

Harford County Multi-Modal Transportation Center Feasibility Study



Final Report
August 2009



Prepared for:



Prepared by:



Table of Contents

EXECUTIVE SUMMARY.....	ES-1
Introduction.....	ES-1
Program for the MTC.....	ES-1
Site Alternatives.....	ES-1
Evaluation of Alternatives.....	ES-2
Physical Impacts.....	ES-2
Transportation Impacts.....	ES-2
Land Use.....	ES-3
Cost Implications.....	ES-3
Recommendations.....	ES-4
INTRODUCTION.....	1
Purpose of the Study.....	1
Study Process.....	2
EXISTING CONDITIONS.....	4
Existing Aberdeen Station Characteristics.....	4
Forces and Issues.....	5
Zoning/Land Use.....	5
FUTURE MULTI-MODAL STATION REQUIREMENTS.....	10
Amtrak.....	10
MARC.....	12



Aberdeen Proving Ground	12
Harford County Transit	14
MTA Buses	14
Bicycle/Pedestrian	15
Other	15
Program Summary	15
ALTERNATIVE SITE DESIGNS	16
Stormwater Management	16
PUBLIC INVOLVEMENT	23
ECONOMIC DEVELOPMENT ANALYSIS	25
Overview of TOD Evaluation Criteria	25
Transit Oriented Development Station Area Evaluation Summary	29
EVALUATION OF ALTERNATIVES	30
Physical Impacts	30
Natural Resources	30
Floodplains	30
Wetlands and Waters of the U.S.	30
Chesapeake Bay Critical Area	31
Forests	31
Rare, Threatened, and Endangered Species	31
Physical Environment	32
Historic Resources	32
Agricultural Land	32
Public Water Sources	32
Socioeconomic Features	32
Land Acquisition	32
Maryland Priority Funding Areas	34
Parkland	34
Environmental Justice	34
Potential Contamination	36
Summary of Physical Impacts	38



Transportation Impacts	38
Traffic Volumes	39
Site Trip Generation	40
Trip Distribution and Assignment	40
2015 Build MTC Traffic Volumes	40
2015 Roadway Improvements	40
Capacity Analysis - 2015 No-Build MTC Conditions	44
Capacity Analysis - 2015 Build MTC Conditions	44
Comparative Analysis between Sites A, B, and C	47
Traffic Study Conclusions	47
Transit Access and Circulation	48
Pedestrian/Bicycle Connectivity	48
Summary of Transportation Impacts	48
Land Use and Transit Oriented Development Potential	49
Potential Relocation of Existing Station	49
Cost Implications	51
Summary	51
IMPLEMENTATION PLAN	54
Recommended Site and Site Plan Features	54
Funding	57
Implementation Steps and Responsibilities	58
Implementation Issues	60
Appendix A – Stakeholder Meeting Minutes	CD Included
Appendix B – Transit Oriented Development Analysis	CD Included
Appendix C – Cost Estimates	CD Included



List of Figures

<u>Figure Number</u>	<u>Title</u>	<u>Page</u>
1	Study Area Map	3
2	Forces and Issues – Site A	6
3	Forces and Issues – Sites B and C	7
4	Zoning/Land Use – Site A	8
5	Zoning/Land Use – Sites B and C	9
6	Typical Amtrak Pedestrian Crossing Facility	11
7	Aberdeen MARC Station Parking Expansion	13
8	Site Plan: Site A, Option 1	17
9	Site Plan: Site A, Option 1 (Aerial Perspective).....	18
10	Site Plan: Site A, Option 2.....	19
11	Site Plan: Site B.....	20
12	Site Plan: Site C.....	21
13	Transit Oriented Development Success Potential Factors.....	26
14	Existing Conditions Evaluation Criteria.....	27
15	Local Government Evaluation Criteria.....	27
16	Market and Development Evaluation Criteria.....	28
17	Other Factors Evaluation Criteria.....	28
18	Summary – Transit Oriented Development Success Criteria	29
19	Public Water Sources	33
20	Priority Funding Areas.....	35
21	EDR Database Search Results.....	37
22	2015 Build MTC Traffic Volumes for Site A.....	41
23	2015 Build MTC Traffic Volumes for Site B.....	42
24	2015 Build MTC Traffic Volumes for Site C.....	43
25	Reference Map for Table 9	46
26	Existing Land Use within ½ Mile of Site A.....	50
27	Existing Land Use within ½ Mile of Sites B and C	50
28	Station Rendering, View Looking North.....	55
29	Station Rendering, View Looking South.....	56
30	Potential Project Schedule.....	60



List of Tables

<u>Table Number</u>	<u>Title</u>	<u>Page</u>
ES-1	Proposed Station Program	ES-2
ES-2	Evaluation of Site Alternatives	ES-5
1	Existing Train Service	5
2	Existing and Forecasted (2035) Amtrak Boardings and Alightings	10
3	Existing and Forecasted (2030) MARC Boardings	12
4	Potential Transit Trips to APG	14
5	Proposed Station Program	15
6	Population Data - Percent Below Poverty Level and Percent Minority	34
7	EDR Database Search Results	38
8	Summary of Impacts	39
9	Capacity Analyses Under 2015 No-Build and 2015 Build Conditions	45
10	Comparative Analysis between Alternative Site Locations (2015 Conditions)	48
11	Evaluation of Site Alternatives	52



Executive Summary

Introduction

The Chesapeake Science and Security Corridor (CSSC) Regional BRAC Office and Harford County initiated a study to assess the feasibility of a multi-modal transportation center (MTC) to serve the anticipated regional growth expected due to additional employment at the Aberdeen Proving Ground (APG) resulting from the 2005 Base Realignment and Closure (BRAC) Act.

The purpose of the study is:

- To identify the optimal location of a MTC in the Aberdeen area to meet future growth and transit needs
- To determine the optimal facility to accommodate multi-modal transportation and transit oriented development (TOD) around the station area.

Program for the MTC

The program for the MTC has been defined to include the elements shown in **Table ES-1**.

Site Alternatives

The study team evaluated three alternative sites for a

MTC in the Aberdeen area as described below:

- **Site A – Existing Aberdeen Station**
The existing Aberdeen Train Station is located east of US 40 south of West Bel Air Avenue (MD 132). The station is immediately east of downtown Aberdeen. There were two options considered for Site A. Option 1 displaces the shopping center south of the existing station. Option 2 does not displace the shopping center.
- **Site B – Mitchell Property**
The Mitchell Property is located east of Old Philadelphia Road, west of the railroad tracks and north of MD 715. Site B is located approximately 1.2 miles south of Site A. There were two options considered for Site B. Option 1 provides all surface parking. Option 2 provides structured parking.
- **Site C – APG Property**
This site is located on the east side of the railroad tracks on APG property north of MD 715. Site C is located approximately 1.2 miles south of Site A. There were two options considered for Site C. Option 1 provides all surface parking. Option 2 provides structured parking.



**Table ES-1
Proposed Station Program**

PROGRAM ELEMENT		EXISTING	PROPOSED
Platform Dimensions	Length	250 feet	950 feet
	Width	14.5 feet	14.5 feet
	Height	0.75 feet	4 feet
Station	Floor Area	3500 S.F.	3200 S.F.
Pedestrian Facility		Overpass with ramp and stairs, tunnel	Overpass with stairs and elevators
Bicycle Facility		Bicycle racks	Bicycle racks and lockers
Parking	Park and Ride	188 spaces	500 spaces
	Pick-up / Drop-Off	4 spaces	15 spaces
Bus Bays	Harford Transit	3 bays	7 bays
	MTA	0 bays	4 bays
	APG Shuttle	0 bays	3 bays
Driver Facilities		None	Restrooms and break room

Evaluation of Alternatives

The alternative MTC sites were evaluated with respect to physical impacts, transportation impacts, land use and TOD potential, and cost implications.

Physical Impacts

- Site A – Existing Aberdeen Station**
 Development of an MTC on site A would have impacts on the human environment. Option 1 would displace 15 existing businesses. Option 2 would displace seven existing businesses. There are two potential contamination sites that would be impacted by construction of a MTC on Site A.
- Site B – Mitchell Property**
 An MTC on Site B would impact the natural environment by displacing forested and agricultural land and associated habitat. There is an historic residence on the Mitchell property which would be avoided but could be adversely impacted by an MTC.

- Site C – APG Property**

An MTC on Site C would impact the natural environment by displacing forested land and associated habitat.

Transportation Impacts

- Site A – Existing Aberdeen Station**
 Development of an MTC on site A would likely require a new traffic signal on US 40 at Market Street. There would be no significant change to transit operations and the site has good connectivity for bicycles and pedestrians.
- Site B – Mitchell Property**
 Site B would likely require a new traffic signal on Old Philadelphia Road at the site access drive. Existing transit routes would need to be restructured to serve the site. The site has poor connectivity for pedestrians and bicycles.
- Site C – APG Property**
 Site C would likely require a new traffic signal on MD 715 at the site access drive. Even with this signal, there



would be significant delays for traffic on MD 715 due to the overlap of station oriented traffic and APG traffic. Existing transit routes would need to be restructured to serve the site. The site has poor connectivity for pedestrians and bicycles.

public investment in needed infrastructure to address TOD goals. Restrictions on use of property on the APG could discourage any future TOD opportunities.

Land Use

• Site A – Existing Aberdeen Station

The majority of the land uses in the vicinity of Site A are residential and commercial which are supportive of transit. The location of Site A proximate to downtown Aberdeen, existing supportive pedestrian and vehicular infrastructure, and the higher intensity residential and commercial uses in the area provide strong opportunities for TOD. Opportunities for TOD are primarily infill development given the limited land resources available for TOD.

• Site B – Mitchell Property

The majority of the land uses in the vicinity of Site B are industrial in nature and APG related which are generally not supportive of transit. There are large parcels of underutilized land that have potential for new development. The lack of connections to the downtown area as well as the nature of surrounding uses inhibit near term opportunities for TOD and may require additional significant public investment in needed infrastructure to address TOD goals.

• Site C – APG Property

Like Site B, the majority of the land uses in the vicinity of Site C are industrial in nature and APG related which are generally not supportive of transit. There are large parcels of underutilized land that have potential for new development. The lack of connections to the downtown area as well as the nature of surrounding uses inhibit near term opportunities for TOD and may require additional significant

Cost Implications

The capital costs for construction of an MTC on each site have been estimated at a very preliminary level based on the concept site plans and include all site and intersection improvements shown on the plans. The study team estimated the quantities of various construction elements based on the concept plans and applied unit costs from similar projects. Some of the key assumptions that were incorporated into the cost estimates include:

- All estimates include a contingency factor of 35 percent to account for unknowns at this conceptual level of design development.
- All estimates include a factor of 30 percent of net construction to account for professional services, including preliminary engineering, final design, project management, construction administration, and insurance, legal, and survey costs.
- The estimates do not include costs for any railroad improvements such as new or realigned track or catenary. An allowance has been made for maintenance of traffic for work within the Amtrak right-of-way.
- Right-of-way costs were estimated as follows:
 - For impacted and displaced properties, assessed values from the Maryland Property Map Finder were increased by a factor of 1.67 to estimate the cost to acquire and relocate the business. This process applied to the properties required for Site A.



- For sites B and C, a fixed unit cost of \$12 per square foot was applied to the land requirements for each site. This amount was estimated based on a review of assessed property values in Harford County and represents a commercial business use.
- It is recognized that land for Site C would likely be a long term lease from the APG or a sub-lease from the Enhanced Use Leasing (EUL) leaseholder. However, for purposes of this comparative evaluation, Site C property was valued the same as Site B.

The cost implications of each of the site alternatives are:

- **Site A – Existing Aberdeen Station**

The estimated capital costs associated with an MTC on Site A range from \$31.5 to \$33.1 million. Additional right-of-way required for expansion of the existing station is estimated to cost \$3.6 to \$5.0 million.

- **Site B – Mitchell Property**

The estimated capital costs associated with an MTC on Site B range from \$34.8 (surface parking) to \$57.7 million (structured parking). Right-of-way required for the station is estimated to cost \$5.0 to \$5.9 million.

- **Site C – APG Property**

The estimated capital costs associated with an MTC on Site C range from \$36.2 (surface parking) to \$59.1 million (structured parking). Right-of-way required for the station is estimated to cost \$5.8 to \$6.6 million.

Table ES-2 summarizes the results of the evaluation of the alternatives.

Recommendations

Based on the evaluation of alternative sites for the MTC, the site recommended for development of an MTC is Site A, the existing train station. This recommendation is based on the following:

- Site A allows for reuse of existing facilities. While much of the site will need to be reconstructed and new property will need to be acquired, the existing surface parking lot as well as some of the other paved surfaces will likely be able to be reused as part of the new MTC.
- The estimated capital cost for an MTC on Site A is less than an MTC on either Site B or Site C.
- Traffic impacts associated with Site A will be less than those associated with Site B or Site C. The station oriented traffic will be separate from APG oriented traffic.
- The proximity to Downtown Aberdeen will enhance pedestrian and bicycle connections and will best serve the population of the city.
- Infill TOD opportunities in the vicinity of Site A will take advantage of existing public infrastructure and will tend to strengthen existing businesses in the downtown area.

Another benefit associated with expanding the existing station site is that the station property remains in active use and contributes to the vitality of Downtown Aberdeen. If the station were to be relocated, it may be difficult to identify appropriate, supportive land uses for the existing station property. The station site is relatively narrow and is bounded by US 40 on one side and the railroad tracks on the other. The physical constraints on the existing station site could delay redevelopment of the property until more desirable properties are no longer available.



**Table ES-2
Evaluation of Site Alternatives**

	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
Physical Impacts			
Residential Displacements	0	0	0
Business Displacements	Option 1: 15 Option 2: 7	0	0
Stream/Wetland Impacts (acres)	0	0	0
Agricultural Land (acres)	0	3.79 (zoned industrial)	0
Forest Impact (acres)	0.37	4.78	10.19
Parkland/Section 4(f) Resources	0	0	0
Historic Resources	0	1	0
Floodplain (acres)	0	0	0
Endangered Species	0	0	0
Potential Forest Interior Dwelling Species Habitat (acres)	0	1.19	6.89
Potential Contamination Sites	2 (historic underground storage tanks, lead site)	0	0
Transportation Impacts			
Roadway Improvements Needed	Signalize US 40 / Cecil Street / Market Street	Signalize Old Philadelphia Road / Site Access Drive	Signalize MD 715 / Site Access Drive
	Add right turn lanes along existing US 40 continuous shoulder	Add left-turn lane on westbound Old Philadelphia Road approach	Add left-turn lane on southbound MD 715 approach
Failing Intersection(s) due to Site Traffic	None	None	MD 715 / Site Access Drive
Transit Access and Circulation	No route diversions required	Route diversions required	Route diversions required
Pedestrian/Bicycle Connectivity	Good	Poor - lack of residential property within 1/2 mile	Poor - lack of residential property within 1/2 mile



**Table ES-2
Evaluation of Site Alternatives**

	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
Land Use			
Residential within 1/2 mile	50.0%	1.1%	1.1%
Business within 1/2 mile	15.5%	11.7%	11.7%
Office within 1/2 mile	2.8%	0.0%	0.0%
Industrial within 1/2 mile	3.1%	36.2%	36.2%
APG Property within 1/2 mile	0.7%	40.7%	40.7%
TOD Potential	High TOD Potential; Supportive existing infrastructure; primarily infill development opportunities	Moderate TOD Potential; Large parcels of underutilized land available but poor connectivity to existing community	Moderate to low TOD Potential; Large parcels of underutilized land available but poor access and connectivity to existing community
Cost Implications			
Construction Cost (2009 \$ Millions)	Option 1: \$33.1 (shopping center displacement) Option 2: \$31.5 (no shopping center displacement)	Option 1: \$34.8 (surface parking) Option 2: \$57.7 (structured parking)	Option 1: \$36.2 (surface parking) Option 2: \$59.1 (structured parking)
ROW Costs (2009 \$ Millions)	Option 1: \$5.0 (shopping center displacement) Option 2: \$3.6 (no shopping center displacement)	Option 1: \$5.9 (surface parking) Option 2: \$5.0 (structured parking)	Option 1: \$6.6 (surface parking) Option 2: \$5.8 (structured parking)





Introduction

Harford County and the Chesapeake Science and Security Corridor (CSSC) Regional BRAC Office are assessing the feasibility of a multi-modal transportation center (MTC) in the Aberdeen area. The MTC would serve rail transit, commuter and local bus, and future shuttle service to the Aberdeen Proving Ground (APG). A significant increase in transit demand is expected to result from the 2005 Base Realignment and Closure (BRAC) action at APG, which is anticipated to bring approximately 28,000 jobs to the region.

The existing Aberdeen Train Station provides access to MARC and Amtrak (Northeast Regional) trains, as well as local buses. Existing service is well-used, with the demand for parking at the existing station exceeding the available capacity and spilling over onto adjacent streets. The existing service is primarily commuter-oriented with service focused on Baltimore and Washington, D.C.

While this commuter function is expected to continue, new development and programs will more than double the population at the APG and generate new demands at the Aberdeen Train Station.

Harford County and the City of Aberdeen would also like to capture the economic development potential associated with a major passenger rail station. An effective station design can help to encourage mixed-use Transit Oriented Development (TOD) and contribute to the economic vitality of the area.

Purpose of the Study

The purpose of the study is to identify the optimal location of an MTC in the Aberdeen area to meet future growth and transit needs and determine the optimal facility to accommodate multi-modal transportation and TOD around the station area.

In order to achieve this study purpose, the study has been structured to answer the following questions:

- What features and elements should be included in an MTC?
- Should the MTC be located at the site of the current Aberdeen Train Station?
- Would a site closer to the MD 715 gate of APG be more suitable?



- What are the station and track requirements of Amtrak and MARC?
- What funding sources can be identified to support such an endeavor?
- What opportunities exist for TOD and economic development?

- Chesapeake Science and Security Corridor (CSSC)
- Harford County
- Harford Transit
- City of Aberdeen
- Aberdeen Proving Ground (APG)
- Maryland Transit Administration (MTA)
- Maryland Department of Transportation (MDOT)
- Amtrak.

