total Space (square feet)
Rooms	450	Room	400	180,000
Meeting Space	10*	Room	2,250	22,500
All Purpose Restaurant	175	Seats	35	6,125
Fine Dining Restaurant with Lounge	75	Seats	50	3,750
Bakery/Deli	1	NA	450	450
Lobby	75	Seats	20	1,500
Fitness Center	1	NA	600	600
Indoor Pool	1	NA	2,600	2,600
Business Center	1	NA	300	300
Gift/Sundry Shop	1	NA	200	200
Travel Desk	1	NA	100	100
Administration/Support Space	1	NA	3,600	3,600
Concierge Desk	1	NA	100	100
			Building Subtotal	**221,825**
		Factor	35%	77,639
			Building Total	**299,464**

** The market analysis recommended a ballroom, junior ballrooms, and at least 6 to 8 small meeting rooms for a total of 18,000 to 22,500 square feet of meeting space for the hotel.*

2.6 Estimated Parking Requirements

Based on prior MAA hotel studies and on data from the Institute of Transportation Engineers, Parking Generation (3rd Ed.) we assumed that one parking space per room would be provided. Therefore, 450 parking spaces were included in the development requirements. The number of parking spaces could possibly increase for some of the sites that are more remote from the main terminal and it could potentially decrease for sites with convenient access to the main terminal, however 450 spaces provides a reasonable concept planning level estimate. This study assumed a parking space efficiency of 350 square feet per parking space. This assumption yielded the requirement for 157,500 square feet of parking area (including parking aisles, landscaping, etc.) shown in **Table 2.2**.

Table 2.2: Estimated Hotel Parking Requirement

Item	Quantity	Unit	Space per Unit	Total Space
Parking Spaces	450	Space	350	157,500
			Building Subtotal	**157,500**

2.7 Project Requirement Summary

The project size assumptions used in the study are:

- 300,000 square feet of hotel building space assumed to be designed as a multi-level structure of four or more stories.
- 157,500 square feet of parking area assumed to be either at grade or in parking facilities of four stories or less (with the possible exception of the core area).

Based on the size and shape of each potential hotel site, several hotel and parking development concepts were created. Each scenario assumed a specified number of hotel floors and parking levels in order to determine an overall building footprint on the site. In most cases a buffer was added to the building footprint to accommodate access, service areas, landscaping, and other related functions. This then provided a proposed development (or redevelopment) envelope for the site.

According to the 2004 hotel feasibility study conducted by Edwards and Kelcey, accessibility is one of the key issues that must be established in order for a new hotel to operate successfully. Two key passages noted in this report focus on developing a dual access system to serve both the passenger terminals and the new hotel.

> *"With the exception of traffic to and from the Daily A Garage along Elm Road, BWI terminal traffic arrives and departs via the I-195 system. The potential future Concourse G and H terminal expansion along Elm Road will require a dual terminal system to avoid overloading the curbside along the existing terminal. With this dual system comes the need for careful signage at the I-195 to direct traffic to the appropriate terminal, prior to the start of the dual system. Since the split will be located just east of the MD 170 interchange, terminal signage will need to be*

provided at the I-295 interchange or earlier to provide enough advanced warning to motorists."

"Providing a hotel adjacent to the existing garage may further complicate the future wayfinding issue related to the dual terminal roadway system. Traffic to the hotel will need to be directed to the route for the existing hourly terminal garage. This signage should be placed in advance of the signing for the dual system, or as a supplemental sign with the sequencing signing for the split. If provided in advance, it will likely be needed on both the I-195 and I-295, prior to the interchange of I-195/I-295, since there is limited distance between I-295 and MD 170 along I-195 to provide this signing."

3.0 SITE INVENTORY

Based on previous MAA studies and a review of existing MAA owned land, five potential sites were considered for the proposed new hotel. Each site is owned by MAA and has unique development opportunities and constraints. Many of the sites under consideration are outside the center of activity for BWI; however one site is located within the terminal core. **Exhibits 3.1 through 3.6** located at the back of the report illustrate the five potential sites under consideration. The five sites are:

- Site 1: Terminal Core Area Site
- Site 2: ESP Lot Site
- Site 3: Managers' Lot Site
- Site 4: Amtrak Station Area Site
- Site 5: Consolidated Rental Car Facility (CRCF) Area Site

3.1 Site 1: Terminal Core Area

The Terminal Core Area is located in the BWI Terminal Core area just north of the existing Hourly Parking Garage on land previously occupied by the rental car agencies. As shown in **Figure 3.1** and Exhibit 3.2 (at the back of the report), the boundary of the Terminal Core Area site is delineated by an area between the planned Hourly Garage expansion and the terminal return roads in the vicinity of the central utility plant. It should be noted that the planned Hourly Garage has been evaluated for potential environmental impacts by the FAA. The terminal core area site is approximately 10.3 acres in size and has been identified by the MAA as an area for future landside development on the proposed BWI Airport Layout Plan (ALP).

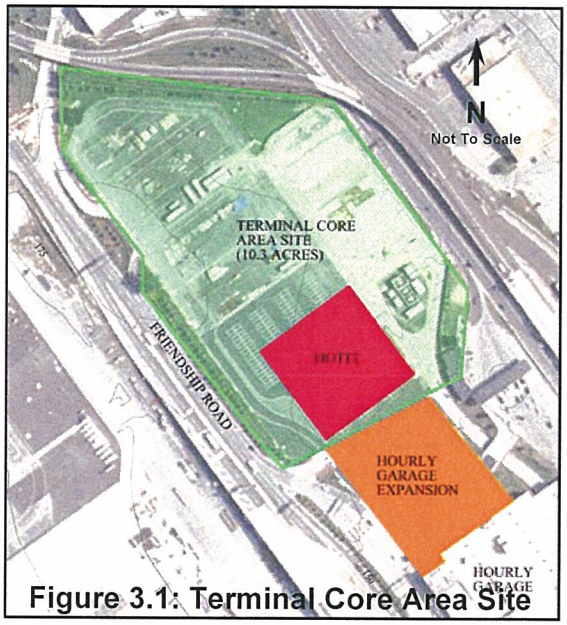


Figure 3.1: Terminal Core Area Site

3.2 Site 2: ESP Lot Site

The ESP Lot site is located between the new Daily Garage and Aviation Boulevard. It is currently used for daily parking when demand warrants. The southeast corner of the site has been designated as a "cell phone lot", where people waiting to pick up passengers can wait. The ESP Lot site is approximately 10 acres and has good access to major highways such as I-195 and Aviation Boulevard. The site is shown in **Figure 3.2** and Exhibit 3.3.

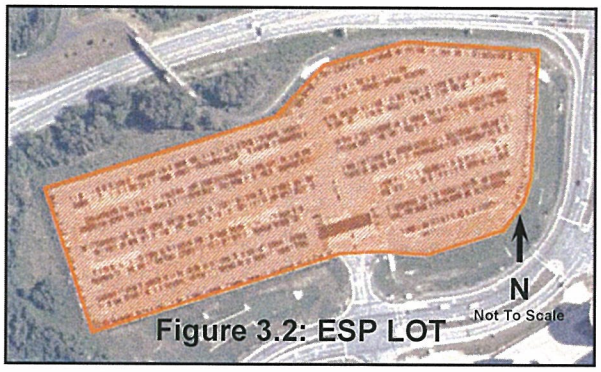


Figure 3.2: ESP LOT

A number of sites were originally considered in the vicinity of the proposed RITC development; including sites in both the northern and southern RITC development areas (see **Figure 3.3**). The proposed RITC building and the planned Airport Administration Office Building (AAOB) are both proposed for the former rental car area in the northern area as shown. Therefore, that site was not studied further at this time. The former Thrifty Rental Car parcel located just south of the RITC / AAOB site was determined to be too small (1.3 acres) and oddly shaped (narrow and triangular) to accommodate a 300,000 square foot hotel with 157,500 square feet of parking efficiently. As a result that site was also dismissed from further analysis. The remaining parcel under consideration in the RITC vicinity is the ESP Lot Site described above.

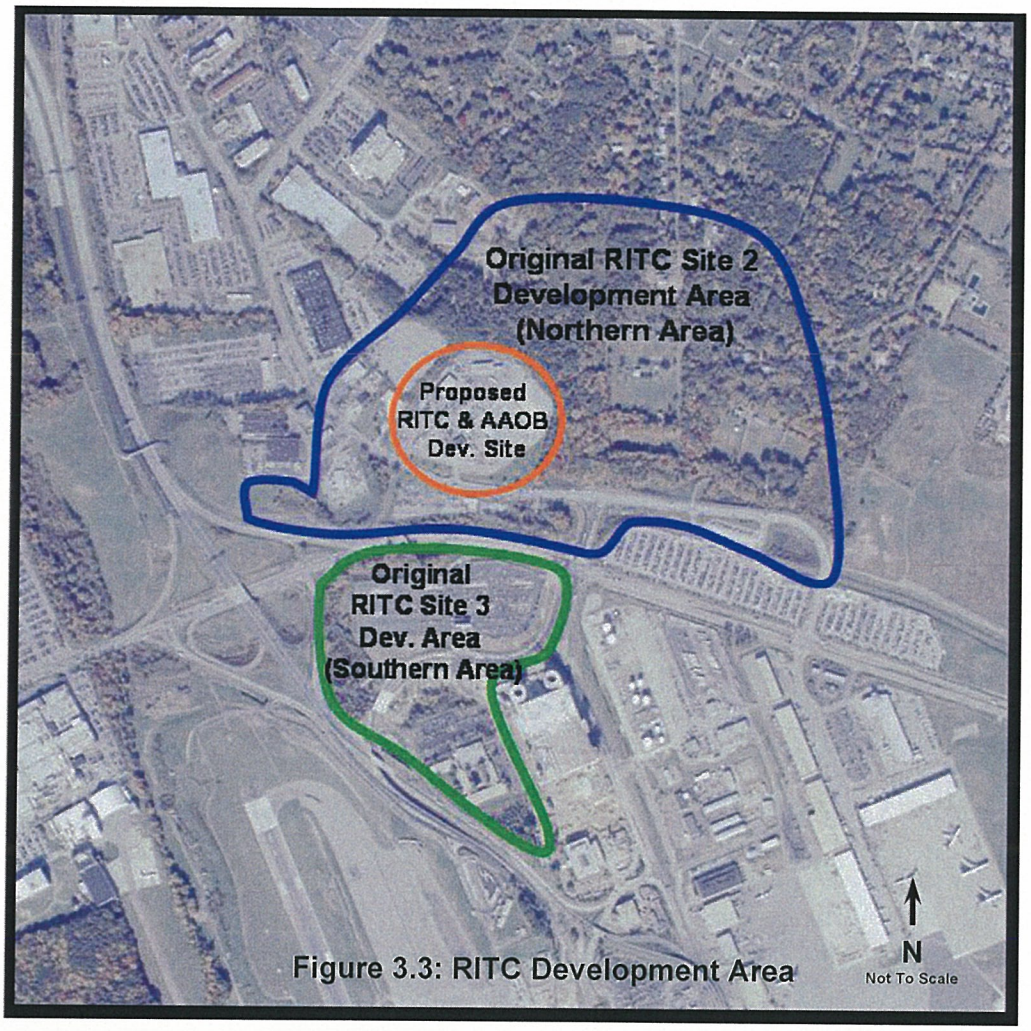


Figure 3.3: RITC Development Area

3.3 Site 3: Managers' Lot

The Managers' Lot is located on the northwest corner of the intersection of Aviation Boulevard and Amtrak Way. (See **Figure 3.4** and Exhibit 3.4) The site is currently used for overflow vehicular parking during peak travel periods, but has been identified as the site of a proposed second gas station on the proposed BWI ALP. It is approximately 3.8 acres in size. It is across Aviation Boulevard from Northrop Grumman and is approximately 1.5 miles from the main terminal. This site's western edge is bordered by the BWI Trail.

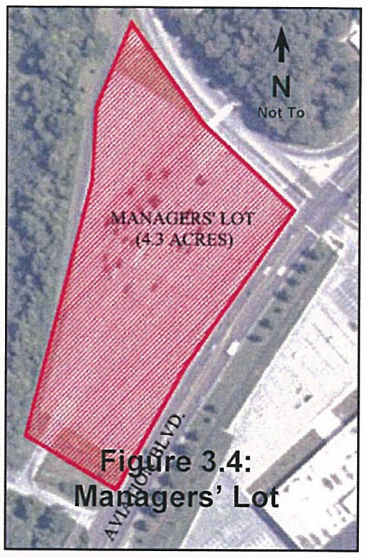


Figure 3.4: Managers' Lot

3.4 Site 4: Amtrak Station Area Site

This Amtrak Station Area site is located approximately two miles northwest of the terminal and is approximately 13.5 acres in size. (See **Figure 3.5** and Exhibit 3.5) The site is bordered by Amtrak Way to the east and the Amtrak rail lines to the west. Access to this site is provided by Amtrak Way. This Amtrak site lies just outside of the Runway Protection Zone (RPZ) of Runway 15R. The Kauffman Building is located in the northern portion of Site 4. This building houses the Office of Airport Technology and Community Affairs.

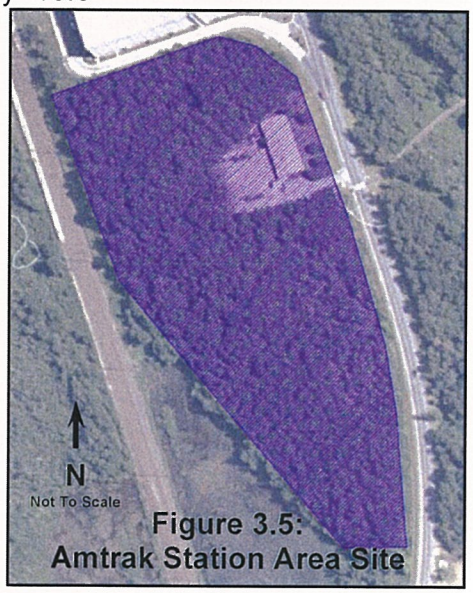


Figure 3.5: Amtrak Station Area Site

3.5 Site 5: Consolidated Rental Car Facility Area

The Consolidated Rental Car Facility (CRCF) Area site is over two miles from the terminal area. Initially, two parcels were considered in this area. This first parcel is located west of New Ridge Road. This 8.4 acre parcel is currently occupied by a rental car maintenance facility for one of the CRCF tenants. (See **Figure 3.6** and Exhibit 3.6) It was determined that it may be physically feasible to develop a hotel on this parcel (however the current tenant would have to be relocated). The second parcel is located across the road in a forested area bordered by Stoney Run Road to the north and New Ridge Road to the east. The eastern CRCF site was dismissed from further consideration due to the potential for environmental resource impacts on the site, including forest, wetland, sensitive species, and floodplain concerns.

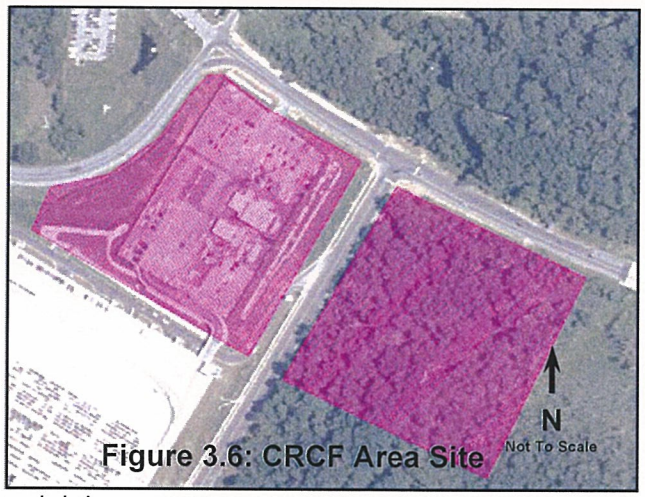


Figure 3.6: CRCF Area Site

4.0 EVALUATION CRITERIA

To develop a clear understanding of the specific benefits and drawbacks of each of the proposed hotel sites, a set of eight evaluation criteria was selected. These criteria address the critical site selection and development issues and will facilitate a comparison between the five potential sites, leading to a final recommended site for the project. The eight main evaluation criteria include:

1. Terminal Access
2. Customer Service and Access to Amenities
3. Location, Visibility, and Market Presence
4. Development Potential
5. Airport Development Impacts
6. Capital Costs
7. Environmental Resources
8. Physical Characteristics

4.1 Terminal Access

Convenient access to the terminal is necessary to achieve MAA's objectives for the new hotel. Access to the terminal could include pedestrian, vehicular, and proposed automated people mover (APM) connections to the terminal building. The convenience in terms of travel time, distance, and mode changes will be considered. **Table 4.1** lists each of the subcategories used in evaluating access to the terminal for each site.

Table 4.1: Terminal Access

Criteria	Approach	Source
Walking distance / time	Calculate walking distance and time to the terminal	Alternatives map
Distance to APM Station	Estimate walking distance and time to the nearest proposed (conceptual) APM station location	APM figures, alternatives map
Bus/Shuttle Frequency	How close is the site to an existing bus/shuttle route to the terminal and what is the frequency?	Bus/shuttle route map and schedule
Overall travel time	Estimate the shortest travel time to reach the terminal	Sources listed above

4.2 Customer Service and Access to Amenities

The overall level of customer service and access to amenities is another factor in differentiating each site's ability to accommodate a new hotel. Analyzing surrounding amenities such as retail, food and beverage, and entertainment services can assist in determining the anticipated level of customer service and convenience for each site (assuming all on-site amenities are similar for each site). **Table 4.2** displays the subcategories proposed to evaluate customer access to off-site amenities for each of the sites under consideration.

Table 4.2: Customer Service & Access to Amenities

Criteria	Approach	Source
Food and Beverage Services	Identify the food and beverage services available within the immediate area for each site	Vicinity Map
Retail Services	Identify the retail services and amenities available near each site.	Vicinity Map
Entertainment/ Recreation Services	Identify entertainment and recreational opportunities/services within the immediate area of each site.	Vicinity Map

4.3 Location, Visibility, and Market Presence

Location, visibility, and market presence are all key factors in the successful siting of a new BWI hotel. The hotel should be located in or adjacent to a major activity center or corridor. It should be highly visible from major highways and/or the terminal core area. The site should also offer the opportunity for the project to become a major element of the BWI landscape, possibly even a symbol of BWI's high level of customer service and convenience. **Table 4.3** identifies subcategories to be used to evaluate and compare each site in these areas.

Table 4.3: Location and Visibility

Criteria	Approach	Source
Location	Is the hotel in or near a major activity center or corridor?	Aerial photo
Visibility	Is the site clearly visible from major highways and/or the main terminal area?	Aerial photo, topography map
View Shed/Vistas	Examine potential view sheds and vistas (outward) from each hotel site	Aerial photo, topography map
Market Presence	Analyze the perceived market presence of each site, including the opportunity to become a symbol for BWI	Aerial photo, site visit

4.4 Development Potential

Development related opportunities and constraints will be reviewed for each site. **Table 4.4** shows the approach used for each development potential subcategory.

Table 4.4: Development Potential

Criteria	Approach	Source(s)
Site Size	Evaluate site size relative to development requirements	Site map
Site Shape	Evaluate site shape relative to development requirements	Site map
Buildable Area	Identify space available for buildings, given topographic and environmental constraints	Site Map
Building Requirements	Can building requirements be accommodated on site?	Site map
Site Availability	What MAA owned properties are available?	Property map, aerial
Site Access	Examine access to major highways and transport systems	Site map, traffic flow map, site visit
Development Synergy	Consider joint-use options that could lower the building requirements	Site Map

4.5 Airport Development Impacts

For each site, PB will examine the relationship between the proposed hotel and both existing and potential future airport development and operations. This will include an examination of what uses would be displaced as well as what uses may be hindered from future development. It also includes consideration of any potential benefits that may accrue to the airport due to selection of a specific site. **Table 4.5** lists the airport development evaluation subcategories that will be addressed in the analysis.

Table 4.5: Airport Development Impacts

Criteria	Approach	Source
Existing Airport Development and/or Operations	Identify potential impacts and benefits to current airport development and/or operations	ALP
Future Airport Development and/or Operations	Identify potential impacts and benefits to future airport development and/or operations (including future flexibility considerations)	ALP, Other planning documents
Airspace Restrictions / Issues	Examine sites relative to Part 77 surfaces and other airspace constraints	ALP, site elevation information

4.6 Capital Costs

The comparative cost of development for each site is another key consideration in selecting the most appropriate site for a new hotel. For each location, the site preparation costs will be estimated and compared to the costs for the other sites. In addition, the key factors that will affect the actual hotel construction cost will also be assessed. This will allow for a comparative evaluation of which sites will have the

lower and higher development costs. For example, a small odd shaped parcel may require an unusual and inefficient building form, which is likely to be more expensive to construct than a more typical building form. **Table 4.6** shows the subcategories proposed to evaluate and compare the capital costs for the sites.

Table 4.6: Capital Costs

Criteria	Approach	Source
Site Preparation Costs	Development of order of magnitude site preparation cost estimates	Topography mapping, aerial photo, environmental mapping
Comparative Hotel Construction Costs	Develop a ranking of how expensive building construction is expected to be for each site based various development factors such as buildable area and environmental mitigation issues.	Topography mapping, aerial photo, environmental mapping

4.7 Environmental Resources

Several of the sites under consideration are located on or near known sensitive environmental areas on Airport property. This overview of environmental resources will facilitate an evaluation and comparison of each site's potential for impacting key environmental resources. **Table 4.7** reflects the environmental subcategories to be considered for each site.

Table 4.7: Environmental Resources

Criteria	Approach	Source
Surface Waters, Water Quality, Water Quantity	Examine potential stream, water quality, and stormwater runoff issues	USGS, BWI SWMP, Other available doc.
Rare, Threatened, or Endangered Species	Identify the presence of any rare, threatened, or endanger species on or near each site	MERLIN resource mapping, MAA doc.
Noise	Review BWI FAR Part 150 Noise Compatibility Plan	Noise Exposure Map
Hazardous Materials	Analyze potential for on-site hazardous materials	Available maps/reports
Floodplains	Identify 100-year and 500-year floodplain	FEMA-FIRM
Wetlands	Identify existing on-site wetlands	NWI Map, MAA maps
Historic/Archeological Sites	Identify existence of historic/archeological sites	Available maps/reports
Forests	Determine presence of forest resources	BWI Reforestation Master Plan, Forest Maintenance Plan
Air Quality	Examine the potential air quality issues	Available maps/reports
LEEDS	Examine potential to achieve Silver Rating for LEEDs compatibility on each site	Available maps/reports

4.8 Physical Characteristics

Physical characteristics and features will be examined to compare and analyze the physical conditions that may affect the development of a new hotel on each site. **Table 4.8** presents comparison subcategories and the quantitative and/or qualitative approach used to evaluate each topical area.

Table 4.8: Physical Characteristics

Criteria	Approach	Source(s)
Topography	Identify existing site topography and slopes	USGS Quad sheet, contour maps
Soil Type	Examine soil types	Anne Arundel County Soil Survey
Land Use	Define current site and adjacent land uses	BWI/Linthicum Land Use Plan, site visit
Vegetation	Determine vegetation on site	Aerial photo, site visit

5.0 SITE EVALUATION

The five alternative hotel sites were evaluated using the criteria presented in Section 4.0. At the beginning of the write-up for each of the eight major criteria, a summary is presented for that criterion. This is followed by a detailed discussion for each of the supporting sub-criteria in that category. A complete summary for all eight criteria is presented at the end of Section 6.0 in conjunction with the summary evaluation matrix.

5.1 Physical Characteristics

The physical characteristics of each site were examined to evaluate the site's ability to accommodate the proposed hotel development. Three of the five sites received an overall rating of Good in this category. The Amtrak Station Area Site received a Poor rating because it is forested, has an existing office structure on the site, and has more topographical and slope considerations than any of the other sites. The CRCF was rated fair due to the prevalence of industrial and warehouse land uses in the area as well as the existing rental car maintenance use on the site. The remaining three sites are flat and paved, with little if any vegetative cover, and few substantial permanent structures that could not be avoided if necessary.

Table 5.1 provides a summary of the ratings for each of the physical characteristics sub-criteria. A detailed explanation of the evaluation follows.

Table 5.1: Physical Characteristics Summary

Criteria	Site 1: Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Topography	●	●	●	◗	●
Soil Type	●	◗	●	○	◗
Land Use	●	●	◗	◗	○
Vegetation	●	●	●	○	●
Overall Rating	**Good (4)**	**Good (3.5)**	**Good (3.5)**	**Poor (1)**	**Fair (2.5)**

Legend: ● = Good (1) ◗ = Fair (.5) ○ = Poor (0)

5.1.1 Topography and Site Slope

The existing site topography including contours for each site is shown in Exhibits 3.2 to 3.6 at the back of the report. The USGS map is shown in **Figure 5.1** for additional reference.

Terminal Core Area: The terminal core area site is occupied by a parking lot and contractor staging areas. It is predominantly flat and paved. While, the Parking Administration Building and Hourly Garage border the site, there are no permanent enclosed structures on the site itself. It was rated good.

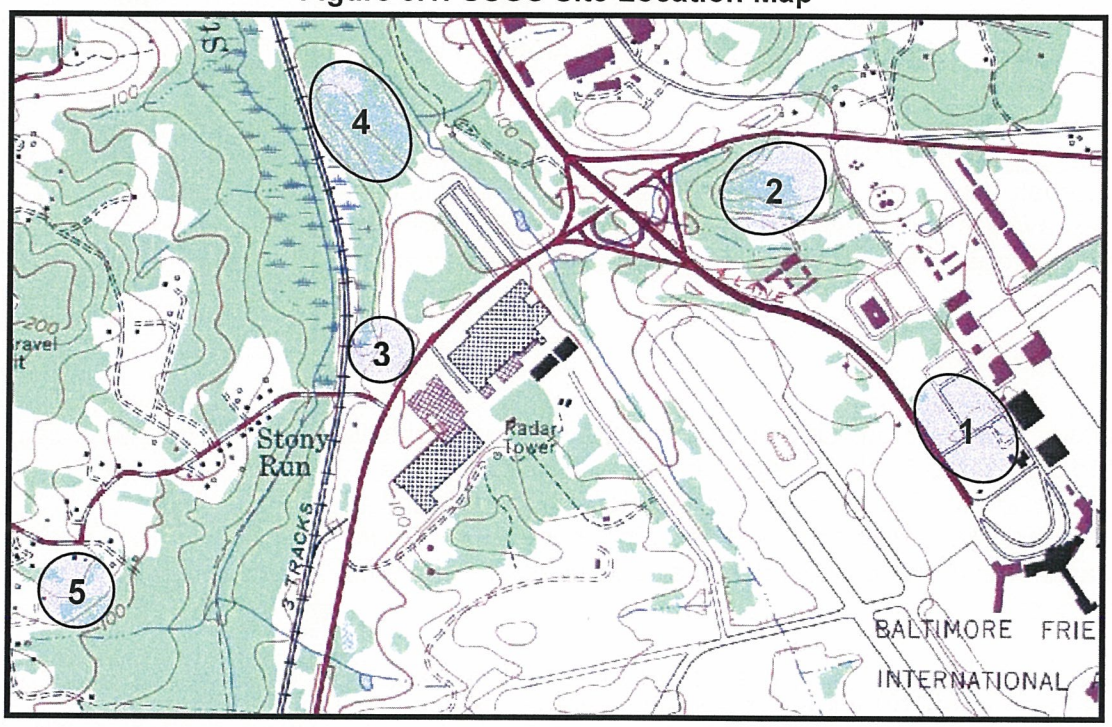
ESP Lot: The ESP Lot site is also relatively flat and paved. There are parking lot exit booths on the site. However, no significant topographical issues preclude hotel development on this site. It was rated good.

Managers' Lot: The Managers' Lot site is a flat, paved parking lot. Topography would not impede the development of a hotel on the site. It was rated good.

Amtrak Site: The Amtrak Site consists of a hill, rising well above the surrounding road, rail, and floodplain areas. There is one building on the site (Kauffman Building); however, the majority of the parcel is undisturbed and forested. It has steep slope areas along the western boundary and there is a retaining wall on the northern edge of the site, near the Amtrak parking garage. The central higher elevation portion of the site is flat. Considerable earthwork may be required to develop a hotel on the site, depending on the site configuration and access. It was rated fair.

CRCF Site: The CRCF site is located west of New Ridge Road, and is part of the new consolidated rental car facility. The site has been previously graded and is now relatively flat and paved. It was rated good.

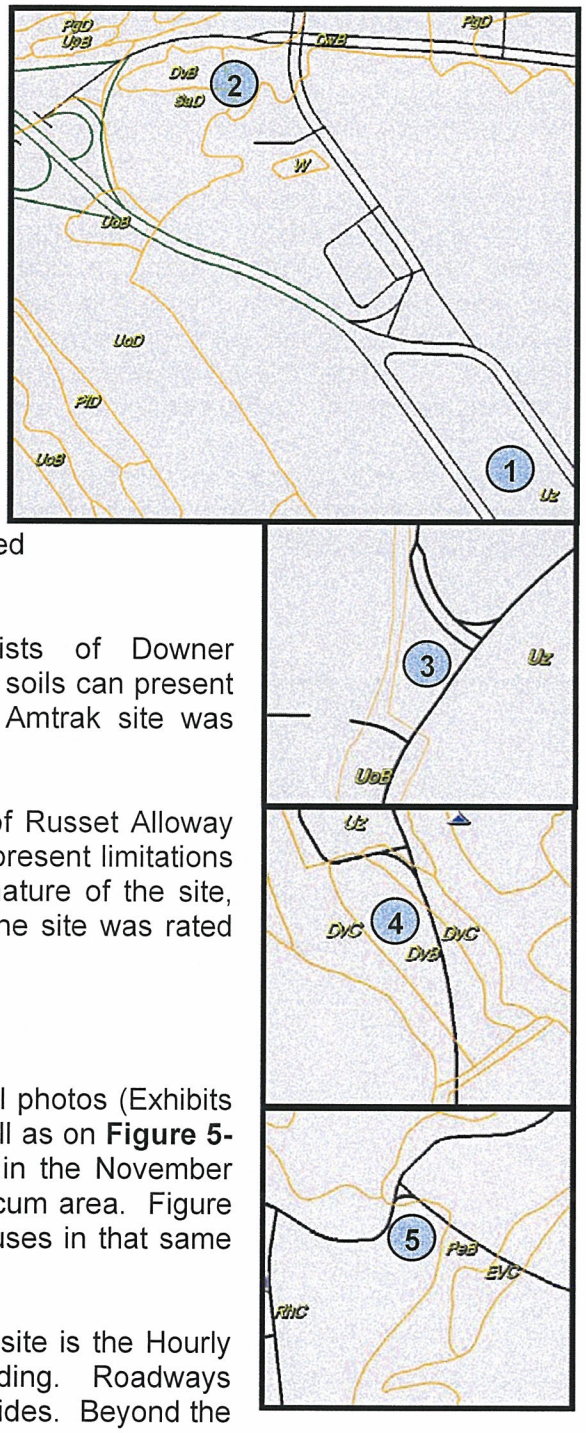
Figure 5.1: USGS Site Location Map



5.1.2 Soil Type

Terminal Core Area: Based on the soil survey maps for Anne Arundel County, Maryland, the terminal core area site is made up of Urban Land (Uz) soils (refer to **Figure 5-2**). The soil should not restrict the proposed hotel development. This site was rated good.