Study Process

The study team evaluated the existing station location and two alternative station locations, as shown in **Figure 1**.

The study process consisted of the following stages:

- Programming – Defined the functions to be accommodated at the station
- Inventory – Identified the physical characteristics that exist in the vicinity of the alternatives station sites
- Concept Design – Concept station site design plans were developed to fit the programmed uses into the physical constraints of each site
- Evaluation – Each alternative station plan was evaluated relative to a common set of criteria
- Implementation Plan – Refined the recommended plan and identified potential phasing and funding.

Four stakeholder meetings were held to present progress and obtain feedback. Minutes from each of these meetings is provided in **Appendix A**, on the included CD. In addition to these governmental agencies, input into the station design and evaluation was obtained through interviews with local business, property owners, and developers. Public input was sought through a public meeting and by soliciting written comments.

The study was conducted in cooperation with a number of project stakeholders representing the following organizations:



Existing Conditions

Existing Aberdeen Train Station Characteristics

The existing Aberdeen Train Station is located just south of the intersection of Bel Air Avenue (MD 132) and Philadelphia Boulevard (US 40) in Harford County. The station site is owned by Amtrak and leased and operated by MARC. The existing station consists of the following facilities:

- Station building – The existing station building is approximately 3,500 square feet. It contains a waiting room, ticket vending machine, restrooms, and a ticket office that is staffed part-time. A canopy extends from the track side of the station providing shelter over the southbound station platform.
- Station platforms – There are boarding platforms on the east and west side of the trackway. Each platform is approximately 15 feet wide, 250 feet long and 8 inches high (above top of rail). The platforms include an 18-inch tactile strip along the track side. The platforms are equipped with a manual wheelchair lift for Americans with Disabilities Act (ADA) accessibility.
- Tunnel – There is a tunnel under the tracks with an entrance adjacent to the station building. The tunnel is approximately 15 feet wide with a headhouse covering a staircase on either end. The existing tunnel is not ADA accessible.
- Pedestrian overpass – There is an existing pedestrian overpass towards the north end of the existing station platforms. The pedestrian overpass is accessed either by a staircase or a series of switchback ramps.
- Parking – The existing station provides 198 parking spaces with approximately 15 spaces on the east side and 173 spaces on the west side of the tracks.
- Pick-up/drop-off – The curb area adjacent to the station building provides room for approximately four pick-up/drop-off spaces. This area is also used by Harford Transit buses.
- Access – Primary access to the station is provided at the intersection of Custis Street and MD 40, just south of MD 132. There is a signalized intersection at US 40 and MD 132 which provides access through the site to Aberdeen Boulevard. Aberdeen Boulevard passes over the station site on an overpass.
- Trackway – The existing trackway consists of three tracks. The two easterly tracks are



approximately 12 feet apart. The westerly track is 14 feet from the center track.

from the Aberdeen Station to the Edgewood Shopping Plaza.

Existing train service at the Aberdeen Station generally provides commuter service southbound in the morning and northbound in the evening, with train service only available Monday through Friday. Amtrak service is restricted to monthly/weekly ticket holders only. Existing train service is shown in **Table 1**.

MTA currently has one bus route that serves the Aberdeen Train Station. Route 420 provides peak period service on US 40 between Havre de Grace and Baltimore (into Baltimore in the morning and out in the afternoon/evening).

Forces and Issues in the Study Area

Harford Transit provides bus service to the Aberdeen Station with the following routes:

The study team conducted an inventory of all of the forces and issues that could affect or could be affected by an MTC. Examples of these forces and issues surrounding the potential MTC site locations include Harford County Transit and MTA bus routes and Average Daily Traffic (ADT) volumes, which are shown in **Figures 2 and 3**.

- Route 1 – Provides service between Bel Air, Aberdeen and Havre de Grace. There are 10 bus trips in each direction between 6:00 AM and 6:30 PM.
- Route 4 – The Aberdeen Doodlebug provides circulator service around the City of Aberdeen with six bus trips per day between approximately 8:20 AM and 3:30 PM.
- Route 6 – Runs northeast-southwest from Aberdeen to Edgewood. The service runs

Zoning/Land Use

Existing zoning/land uses surrounding the potential MTC site locations are shown in **Figures 4 and 5**.

**Table 1
Existing Train Service**

	Northbound Departures	Southbound Departures
MARC	8:33 AM 1:58 PM 5:42 PM 6:49 PM 7:36 PM 10:27 PM	4:48 AM 5:48 AM 6:38 AM 9:08 AM 3:08 PM
AMTRAK	4:09 PM 8:17 PM	6:58 AM 8:37 AM 5:21 PM

Source: MARC Penn Line train schedule





Forces and Issues

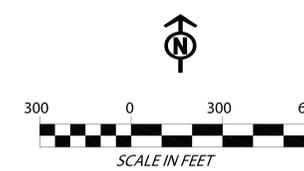
Site A - Existing Aberdeen Station

Legend:

- Existing Station
- Harford County Transit Bus Route
- MTA Maryland Bus Route
- Traffic Signal
- APG Gate
- 6,200 2006 Average Daily Traffic Volume (ADT)
- Existing Rail Lines

ABERDEEN
POP. 14,130

Figure 2
August 2009



Harford County
Multi-Modal
Transportation Center





Forces and Issues

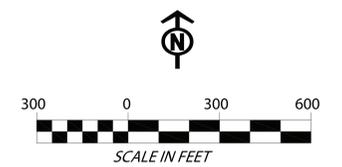
Site B - Mitchell Property
 Site C - APG Property

Legend:

- Proposed Station
- Harford County Transit Bus Route
- MTA Maryland Bus Route
- Traffic Signal
- APG Gate
- 6,200 2006 Average Daily Traffic Volume (ADT)
- Existing Rail Lines

Figure 3

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Harford County
 Multi-Modal
 Transportation Center



URS



ABERDEEN
POP. 14,130

1997 Zoning

Site A - Existing Aberdeen Station

Zoning Legend:

- APG
- B1 Neighborhood Business
- B2 Community Business
- B3 General Business
- CI Commercial Industrial
- GI General Industrial
- LI Light Industrial
- M1 Light Industrial
- M2 General Industrial
- R1 Urban Residential
- R2 Urban Residential
- R3 Urban Residential
- RO Residential Office

Figure 4

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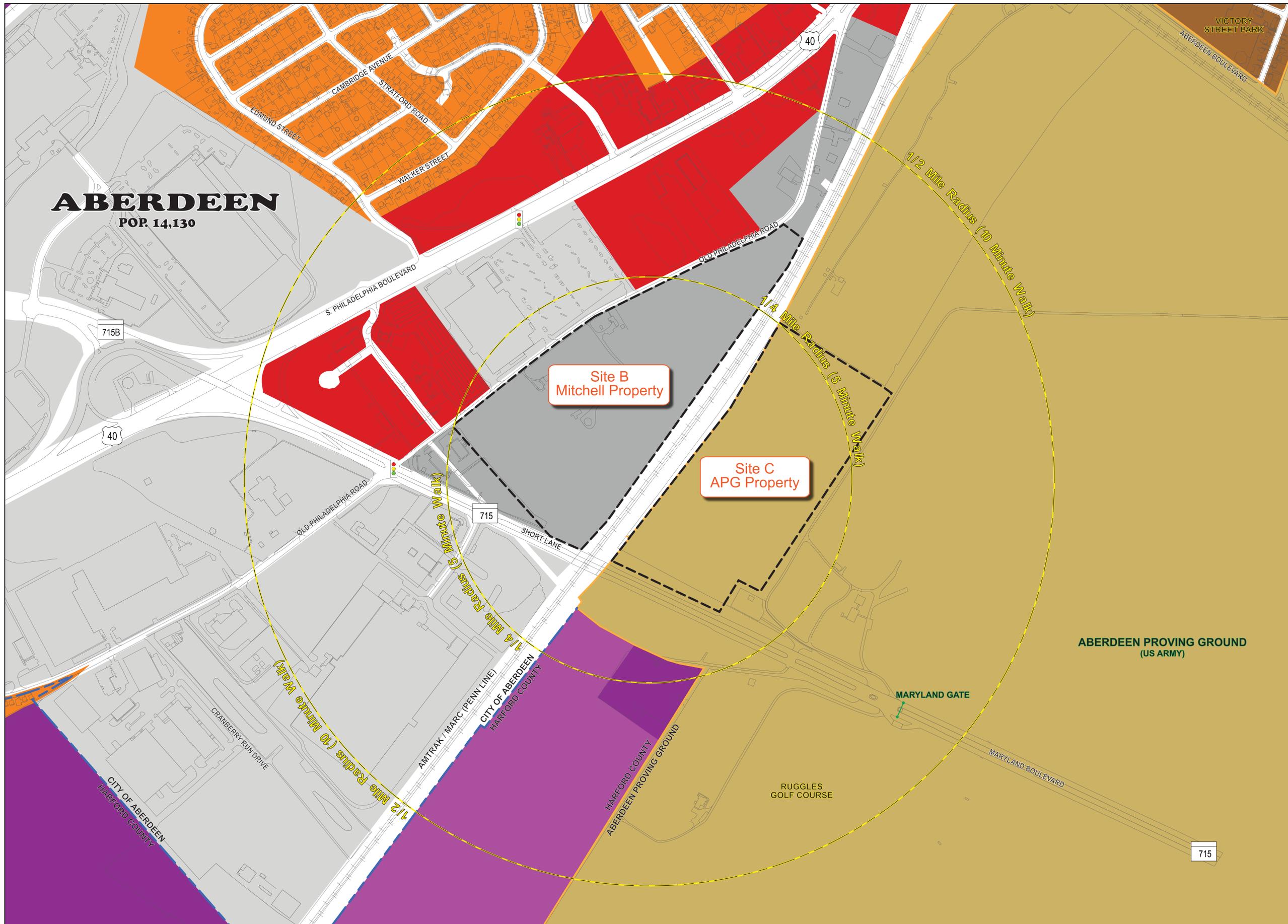


Harford County
Multi-Modal
Transportation Center



URS

ABERDEEN
POP. 14,130



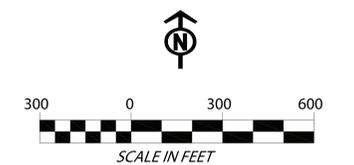
1997 Zoning
Site B - Mitchell Property
Site C - APG Property

Zoning Legend:

- APG
- B1 Neighborhood Business
- B2 Community Business
- B3 General Business
- CI Commercial Industrial
- GI General Industrial
- LI Light Industrial
- M1 Light Industrial
- M2 General Industrial
- R1 Urban Residential
- R2 Urban Residential
- R3 Urban Residential
- RO Residential Office

Figure 5

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Harford County
Multi-Modal
Transportation Center



URS

Future Multi-Modal Station Requirements

Amtrak

Table 2 lists the existing and forecasted (2035) boardings and alightings at the Aberdeen Train Station. As illustrated in the table, Amtrak forecasts that the number of boardings and alightings will increase by over 50% between now and 2035.

A significant driver of future station design is the Americans with Disabilities Act (ADA). The Federal Railroad Administration (FRA) has determined that in order to comply with ADA, all Amtrak station platforms must provide level boarding to all passenger cars. In the Amtrak Northeast Corridor (NEC), this means providing high (four feet above top of rail) boarding platforms and extending boarding platforms to serve

12-car trains. This equates to 950-foot long platforms.

ADA compatibility also means that all pedestrian facilities need to be accessible. In particular, pedestrian crossing facilities need to include elevators. A typical Amtrak pedestrian crossing facility is shown on the following page (**Figure 6**). Accessibility of boarding platforms means providing ramp access at no more than a two percent grade.

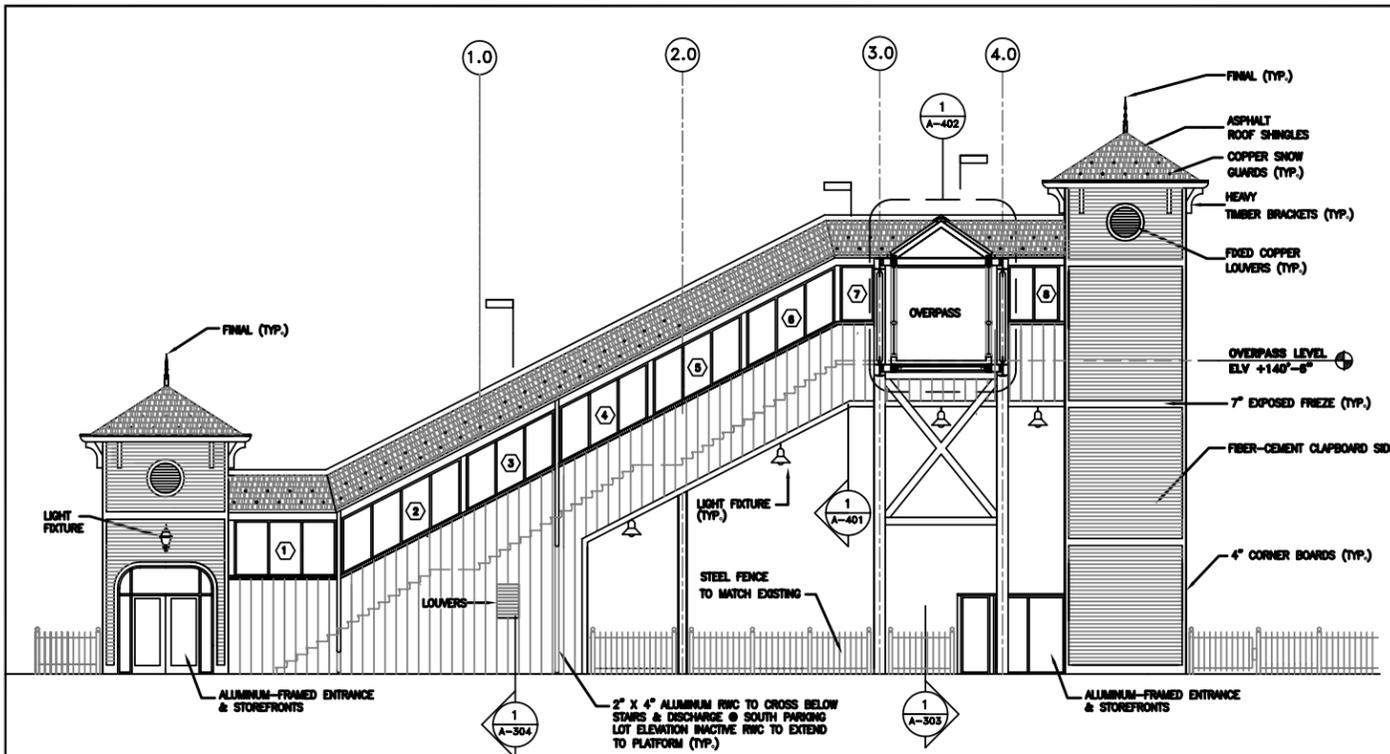
Amtrak has published standards for various categories of passenger stations (March 2008). The Aberdeen Station is classified as a Medium Class III Caretaker station, with projected annual ridership between 50,000 and 100,000. A 3,200 square-foot station structure should contain the following:

Table 2
Existing and Forecasted (2035) Amtrak Boardings and Alightings

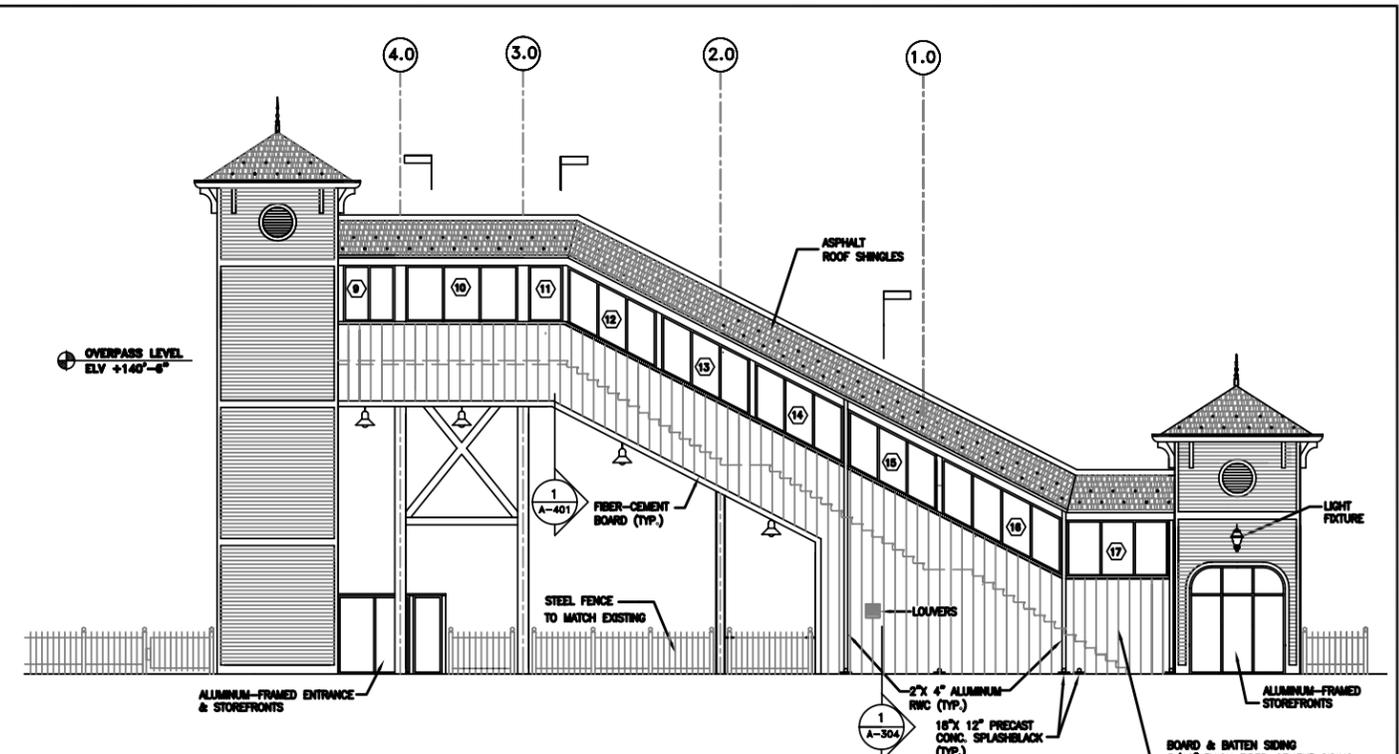
	Annual Boardings and Alightings	Average Daily (250 days per year)	AM Boardings
Existing 2008 Ridership	45,052	180	90
Forecasted 2035 Ridership	67,740	271	135
Percent Change		50.4%	