Figure 5.2: Soil Types



ESP Lot: The ESP Lot site consists of three different soil types: Downer Hammonton (DvB), Sassfrass Fine Sandy Loam (SaD), and Downer Hammonton Urban Complex (DwB). These soil types can present some limitations for excavation, but, given the disturbed nature of the site, the soil properties may be very different. The ESP Lot site was rated fair.

Managers' Lot: The Managers' Lot site consists of Urban Land (Uz) and Urdothents Loamy (UoB) type soils. These soils are not expected to significantly restrict the proposed hotel development; therefore the site was rated good.

Amtrak Site: The Amtrak site consists of Downer Hammonton type soils (DvB/DvC). These soils can present limitations for excavation; therefore, the Amtrak site was rated poor.

CRCF Site: The CRCF site is made up of Russet Alloway Hambrook (RhC) soil. This soil type can present limitations for excavation; but, given the disturbed nature of the site, the soil properties may vary. Therefore the site was rated fair.

5.1.3 Land Use

Existing land uses are shown on the aerial photos (Exhibits 3-2 to 3-6) at the back of the report) as well as on **Figure 5-3**, which shows the land uses presented in the November 2003 Small Area Plan for the BWI / Linthicum area. Figure 5-3 also shows the proposed future land uses in that same document.

Terminal Core Area: To the south of the site is the Hourly Garage and the BWI Main Terminal building. Roadways directly border the site on the other three sides. Beyond the roadways to the north of the site are the Central Utility Plant, Daily Garage, and existing Sheraton Hotel. To the west is the Concourse A apron area and to the east is the Concourse E apron and the north airfield cargo area. Overall, the site was rated good due to the land use relationship between the hotel and the main terminal and concourses.

ESP Lot: The ESP Lot site is mainly surrounded by transportation facilities, with the new Daily Garage located south of the site, the I-195 interchange west of the site, and Aviation Boulevard north of the site. The north airfield cargo and maintenance complex areas are located east of the site. The Sheraton hotel is southwest of the site. The land uses are compatible with an airport based hotel and the site is large enough that a landscaped buffer area could also be provided, so the site was rated good.

Figure 5.3: Land Use Maps

Managers' Lot: Managers' Lot is located across Aviation Boulevard from Northrop Grumman at Amtrak Way. The land across Amtrak Way is used by Northrop Grumman for parking. The land to the west is natural open space and includes forested wetland areas. The Amtrak rail line is located just west of the site. Overall, the site was rated fair.

Amtrak Site: The Amtrak site is primarily forested, with one small office building located on the site. To the north is the Amtrak station and two parking garages. The site is bordered by forested open space (some with streams, wetlands, and floodplains) on the other three sides. The Amtrak rail line is west of the site. The site was rated fair.

CRCF Site: The CRCF site is bordered on the south by the main CRCF building. North and east are undeveloped forested areas. Northwest of the site is a private airport parking company. The major land uses in the broader area are industrial and warehouse uses. Due to the industrial nature of the area and the distance from related and supporting uses, the CRCF site was rated poor.

5.1.4 Vegetation

Terminal Core Area: The Terminal Core Area site is paved with no substantial vegetation. The site is rated good.

ESP Lot: The ESP Lot site is mainly paved, with a grass border. The site was rated good.

Managers' Lot: the Managers' Lot site is paved and was rated good.

Amtrak Site: The Amtrak site is predominantly forested. The development of a new hotel could require the removal of approximately 8 acres of forest land. The Amtrak site was rated poor.

CRCF Site: The CRCF site is mainly paved and was rated good.

5.2 Development Potential

An evaluation of each site's development potential is necessary in order to identify those sites which can best accommodate the development of a new hotel. The overall results of the development potential evaluation indicated that two of the five sites were rated good for their ability to support a new hotel. The sites rated good were the Terminal Core Area site and the ESP Lot site. Each of these sites is considered appropriate for the development of a new hotel due to their size, shape, availability, and their ability to be developed efficiently. The Managers' Lot, Amtrak, and CRCF sites were rated fair or poor overall because of constraints identified during the sub-criteria evaluation. These constraints included small site size, limited buildable area, access limitations, and poor development synergy opportunities. **Table 5.2** depicts the individual rating for each sub-criteria element. A detailed explanation of the sub-criteria evaluation is provided below.

Table 5.2: Development Potential Summary

Criteria	Site 1: Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Site Size	●	●	○	●	◗
Site Shape	●	●	◗	●	●
Buildable Area	●	●	●	○	●
Building Requirements	●	●	◗	○	●
Site Availability	●	●	●	◗	○
Site Access	●	●	◗	◗	○
Development Synergy	●	◗	○	○	○
Rating	**Good (7)**	**Good (6.5)**	**Fair (3.5)**	**Poor (3)**	**Fair (3.5)**

Legend: ● = Good (1) ◗ = Fair (.5) ○ = Poor (0)

5.2.1 Site Size

Terminal Core Area: The Terminal Core Area is the second largest site at approximately 10.3 acres in size. The development of a new hotel is estimated to require four acres leaving just over six acres available for future use. Just outside the delineated terminal core area, nine acres of this site are planned for the expansion of the Hourly Parking Garage. While, the site could accommodate some surface parking, structured parking would be more appropriate for the terminal core area. Assuming structured parking is built for a new hotel, the Terminal Core Area site provides adequate space development. The site was rated good.

ESP Lot: The ESP Lot site is approximately 10 acres, which is more than sufficient for development of a new hotel and related parking. This site was rated good.

Managers' Lot: The Managers' Lot site is the smallest site under consideration at approximately 3 acres. Development of a new hotel on this site is feasible, but would require taller structures and structured parking. This site was rated poor.

Amtrak Site: The Amtrak site is the largest site at approximately 14 acres. This site provides ample space for development of a new hotel and was therefore rated good.

CRCF Site: The CRCF site is approximately 8 acres, which provides adequate space for a new hotel and parking, however some of the parking may need to be structured depending on the site layout. The site was rated fair.

5.2.2 Site Shape

Terminal Core Area: The Terminal Core Area's shape is predominantly rectangular, but narrows at the northern and southern ends. The shape is appropriate for the development of a new hotel and was therefore rated good.

ESP Lot: The ESP Lot site is predominantly rectangular with a large rounded eastern edge. This site is considered appropriate for the development of a new hotel and was rated good.

Managers' Lot: The Managers' Lot site is wedge-shaped. This wedge shape makes full use of the site challenging. This is problematic given the small site size and need to make efficient use of the available space. Managers' Lot is less desirable than the other sites that have more efficient shapes (i.e. square or rectangular). The site was rated fair.

Amtrak Site: The shape of the Amtrak site is somewhat triangular, with the northern most corners of the site being square and the southern most point forming a point. The northern portion of the site is more conducive to a hotel development than the southern portion of the site. However, the Amtrak site shape was rated good overall.

CRCF Site: The CRCF site is square and considered appropriate for the development of a new hotel. This site was rated good for its shape.

5.2.3 Buildable Area

This evaluation category evaluates how much of the site is considered buildable given the various known building limitations.

Terminal Core Area: The Terminal Core Area site has few building limitations with most of the 10.3 acres available for development. Some of the few limitations include ingress and egress to the hourly garage and the Parking Administration Building. The site was rated good.

ESP Lot: The ESP Lot site is currently being used for surface parking and has minimal building limitations. The site was rated good for its buildable area.

Managers' Lot: Managers' Lot is also used as a parking lot. The entire site is compatible with development of a new hotel. This site was rated good.

Amtrak Site: the Amtrak site has major environmental limitations that restrict new construction on the site. The most significant of these is the presence of a documented prehistoric site. (Refer to the environmental section for more details.) Therefore, the site was rated poor.

CRCF Site: The CRCF site is currently used for rental car maintenance operations and is predominately paved. It has no significant known building limitations (but it would require the relocation of the existing rental car operations). The site was rated good.

5.2.4 Building Requirements

This evaluation category examines whether the proposed hotel development requirements defined in Section 2.0 can be adequately accommodated on each site.

Terminal Core Area: Based on the desired size and scope of the hotel, the Terminal Core Area site is considered highly suitable for the new hotel. The site can accommodate various hotel designs ranging from three to ten stories in height. All building requirements including parking can be met; therefore the site was rated good.

ESP Lot: The ESP Lot site is able to accommodate many different hotel layouts and is anticipated to meet all the necessary building requirements. This site was rated good.

Managers' Lot: Given the small site size, the minimum hotel building height is taller than for the other sites. This could result in a less efficient building design. Parking would also have to be in a multi-level structure. This site was rated fair.

Amtrak Site: The Amtrak site is large enough to accommodate the building requirements for the project, including a number of possible hotel and parking facility designs. The major issue is the environmental resources on the site that are expected to significantly limit development on the site. (Refer to the environmental section for more details.) This site was rated poor.

CRCF Site: The CRCF site is capable of accommodating the necessary hotel building requirements. Some of the parking may have to be decked depending on the site layout. However, this site was rated good overall.

5.2.5 Site Availability

Terminal Core Area: As shown in **Figure 5.4**, the Terminal Core Area site is owned by MAA. The site is currently occupied by a surface parking and a contractor staging

area; however, these functions could be relocated to other locations on the Airport. The Terminal Core Area site was rated good for its site availability.

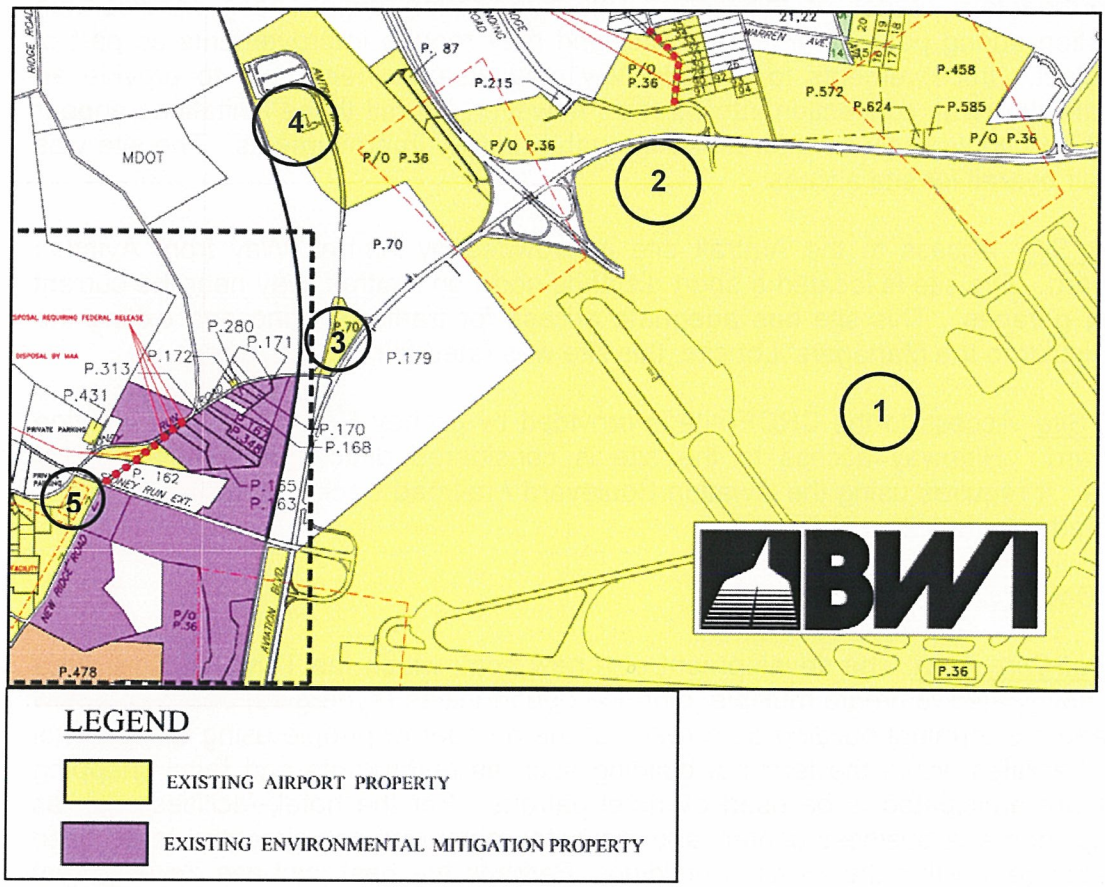
ESP Lot: MAA owns the ESP Lot site. This site is currently being used as a surface parking lot. Assuming this parking function could be relocated, the ESP Lot site was rated good for its site availability.

Managers' Lot: The Managers' Lot is owned by MAA. Currently this site is used for surface parking; however this parking could be relocated and/or consolidated with other surface parking elsewhere on the Airport. Once moved, this site would be available for a new hotel. The Managers' Lot was rated good.

Amtrak Site: The Amtrak site is owned by MAA; however the environmental resources on the site are likely to limit its availability for development and would certainly limit short-term use of the site. The Amtrak site was rated fair for site availability.

CRCF Site: The CRCF site is currently occupied by a rental car company maintenance and operations facility. The parcel was recently developed, and would require the relocation of the rental car company's maintenance facility to another location within the consolidated rental car facility development area. As a result, the CRCF site was rated poor for its site availability

Figure 5.4: MAA Property Map



5.2.6 Site Access

Terminal Core Area: Highway access into the Terminal Core Area site is provided by I-195, Elm Road, and the other terminal core area roadways. There is also good access to transit and the main terminal. Various site access and egress configurations are possible. One simple method would be access from the west side of the site and egress on the east side; maintaining the one-way traffic circulation pattern. Traffic congestion in the core area is one potential issue for this site; however the traffic demand for this site is expected to be less than for the other sites because of the proximity to the main terminal and shuttles to the CRCF, Amtrak Station and nearby taxi stands. Provision will also have to be made for maintaining access and egress for the Hourly Garage. Overall, site access is considered good for this site.

ESP Lot: Similar to the Terminal Core Area site, highway access to the ESP Lot site is provided by I-195, Aviation Boulevard, Elm Road and the terminal roadways. A traffic signal is located at the site entrance which could facilitate the ingress an egress of vehicular traffic. No major access limitations are expected at this site. The site was rated good for site access.

Managers' Lot: Direct access into the Managers' Lot is provided by Aviation Boulevard and Amtrak Way. A traffic signal is located at Aviation Boulevard and Amtrak Way on the northeastern corner of the site. This intersection experiences considerable congestion during peak commute periods and may require improvements as part of the project. Improvements to Amtrak Way may also be necessary to provide an adequate driveway connection into the site; however, overall these limitations appear modest and could likely be addressed through roadway improvements. The site was rated fair overall for site access.

Amtrak Site: Access to the Amtrak site is provided by Amtrak Way from Aviation Boulevard. The site is located a short distance north on Amtrak Way near the current parking garages. This site has adequate access for traffic entering and exiting the site. Similar to the Managers' Lot site, this site was rated fair for site access.

CRCF Site: Access to the CRCF site is provided by Stoney Run Road from Aviation Boulevard. Highway access to the site is considered difficult for potential hotel patrons. It requires using the Aviation Boulevard / railroad tracks overpass. The site was rated poor for site access.

5.2.7 Development Synergy

Terminal Core Area: The development of a new hotel within the Terminal Core Area site is anticipated to create multiple joint-use opportunities (synergies) between a new hotel and the terminal building as a result of the number of people using the terminal area. Facilities within the terminal building such as restaurants and retail shopping outlets are anticipated to be used by hotel patrons. For the hotel, facilities such as meeting rooms, a business center, and the hotel restaurant are expected to be used by passengers within the terminal building. Perhaps the best joint-use development synergy is the opportunity to establish shared vehicular parking between the new hotel

and current or future core area parking facilities. This could result in a lower parking demand for the new hotel and maximize the development efficiency at this site. The Terminal Core Area site was rated good for its potential for development synergy.

ESP Lot: Based on the Airport's long range plans, the development of a Regional Intermodal Transportation Center is proposed near this site. If the RITC and new hotel were developed close enough for strong connections, then there would be significant opportunities for development synergies. However the exact timing and location of the RITC are not set and there are few development synergy opportunities at the site at present. Shuttle service to the main terminal would provide a link to development there. However, the ESP Lot site was rated fair for its development synergy overall.

Managers' Lot: The size and location of the Managers' Lot, limits the ability to create joint-use development synergies at this site. Currently, a surface parking lot is located on the site; however it is anticipated that the development of a new hotel would require the relocation of this facility in order to build a new hotel. The Managers' Lot was rated poor for development synergy.

Amtrak Site: If the hotel were developed on this site, there may be opportunities to create joint-use development synergies with the Amtrak station. However, the current station development is fairly limited outside of parking. The Amtrak site was rated poor.

CRCF Site: If developed at the CRCF site, a new hotel may offer opportunities to develop joint-use synergies with the consolidated rental car facility, however similar to the Amtrak station these opportunities appear to be limited. As a result, the CRCF site was rated poor.

5.3 Access to the Terminal

Each site's access to the terminal was evaluated based on three sub-criteria: Walking Distance, Distance to an APM Station, and Overall Travel Time. The results of this analysis indicated that the Terminal Core Area site was the strongest among all sites under consideration. This site is within a reasonable walking distance of the terminal building (with the moving sidewalk), is near a potential APM station, and has the shortest vehicular travel time to the terminal. The ESP Lot and Amtrak sites rated fair due to their estimated travel time and proximity to an APM station. The Managers' Lot and CRCF sites were determined to be poor based on their distance from the terminal building and from the potential APM stations. **Table 5.3** shows the summary ratings for each site for the three criteria.

Table 5.3: Access to the Terminal

Criteria	Site 1: Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Walking Distance	●	○	○	○	○
Distance to APM Station	●	◗	○	◗	◗
Overall Travel Time	●	●	◗	◗	○
Rating	**Good (3)**	**Fair (1.5)**	**Poor (.5)**	**Fair (1.0)**	**Poor (.5)**

Legend: ● = Good (1) ◗ = Fair (.5) ○ = Poor (0)

5.3.1 Walking Distance

Terminal Core Area: The Terminal Core Area site is closest in proximity to the terminal building. Pedestrian access to the terminal building would likely require walking through the lower level of the Hourly Garage when traveling to or from the hotel. The estimated walking distance from the proposed hotel site to the center of the terminal building is approximately 1,300 feet. However, there is currently a moving sidewalk in the lower level of the Hourly Garage, which significantly reduces the actual walking distance (or speeds up the walking time). In addition, the hotel site is less than 1,000 feet from the new Concourse A. Therefore, the Terminal Core Area site was rated good for walking distance.

ESP Lot: The ESP Lot is approximately one mile from the main terminal. This exceeds a reasonable walking distance for hotel customers, resulting in a poor rating.

Managers' Lot: The estimated walking distance from Managers' Lot to the terminal building is approximately 1.5 miles, resulting in a rating of poor.

Amtrak Site: The estimated walking distance from the Amtrak Site to the terminal building is approximately two miles, well above a reasonable walking distance of approximately 1,000 feet. The Amtrak site was rated poor for walking distance.

CRCF Site: The estimated walking distance from the CRCF site to the terminal building is approximately three miles, resulting in a rating of poor.

5.3.2 Distance to APM Station

Terminal Core Area: The Terminal Core Area site is located near a proposed automated people mover (APM) station. The exact location of the APM station is not currently known; however, it is anticipated that the distance to the APM station would be within a reasonable walking distance from the new hotel. The Terminal Core Area site was rated good.

ESP Lot: An APM station is proposed to serve both the potential new RITC and the Daily Garage. The exact locations of these APM stations are not yet known; however,

it is anticipated that at least one station will be within walking distance (no more than 1,000 feet) from the ESP Lot site. APM users would be required to traverse Elm Road to get to the hotel. The ESP Lot site was rated fair.

Managers' Lot: an APM station is not planned on or near the Managers' Lot site. This site was rated poor based on its distance to the nearest APM station.

Amtrak Site: An APM station is proposed at the existing Amtrak station. The development of a new hotel at the Amtrak station area site is anticipated to be within an acceptable walking distance to the APM station. The Amtrak site was rated good.

CRCF Site: An APM station is also proposed for the CRCF site. The location of a new APM station at the CRCF site is not yet known; however it may be over 1,000 feet from the proposed hotel. As a result of the uncertainty of the future APM station location, the CRCF site was rated fair.

5.3.3 Overall Travel Time

Assumed travel speeds were used to estimate the overall travel time to the Main Terminal for each potential site. A travel speed of 25 mph was assumed when traveling by vehicle and a speed of 4 feet per second when walking. The only walking time estimate provided was for the Terminal Core Area as the others were well beyond a reasonable walking distance. Vehicular travel times were provided for all five sites. **Table 5.4** depicts the estimated travel time for each site below.

Terminal Core Area: The estimated vehicular travel time from a new hotel to the terminal building is 1 to 2 minutes. When walking, the estimated travel time is approximately 5 to 6 minutes to the main terminal building. As a result of the low travel times and multiple travel options, the Terminal Core Area site was rated good.

ESP Lot: The estimated vehicular travel time from the ESP Lot site to the main terminal is 2.5 minutes, resulting in a rating of good.

Managers' Lot: The estimated travel time from the Managers' Lot site to the terminal building is 4 minutes by vehicle. The Managers' Lot site was rated fair for travel time.

Amtrak Site: The estimated travel time between the proposed Amtrak site and the terminal building is 4 to 6 minutes by vehicle. As a result, this site was rated fair due to the longer time period required to reach the terminal building.

CRCF Site: The vehicular travel time from the proposed site to the terminal building is estimated at 7 to 10 minutes. Based on the travel time at other sites, the CRCF was rated poor.

Table 5.4: Travel Time Comparison

Criteria	Site 1: The Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Distance from Site to Terminal Building	1,300 ft	1 Mile	1.5 Miles	2 Miles	3 Miles
Travel Time (vehicle)	1-2 min (5-6 min walking)	2-3 min	3-4 min	4-6 min	7-10 min

5.4 Environmental Resources

Three of the five sites under consideration for a new hotel were rated good for the lack of potential environmental issues. The ESP Lot and Managers' Lot sites had the best overall scores, with the fewest potential impacts. The Terminal Core Area site scored very similarly. Overall, the Amtrak site was affected most by potential environmental resources on the site. In particular, there is a significant known prehistoric archaeological site at the Amtrak location. The site is also forested and is bordered by wetlands, floodplains, and has the potential for rare threatened and endangered species on or near the site. The major environmental drawback at the CRCF site is due to noise. **Table 5.5** provides the results of the environmental resource evaluation for each of the five sites under consideration. Exhibits 5.1 and 5.2 are included in the Appendix to provide a graphical view for several of the environmental resources evaluated in this section.

Table 5.5: Environmental Resources Summary

Criteria	Site 1: Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Surface Waters, Water Quality and Quantity	●	●	●	◗	●
Rare, Threatened and Endangered Species	●	●	●	◗	●
Noise	●	●	●	●	◗
Hazardous Materials	◗	●	●	●	◗
Floodplains	●	●	●	●	●
Wetlands	●	●	●	◗	●
Historic/Archeological Sites	●	●	●	○	●
Forests	●	●	●	○	●
Air Quality	●	●	●	●	●
LEEDS	●	●	●	◗	●
Rating	**Good (9.5)**	**Good (10)**	**Good (10)**	**Poor (6)**	**Good (9)**

Legend: ● = Good (1) ◗ = Fair (.5) ○ = Poor (0)

5.4.1 Surface Waters, Water Quality and Water Quantity

Readily available published information was examined to identify potential water resources in the vicinity of the five alternative sites. Four of the five sites being considered are currently paved and/or developed for other land uses. However, redevelopment of these sites would still require a Storm Water Management (SWM) analysis addressing both water quantity and water quality. According to the Maryland Department of the Environment's Maryland Stormwater Management Guidelines for State and Federal Projects any project that exceeds 5,000 square feet on existing impervious surface is a "redevelopment" project and would be required to reduce impervious area by 20 percent or provide qualitative control for a minimum of 20 percent of the project's predevelopment impervious area. For the fifth site, appropriate SWM measures must also be provided to ensure that the quality and quantity of storm water associated with the development would not have direct or indirect effects on nearby streams. To the extent possible, site specific SWM facilities would be designed to mitigate potential impacts identified in the analysis stage for any of the sites. In addition, all of these sites drain into the Stony Run watershed, which is known to contain sensitive habitats for rare, threatened, and endangered species, therefore special attention should be paid to designing SWM facilities to minimize impacts to this watershed.

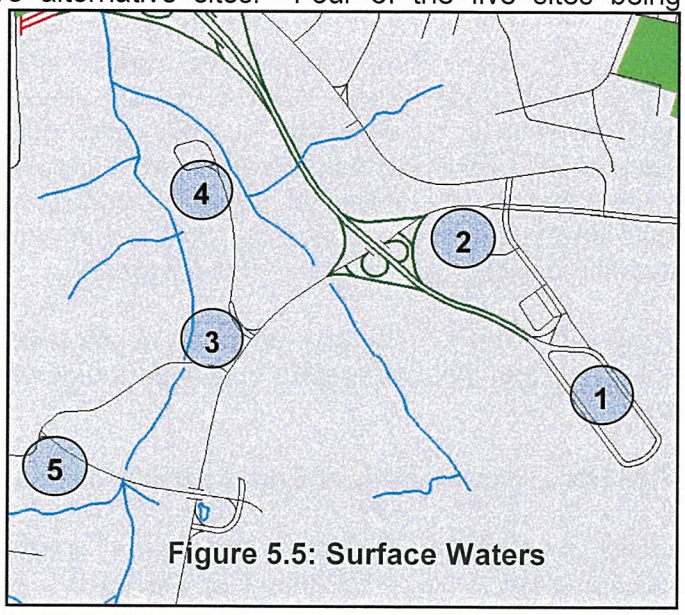


Figure 5.5: Surface Waters

Terminal Core Area: No streams exist within the Terminal Core Area site (see **Figure 5.5**). The site is impervious, and would therefore qualify as a redevelopment project. It is anticipated that additional green space associated with the redevelopment will decrease current surface water runoff. The Terminal Core Area site was rated good.

ESP Lot: The ESP Lot site lies between two intermittent streams located to the north and south (see USGS map in Figure 5.1). The northern stream is an unnamed tributary of Sachs Branch. The southern stream is Sachs Branch. The site is currently paved, with surface runoff collected in a detention basin southwest of the parking lot. The site is impervious, and would therefore qualify as a redevelopment project. It is anticipated that additional green space associated with the redevelopment will decrease current surface water runoff. However, if the parking lot is replaced on another unpaved site, then this could be a "connected action" leading to increased runoff that would have to be accommodated in MAA's SWM Plan. The site is rated good.

Managers' Lot: Managers' Lot does not contain any streams within its boundary, though Stony Run lies west of the site near the rail line. The site is paved and surface runoff at this site is collected and drained in the King Branch drainage basin. The site is impervious, and would therefore qualify as a redevelopment project. The site was rated good.

Amtrak Site: Stony Run is considered a major stream and lies just west of the of the Amtrak site boundary (see Figure 5.5). The development of a new hotel on this site could potentially have water quantity and quality issues due to the required deforestation of the site and the increase in impervious area. Typical measures such as the creation of stormwater detention ponds and appropriate grading techniques would be necessary to reduce the potential impacts. However, the Amtrak site was rated fair for potential impacts in this category.

CRCF Site: The CRCF site contains no streams within its boundary. The site is impervious, and would therefore qualify as a redevelopment project. This site was rated good.

5.4.2 Rare, Threatened, or Endangered Species

Mapping for rare, threatened or endangered species (RTEs) was obtained from prior studies and Maryland on-line mapping (MERLIN). The shaded area in **Figure 5.6** depicts the approximate boundaries of RTEs in the vicinity of the five sites.

Terminal Core Area: No RTEs or their habitats are known to occur in the terminal core. As a result, no impacts to RTEs are anticipated and the site was rated good.

ESP Lot: No RTEs or their habitats are known to occur on the ESP Lot site. This site was rated good.

Managers' Lot: No RTEs or their habitats are known to occur on the Managers' Lot site; therefore the site was rated good. However it is important to note that the site is located in an area designated as a Sensitive Species Review Area (SSPRA) because populations of state and federally listed rare, threatened, or endangered species or their supporting habitats are known to occur in the area.