Source: Amtrak

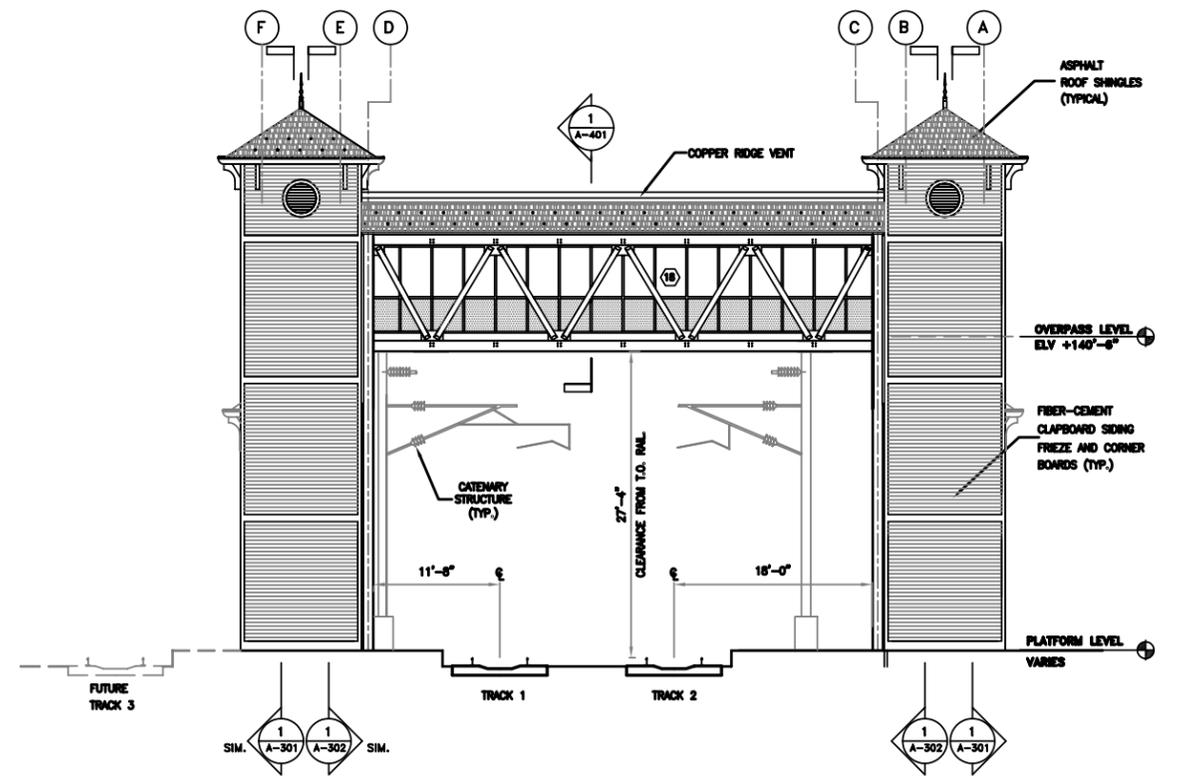




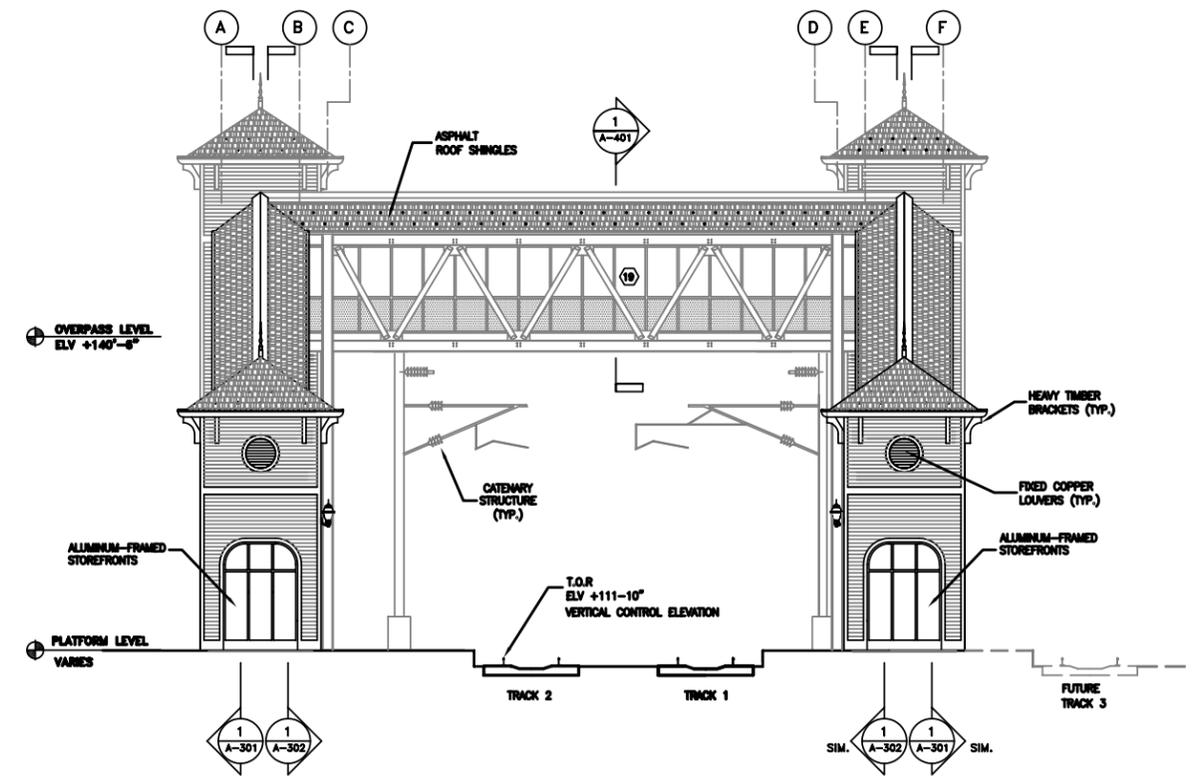
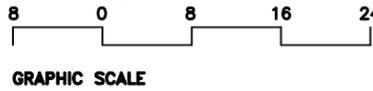
1 TRACK 2 PLATFORM ELEVATION
A-201 SCALE: 1/8"=1'-0"



2 SOUTH PARKING LOT ELEVATION
A-201 SCALE: 1/8"=1'-0"



3 WEST ELEVATION
A-201 SCALE: 1/8"=1'-0"



4 EAST ELEVATION
A-201 SCALE: 1/8"=1'-0"

No.	Revisions	Date	By
1	CLARIFICATION SET	4/04/03	NK



Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date
DCE- STRUCTURES	
DIRECTOR-	

KINGSTON RHODE ISLAND		File No: RI, 158.2
NEW PEDESTRIAN BRIDGE		Design No: 6994
BUILDING ELEVATIONS		Sheet No: 9 OF 38
Designed NK	Drawn SCS	Checked NK
Date 02-24-03	Dir. No: A-201	

- Waiting area
- Restrooms
- Ticket office
- Quik-Trak/eTicketing
- Passenger information display system
- Pay telephones.

MARC (Maryland Area Regional Commuter) Train Service

The MARC Train Service is a commuter rail system that operates three lines of service that include Harford County, Baltimore City, Brunswick, and Frederick in Maryland and Washington, D.C. and Martinsburg, West Virginia. MARC Train operates on weekdays only with limited service on select holidays. Train service is offered during morning and evening rush hours only on the Brunswick and Camden Line, with all day and late evening service on the Penn Line (Source: MTA). **Table 3** lists existing and forecasted (2030) MARC boardings at the Aberdeen Station. As illustrated in the table, the MTA forecasts that the number of boardings will increase by over 60 percent between now and 2030.

In recognition of the fact that parking at the existing Aberdeen Station fills to capacity and overflows onto adjacent streets, MTA has developed a plan (**Figure 7 - Aberdeen MARC Station Parking Expansion**) that would add 154 parking spaces to the existing station. The spaces would be added along the east side of the station, adjacent to the northbound station platform. A portion of the spaces would be provided

Table 3
Existing and Forecasted (2030) MARC Boardings

	AM Boardings
Existing 2007 Ridership	218
Forecasted 2030 Ridership	351
Percent Change	61%

Source: MTA

along APG Road, which is owned by the APG and requires APG approval.

The *MARC Growth and Investment Plan* (MTA, September 2007) identifies service expansion on the Penn Line to Aberdeen and beyond. Following is a summary of the planned service expansions:

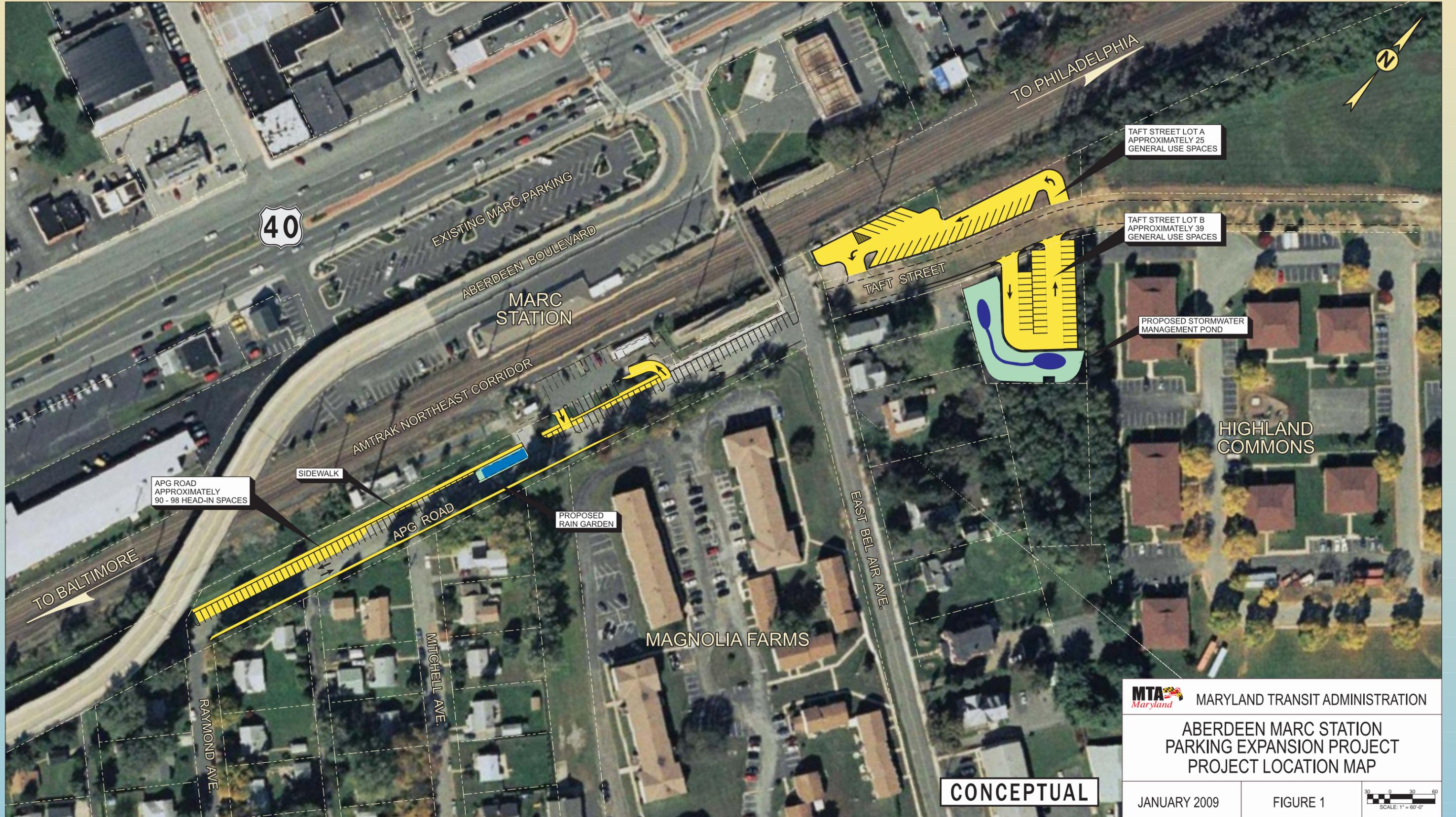
- 2015 Plan
 - Expansion of peak service and limited off-peak service to Aberdeen
 - Service extended to Elkton and Newark
- 2020 Plan
 - Extension of core service to Aberdeen
 - 20-30 minute peak service and hourly off-peak
- 2035 Plan
 - Extension of the 4th track through Aberdeen and Perryville

The *MARC Growth and Investment Plan* identifies the need for a fourth track through the Aberdeen area to support expanded passenger and freight operations. Based on discussions with Amtrak and MARC, it was determined that a future Aberdeen Train Station should be developed assuming that a fourth track will be constructed.

Aberdeen Proving Ground

Currently, over 16,000 people are employed on the APG. The BRAC program is expected to add approximately 8,600 jobs to the APG. There is no existing transit connection between the Aberdeen Train Station and the APG. In addition, the train schedule is not conducive to serving the typical APG employee who works from 7:00 AM to 4:30 PM. The lack of transit connections and available train service means that essentially no APG employees currently use the train to get to and from work. In order to serve the APG, some type of transit service or shuttle providing a connection between the multi-modal station and the APG is required. To be successful, a shuttle must:





MTA Maryland MARYLAND TRANSIT ADMINISTRATION

**ABERDEEN MARC STATION
PARKING EXPANSION PROJECT
PROJECT LOCATION MAP**

JANUARY 2009 FIGURE 1

SCALE: 1" = 60'-0"

- Provide service timed to meet arriving and departing trains and buses
- Provide sufficient shuttle capacity to meet demand
- Have priority through APG security
- Have convenient stops within APG
- Have train and bus schedules compatible with APG work schedules (7:00 AM to 4:30 PM)

For purposes of this analysis, it is assumed that there will be an APG shuttle operating between the MTC and the base. **Table 4** provides an estimate of the potential usage of an APG shuttle:

Based on this estimate, it is reasonable to assume that the demand for an APG shuttle could be on the order of 300 to 350 people in the peak hours. This would require approximately seven or eight buses per hour. In order to accommodate the APG shuttles, three bus bays will be required at the multi-modal facility.

Harford County Transit

Harford Transit was the recipient of stimulus funds that will enable them to purchase nine new buses. Harford Transit intends to use these buses to equip three new express routes to serve the APG from three locations in Harford County. The new buses will likely be 30 to 35 passenger buses and new routes will likely operate on 30-minute frequencies during peak periods. These express routes would be in addition to existing Harford Transit service. In order to accommodate timed transfers between all existing and proposed routes, Harford Transit will need six bus bays at the MTC.

MTA Buses

The *Aberdeen Station Area Transit Needs Assessment and Market Analysis* (DRAFT, February 5, 2009) identified a number of transit service improvements to serve the APG BRAC expansion. The program for the

Table 4
Potential Transit Trips to APG

	Mid-Case	Percent Using Transit			
		1%	2%	4%	8%
Total Trips Per Day	25,706	257	514	1,028	2,056
Trips Using I-95	23,135	231	463	925	1,851
Commuters from South/West	16,657	167	333	666	1,333
Commuters from North/East	6,478	65	130	259	518
Other	2,571	26	51	103	206
AM Arrivals to Aberdeen					
Southbound		32	65	130	259
Northbound		83	167	333	666
Other		13	26	51	103
TOTAL		129	257	514	1,028
Peak Hour Arrivals	60%	77	154	308	617
Peak Hour Arrivals	70%	90	180	360	720
Buses Required @ 50 per bus	60%	2	4	7	13
Buses Required @ 50 per bus	70%	2	4	8	15



MTC assumes implementation of the following high priority routes recommended in that study:

- C-2 – Elkton, Cecil County
- B-1 – Middle River, Baltimore County
- B-2 – Perry Hall, Baltimore County

MTA currently operates Route 420 providing peak period service into Baltimore in the morning and returning in the evening. The *Transit Needs Assessment* also recommended that reverse commute service be provided on this route.

Under these assumptions, four MTA bus bays would be required at the MTC.

Bicycle/Pedestrian Access

One of the key elements of a multi-modal facility is good bicycle and pedestrian access. For purposes of this analysis, the MTC is assumed to provide continuous sidewalk connections to adjacent

pedestrian and bicycle facilities. The site will also include bicycle racks and bicycle lockers.

Other Considerations

With 14 bus bays, the MTC will be a major bus transfer point. As such, the proposed facility should contain driver break and restroom facilities. This will allow the facility to be used as a layover point and will also provide more flexibility for transit operators.

Program Summary

Table 5 summarizes the elements of the MTC program. The intent of this program is to define the desirable elements that should be included in each alternative station site plan to allow for a fair comparison between alternative sites. While the final facility design may not include all these elements or may include additional elements, this common program allows the alternative sites to be developed in a comparable way.