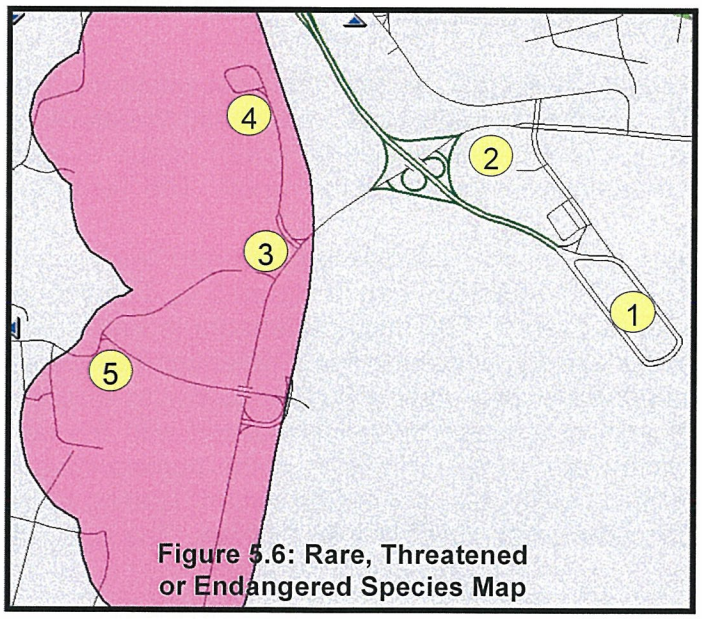


Figure 5.6: Rare, Threatened or Endangered Species Map

Amtrak Site: The Amtrak site is also located in the SSPRA. Information collected from previous documents indicates that a federally threatened and state endangered flora species, known as Swamp Pink, may occur in the Stony Run watershed. Overall, a rating of

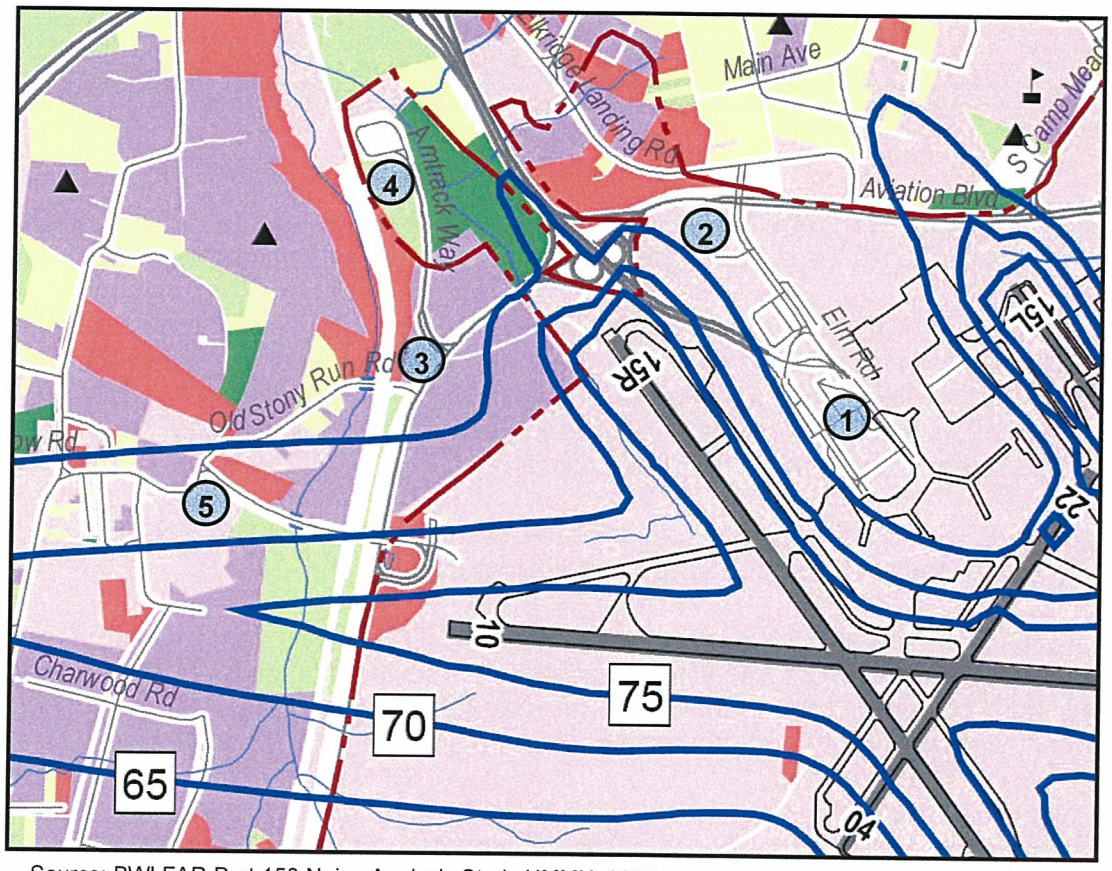
fair was assigned based of the possibility of a federally protected species existing within or adjacent to the site area.

CRCF Site: The CRCF site is also located in the SSPRA. Information collected from previous documents indicated that a federally threatened and state endangered flora species, known as Swamp Pink, may occur within the Stony Run watershed; however, field investigations conducted in May of 2000 did not identify any Swamp Pink within the CRCF area. The Environmental Assessment prepared for the Airport in 2000 indicated no species of RTEs were expected at this site. As a result, no impacts to rare, threatened or endangered species are anticipated within the CRCF site which is now paved. This site was rated good.

5.4.3 Noise

The noise analysis is based on the 2010 noise contour figure from the Federal Aviation Regulation (FAR) Part 150 Noise Analysis for BWI Airport (2005-2010), completed by HMMH in April of 2006. This figure shows the 65, 70 and 75 Average Day Night Sound Level (DNL) noise contours. Refer to **Figure 5.7** for the site locations.

Figure 5.7: Noise Contours



Source: BWI FAR Part 150 Noise Analysis Study HMMH, 2006.

Table 5.6 lists the residential land use compatibility designations (including hotel/motel uses) published by the Federal Aviation Administration for development near airports. This is a partial listing of the complete FAA table.

Table 5.6 Land Use Compatibility with Yearly Day-Night Average Sound Levels*

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N[1]	N[1]	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings (Hotels/Motels)	***Y***	***N[1]***	***N[1]***	***N[1]***	***N***	***N***

Source: Federal Aviation Administration Regulations 14 CFR Part 150, effective January 18, 1985.

Y(Yes) = Land Use and related structures compatible without restrictions.
N(No) = Land Use and related structures are not compatible and should be prohibited.
NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

Notes:

1 ***Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB; thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria would not eliminate outdoor noise problems.***

* The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Terminal Core Area: The Terminal Core Area site is located outside the 65 DNL noise contour shown for 2010. As a result, the Terminal Core Area site was rated good.

ESP Lot: The ESP Lot site is located outside the 2010 65 DNL noise contour as well. While the cumulative noise for this site does not require noise mitigation for the development of a new hotel, it is possible that the ESP Lot site may experience single event noise levels above 65 decibels (dB) during some aircraft operations. The ESP Lot site was rated good for minimal noise impacts.

Managers' Lot: The Managers' Lot site is located also outside the 2010 65 DNL noise contour. This site was rated good for potential noise impacts.

Amtrak Site: The Amtrak site is outside the 2010 65 DNL noise contour boundary. Single noise events over 65 dB are anticipated due to the proximity of the end of Runway 15R; however, soundproofing is not mandatory under federal or state law. The Amtrak site was rated good given its location outside the 65 DNL contour.

CRCF Site: The CRCF site is inside the 2010 65 to 70 DNL noise contour. It is also in the vicinity of the end of Runway 10. The development of a new hotel at this site would likely require noise mitigation measures. The CRCF site was rated fair because it is located within the 65 DNL noise contour.

5.4.4 Hazardous Materials

A general assessment of the potential for hazardous materials was based on current or known prior uses for each of the sites as well as any available recent study documentation.

Terminal Core Area: Certain rental car operations were previously located within the Terminal Core Area site (including a former Chevron Station, Dollar-Rent-A-Car facility, and the Car Rental Quick-Turn-Around area). There have been recent assessments of this site that have shown the presence of contaminated soils and groundwater. As a result, a rating of fair was given to this site.

ESP Lot: No known hazardous materials are located on the ESP Lot site. This site was rated good for the absence of hazardous materials.

Managers' Lot: The Managers' Lot site has no previously identified hazardous materials located on site. This site was rated good.

Amtrak Site: The Amtrak site is predominantly undisturbed and considered free from existing hazardous materials. As a result, the Amtrak site was rated good.

CRCF Site: Currently, the CRCF site is used as a consolidated rental car facility for all agencies at the Airport. Based on the operations conducted at this site, it is possible that some hazardous materials may exist on site. While the existence of hazardous materials is not known for certain, a rating of fair was given.

5.4.5 Floodplains

Floodplain mapping was obtained from the MERLIN GIS system as shown in **Figure 5.8** Additional floodplain information was obtained from previous studies and mapping.

Terminal Core Area: No floodplains exist within the Terminal Core Area site. This site was rated good for no impacts to floodplains.

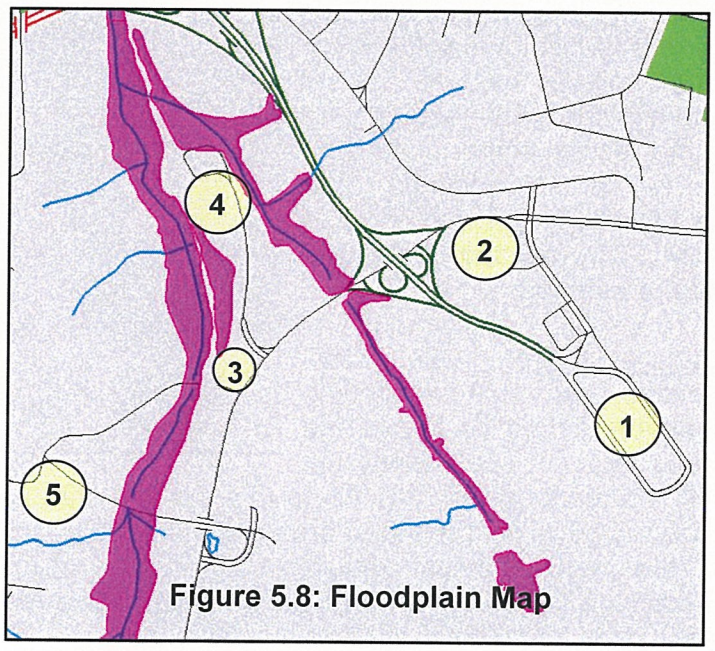


Figure 5.8: Floodplain Map

ESP Lot: The 500-year floodplain is located near the southwest corner of the ESP Lot site. While, not shown in Figure 5.7 (from MERLIN), it did appear in previous environmental mapping. This floodplain is associated with Sachs Branch. However, the floodplain does not directly impact the proposed development area. The ESP Lot site was rated good for having no known floodplain impacts.

Managers' Lot: No floodplains exist within the Managers' Lot site. The closest floodplain to this site is the Stony Run floodplain. This floodplain is over 500 hundred feet from the site and not expected to result in any floodplain impacts. This site was rated good.

Amtrak Site: The Amtrak site is located between floodplains on the east and west sides of the site. Fortunately, the elevation of the Amtrak site protects against any potential impacts from flooding. As a result, no floodplain impacts are anticipated. The Amtrak site was rated good.

CRCF Site: The CRCF site does not have any existing floodplains within its boundary. As a result, this site was rated good for not impacting floodplains.

5.4.6 Wetlands

Wetland mapping was obtained from the MERLIN GIS system as shown in **Figure 5.9**. Additional wetland information was obtained from previous studies and mapping.

Terminal Core Area: No wetlands exist within the Terminal Core Area site boundary. No impacts to wetlands are expected at this site. The Terminal Core Area site was rated good.

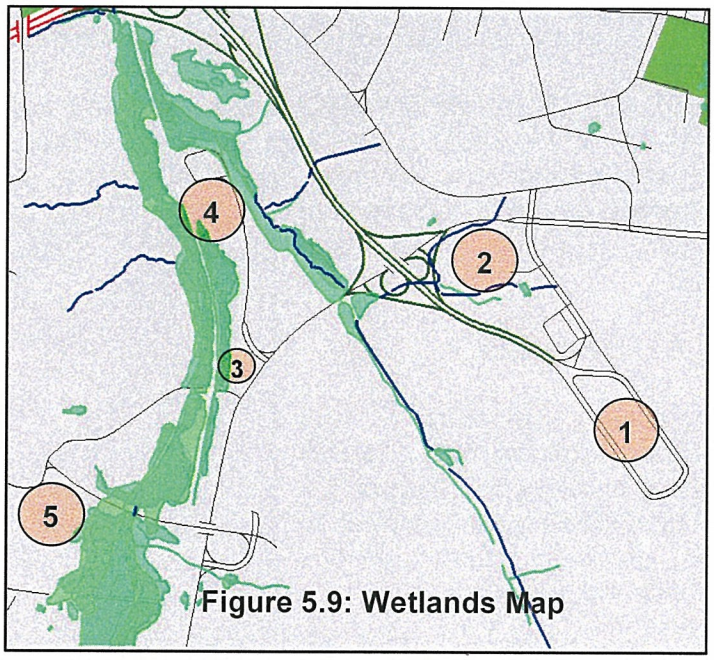


Figure 5.9: Wetlands Map

ESP Lot: No wetlands exist within the boundary of the ESP Lot site, which is mainly paved. One small wetland exists approximately 150 feet from the southwestern corner of the site. It is not anticipated that development on the site would impact any wetlands. The site was rated good.

Managers' Lot: One small wetland exists just beyond the southern corner of the of the Managers' Lot site. Since the site is already paved, impacts to this wetland are deemed unlikely if the new hotel is constructed within the paved area and stormwater management is designed according to the redevelopment requirements in the *Maryland Stormwater Management Guidelines for State and Federal Projects*. As a result, the Managers' Lot site was rated good for potential impacts to wetlands.

Amtrak Site: Known wetlands exist on the east and west side of the Amtrak site. The development of a new hotel will increase the imperious area and therefore increase stormwater runoff from the site. This may impact surrounding wetlands near the site. As a result, the Amtrak site was rated fair due to the possibility of impacts to wetlands.

CRCF Site: The CRCF site does not contain any wetlands. A rating of good was given to the CRCF site.

5.4.7 Historic/Archeological Sites

The MAA prepared a Historic Preservation Plan (MAA, 1996), which documents known historical and archaeological resources as well as areas that have been previously evaluated and therefore require no additional studies. The document also delineates the remaining areas and designates areas with regards to probability of historical and archaeological resources. This information, combined with other known previous studies was used for the following site analysis.

Terminal Core Area: No known historic/archaeological sites exist within the Terminal Core Area Site. The Terminal Core Area site was rated good since a low probability for impacts to historic/archaeological sites is expected. (Refer to Exhibit 5.1 in the Appendix.)

ESP Lot: Based on previous archaeological assessments, the ESP Lot site contains an area having a moderate to low probability of prehistoric and historic sites within its boundary. However, follow-up research conducted for the 2000 EA indicated that there are no inventoried sites in the area. Referring to the original parking facility and roadway construction, it also determined that "archaeological investigations are unwarranted for the project and that the project is unlikely to affect historic properties in the area." For these reasons, the ESP Lot site was rated good.

Managers' Lot: No known historic/archaeological sites exist within the Managers' Lot boundary. As a result, no impacts to historic/archaeological sites are expected at this site. The Managers' Lot site was rated good.

Amtrak Site: The Amtrak site lies within an area previously identified as having a known sensitive prehistoric site. This site is documented as being a site of statewide importance. Prior archaeological studies recommended that this site be preserved in place. The Amtrak site was rated poor for known archaeological resources.

CRCF Site: No known historic/archaeological sites exist within the CRCF boundary. This site has previously been developed and redevelopment is not expected to impact historic/archaeological resources. The CRCF site was rated good.

5.4.8 Forests

Forested areas were considered in evaluating the potential environmental considerations for each site. MAA has prepared a Reforestation Master Plan for BWI (MAA, 2003) and a Forest Maintenance Plan for BWI (MAA, 2003 revised). While four of the sites are not forested, one does contain a significant forest stand.