**Table 5
Proposed Station Program**

PROGRAM ELEMENT		EXISTING	PROPOSED
Platform Dimensions	Length	250 feet	950 feet
	Width	14.5 feet	14.5 feet
	Height	0.75 feet	4 feet
Station	Floor Area	3500 S.F.	3200 S.F.
Pedestrian Facility		Overpass with ramp and stairs, tunnel	Overpass with stairs and elevators
Bicycle Facility		Bicycle racks	Bicycle racks and lockers
Parking	Park and Ride	188 spaces	500 spaces
	Pick-up / Drop-Off	4 spaces	15 spaces
Bus Bays	Harford Transit	3 bays	7 bays
	MTA	0 bays	4 bays
	APG Shuttle	0 bays	3 bays
Driver Facilities		None	Restrooms and break room



Alternative Site Designs

The study team evaluated three alternative sites for an MTC in the Aberdeen area as described below:

- **Site A – Existing Aberdeen Station**
The existing Aberdeen Train Station is located east of US 40 south of West Bel Air Avenue (MD 132). It is immediately east of downtown Aberdeen. There were two options considered for Site A. Option 1 displaces the existing shopping center south of the existing station. Option 2 does not displace the shopping center.
- **Site B – Mitchell Property**
The Mitchell Property is located east of Old Philadelphia Road, west of the railroad tracks and north of MD 715. Site B is located approximately 1.2 miles south of Site A. There were two options considered for Site B. Option 1 provides all surface parking. Option 2 provides structured parking.
- **Site C – APG Property**
This site is located on east side of the railroad tracks on APG property north of MD 715. Site C is located approximately 1.2 miles south of

Site A. There were two options considered for Site C. Option 1 provides all surface parking. Option 2 provides structured parking.

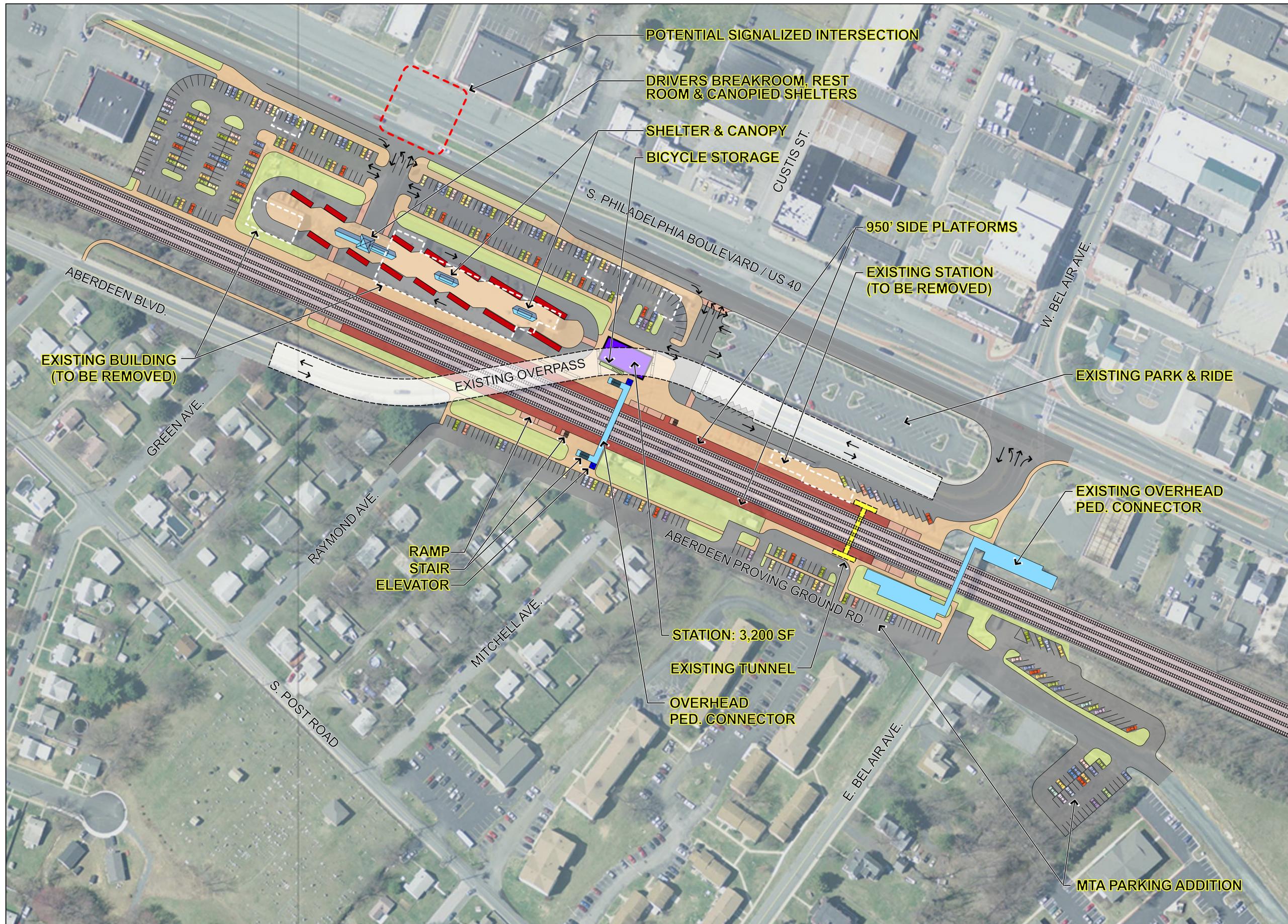
Site plans for the alternatives are shown in **Figures 8 through 12**. As shown on the site plans, all of the site alternatives can accommodate the program elements proposed for the MTC.

Stormwater Management

Stormwater management (SWM) needs were developed to provide preliminary guidance as to the number and magnitude of facilities that will be required for the construction of either a new multi-modal transportation center or the redevelopment of an existing multi-modal transportation center. Significant surface areas will be necessary to provide for surface stormwater management facilities for the project.

Preliminary concepts for stormwater management were developed for the a new multi-modal transportation center, as well as the redevelopment





Site A

Existing
Aberdeen Station
Option 1

Legend:

- STATION:**
- Waiting Area
 - Restrooms
 - "Quiktrak" Ticketing
 - Offices
 - Telephones
 - Vending

PARKING:

Park and Ride	
Existing	116 Spaces
Proposed MTA	160 Spaces
Proposed Project	257 Spaces
Total	533 Total

Drop-Off / Taxi

Head-in	20 Spaces
Curbside	9 Spaces
Total	29 Total

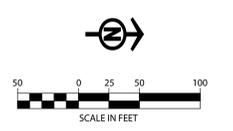
Bicycle Storage 25

Bus

80' Sawtooth Bays	4
60' Sawtooth Bays	10
Total	14 Total

Figure 8

August 2009



Harford County
Multi-Modal
Transportation Center



URS



Site A

Existing
Aberdeen Station
Option 1
Aerial Perspective

Legend:

STATION:
 Waiting Area
 Restrooms
 "Quiktrak" Ticketing
 Offices
 Telephones
 Vending

PARKING:
Park and Ride
 Existing 116 Spaces
 Proposed MTA 160 Spaces
 Proposed Project 257 Spaces
533 Total

Drop-Off / Taxi
 Head-in 20 Spaces
 Curbside 9 Spaces
29 Total

Bus
 80' Sawtooth Bays 4
 60' Sawtooth Bays 10
14 Total

Figure 9

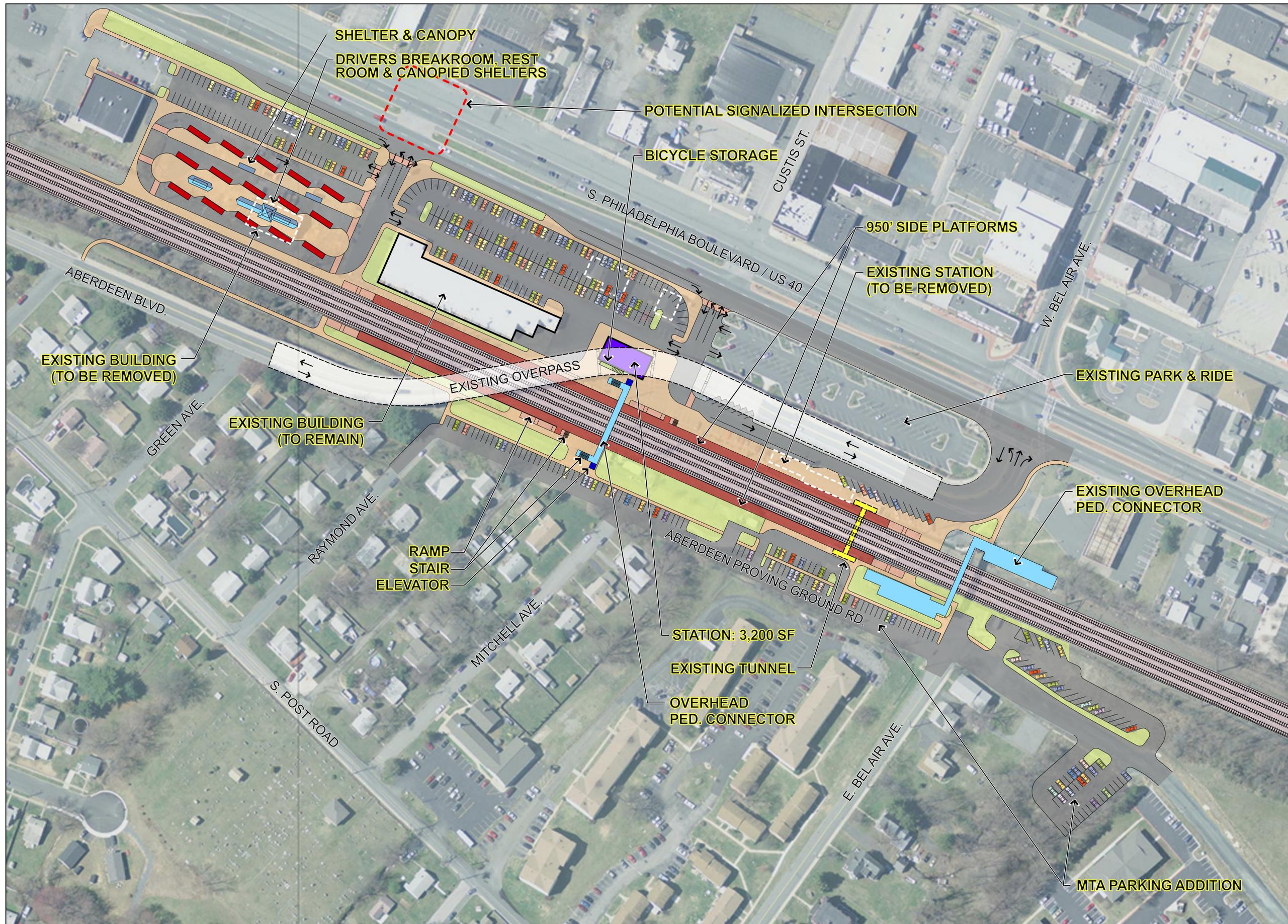
August 2009



Harford County
Multi-Modal
Transportation Center



URS



Site A

Existing
Aberdeen Station
Option 2

Legend:

- STATION:**
- Waiting Area
 - Restrooms
 - "Quiktrak" Ticketing
 - Offices
 - Telephones
 - Vending

PARKING:

Park and Ride	
Existing	116 Spaces
Proposed MTA	160 Spaces
Proposed Project	228 Spaces
Total	504 Total

Drop-Off / Taxi

Head-in	20 Spaces
Curbside	9 Spaces
Total	29 Total

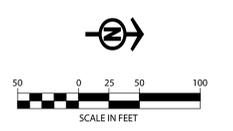
Bicycle Storage 25

Bus

80' Sawtooth Bays	4
60' Sawtooth Bays	10
Total	14 Total

Figure 10

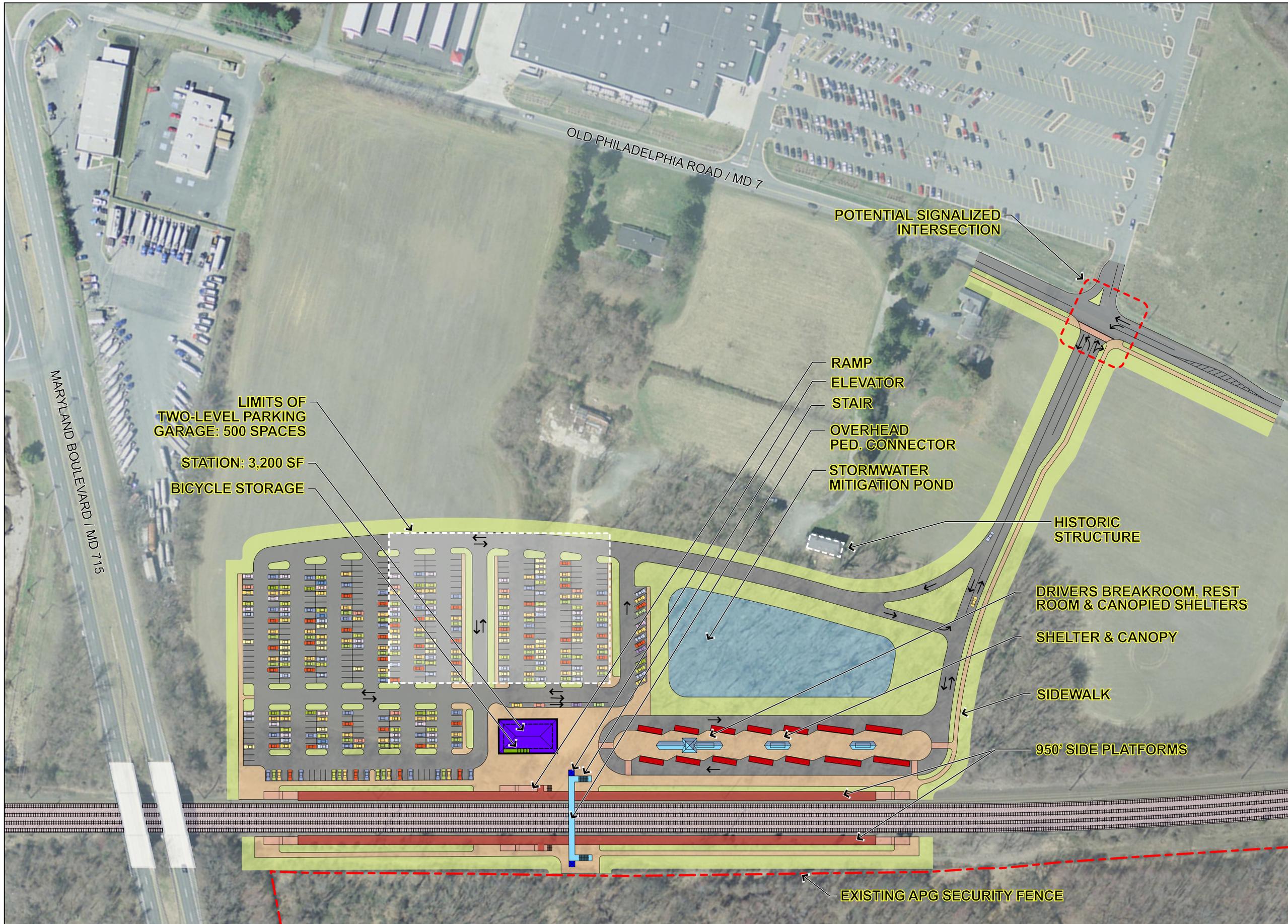
August 2009



Harford County
Multi-Modal
Transportation Center



URS



Site B

Mitchell Property

Legend:

- STATION:**
- Waiting Area
 - Restrooms
 - "Quiktrak" Ticketing
 - Offices
 - Telephones
 - Vending

PARKING:
Park and Ride
 Proposed Project 520 Spaces

Drop-Off / Taxi

Head-in	15 Spaces
Curbside	8 Spaces
23 Total	

Bicycle Storage 25

Bus

80' Sawtooth Bays	4
60' Sawtooth Bays	10
14 Total	

LIMITS OF
TWO-LEVEL PARKING
GARAGE: 500 SPACES

STATION: 3,200 SF
BICYCLE STORAGE

POTENTIAL SIGNALIZED
INTERSECTION

- RAMP
- ELEVATOR
- STAIR
- OVERHEAD
PED. CONNECTOR
- STORMWATER
MITIGATION POND

HISTORIC
STRUCTURE

DRIVERS BREAKROOM, REST
ROOM & CANOPIED SHELTERS

SHELTER & CANOPY

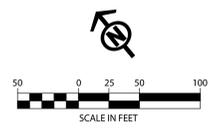
SIDEWALK

950' SIDE PLATFORMS

EXISTING APG SECURITY FENCE

Figure 11

August 2009



Harford County
Multi-Modal
Transportation Center



URS

Site C

APG Property



Legend:

- STATION:** [Purple Box]
- Waiting Area
 - Restrooms
 - "Quiktrak" Ticketing
 - Offices
 - Telephones
 - Vending

PARKING:
Park and Ride
Proposed Project 520 Spaces

Drop-Off / Taxi

Head-in	15 Spaces
Curbside	6 Spaces
21 Total	

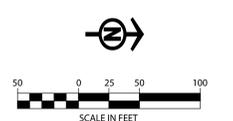
Bicycle Storage 25

Bus

80' Sawtooth Bays	4
60' Sawtooth Bays	10
14 Total	

Figure 12

August 2009



Harford County
Multi-Modal
Transportation Center



URS

of an existing multi-modal transportation center, based on the guidelines set forth in the April 2003 Draft by the Highway Hydraulics Department of the Maryland State Highway Administration “*Guidelines for Preparing Stormwater Management Concept Reports*” and the 2000 *Maryland Stormwater Design Manual*. The proposed construction will require both quantity and quality stormwater management facilities for both new and redeveloped pavement. The preliminary ponds were sized assuming that the facilities would be located in the adjacent to the multi-modal transportation center.

The SWM analysis for each site is as follows:

- **Site A – Existing Aberdeen Station**

For the purposes of this study, all pavement was considered to be redevelopment or new impervious. There is no stormwater management in place for the existing Aberdeen Station. Therefore, a new facility will be required for the redevelopment of the site, as is required per the *Maryland Stormwater Management Guidelines for State and Federal Projects, July 2001*. It will be difficult to accommodate water quality within the existing site. Therefore, most of the water quality will probably be accommodated with a micro pool constructed within an extended detention pond on an adjacent piece of property. Additional water quality needs can be met by constructing bioretention in the grassed area next to the rails. Alternative options will be to incorporate underground facilities either on their own or in conjunction with an above ground facility to meet both the

water quality and quantity needs. Although extended detention is indicated, the feasibility of that particular type of facility will be determined at a later date.