Terminal Core Area: No forest land exists within the boundary of the Terminal Core Area site. As a result, no impacts to forest land are expected at this site. The Terminal Core Area site was rated good. (Refer to Exhibit 5.2 in the Appendix.)

ESP Lot: North and west of the ESP Lot site is an identified forest stand. However, the development of a new hotel is expected to occur on the portion of the site which is already developed. The ESP Lot site was rated good.

Managers' Lot: The Managers' Lot site is adjacent to one forested area located west of the site. The proximity of the forests to this site creates the potential for impacts to forests if development extends outside the paved area. Assuming the development remains on the paved area, it is unlikely that forest impacts will occur. The site was rated good.

Amtrak Site: The Amtrak site is primarily forested. Development of a new hotel could result in the elimination of much of this forested area. An initial estimate showed the need to remove approximately 8 acres of forest. This would require mitigation in accordance with the Maryland Forest Conservation Act, including the preparation and approval of a Forest Stand Delineation/Forest Conservation Plan (FSD/FCP). A Forest Stand Delineation documents existing forest resources and habitat quality for a site; a Forest Conservation Plan documents proposed impacts to forest resources and tree protection measures that minimize impacts to these resources during construction and provides detail on mitigation plans to compensate for the proposed impacts. A penalty in the form of 2:1 replacement for impacted areas, which is in addition to the calculated mitigation ratio, is assessed for any project that impacts a previously designated Forest Conservation Area. State agencies, such as the MAA, submit FSDs/FCPs directly to the Maryland Department of Natural Resources Forest Service for review and approval. The Amtrak site was rated poor based on expected forest impacts.

CRCF Site: The CRCF site contains no forests. This site was rated good.

5.4.9 Air Quality

Air quality is an important health issue in the U.S. Under the Federal Clean Air Act (CAA), if a region does not meet the National Ambient Air Quality Standards (NAAQS), its regional council/association of governments is required to develop a State Implementation Plan (SIP) to demonstrate how it will meet these standards. The SIP includes a long-range forecast of all activities that contribute to air emissions. The Baltimore Metropolitan region, which includes Anne Arundel County, does not meet NAAQS and is designated as a severe ground level ozone "non-attainment area" by the US EPA.

Terminal Core Area: While, it is not anticipated that air quality will be negatively impacted by the development of a new hotel, a more detailed air quality analysis will be necessary to confirm that this is not an issue. The most likely source of emissions that would be scrutinized during the environmental review process would be temporary emissions associated with construction traffic and permanent stationary sources such as heating and air conditioning units. Air quality concerns would include emissions and dust associated with construction as well as the potential for increased emissions of air pollutants from the hotel's heating and air conditioning system. Vehicle traffic generated by the development would also be considered. The Terminal Core Area site was rated good for its ability not to impact air quality.

ESP Lot: Impacts to air quality are expected to be similar to those outlined for the Terminal Core Area. The ESP Lot site was rated good for its likelihood not to impact air quality.

Managers' Lot: Impacts to air quality are expected to be similar to those outlined for the Terminal Core Area. The Managers' Lot site was rated good for its likelihood not to impact air quality.

Amtrak Site: Impacts to air quality are expected to be similar to those outlined for the Terminal Core Area. The Amtrak site was rated good for its likelihood not to impact air quality.

CRCF Site: Impacts to air quality are expected to be similar to those outlined for the Terminal Core Area. The CRCF site was rated good for its likelihood not to impact air quality.

5.4.10 LEED

In order to help build a better understanding of Sustainable Design practices, and to establish a means of objectively measuring how "Green" a building is, the US Green Building Council created the Leadership in Energy and Environmental Design (LEED) Green Building rating system. The state of Maryland recommends (though does not require) that all state-sponsored building projects attain a Silver Certification based on the LEED system. The LEED point system is divided into six categories including one that addresses sustainable sites. Some of the design opportunities to consider in this category include minimizing paving not necessary to meet code or functional requirements, minimizing the development footprint, removing existing pavement, and developing a comprehensive, site-specific, stormwater management plan.

Terminal Core Area: The Terminal Core Area is located in an area that has previously been disturbed and paved. In order for a LEED certification to be granted, a site has to have the ability to incorporate the concept of sustainable development as well as avoid impacts to the surrounding environment. Sites which have been previously disturbed and paved are considered more likely to comply with LEED requirements than an undisturbed green site. The ability for a LEED certification of silver for this site is considered obtainable and resulted in a rating of good.

ESP Lot: Based on few impacts to the surrounding environment and the ability for sustainable development to be utilized at the site, the ESP Lot site was given a rating of good for its ability to incorporate the founding principles of a LEED silver certification.

Managers' Lot: This site has few impacts to the surrounding environment and has previously been disturbed and paved. The Managers' Lot site was given a rating of good for its ability to achieve a LEED rating of silver.

Amtrak Site: The majority of the Amtrak site is undeveloped. Nearby floodplains, forests and wetlands make this site a less desirable candidate from a sustainable

development standpoint. It is not disturbed or paved. As a result, the Amtrak site received a rating of fair.

CRCF Site: This site has been previously disturbed and paved and has few environmental impacts resulting from the development of a new hotel. The CRCF site is considered favorable for obtaining a LEED silver rating. The site was rated good.

5.5 Airport Development Impacts

The results of the airport development impact evaluation indicated that four of the five sites were considered good for their ability to comply with existing and future development at the Airport. The CRCF site was determined to have the most significant concerns with respect to airport development because use of this site would require relocating existing rental car maintenance facilities. An evaluation of the Horizontal Surface Limit (HS) for each site showed no Federal Aviation Regulations (FAR) Part 77 limitations that would preclude meeting the hotel building requirements identified in Section 3.0. **Table 5.6** provides the results of the airport development impact analysis.

Table 5.6: Airport Development Impacts

Criteria	Site 1: Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Existing Airport Development and/or Operations	●	◗	●	◗	○
Future Airport Development and/or Operations	●	●	○	●	●
Airspace Restrictions / Issues	●	●	●	●	●
Rating	**Good (3)**	**Good (2.5)**	**Fair (2)**	**Good (2.5)**	**Fair (2)**

Legend: ● = Good (1) ◗ = Fair (.5) ○ = Poor (0)

5.5.1 Existing Airport Development and/or Operations

Terminal Core Area: The Terminal Core Area site is currently being used as a vehicular parking lot and a base for ongoing construction operations at the Airport. As identified in the 2004 Edwards and Kelcey Hotel Feasibility Study, the development of a new hotel on this site is not anticipated to impact airside operations. It should be noted that this report also recommended a traffic analysis to determine the potential impact to landside operations such as vehicular access within the terminal core. This site received a rating of good for its ability not to impact existing airport development and/or operations.

ESP Lot: Currently, the ESP Lot site is used for surface parking. A review of airside and landside activities on this site indicated the relocation of ESP Lot would be required if a new hotel were developed at this site. The ESP Lot site was rated fair as a result of the impact to existing airport operations.

Managers' Lot: The Managers' Lot site is used for surface parking only during peak travel periods. Development of a new hotel at this site is not expected to impact existing airport development or airport operations. The Managers' Lot site was rated good.

Amtrak Site: The Kauffman Building on the Amtrak site is used as a Remote Airport Administration Building. While the exact location of a new hotel at this site is not yet known, it is possible that this building may have to be relocated in order to build a new hotel. In the event the hotel would have to be built on the same site as the Kauffman Building, impacts to existing airport development would occur. Based on a potential relocation and ultimate impact to existing airport development, the Amtrak site was rated fair.

CRCF Site: The CRCF site is currently used by one of the rental car agencies as an operations center for vehicular maintenance, washing, and service. This site is considered a piece of the overall consolidated rental car facility for the Airport. Development of a new hotel on this site would require the rental car operation to relocate to another parcel within the overall consolidated rental car facility. As a result, the CRCF site was rated poor.

5.5.2 Future Airport Development and/or Operations

Terminal Core Area: A review the Airport's proposed future Airport Layout Plan (ALP) indicates that a new hotel within the Terminal Core Area site is compatible with the desired type of development planned for the future (see **Figure 5.10**). Development of a new hotel is not expected to impact future airport development projects or negatively affect future airport operations at this site. This Terminal Core Area site was rated good for its ability to comply with future airport plans.

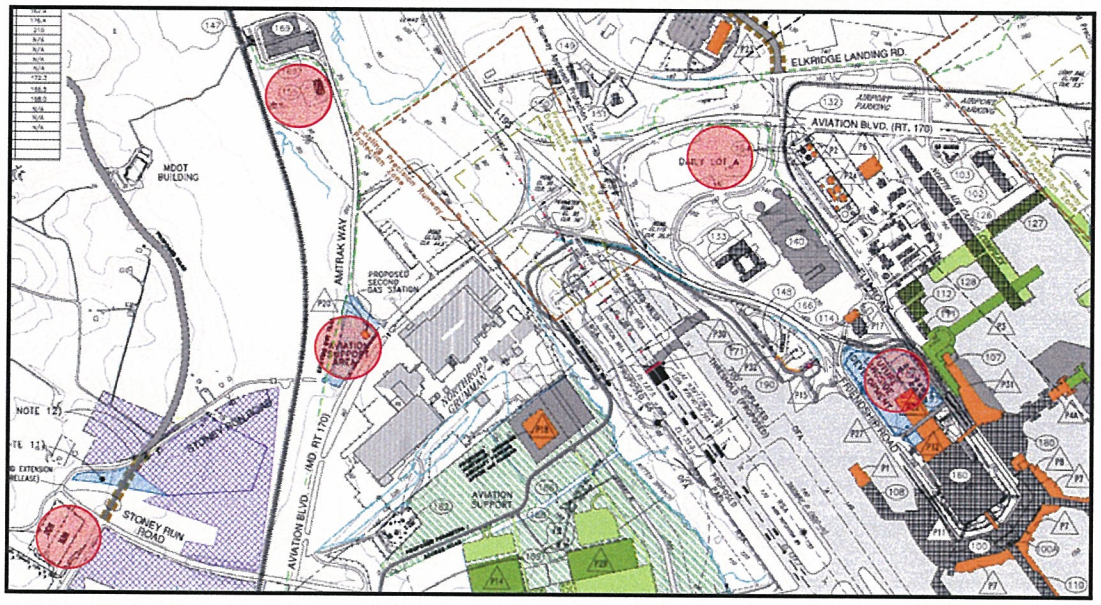
ESP Lot: Future development of the Regional Intermodal Transportation Center is planned near the boundary of the ESP Lot site. The exact location of this planned facility is not yet known; however, the development of a new hotel at the ESP Lot site is not anticipated to impact future airport projects or future airport operations. The overall size of this site versus the projected size of a new hotel led to a rating of good for this site.

Managers' Lot: According to the Airport and the proposed future ALP, the Managers' Lot site has been identified as an area for future aviation support. Subsequently, this site has also been identified as a potential site for a future gas station. Development of a new hotel at this site may not be compatible with the future plans for this site. As a result, the Managers' Lot site was rated poor due to the potential for future airport related development on this site.

Amtrak Site: No future airport development plans have been identified on the Airport's proposed future ALP for the Amtrak site. Should the hotel development occur at this site, no impacts to future airport development and operations are expected. This site was rated good.

CRCF Site: While the development of a hotel on this site will impact current airport operations, it is compatible with future airport plans and is not expected to affect any other future airport facilities or operations. As a result, the CRCF site was rated good.

Figure 5.10: Proposed Future Airport Layout Plan (ALP)



5.5.3 Airspace Restrictions / Issues

Terminal Core Area: The ground elevation at the Terminal Core Area site was determined using the proposed future Airport Layout Plan (ALP). The elevation at this site is 150 Mean Sea Level (MSL). Based on the Airport's existing Horizontal Surface (HS) limit of 296 MSL, approximately 146 feet are available Above Ground Level (AGL) for the development of a new hotel. Given the available clearance, no elevation constraints are known to exist. The Terminal Core Area site was rated good.

ESP Lot: The ESP Lot site has a published elevation of 170 MSL. This site has approximately 126 feet AGL which is usable for the vertical development of a new hotel. The elevation of the site is not anticipated to impact the Airport's HS limit of 296 MSL, the ESP Lot site was rated good.

Managers' Lot: BWI's current ALP indicates the Managers' Lot has an elevation of 100 MSL. Based on this elevation, 196 feet AGL may be used for vertical hotel development. No elevation impacts exist at this site. The Managers' Lot site was rated good.

Amtrak Site: The majority of the Amtrak site has an elevation of 90 MSL. The remaining elevations at this site slope downward toward a low lying area. This site lies within the approach and transitional surfaces for Runway 15R. However, given the distance from the runway end, there are no significant elevation restrictions that would preclude hotel development ion the site. This site was rated good.

CRCF Site: The CRCF site has an estimated elevation of 120 MSL. This site is anticipated to provide ample vertical space for development of a new hotel. It should also be noted; however, that the Approach Surface (AS) for R/W 10L is very close to CRCF site. Should the length of R/W 10L change, this site should be revaluated for potential impacts the AS limit. This site was rated good.

5.6 Location and Visibility

An evaluation of the location and visibility of those sites considered for a new hotel was conducted. Results indicated two of the five sites were rated good for their individual location, visibility, view shed/vistas and market presence characteristics. These sites include the Terminal Core Area and ESP Lot. Both these sites were determined to have excellent locations and high visibility. These sites could provide guests with a desirable view overlooking the airfield. The overall market presence of the Terminal Core Area and the ESP Lot sites was rated good due to the ability to capture a significant share of the hotel market. Those sites further from the Airport were rated from fair to poor. **Table 5.7** shows the results of the location and visibility evaluation.

Table 5.7: Location and Visibility

Criteria	Site 1: Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Location	●	◗	◗	○	○
Visibility	●	●	◗	○	○
View Shed/Vistas	●	●	◗	◗	○
Market Presence	●	●	◗	○	○
Rating	**Good (4)**	**Good (3.5)**	**Fair (2)**	**Poor (.5)**	**Poor (0)**

Legend: ● = Good (1) ◗ = Fair (.5) ○ = Poor (0)

5.6.1 Location

Terminal Core Area: The Terminal Core Area is the closest site in proximity to the terminal building. A new hotel at this site would provide hotel patrons with access to conveniences such as food and beverage, retail shopping outlets and individual airline stations within the terminal building. The Terminal Core Area site was rated good for its location near the terminal.

ESP Lot: The ESP Lot site was rated fair based on the development of a new hotel at this location. Support for this rating stems from the anticipated level of convenience hotel patrons bound for the terminal building would be provided at the ESP Lot site. When compared to Terminal Core Area site, this site is considered less favorable and received a fair rating.

Managers' Lot: The location of the Managers' Lot site is further away from an established activity center than other sites under consideration for a new hotel. If developed at this site, hotel patrons would have to travel outside the hotel property for

many of desired services offered at the terminal. The Managers' Lot site received a rating of fair.

Amtrak Site: The location of the Amtrak site was considered the less desirable for the development of a new hotel. This site not only requires a longer travel distance, but it also is isolated from nearby services desired by hotel patrons. This site was rated poor for its location to an activity center.