- **Site B – Mitchell Property**

Since this would be a new facility, all pavement is new impervious. The site requires a stormwater management facility. The drainage area to is primarily onsite drainage. The large drainage area could probably accommodate water quality with a micro pool, constructed within an extended detention pond. Although extended detention is indicated, the feasibility of that particular type of facility will be determined at a later date.

- **Site C – APG Property**

Since this would be a new facility, all pavement is new impervious. The site requires a stormwater management facility. The drainage area to is primarily onsite drainage. The large drainage area could probably accommodate water quality with a micro pool, constructed within an extended detention pond. Although extended detention is indicated, the feasibility of that particular type of facility will be determined at a later date.

SWM facility locations for each of the alternatives have been identified on the plans, except for Site A, where underground facilities were assumed. However, further evaluation of all factors will be necessary before more precise recommendations of the pond locations can be made.



Public Involvement

A public work session was held on April 22, 2009 at the HEAT center in Aberdeen. The purpose of this open house style meeting was to introduce the study methodology, alternative site plans, and analysis of transit oriented development (TOD) potential and to solicit public feedback through discussions with project staff and comment cards. The meeting was held from 5:50 PM to 7:30 PM and included a formal presentation at 6:00 PM and 7:00 PM. Approximately 50 people attended the meeting.

In addition to the presentations, large display boards were set up for the public to review. Project team members were on hand to answer questions about each aspect of the project. The boards contained the following information:

- Regional Study Area Map
- Forces and Issues, Site A (Existing Aberdeen Station)
- Forces and Issues, Sites B (Mitchell Property) and C (APG Property)
- Zoning, Site A
- Zoning, Sites B and C

- Site A, Option 1 alternative site plan and aerial view
- Site A, Option 2 alternative site plan
- Site B alternative site plan
- Site C alternative site plan.

All of the information presented at the work session was made available on the CSSC website, including the comment card. Comments were accepted until May 7, 2009.

In addition to the public work session, the project team developed and distributed a project information handout to obtain feedback from as many public stakeholders as possible. This handout was available at the Aberdeen City Hall, the HEAT center, on the CSSC website, and was also distributed to approximately 200 people at the Aberdeen Train Station during the morning commute on Thursday, April 30, 2009.

Sixteen comment cards were completed and returned to the project team. Of those that responded, 11 people preferred Site A, four preferred Site B, and one preferred Site C. Reasons cited by commenters



for their preference for Site A are listed below:

- It is close to commercial businesses and residences
- It is important to keep the station in downtown Aberdeen
- It is already multi-modal
- It is centrally located and easily accessible from US 40, MD 22, and I-95
- Many existing elements can be re-used and therefore there is a perceived cost savings over building a new station at the other sites.

It was also noted that there are vandalism and nighttime safety issues associated with the existing station. Of those who preferred Site B, their reasons cited for this preference were that it would be accessible by car and bus and provide more parking than the existing site. No comments were provided on the preference for Site C.

The commenters also listed the station features and services most important to them:

- Access on and off the APG
- Increased parking
- Amenities and conveniences such as a coffee shop, restrooms, waiting area with more seating, train status boards, and bike lockers
- Frequent train service
- Ticket agent at station to provide assistance to customers and answer questions

- Station open hours that coincide with the train schedules.

Of the transit services provided at the existing station, MARC was the most frequently used by those who commented. MTA Bus and Amtrak were used by some. Harford Transit service was not listed and a small number responded that they use the station for carpool/vanpool purposes.

The list of transit service improvements that would cause people to use transit more often included:

- Increased parking
- Coffee
- More frequent service stops
- More MARC train service
- Better access by car
- Better coordination between train and connecting bus schedules
- Improved Amtrak service to Baltimore and Washington
- Lower fares
- Improved safety at night.

The study team considered these comments in developing the refined site plans and cost estimates, as well as in the preliminary recommendation.



Economic Development Analysis

The purpose of this analysis is to examine the TOD potential for a proposed MTC in the City of Aberdeen. This analysis examines the TOD potential for each of the candidate station locations based on a number of criteria that impact the success for implementing TOD. These include but are not limited to: TOD supportive land uses and zoning, adequate infrastructure within station area, supportive pedestrian and vehicular accessibility and visibility, existing and future local government goals and policies, adequate market support, presence of development opportunity sites, supportive economic and demographic characteristics, private sector interest in TOD, community goals, and joint development/financing for TOD.

Field surveys of the proposed station areas and surrounding market areas, an evaluation of vacant and underutilized land and buildings within the immediate station areas, and identification of potential development opportunity sites were performed. Selected interviews with key public and private stakeholders such as business and property owners, City and County planning and economic development staff, real estate developers, state transportation agencies, and others were also conducted to gain further insight to help identify policy initiatives,

public and private sector interests, and key elements that may impact the future character of the transit station areas.

This analysis has been prepared using an industry standard research process, taking into consideration existing and emerging demographic and economic factors, TOD factors, and public/private development opportunities. The analysis provides quantitative and qualitative information and data analysis in order to examine the TOD market demand and development potential of each of the candidate sites for a proposed MTC.

Overview of TOD Evaluation Criteria

The degree and timing to which TOD occurs and is successful around a transit station area is impacted by many factors. As defined by the American Public Transportation Association (APTA), “TOD is compact, mixed-use development near new or existing public transportation infrastructure that serves housing, transportation and neighborhood goals”. It has a pedestrian-oriented design that encourages residents and workers to drive their cars less and ride mass transit more. These factors that impact the success



potential for TOD are based on local conditions and the attributes of other successful TOD projects nationwide. At the macro level, as shown in **Figure 13**, these factors relate to: existing conditions, local government, market and development, and other considerations.

To evaluate each of the alternative sites for their potential for TOD, each of the macro-level factors were further evaluated at a micro level. For example, existing conditions around a transit station play a critical role in determining the potential for TOD around a station. Does the station area have TOD-supportive existing land uses and zoning? Is there already an existing transit station? Is there adequate infrastructure to support TOD? Is there adequate pedestrian and vehicular accessibility to provide seamless connections to other modes of transit and

development opportunities? **Figure 14** shows the evaluation criteria for existing conditions.

Local government plays a key role in providing policy direction and land use/zoning to support economic development around transit stations. Transit stations with supportive zoning and land use controls and design standards have codified requirements that encourage increased development densities, endorse mixed use development, reduce parking requirements, reduce buildings setbacks, and promote pedestrian friendly development. For example, are local government goals, policies, and plans that impact the station area supportive of TOD? Is the local government planning for investment in TOD through supportive land use and zoning plans? Are these plans supportive of downtown development or are they a community/regional economic development driver

Figure 13
Transit Oriented Development Success Potential Factors

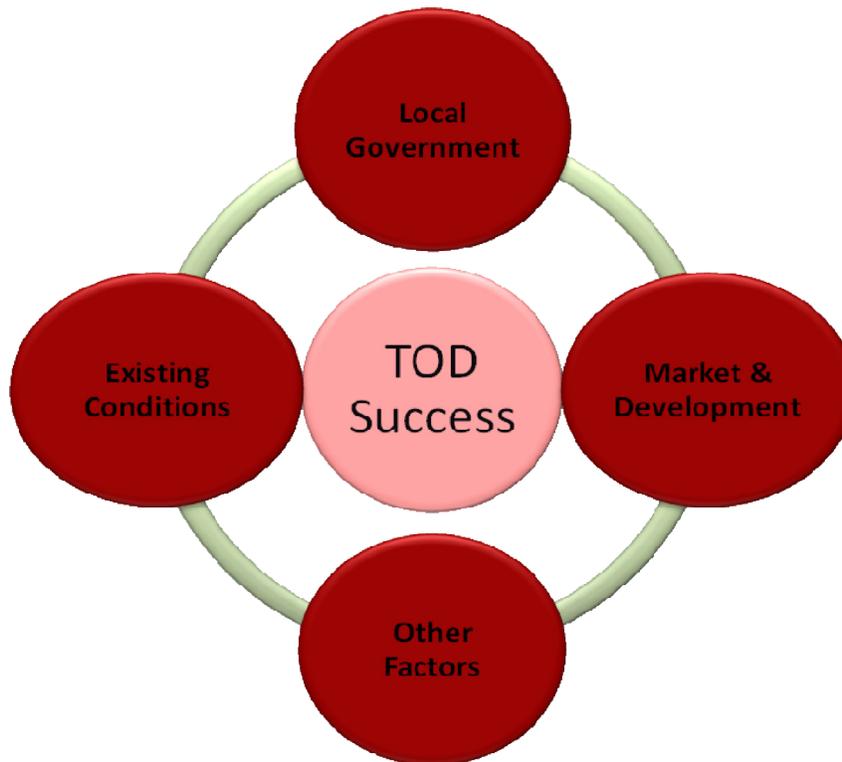
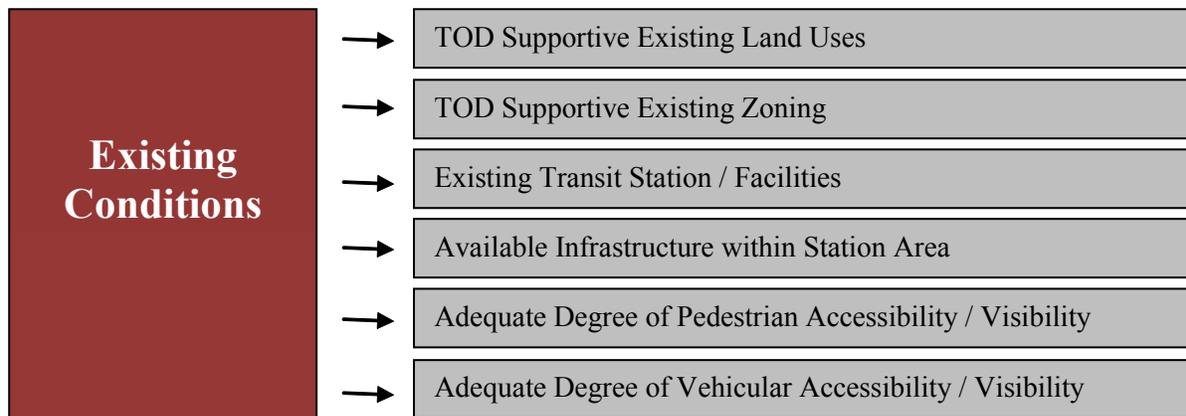


Figure 14
Existing Conditions Evaluation Criteria



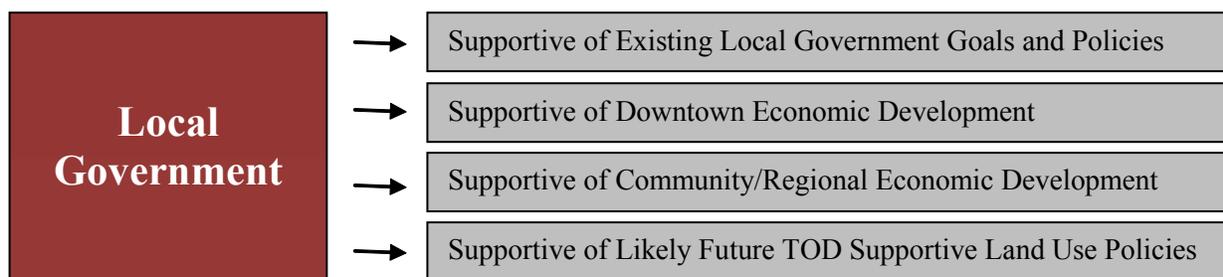
or both? **Figure 15** shows the evaluation criteria for local government.

Supportive demographics, local economic conditions and development opportunities within the station area are all critical in determining the potential for TOD. For example, the degree and timing of concentrated development is tied to the extent of the existing residential population and commercial base and the station area’s potential for increased density and/or an employment base to support TOD. Growth trends in the various market audiences supportive of TOD – buyers versus renters, families versus childless singles and couples, empty nesters, and young professionals – all impact the market demand for TOD related uses

such as residential, retail, and office.

A strong local real estate market to support higher density residential, office, lodging, retail, and entertainment uses along with development opportunity sites and private sector interest are important factors in evaluating a station area’s potential for TOD. In addition, transit station areas offering property available for development or redevelopment either through acquisition or land assembly offer near-term potential for TOD. This includes the presence of large vacant or underutilized sites which may provide an opportunity for a more large-scale development opportunity. **Figure 16** shows the evaluation criteria

Figure 15
Local Government Evaluation Criteria



for market and development.

Community and financing related factors are also a major factor to determine the market support for TOD. For example, stronger near-term potential is found at station areas that are proximate to major attractions that create a destination for riders or visitors. In addition, TOD potential increases when the opportunity exists for potential public/private joint development within identified sites in the transit station area. This includes City and transportation owned property

adjacent to the existing and proposed train stations. **Figure 17** shows the evaluation criteria for other factors.

To evaluate each of the alternative sites potential for TOD based on these criteria, the Project Team assessed each of the selected station candidate sites according to whether or not the station (area) meets the criteria, partially meets the criteria, or does not meet the criteria.

Figure 16
Market and Development Evaluation Criteria

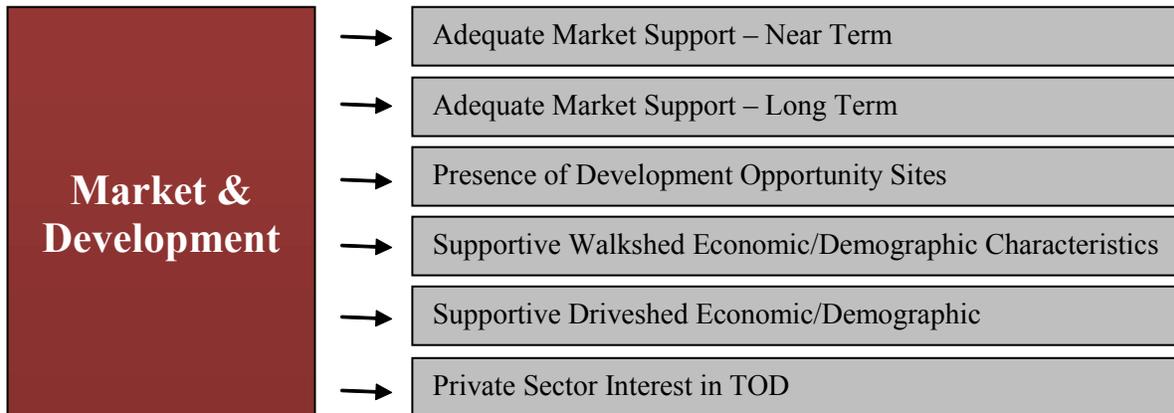
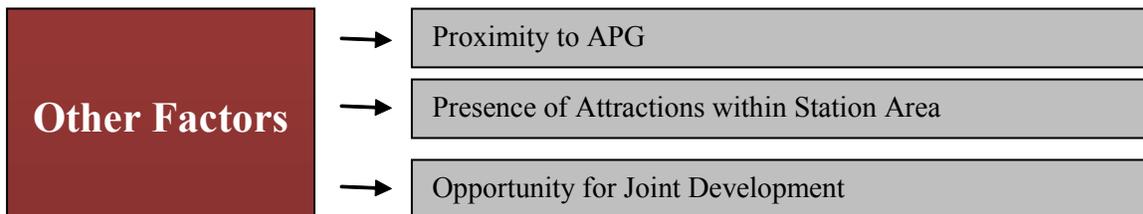


Figure 17
Other Factors Evaluation Criteria



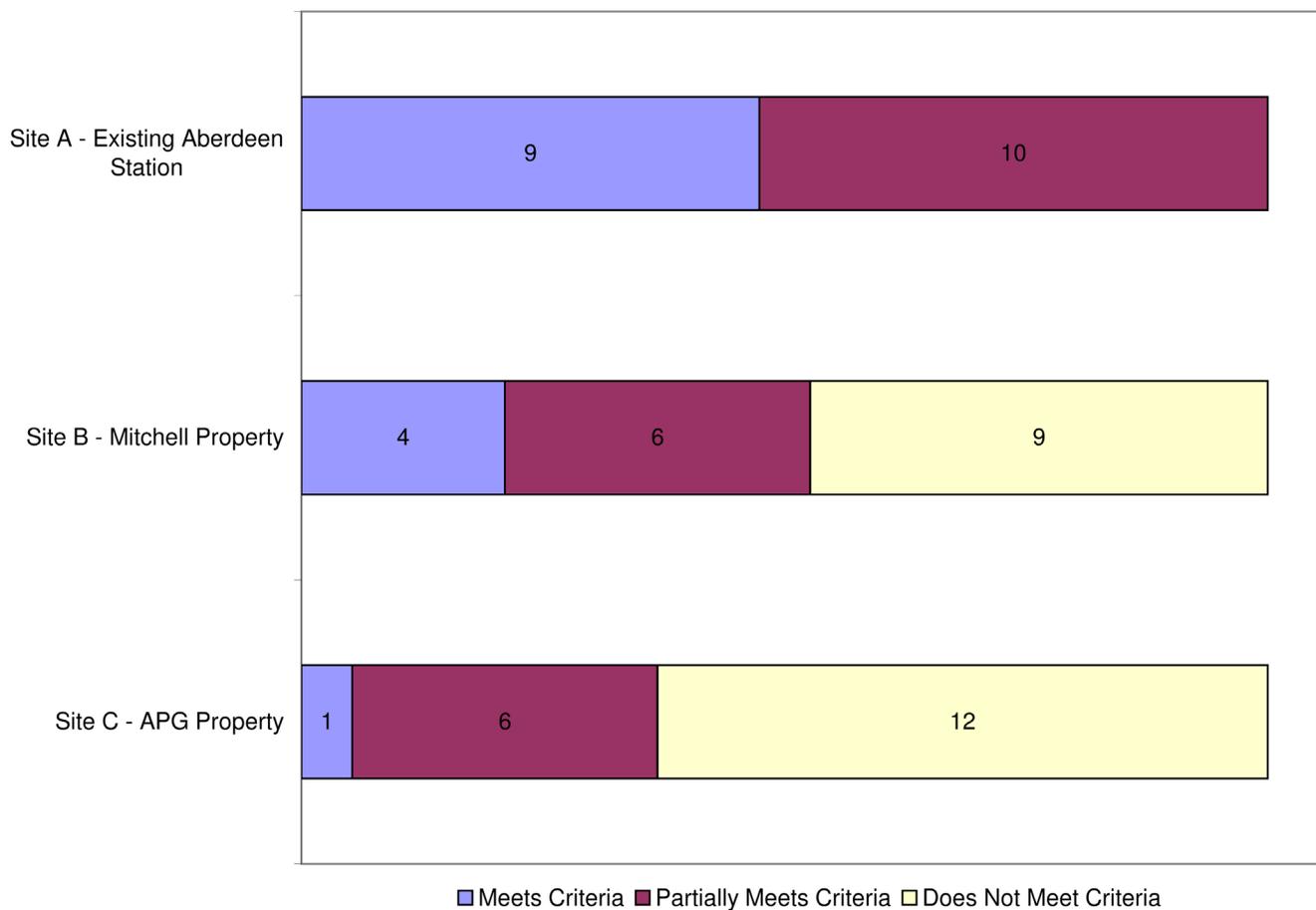
Transit Oriented Development Station Area Evaluation Summary

Each of the alternative sites for the proposed MTC in the City of Aberdeen offer potential for TOD, with each alternative site meeting at least some of the 19 criteria for TOD fully described in **Appendix B**, on the included CD. The summary results for each site in terms of criteria that were met, partially met, or not met is provided in **Figure 18**.