CRCF Site: The CRCF site also received a rating of poor based on its proximity to a known activity center. Development of a new hotel at this site is anticipated to lack the desired conveniences located near other sites within a more developed area.

5.6.2 Visibility

Terminal Core Area: The visibility of a new hotel within the Terminal Core Area site is considered exceptional from the main entrance into the Airport. Located in the center of the terminal area, a new hotel could become a focal point for many passengers entering and exiting the terminal area. The Terminal Core Area site was rated good for visibility.

ESP Lot: A new hotel at the ESP Lot site would be visible from the main entrances into the Airport including both I-195 and Elm Road. The ESP Lot site was rated good for its visibility.

Managers' Lot: The overall visibility of the Managers' Lot site was rated fair based on the distance from the main Airport entrance and I-195. In addition, this site is small in scale compared to the existing focal point of the Northrop Grumman facility located across Aviation Boulevard from the propose hotel site.

Amtrak Site: Visibility from the main Airport entrance and I-195 is very limited and could only be overcome by building the hotel tall enough to be seen more widely. The distance between the proposed hotel location and the major highways is too far for people to see and ultimately resulted in a poor rating.

CRCF Site: Visibility between the CRCF site and Aviation Boulevard is obstructed by forests. At this site, the development of a new hotel building is not expected to be easily identifiable for hotel patrons. This site was rated poor for visibility.

5.6.3 View Shed / Vistas

For the view shed/vistas analysis each site was evaluated for its potential view shed overlooking the surrounding area. It should be noted that the actual view shed/vistas will be determined in the next phase of the hotel's development.

Terminal Core Area: The development of a new hotel at this site is expected provide hotel patrons with an excellent view shed of the airfield looking outward from inside the hotel. It is anticipated that the development of a new hotel at this site would be known for its world-class view of the airfield. This site was rated good for its view shed/vista capability.

ESP Lot: The ESP Lot site's proximity to the airfield creates an opportunity to establish a desirable view shed/vista for future hotel patrons. Still considered within visual range of the Airport, this site was rated good for its ability to provide a desirable view of the airfield looking outward from within a new hotel.

Managers' Lot: The location of the Managers' Lot site is not conducive to a developing a desirable airfield view shed/vista for a new hotel; however, the forested areas surrounding three sides of this site create an equally desirable scenic view shed when looking outward from a new hotel. Unfortunately, the eastern side of a new hotel at this site faces the Northrop Grumman facility and creates a less desirable view when looking outward. This site was rated fair for its view shed/vista potential.

Amtrak Site: The Amtrak site is considered a decent site for creating a scenic view shed/vista when look outward from a new hotel. The forests surrounding the Amtrak site create a panoramic view shed for future hotel patrons to lookout on from inside the hotel. Overall, this site was rated fair for its view shed/vista potential.

CRCF Site: If developed on the CRCF site, the view shed/vista created by a new hotel is not anticipated to be desirable for those hotel patrons looking outward on the south side of the hotel. Looking outward to the north and west, a scenic view of the surrounding forest land can be seen presently; however future development in these areas is anticipated. It is anticipated that the development of these areas would ultimately result in a view shed overlooking industrial buildings and parking. The CRCF site received a rating of poor.

5.6.4 Market Presence

Terminal Core Area: A new hotel within the Terminal Core Area is anticipated to become an icon for the Airport. The perceived market presence of a new hotel which is located within walking distance from the terminal building is expected to achieve more than its fair share of the hotel market. Conveniences such as retail shopping, food and beverage shops, and access to airline ticket counters create a distinct advantage for a new hotel within the core area. As a result, the Terminal Core Area site was rated good.

ESP Lot: The perceived market presence of a new hotel within the ESP Lot site is expected to draw a significant amount of market share compared to other hotels within the immediate area. Development of a new hotel on this site would likely become a symbol at the Airport. The ESP Lot site was rated good for its ability to attain a strong market presence in the area.

Managers' Lot: The development of a new hotel located on the Managers' Lot site is anticipated to have a less favorable market presence than other sites under consideration. Based on the sites visibility and distance from the Airport's main entrance, a new hotel is not likely to become an icon for the Airport. The Managers' Lot site received a rating of fair.

Amtrak Site: The development of a new hotel on the Amtrak site is considered less favorable than most of the other sites. Visibility constraints created by the forests between Aviation Boulevard to the site limit the anticipated exposure a new hotel would get from people traveling to and from the Airport. As a result, the Amtrak site was rated poor for its ability to capture market presence within the area.

CRCF Site: A new hotel development at the CRCF site is also not expected to generate significant market presence among other hotels in the immediate area. Visibility to this site is constrained by forests existing between the site and Aviation Boulevard. Development of a new hotel at this site is not expected to become a symbol for the Airport. This site received a rating of poor.

5.7 Customer Service and Access to Amenities

The results of the customer service and access to amenities evaluation indicated a clear advantage for the Terminal Core Area site. Its presence near the terminal building provides hotel patrons with the opportunity to choose outside food and beverage and retail services for those customers desiring non-hotel services. The ESP Lot site was the next best, with a short shuttle connection to the terminal. All of the other sites were rated poor for their lack of food/beverage and retail services near their location. **Table 5.8** displays the results of the customer service and access to amenities evaluation.

Table 5.8: Customer Service and Access to Amenities

Criteria	Site 1: Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Proximity to Food and Beverage Services	●	◗	○	○	○
Proximity to Retail Services	●	◗	○	○	○
Rating	**Good (2)**	**Fair (1)**	**Poor (0)**	**Poor (0)**	**Poor (0)**

Legend: ● = Good (1) ◗ = Fair (.5) ○ = Poor (0)

5.7.1 Proximity to Food and Beverage Services

Terminal Core Area: Development of a new hotel on the Terminal Core Area site would provide hotel patrons with the opportunity to use the various food and beverages services within the terminal building, in addition to the planned restaurants within the hotel. Patrons could access the terminal services either by walking or by using a shuttle. Therefore, this site would offer more choices than any of the other four sites. The Terminal Area Core site was rated good.

ESP Lot: Outside the proposed restaurant within the new hotel, direct access to food and beverage services at this site is limited. Patrons could use a shuttle to access the terminal. Most additional food and beverage choices would require hotel patrons to travel 5 to 10 minutes. The ESP Lot site was rated fair.

Managers' Lot: The Managers' Lot site is also not near existing food and beverages services. Travel to the nearest location of restaurant choices is approximately 5 to 10 minutes from the site of a new hotel. The Managers' Lot site was rated poor.

Amtrak Site: The Amtrak site is also distant from existing food and beverages services (other than the Amtrak station snack shop). Travel to nearby restaurants is estimated at 6 to 11 minutes. The Amtrak site was rate poor.

CRCF Site: The CRCF site is not near existing food and beverages services. Hotel patrons seeking nearby restaurants would be required to travel over 10 minutes before reaching multiple food and beverage options. Overall, the CRCF site was rated poor.

5.7.2 Proximity to Retail Services

Terminal Core Area: A variety of retail services such as bookstores and gift shops are located within the main terminal building. Customers of a new hotel in the core area would have access to these services either by walking or using a shuttle. The site was rated good.

ESP Lot: Patrons at a hotel on this site could use a shuttle to access the terminal. It would be necessary to drive some distance to reach other retail stores. This site was rated fair.

Managers' Lot: It is necessary to drive some distance to reach the closest retail stores from the Managers' Lot site. Considering the required travel and inconvenience to hotel patrons, this site was rated poor.

Amtrak Site: The Amtrak site requires driving a considerable distance before reaching the nearest retail establishments. Based on the distance and travel time, this site was rated poor.

CRCF Site: The CRCF site was also rated poor based on its lack of retail stores near the proposed hotel location.

5.8 Capital Costs

An evaluation of potential project costs indicated that only the ESP Lot site was considered good. It had both low site preparation costs and could be developed with few complicating factors that would drive up building costs. The Terminal Core Area site was rated fair, mainly because construction in the terminal core can be complex and a hotel in that area is likely to be more expensive to build than on some of the other sites. The Amtrak Station and CRCF sites were both rated poor in large part due to the expected high site preparation costs associated with each site. **Table 5.9** provides a graphical depiction of the capital cost evaluation for each site.

Table 5.9: Capital Costs

Criteria	Site 1: Terminal Core Area	Site 2: ESP Lot	Site 3: Managers' Lot	Site 4: Amtrak Station Area	Site 5: CRCF
Site Preparation Costs	●	●	●	○	○
Comparative Hotel Construction Costs	◗	●	◗	◗	●
Rating	**Fair (1.5)**	**Good (2)**	**Fair (1.5)**	**Poor (.5)**	**Poor (1)**

Legend: ● = Good (1) ◗ = Fair (.5) ○ = Poor (0)

5.8.1 Site Preparation Costs

Order of magnitude site preparation costs were estimated for each land parcel. Sites were rated good if the estimate was less than $500,000. Sites were considered fair if the estimate was between $500,000 and $1 million. Site preparation costs of over $1 million resulted in a rating of poor. Exhibits 5.11-5.15 located in the Appendix provide a breakdown of the anticipated preparation costs for each site.

Terminal Core Area: The site preparation cost for the Terminal Core Area site was estimated at less than $500,000. This includes the necessary pavement removal and site clearing for the development of a new hotel. Utility relocation estimates are not included in this amount. Based on the range of site preparation costs for the other sites, the Terminal Core Area site was rated good.

ESP Lot: The site preparation cost for developing a new hotel on the ESP Lot site was estimated at less than $500,000. This amount includes pavement removal and site clearing. This site was rated good.

Managers' Lot: According to preliminary cost estimates, the Managers' Lot site has the lowest site preparation cost at less than $500,000. This amount includes pavement removal, site clearing and demolition of a small ticket booth on the site. Overall, this site was rated good for site preparation costs.

Amtrak Site: The preliminary site preparation cost for the Amtrak site was initially estimated at between $500,000 and $1 million, including clearing and grubbing, pavement removal, building demolition, and projected reforestation costs. However, this cost did not include any archaeological mitigation costs. Given the presence of a documented prehistoric site, archaeological work through Phase III (artifact recovery) is anticipated. The cost of this work is expected to be significant. Therefore the total expected site preparation cost exceeds $1 million and the Amtrak site was rated poor.

CRCF Site: The preliminary site preparation cost for the CRCF site was estimated at less than $500,000 for site clearing, pavement removal, and building demolition. However, it is expected that MAA will have to relocate the existing rental car maintenance facility to another nearby site. The cost of this relocation could increase the total site preparation cost to well over $1 million. Therefore, the CRCF site was rated poor.

5.8.2 Comparative Hotel Construction Costs

Terminal Core Area: The construction of a new hotel on the Terminal Core Area site is expected to be more expensive than the cost for some of the other proposed sites. One major reason for this is the high demand for the land, which would likely lead to a taller building and structured parking, while a low rise structure with surface parking may be possible on at least one of the other sites. In addition, the hotel design is expected to tie to the existing Hourly Garage, while maintaining garage ingress and egress. Construction staging, parking, maintenance of traffic, and other similar issues could also be more complex in the terminal core. Overall, this site was rated fair.

ESP Lot: The ESP Lot site has few significant building limitations or complicating factors. The hotel construction cost for the ESP Lot site is expected to be low compared to other sites under consideration. As a result, the site was rated good.

Managers' Lot: The major limitations associated with the Managers' Lot site are its size and shape. These two factors will lead to a tall hotel design with a multi-level parking garage. Garage access and egress could also be challenging. Therefore, hotel construction costs are expected to be higher than for the other larger sites. Overall, the ESP Lot site was rated fair.

Amtrak Site: The results of the various development and environmental analyses highlighted a number of known building limitations. Some of the costs associated with these limitations will result in higher site preparations costs; however the actual hotel construction could also be more expensive as the buildable area may have to be limited and special attention given to a number of key issues. Schedule slippage could also become a problem for the building. Based on the known site limitations and risks associated with developing this site, it was rated fair.

CRCF Site: As mentioned previously, the site preparation costs for the CRCF site are expected to be high due to relocating the existing rental car maintenance facilities. However, beyond this initial relocation cost, the hotel construction cost is expected to be reasonable with few complicating factors compared to the other sites. Overall, this site was rated good for hotel development cost.

6.0 EVALUATION SUMMARY

Using the eight evaluation criteria, each of the potential hotel sites was rated to determine which site was best suited to development of the proposed new hotel. **Table 6.1** provides a summary of this cumulative evaluation.

6.1 Evaluation Summary

The Terminal Core Area site was rated the best overall site for the development of a new hotel. It rated "Good" in seven of the eight categories (it also had the most points overall). Several criteria in the evaluation contributed significantly in making this site better than the other sites considered, these include physical characteristics, development potential, compatibility with airport development, and location and visibility. The Terminal Core Area's most prominent advantage over other sites is its proximity to the terminal building. A new hotel at this site can result in the development of several synergistic opportunities including parking, retail services, food and beverage services and conferences (meeting space). Passengers within the terminal are expected to utilize these facilities since they exist so close to the terminal building. Another distinct advantage of the Terminal Core Area is minimal impact to the environment. The only fair rating was for capital costs and this was related to the expected higher costs of construction in the core area.

The ESP Lot site was also highly rated for development of a new hotel. This site shared some of the same benefits as the Core Area site; however, its distance from the main terminal resulted in fair rankings in a few key areas when compared to the Terminal Core Area site. One of the ESP Lot site's more notable disadvantages was its lack of multiple joint-use synergistic opportunities with the main terminal or other developments. Other evaluation criteria used to determine this site's feasibility for a new hotel frequently matched that of the Terminal Core Area site. Criteria such as topography, land use, size, access, airspace compatibility, site preparation costs, and market presence all rivaled the Terminal Area Core site's ability to accommodate a new hotel. While rated good overall, the ESP Lot site does not offer the cumulative benefits offered at the Terminal Area Core site.

Overall, the Managers' Lot site was rated fair for the development of a new hotel. This site rated good for criteria such as minimal potential impacts to environmental resources and capital costs; however, the site's size and shape make it challenging to meet the project development requirements and there are potential impacts to proposed future airport development. The Managers' Lot site also did not rate well in key areas such as access to the terminal, location and visibility, and customer service and access to amenities. These areas also play a vital role in achieving the hotel vision identified in Section 1.2.

The Amtrak Station site was rated poor for the development of a new hotel. Aside from poor ratings in physical characteristics, location and visibility, customer service and access to amenities, and capital costs; the Amtrak Station site has a significant

historic/archeological site identified within its boundary and a recommendation of preservation in place was previously made for this site. Development of a new hotel on the Amtrak site would be very challenging and could be infeasible. As a result, the Amtrak Station site was rated poor.

The CRCF site was also rated poor for the development of a new hotel. One of the most significant disadvantages of the CRCF is the required relocation of one rental car agency's maintenance facility. This facility is associated with the newly developed consolidate rental car facility and could cost in excess of $1 million to relocate within the consolidated rental car area. In addition, the site is located in a 65-70 DNL noise contour, which would require the use of some noise mitigation measures prior to the development of a new hotel. Based on several poor ratings and costs, this site was rated poor for a new hotel.