Site A (Existing Aberdeen Station) met 9 out of 19

criteria for TOD, and partially met 10 of 19 criteria. Site B (Mitchell Property) met 4 of 19 criteria and partially met 6 of the criteria. Site C (APG Property) met 1 of the criteria and partially met 6 of the criteria. Whether or not the station areas met the criteria for TOD success was varied and based on a number of factors, including existing land use and zoning characteristics, public policy tools to facilitate TOD, private sector development interest in TOD, presence of future development opportunity sites that could be transformed into TOD projects and other factors such as its location relative to APG, presence of attractions, and the joint development potential.

Figure 18
Summary – Transit Oriented Development Success Criteria



Evaluation of Alternatives

The alternative MTC sites were evaluated with respect to physical impacts, transportation impacts, land use and transit oriented development (TOD) potential, and cost implications.

Physical Impacts

A preliminary environmental resources inventory was conducted for the MTC alternative sites. The purpose of the inventory was to identify existing conditions and resources of the natural and human environment that may be impacted by the proposed project. The following resources within the study area were reviewed for this study:

- Floodplains
- Wetlands and other Waters of the U.S.
- Chesapeake Bay Critical Area
- Forests
- Rare, threatened, and endangered species
- Historic resources
- Agricultural land
- Public water sources
- Socioeconomic features
- Potentially contaminated sites.

Data sources used for this analysis included a report prepared by Environmental Resources Data, Inc. (EDR), Maryland Department of Natural Resources

GIS, Maryland Department of Planning GIS, Federal Emergency Management Agency, National Wetlands Inventory, United States Fish and Wildlife Service, Maryland Historical Trust, Federal Reporting Data Systems, and United States Census Bureau.

Natural Resources

Floodplains

The 100-year flood has been adopted by the Federal Emergency Management Agency (FEMA) as the base flood for purposes of floodplain management. Development within floodplains are regulated by federal and state laws to reduce both the risk of property damage and the loss of life due to flooding, as well as to preserve the natural benefits of floodplain areas to the environment. According to the FEMA floodplain mapping, none of the study area falls within the 100-year floodplain.

Wetlands and Waters of the U.S.

A preliminary office investigation was conducted to determine the presence of wetlands and other Waters of the U.S. within the study area. The location of wetlands and Waters of the U.S. were identified using the National Wetlands Inventory (NWI) map for the Aberdeen area. A formal wetland delineation and



jurisdictional determination was not performed as part of this study. The NWI mapping indicates that there are no wetlands or other Waters of the U.S. within the study area.

Chesapeake Bay Critical Area

The Chesapeake Bay Critical Area Act, passed in 1984, identifies the “Critical Area” as all land within 1,000 feet of the Mean High Water Line of tidal waters or the landward edge of tidal wetlands and all waters of and lands under the Chesapeake Bay and its tributaries. The Critical Area Commission has established land use policies for development in the Critical Area which accommodate growth and also address the fact that, even if pollution is controlled, the number, movement, and activities of persons in the Critical Area can create adverse environmental impacts. The study area does not fall within the Chesapeake Bay Critical Area.

Forests

The Harford County Forest Conservation Law requires that any activity requiring an application for a subdivision, grading permit or sediment control permit on areas 40,000 square feet (approximately one acre) or greater is subject to the Forest Conservation Act. Forest conservation requirements are categorized by zoning and assign afforestation and forest conservation thresholds to each zoning category. Afforestation is the planting of trees on sites that do not have trees. Reforestation is the planting of trees on sites that historically have been forested. Site A is zoned business and Site B is zoned industrial; both have a 15% threshold for afforestation and forest conservation. Site C is zoned institutional and has a 15% afforestation threshold and 30% forest conservation threshold. Forest Conservation Worksheets were used for calculating potential afforestation and reforestation mitigation required for Sites A, B, and C.

Forested areas within the study area were characterized using aerial photography and Geographic Information

Systems (GIS) data. Site A, a 14-acre site, would include potential impacts of 0.37 acres of forest. Using the Forest Conservation Worksheet, this computes to 0.74 acres of reforestation mitigation required and 1.73 acres of afforestation mitigation required, for a total of 2.47 acres of mitigation required. Because Site A would be fully developed and the surrounding area is residential and commercially developed, Site A would require off-site mitigation.

Site B, a 14.07-acre site, would include potential impacts of 4.78 acres of forest. The reforestation mitigation required is 5.98 acres. No afforestation mitigation is required. Site C, a 15.57-acre site, consists almost entirely of forested area, and would include potential impacts of 10.19 acres. The reforestation mitigation required is 10.72 acres. No afforestation mitigation is required.

Rare, Threatened, and Endangered Species

A preliminary investigation was conducted for records of rare, threatened, and endangered (RTE) plant and animal species within the study area. The United States Fish and Wildlife Service (USFWS) provides mapping of critical habitat for RTE species. Mapping for the Aberdeen area indicates that there is no critical habitat within the study area on any site.

The Maryland Department of Natural Resources (DNR) provides GIS data that can also be used for determining the presence of critical habitat. The GIS data indicated that there is no critical habitat within the three alternative sites. However, the data did indicate the presence of potential Forest Interior Dwelling Species habitat in Sites B and C. Forest Interior Dwelling Species (FIDS) are particular plants and animals, primarily birds, that require interior forest for at least some portion of their life cycle. There are 1.19 acres of potential FIDS habitat in Site B and 6.89 acres in Site C since these sites are contiguous with a large forested tract of land on Aberdeen Proving Ground property. Protection and conservation of these habitats and species are strongly encouraged by DNR.



Physical Environment

Historic Resources

The Maryland Historical Trust (MHT) inventory was used to identify potential historic sites in the study area. One potential historic site was found in the vicinity of Site B.

The following is excerpted from the National Register of Historic Places Nomination Form: “Poplar Hill is one of the oldest houses still standing in Harford County where the essentially untouched survival of eighteenth century houses is rare. Probably built in the mid-eighteenth century, it is a gambrel-roofed, frame house showing the influence of Tidewater Maryland architecture rather than that of nearby Pennsylvania. The largely unaltered state in which the building has survived makes it a useful tool in the study of architectural history. The interior work is of good quality for the period, particularly the paneling in the parlor.”

Any Federal action required for this project (funding, approval, permitting, etc.) will invoke a requirement to comply with Section 106 of the National Historic Preservation Act (NHPA). Further investigation and coordination with MHT would then be required to determine whether this property is on or is eligible to be listed on the National Register of Historic Places (NRHP). The potential effect of the project on this resource would need to be assessed. Should it be determined that implementation of the project at Site B is the preferred alternative, and should it be further determined that the project will have an adverse effect on a property eligible for listing on the NRHP, mitigation for the adverse effect will be required.

Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. 303 (c)) permits the use of publicly owned land from any public park or recreation area, wildlife or waterfowl refuge, or historic site (as determined by the officials having jurisdiction over the park, recreation area, refuge, or site) only if there is no prudent or feasible alternative to the use of such

land, and all possible planning has been undertaken to minimize harm to such park, recreation area, wildlife or waterfowl refuge, or significant historic sites resulting from this use. Therefore, in addition to compliance with Section 106 of the NHPA, a Section 4(f) Evaluation will need to be prepared should there be any impacts to the historic site, including visual and noise impacts.

Agricultural Land

Agricultural land within the study area was characterized using aerial photographs, and the presence of agricultural land preservation areas was determined using DNR GIS data. Site B includes potential impacts of 3.79 acres of agricultural land. However, the existing agricultural land property is zoned as industrial, indicating it may potentially be used for commercial purposes. It is not mapped as an agricultural land preservation area. Sites A and C do not contain agricultural land.

Public Water Sources

Federal Reporting Data System (FRDS) public water supply system information was used to determine the locations of water wells and public water supply wells within the study area (**Figure 19**). One public water supply well is partially within the northwest boundary of Site A. It is well number 99 and supplies water to 37 facilities. Sites B and C do not contain wells.

Socioeconomic Features

Socioeconomic conditions in the vicinity of the study area were evaluated to identify potential impacts associated with the proposed MTC.

Land Acquisition

The proposed MTC will require no residential displacements. It will require seven business displacements if Site A is selected and none if Sites B or C are selected. The displaced businesses associated with Site A include:



- Hinder Used Cars
- 1st Fire Services & Safety
- The Maids Home Service
- Silbaugh Memorials
- Aberdeen Mason Contractors
- Blue Ridge Contracting
- Liberty Tax Service

Maryland Priority Funding Areas

The 1997 Priority Funding Areas (PFA) Act directs State spending to existing communities and places where local governments want State investment to support future growth. Growth-related projects covered by the legislation include most State programs that encourage or support growth and development such as highways, sewer and water construction, economic development assistance, and State leases or construction of new office facilities. The PFA Act legislatively designates certain areas as Smart Growth Areas. If a proposed project site is outside of Maryland PFA, it is inconsistent with the goals of Smart Growth. As shown on **Figure 20**, most of Aberdeen, including Sites A, B, and C, is within a PFA.

Parkland

Parkland GIS data and ADC maps were used to

determine the presence of parkland in the study area. There are no impacts to parkland within Sites A, B, or C.

Environmental Justice

An Executive Order, passed in 1994, on “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires each Federal agency to develop a specific agency-wide strategy for implementation of the Executive Order provisions. The intent of Environmental Justice is to avoid disproportionately high and adverse impacts on such populations with respect to human health and the environment.

A preliminary review of minority and low-income populations data was assembled using 2000 U.S. Census Bureau data from Census Tracts 3029.02, surrounding Sites A and B, and 3025, surrounding Site C. Census data for these tracts were compared to that of Harford County as a whole. **Table 6** summarizes the percent minority and percent below poverty level for populations in Census Tracts 3029.02 and 3025 and Harford County.

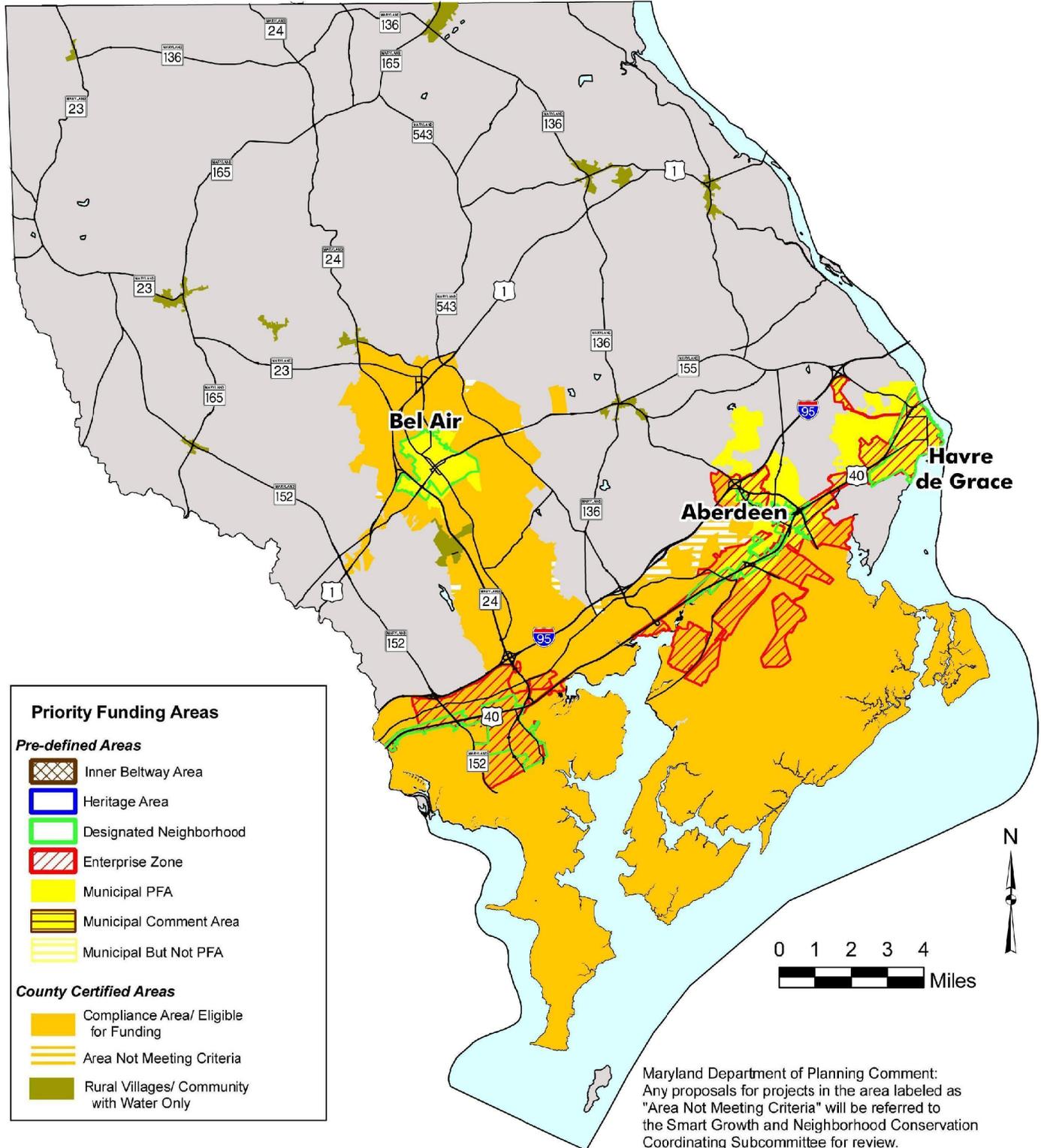
Both Census Tracts have a high percent minority population, over three times higher than that of Harford County as a whole. Census Tract 3029.02 also has a

Table 6
Population Data - Percent Below Poverty Level and Percent Minority

Demographic	Census Tract 3029.02	Census Tract 3025	Harford County
Percent below poverty level	11.3	5.6	4.9
Percent Minority			
Black	30.8	34.6	9.3
Hispanic and Latino	3.4	11.2	1.9
Asian	2.5	3.1	0.3
American Indian	0.3	0.6	0.2
Other	0.9	5.7	0.7



HARFORD COUNTY Priority Funding Areas



Sources: Designated Neighborhoods (2001) - Maryland Department of Planning and the Department of Housing and Community Development; Enterprise Zones (2001) - Maryland Department of Planning and the Department of Business and Economic Development; Municipalities (1997) - Maryland Department of Planning; Heritage Areas (1998) - Maryland Department of Planning

<h2>Harford County Multi-Modal Transportation Center Study</h2>		
	<h3>Harford County Priority Funding Areas</h3>	
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high percent below poverty level population (11.3%) compared to that of Harford County (4.9%).

The Aberdeen Train Station provides access to MARC and Amtrak (Northeast Regional) trains as well as local buses. Goals associated with expanding or relocating the Aberdeen Station are to continue to serve commuter rail needs, serve the expanding needs of the Aberdeen Proving Ground, and support the land use and economic development goals of Harford County and the City of Aberdeen. The MTC will not have adverse impacts on the surrounding community and will only improve access to the station. It will not result in any adverse or disproportionate impact on low income or minority neighborhoods.

Potential Contamination

A preliminary screening for potentially contaminated sites was conducted for this study. The objective of this investigation was to identify “recognized environmental conditions” that may exist on the properties without entering the properties or interviewing property owners. Therefore this review is preliminary in nature, and is not intended for real estate transaction use or as a substitute for an Environmental Site Assessment (ESA) conducted under American Society for Testing and Materials (ASTM) standards.

The records review involved an environmental database search by EDR. A Radius Map with Geocheck search identified government records for sites surrounding the study area. **Figure 21** identifies the area searched by EDR and the locations of recognized environmental conditions. The following agency databases produced results that indicated the existence of potentially contaminated sites located within the study area:

NPL – National Priority List sites are listed for priority cleanup under the Superfund program.

CERCLIS – Comprehensive Environmental Response, Compensation and Liability Information System

contains data on potentially hazardous waste sites that have been reported to the Environmental Protection Agency (EPA).

US ENG CONTROLS – A listing of sites with engineering controls in place

USINSTCONTROL – A listing of sites with institutional controls in place, including administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

HIST UST – Historical underground storage tanks

DOD – Federally owned or administered lands, administered by the Department of Defense

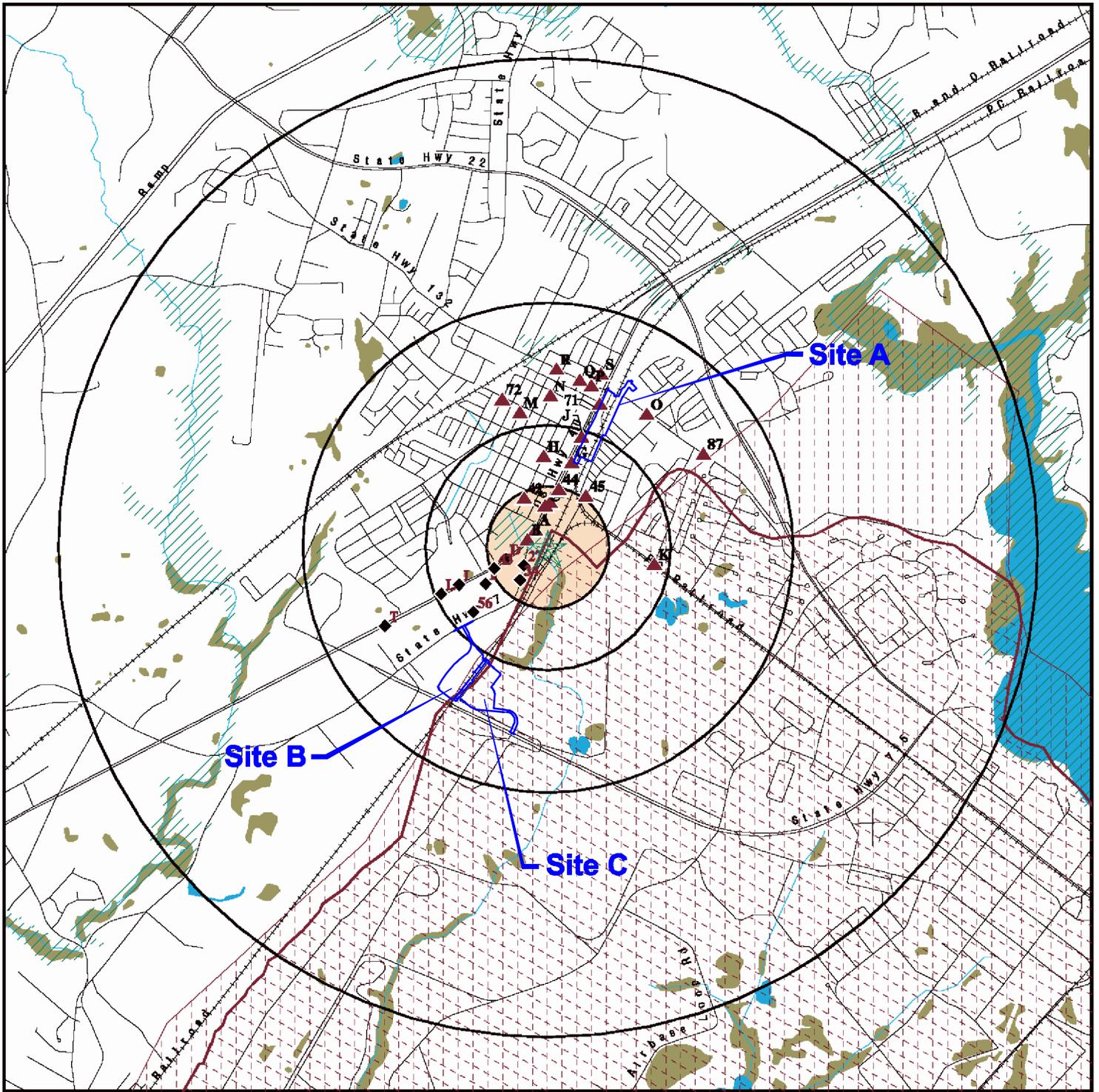
ROD – Record of Decision documents mandate a permanent remedy at an NPL site containing technical and health information to aid the cleanup.

LEAD – Lead inspection database, the Childhood Lead Poisoning Prevention program data of lead inspection for the state

Table 7 summarizes the EDR database search results for potentially contaminated sites within the study area. There were no results located in Site B. Site C is on Aberdeen Proving Ground property, and the EDR search results for Site C in the table are for Aberdeen Proving Ground as a whole and are not specific to Site C.

Until the early 1970s, the primary methods of waste disposal at APG were through burial, open detonation, open-air burning, or by discharging untreated liquid wastes through sewer lines to surface water. Over the years, these operations resulted in contamination of the environment with hazardous materials, including ground water contamination. Portions of the facility remain active. APG was proposed for inclusion on the





- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory



Harford County Multi-Modal Transportation Center Study

EDR Database Search Results



DATE:
August 2009

SCALE:
AS SHOWN

URS

4 NORTH PARK DRIVE, SUITE 300
HUNT VALLEY, MARYLAND 21030
TELEPHONE: 410-786-7220

FIGURE:

21

**Table 7
EDR Database Search Results**

Proposed Site	Site ID on Figure 21	Name or Address	Type of Facility	EDR Database
A	J	Former AAMCO Transmission	Commercial	HIST UST
A	not mapped	105 S Philadelphia Blvd	Commercial	LEAD
C	shaded area	Aberdeen Proving Ground	Institutional	NPL
C	shaded area	Aberdeen Proving Ground	Institutional	CERCLIS
C	shaded area	Aberdeen Proving Ground	Institutional	US ENG CONTROLS
C	shaded area	Aberdeen Proving Ground	Institutional	US INST CONTROLS
C	shaded area	Aberdeen Proving Ground	Institutional	DOD
C	shaded area	Aberdeen Proving Ground	Institutional	ROD

NPL on April 10, 1985. The NPL listing was finalized on February 21, 1990.

The former AAMCO Transmission facility contains an historical underground oil storage tank. It is 31 years old and currently in use. There is no record of the tank leaking. Due to poor or inadequate address information, EDR was unable to map or describe the LEAD site listed at 105 S. Philadelphia Blvd.

Although the existing railroad right of way was not identified by EDR as a potentially contaminated site, it should be noted that railroad beds are often contaminated due to leakage from diesel engines and the track areas would need to be investigated further during design of the project. This applies to Sites A, B, and C and is counted as an additional potentially contaminated site in the impacts summary table (Table 8).

Summary of Physical Impacts

A preliminary analysis of environmental resources, including an inventory of natural, socioeconomic, and cultural resources was performed. Proposed MTC Sites A, B, and C were compared for impacts to natural resources and other environmental concerns. Site A, located at the existing station, is a commercially developed area and has the fewest natural resource impacts, but would include potential displacement of seven businesses. Additionally, there are two potential

contamination sites that would be impacted by construction of a MTC on Site A. An MTC on Site B would impact the natural environment by displacing existing forested and agricultural land and associated habitat. There is an historic residence on the Mitchell property which would be avoided but could be adversely impacted by a MTC. An MTC on Site C would impact the natural environment by displacing existing forested land and associated habitat and also has potential for contamination. All three sites are located within a designated Priority Funding Area. Table 8 summarizes impacts to each site.

Transportation Impacts

A traffic impact analysis was performed for the three alternative MTC sites. The purpose of this traffic study was to determine the impact of the three sites on the adjacent area roadways and to assist in the identification of the most suitable site for the MTC.

Site A is located at the existing Aberdeen Train Station along US 40 to the south of West Bel Air Avenue (MD 132). There are two options for Site A. The first option does not include an existing retail building to the south of the existing train station; the second option includes the retail building. The worst case scenario (i.e. the option generating the higher number of trips) was found to be the one which includes the retail building and was analyzed in this traffic study and



**Table 8
Summary of Impacts**

Impact	Site A	Site B	Site C
Floodplains (acres)	0	0	0
Wetlands (acres)	0	0	0
Waters of the U.S. (linear feet)	0	0	0
Chesapeake Bay Critical Area (acres)	0	0	0
Forests (acres)	0.37	4.78	10.19
RTE Species	0	0	0
Potential FIDS Habitat (acres)	0	1.19	6.89
Historic Resources	0	1	0
Agricultural Land (acres)	0	3.79	0
Public Water Sources	1	0	0
Displaced Properties	7	0	0
Maryland Priority Funding Area	yes	yes	yes
Potentially Contaminated Sites	3	1	7

referred to as Site A. Site A is proposed to be served by Cecil Street which is located opposite to Market Street. The following intersections were considered critical to analyze for Site A:

- US 40/MD 132
- US 40/Cecil Street/Market Street.

Site B is located to the south of Old Philadelphia Road and to the east of Maryland Boulevard (MD 715). It is proposed to be located just north of the existing railway tracks and is proposed to be served by an access drive on Old Philadelphia Road. The following intersections were considered critical to analyze for Site B:

- US 40/MD 715
- MD 715/Old Philadelphia Road
- Old Philadelphia Road/Wal-Mart Drive/Site Access Drive.

Site C is located just to the south of Site B, south of the existing railway tracks, and is proposed to be served by an access drive on MD 715. The following intersections were considered critical to analyze for Site B:

- US 40/MD 715
- MD 715/Old Philadelphia Road
- MD 715/Site Access Drive.

Traffic Volumes

A future analysis year of 2015 was considered for this traffic analysis evaluation. The 2015 traffic volumes at the critical intersections were referenced from the study entitled “*BRAC Transportation Study, Aberdeen Proving Ground, Harford County - Technical Memorandum No. 2A: Future Conditions (Year 2015 and 2030) Analyses Final Report*” performed by the Maryland State Highway Administration (SHA) dated April 2008. The traffic volumes considered in the present study include the traffic generated by BRAC and Enhanced Use Leasing (EUL) sites by 2015.

Four-hour traffic counts were performed at the intersections of US 40/Cecil Street/Market Street and Old Philadelphia Road/Wal-Mart Drive on May 19 and May 21, 2009 respectively since these intersections were not studied in the above-mentioned 2008 SHA study.



Site Trip Generation

Trip generation performed for the three alternative sites was based on the parking spaces provided for each of the sites. It was assumed that 60 percent of the parking spaces would generate a peak direction trip during both the morning and the afternoon peak hours (passenger car traffic). In addition, it was assumed that each bus bay would generate an inbound and outbound trip during each peak hour. An additional 15 percent of the passenger car traffic was considered to account for taxis (or Park-N-Ride) traffic and another five percent (of passenger car traffic) in the off-peak direction to account for shift-worker traffic.

Trip Distribution and Assignment

The trips generated by the three sites were distributed to the area roadways based on the logical routing of vehicles and based on the location of nearby train stations. Since there is a train station in Edgewood to the south of the proposed site locations, it was assumed that 80 percent of the incoming and outgoing traffic to/from the site would be to/from the north/east and the remaining 20 percent would be to/from the south/west.

2015 Build MTC Traffic Volumes

The trips generated by the site when added to the 2015 No-Build MTC Volumes (obtained from a combination of the traffic volumes referenced from the 2008 SHA study and the traffic counts performed) resulted in the 2015 Build MTC Traffic Volumes.

The 2015 Build MTC Traffic Volumes for Sites A, B and C are illustrated in **Figures 22, 23, and 24**, respectively.

2015 Roadway Improvements

The 2015 priority improvements that are funded for implementation by the SHA include improvements along MD 715 (at US 40 and Old Philadelphia Road)

only and do not include improvements at the US 40/MD 132 intersection, which could be implemented at a later date, should funding become available. The 2015 priority improvements are referred to as SHA Priority Improvements in this study and are described as below:

SHA Priority Improvements at the US-40/MD 715 intersection

- Off-Ramp from Eastbound US 40 at MD 715:
 - Two New Traffic Signals (one for the left-turn from the Off-Ramp; the other for the right-turn from the Off-Ramp).
 - Triple right-turn lanes from the Off-Ramp onto southbound MD 715.
 - A left-turn lane and two through lanes on the southbound MD 715 approach.
 - Two through lanes on the northbound MD 715 approach.
- On-Ramp to Eastbound US 40 from MD 715:
 - Two free-flow lanes on the On-Ramp to eastbound US 40.
- Hickory Drive/On-Ramp to Westbound US 40:
 - Two lanes on the westbound approach on the On-Ramp.

SHA Priority Improvements at the MD 715/Old Philadelphia Road intersection

- A left-turn lane, four through lanes and a right-turn lane on the southbound MD 715 approach.
- A left-turn lane, four through lanes and a right-turn lane on the northbound MD 715 approach.
- A left-turn lane, two through lanes and a right-turn lane on the eastbound Old Philadelphia Road approach.
- A left-turn lane, one through lanes and one shared through/right-turn lane on the westbound Old Philadelphia Road approach.