Table 6.1: Evaluation Criteria Matrix Summary

Criteria	**Site 1: Terminal Core Area**	**Site 2: ESP Lot**	**Site 3: Managers' Lot**	**Site 4: Amtrak Station Area**	**Site 5: CRCF**
	Rank	Rank	Rank	Rank	Rank
Physical Characteristics	Good (4)	Good (3.5)	Good (3.5)	Poor (1)	Fair (2.5)
Development Potential	Good (7)	Good (6.5)	Fair (3.5)	Poor (3)	Fair (3.5)
Access to Terminal	Good (3)	Good (2.5)	Poor (.5)	Fair (1.0)	Poor (.5)
Environmental Resources	Good (9.5)	Good (10)	Good (10)	Poor (6)	Good (9)
Airport Development Impacts	Good (3)	Good (2.5)	Fair (2)	Good (2.5)	Fair (2)
Location and Visibility	Good (4)	Good (3.5)	Fair (2)	Poor (.5)	Poor (0)
Customer Service & Access to Amenities	Good (2)	Fair (1)	Poor (0)	Poor (0)	Poor (0)
Capital Costs	Fair (1.5)	Good (2)	Fair (1.5)	Poor (.5)	Poor (1)
OVERALL SITE RANKING	**Best Site**	Good	Good	Poor	Poor

Note: (#) Indicates total cumulative points in the category

APPENDIX

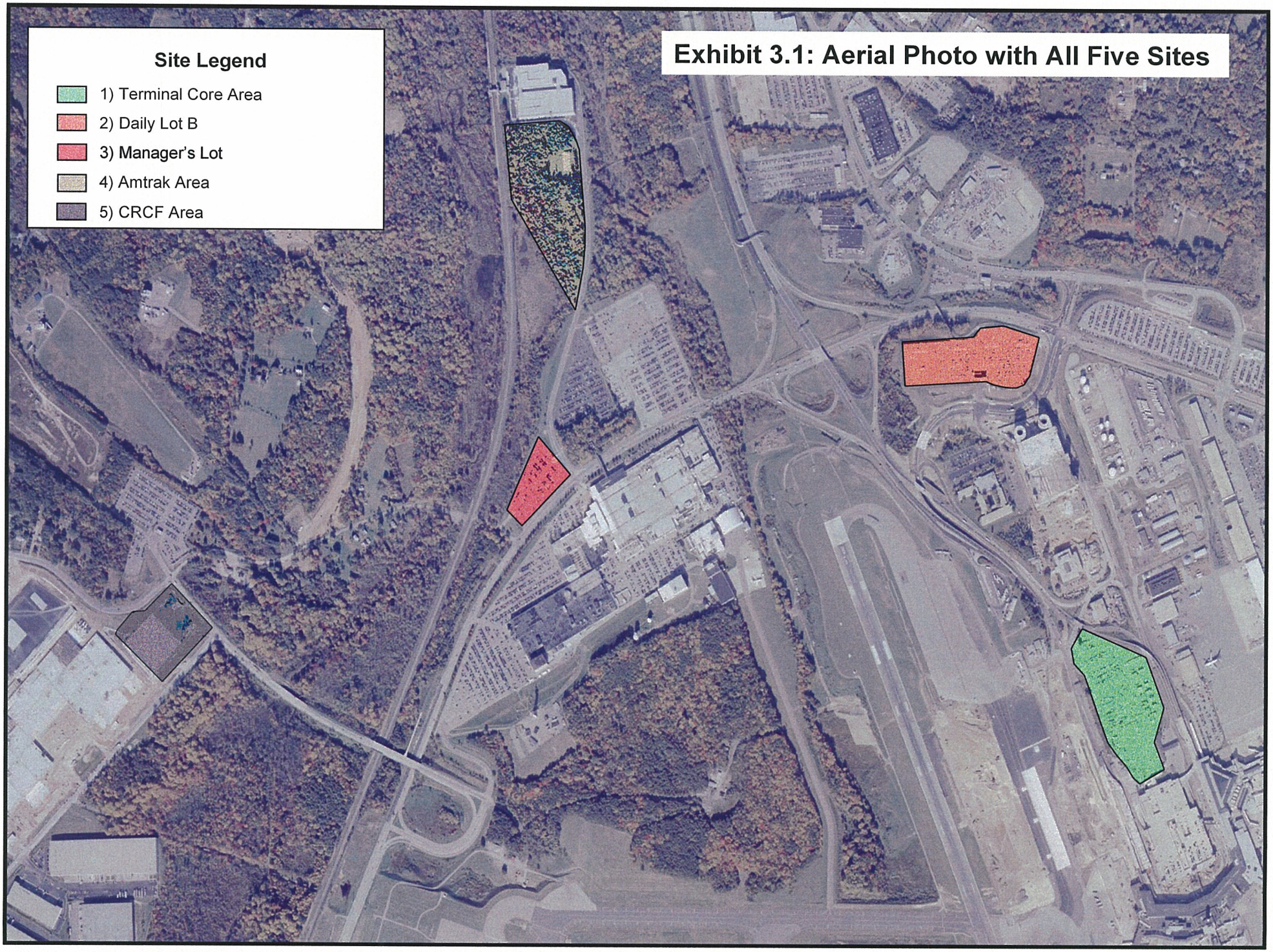
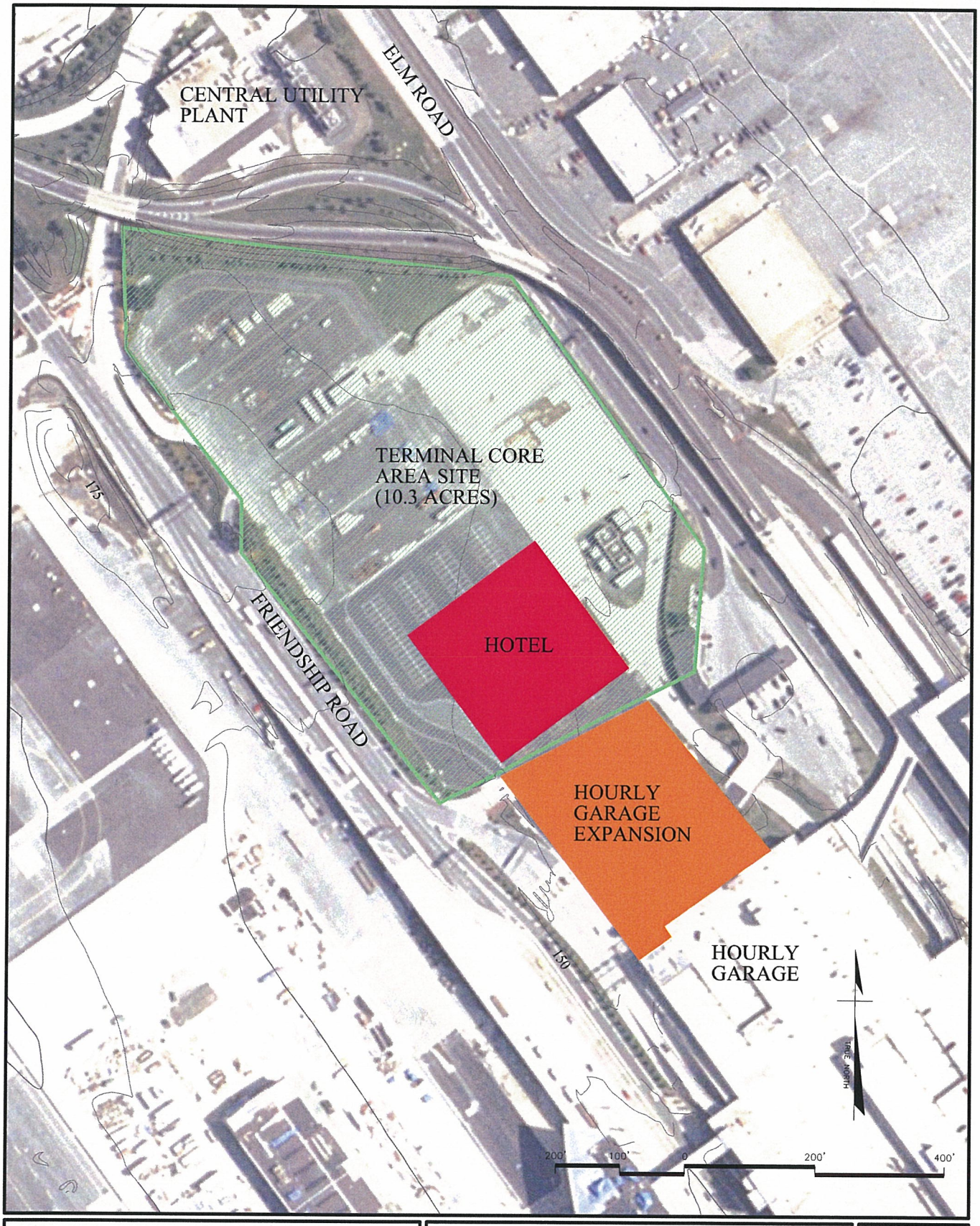


Exhibit 3.1: Aerial Photo with All Five Sites



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TERMINAL CORE AREA SITE

EXHIBIT 3.2

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DAILY LOT B SITE

EXHIBIT
3.3

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MANAGERS' LOT SITE
AT AVIATION BOULEVARD
AND AMTRAK WAY

EXHIBIT
3.4

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AMTRAK SITE

EXHIBIT
3.5

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INTERNATIONAL AIRPORT

CRCF SITE

EXHIBIT
3.6

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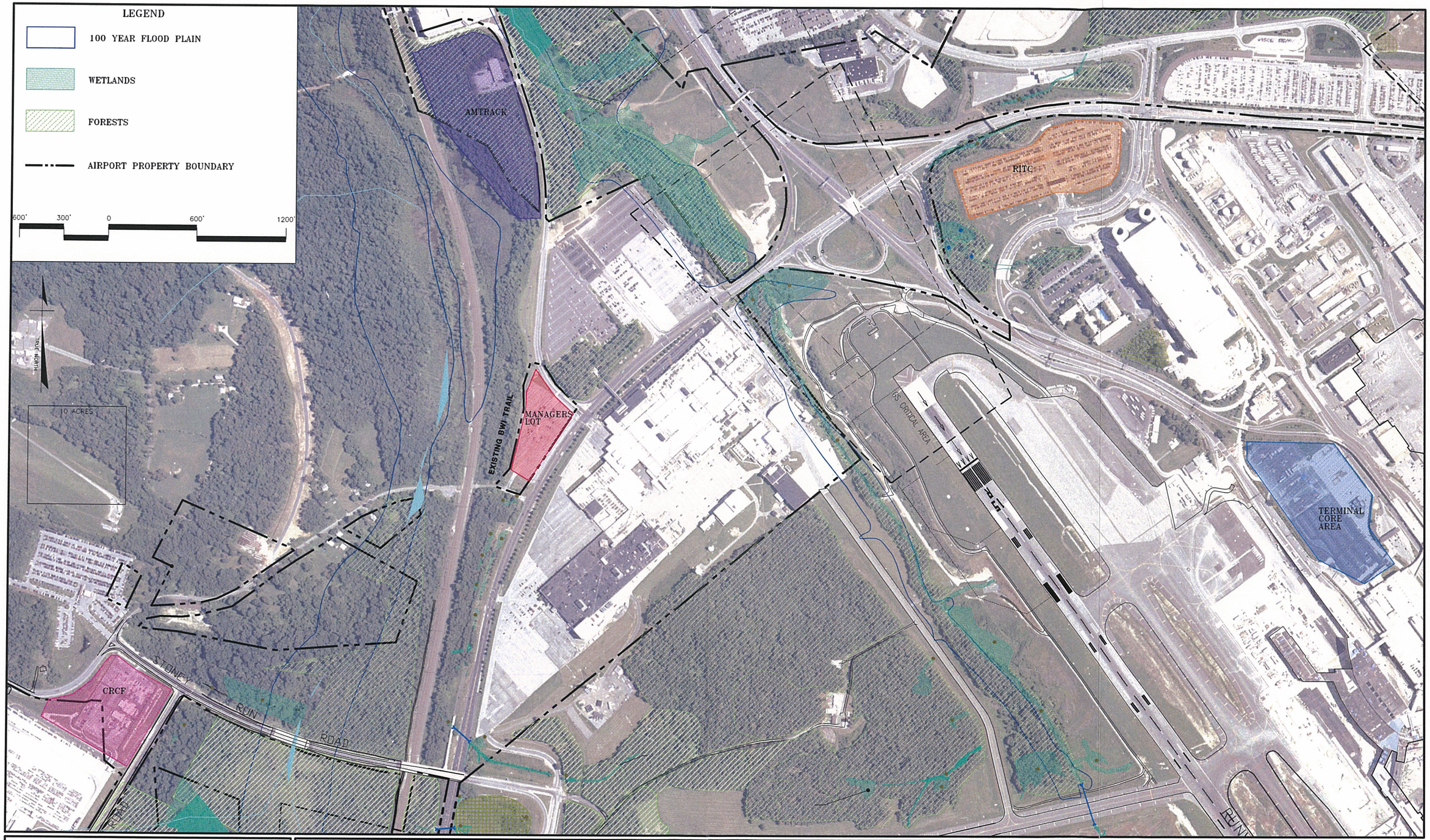
HISTORIC/ ARCHEOLOGICAL RESOURCE MAP

EXHIBIT 5.1



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FLOODPLAIN, WETLANDS, AND FORESTS RESOURCE MAP

EXHIBIT 5.2

Exhibit 5.3

Terminal Core Area Site				
Description	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Removal of Existing Pavement	9,400	CY	$35.00	$329,000
Clearing Existing Site	6	Acre	$4,000.00	$23,200
			Total =	**$352,200**
			Say =	**$353,000**

Note:
1) Utility Relocation Cost not included

Exhibit 5.4

ESP Lot Site				
Description	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Removal of Existing Pavement	11,400	CY	$35.00	$399,000
Clearing Existing Site	7	Acre	$4,000.00	$28,400
			Total =	**$427,400**
			Say =	**$428,000**

Note:
1) Utility Relocation Cost not included

Exhibit 5.5

Managers' Lot Site				
Description	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Removal of Existing Pavement	6,900	CY	$35.00	$241,500
Clearing Existing Site	5	Acre	$4,000.00	$18,800
Demolition of Existing Parking Booth (8'x8')	640	CF	$0.50	$320
			Total =	**$260,620**
			Say =	**$261,000**

Note:

1) Utility Relocation Cost not included

Exhibit 5.6

Amtrak Site				
Description	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Removal of Existing Pavement	1,000	CY	$35.00	$35,000
Clearing and Grubing Existing Site	9	Acre	$13,000.00	$113,490
Demolition of Existing Buildings (1 story)	301,000	CF	$0.50	$150,500
Reforestration	8	Acre	$30,000.00	$240,000
			Total =	**$538,990**
			Say =	**$539,000**

Note:

1) Archaeological Cost not included, If archelogical costs included, total site preperation cost could exceed $1 million
2) Utility Relocation Cost not included

Exhibit 5.7

CRCF Site				
Description	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Removal of Existing Pavement	6,100	CY	$35.00	$213,500
Clearing and Grubing Existing Site	8	Acre	$6,000.00	$48,000
Demolition of Existing Buildings (2 story)	260,000	CF	$0.50	$130,000
			Total =	**$391,500**
			Say=	**$392,000**

Note:
1) Utility Relocation Cost not included
2) Does not include Consolidated Rental Car Facility Relocation & Reconstruction, inclusion of these costs could increase site preperation over $1 million