Figure 22
2015 Build MTC Traffic Volumes for Site A

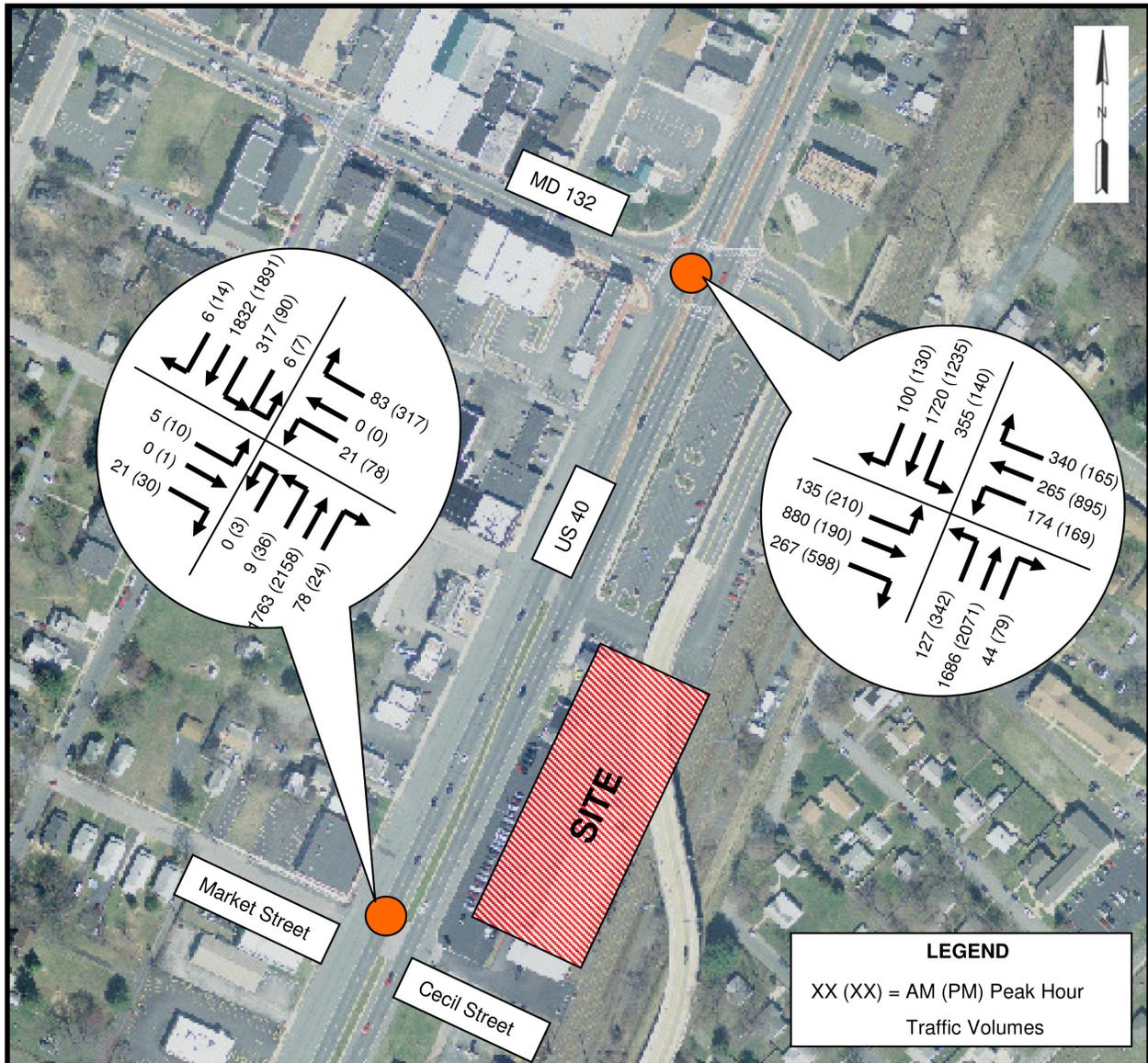


Figure 23
2015 Build MTC Traffic Volumes for Site B

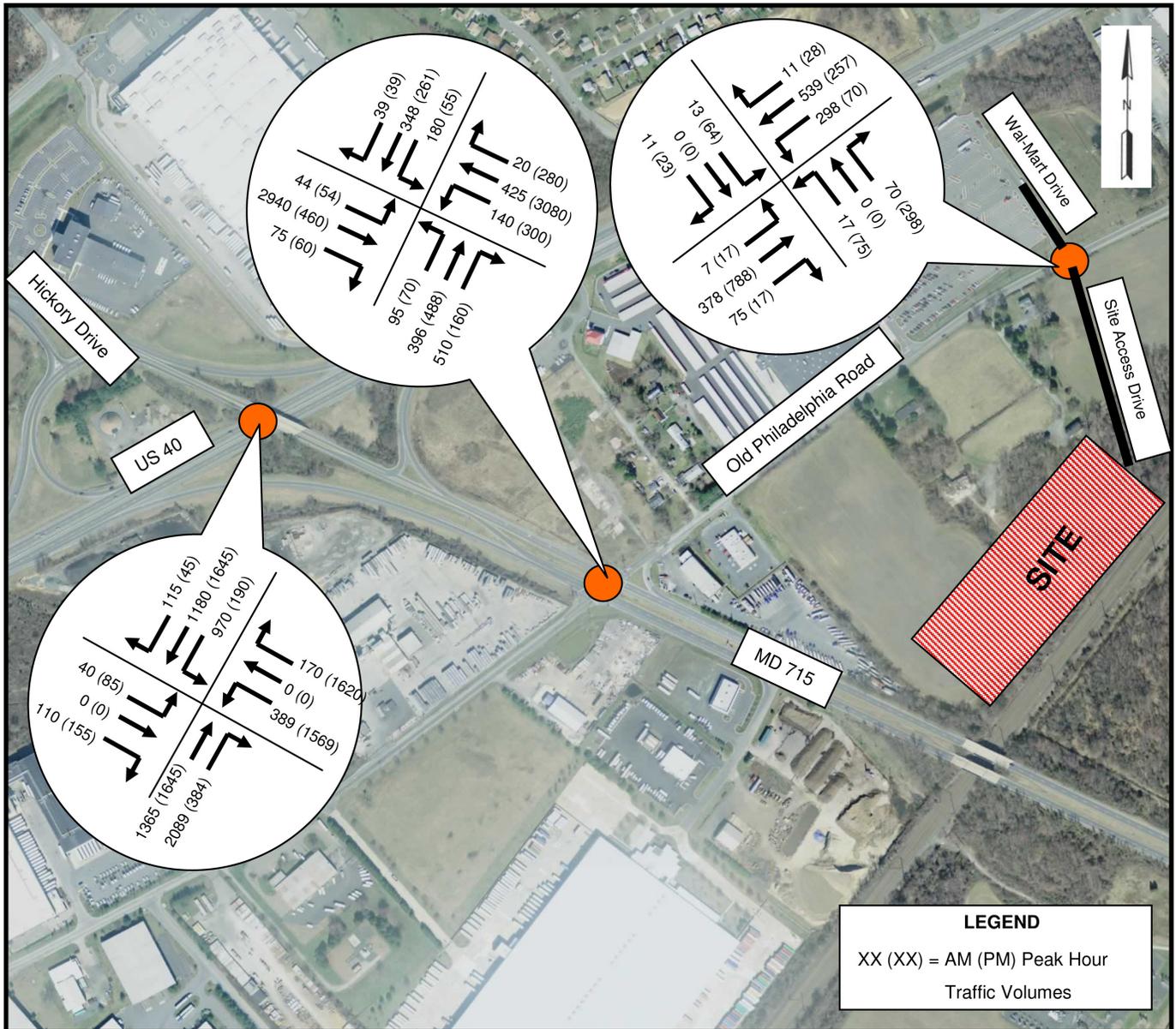
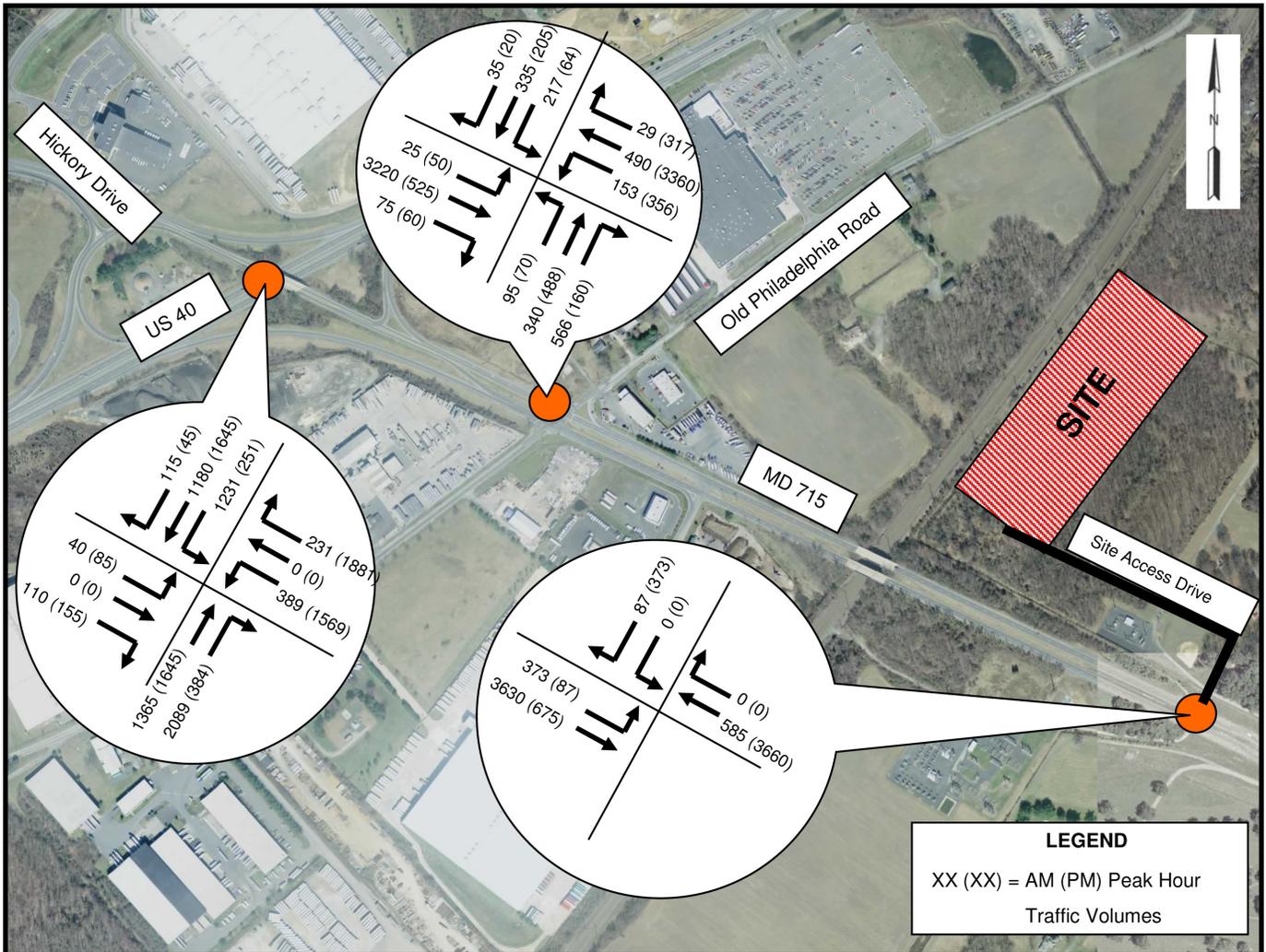


Figure 24
2015 Build MTC Traffic Volumes for Site C



SHA Priority Improvements on MD 715 near Site C

- Three through lanes in each direction on MD 715.

For the US 40/MD 132 study intersection, the improvements proposed in the April 2008 SHA study were considered in this traffic analysis both for the No-Build MTC and the Build MTC conditions.

The SHA Priority Improvements along with the improvements proposed in the 2008 SHA study at the US 40/MD 132 intersection are referred to as Ultimate Improvements in this study; i.e., Ultimate Improvements include roadway improvements under which the 2015 No-Build traffic volumes can be adequately accommodated by the intersections. Although many of these improvements are not yet scheduled to be implemented by 2015, it was necessary to consider these improvements in order to evaluate the effectiveness of the alternative site locations.

The roadway improvements at the US 40/MD 132 intersection (per the 2008 SHA study) are as follows:

Ultimate Improvements at the US 40/MD 132 intersection

- A left-turn lane, four through lanes and a right-turn lane on the eastbound US 40 approach.
- A left-turn lane, three through lanes and a right-turn lane on the westbound US 40 approach.
- A left-turn lane, two through lanes and a right-turn lane on the northbound MD 132 approach.
- A left-turn lane, two through lanes and a right-turn lane on the southbound MD 132 approach.

Capacity Analysis - 2015 No-Build MTC Conditions

Capacity analysis at the critical intersections was performed using the industry-standard software package Synchro/SimTraffic Version 7 (Build 757).

Table 9 shows the results of the capacity analysis performed for 2015 No-Build MTC conditions. As shown in **Table 9**, most of the intersections would

operate at failing Level of Service (LOS) F without the implementation of roadway improvements even if the site is not built.

For the ease of referencing the US 40/MD 715 intersection for Sites B and C, a map labeled to correlate with **Table 9** is illustrated in **Figure 25**.

With the Ultimate Improvements in place, almost all study intersections would operate at acceptable levels (LOS D or better) except for the Hickory Drive and northbound MD 715 intersection for Sites B and C (LOS F during the PM peak hour). The only possible improvement at this location would be to signalize the Hickory Drive/Northbound MD 715 intersection. However, based on the low left-turn volumes (40 vehicles per hour during the AM peak hour and 85 vehicles per hour during the PM peak), it is anticipated that this intersection would not meet a signal warrant. In addition, higher delays would only be experienced during one peak hour only (PM peak) and it would operate acceptably during the AM peak hour. Therefore, no improvement is suggested at this time for this intersection.

Capacity Analysis - 2015 Build MTC Conditions

With complete build-out of the MTC alternatives at each site, the following observations were made from the traffic analysis:

Site A

SHA Priority Improvement Conditions

Without any roadway improvements at the US 40/MD 132 intersection, the intersection would continue to operate at LOS F. Major roadway improvements would be necessary for the intersection to operate at acceptable levels of service, with or without the MTC.

The US 40/Cecil Street/Market Street intersection would now operate at LOS F during both peak hours. Although a detailed signal warrant analysis was outside the scope of this study, a traffic signal is likely



Table 9
Capacity Analyses Under 2015 No-Build and 2015 Build Conditions

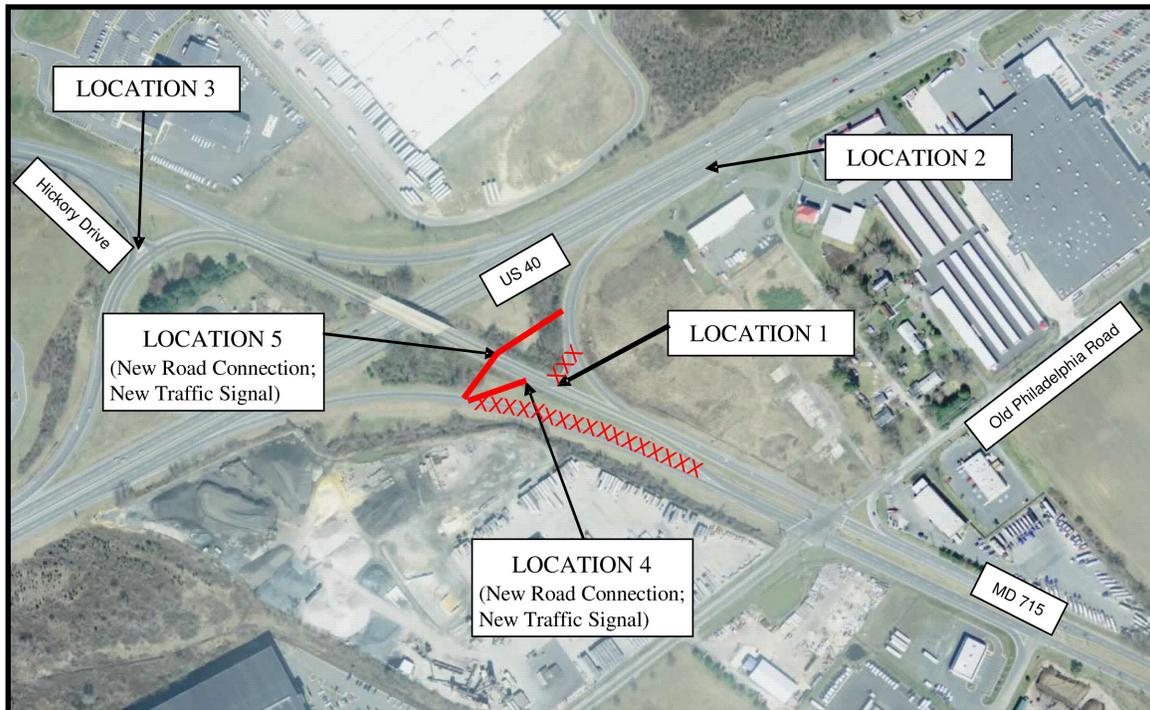
Site	Intersection	2015 No-Build MTC (No Improvements)		2015 No-Build MTC (With SHA Priority Improvements)		2015 No-Build MTC (With Ultimate Improvements)		2015 Build MTC (With SHA Priority Improvements – No Site Mitigation)		2015 Build MTC (With SHA Priority Improvements – With Site Mitigation)		2015 Build MTC (With Ultimate Improvements – No Site Mitigation)		2015 Build MTC (With Ultimate Improvements – With Site Mitigation)		
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
		LOS (Delay in secs)		LOS (Delay in secs)		LOS (Delay in secs)		LOS (Delay in secs)		LOS (Delay in secs)		LOS (Delay in secs)		LOS (Delay in secs)		
A	US 40 / MD 132	F (138.9)	F (159.8)	F (138.9)	F (159.8)	C (34.1)	D (36.2)	F (154.9)	F (164.6)	No Site Mitigation		D (37.1)	D (38.1)	No Site Mitigation		
	US 40 / Cecil Street/Market Street	A (5.2)	F (98.2)	A (5.2)	F (98.2)	A (0.4)	B (11.1)	F (–)	F (–)	B (14.2) ¹	C (29.3) ¹	F (–)	F (–)	A (9.9) ¹	B (12.7) ¹	
B	US 40 / MD 715 ²									No Site Mitigation						
	a) Southbound MD 715 Left - Turn onto Eastbound US 40 Ramp (Figure 25 - Location 1)	A (8.3)	F (55.0)	N/A ³		N/A ³		N/A ³			N/A ³					
	b) Ramp onto Eastbound US 40 (from MD 715) (Figure 25 - Location 2)	D (31.1)	F (–)	N/A ⁴		N/A ⁴		N/A ⁴			N/A ⁴					
	c) Southbound Hickory Drive and Northbound MD 715 (Figure 25 - Location 3)	A (2.6)	F (101.6)	A (2.8)	F (67.1)	A (2.8)	F (69.7)	A (2.8)	F (69.7)		A (2.8)	F (69.7)			No Site Mitigation	
	d) Right-turn from EB US 40 Off-Ramp and MD 715 intersection (Figure 25 - Location 4)		N/A	D (41.7)	A (2.5)	D (43.5)	A (2.6)	D (43.5)	A (2.6)		D (43.5)	A (2.6)				
	e) Left-turn from EB US 40 Off-Ramp and MD 715 intersection (Figure 25 - Location 5)		N/A	A (9.8)	A (3.5)	A (9.8)	A (3.3)	A (9.8)	A (3.3)		A (9.8)	A (3.3)				
	MD 715 / MD 7	F (324.0)	F (290.8)	C (26.9)	B (16.1)	C (27.4)	B (16.5)	C (27.4)	B (16.5)		C (27.4)	B (16.5)				
MD 7 / Wal-Mart Drive/Site Access Drive	A (0.5)	A (2.3)	A (0.5)	A (2.3)	A (5.3)	F (547.8)	A (5.3)	F (547.8)	A (6.7) ¹	B (17.1) ¹	A (5.3)	F (547.8)	A (6.7) ¹	B (17.1) ¹		
C	US 40 / MD 715 ²									No Site Mitigation						
	a) Southbound MD 715 Left-Turn onto Northbound US 40 Ramp (Figure 25 - Location 1)							N/A ³			N/A ³					
	b) Ramp onto Eastbound US 40 (Figure 25 - Location 2)							N/A ⁴			N/A ⁴					
	c) Southbound Hickory Drive Left-Turn onto Northbound MD 715 (Figure 25 - Location 3)	Same as Site B		Same as Site B		Same as Site B		A (4.6)	F (76.8)		A (4.6)	F (76.8)			No Site Mitigation	
	d) Right-turn from NB US 40 Off-Ramp and EB MD 715 intersection (Figure 25 - Location 4)	Same as Site B		Same as Site B		Same as Site B		E (69.0)	A (4.3)		E (69.0)	A (4.3)				
	e) Left-turn from NB US 40 Off-Ramp and EB MD 715 intersection (Figure 25 - Location 5)	Same as Site B		Same as Site B		Same as Site B		A (8.0)	A (1.8)		A (8.0)	A (1.8)				
	MD 715 / MD 7	Same as Site B		Same as Site B		Same as Site B		D (52.4)	B (17.7)		D (52.4)	B (17.7)				
MD 715 / Site Access Drive	N/A		N/A		N/A		A (1.1)	F (80.3)	A (6.0) ¹	E (75.6) ¹	A (1.1)	F (80.3)	A (6.0) ¹	E (75.6) ¹		

Notes

- ¹ Mitigation includes signalization of the intersection.
- ² Movements not shown here are all free-flow movements and therefore do not have measurable delays in Synchro.
- ³ Movement now incorporated at intersection of EB US 40 Off-Ramp with MD 715.
- ⁴ Converted to a free-flow movement.
- N/A: Not Applicable (i.e., Not relevant to this particular scenario)
- : Delay is too high to be calculated by Synchro (usually above 200 seconds per vehicle)



Figure 25
Reference Map for Table 9



to be warranted at this location once the site builds out and was therefore considered to be installed at this intersection as a potential site mitigation measure. With a new traffic signal, the intersection would operate at acceptable levels of service during both peak hours.

A left-turn lane on westbound US 40 (onto Cecil Street/Site Access Drive) already exists under existing conditions. No other roadway improvement on US 40 would be necessary to accommodate site traffic. On the Cecil Street/Site Access Drive approach, a shared left-turn/through lane and a right-turn lane is recommended to provide LOS A during the AM peak hour and LOS B during the PM peak hour at this intersection.

Ultimate Improvement Conditions

The US 40/MD 132 intersection would continue to operate at acceptable levels during both peak hours with the Ultimate Improvements in-place. The US 40/

Cecil Street/Market Street intersection would operate at LOS F during both peak hours under unsignalized traffic operation. With a new traffic signal, the intersection would operate at acceptable levels of service during both peak hours.

Site B

For Site B, the SHA Priority Improvements and Ultimate Improvements are the same; therefore, the following observations are applicable to both.

Under 2015 Build MTC conditions, the US 40/MD 715 and MD 715/Old Philadelphia Road intersections would continue to operate similarly to 2015 No-Build MTC conditions.

The Old Philadelphia Road/Wal-Mart Drive/Site Access Drive would operate at an acceptable level during the AM peak hour. However, it would operate at LOS F during the PM peak hour. Although a detailed signal warrant analysis was outside the scope of this



study, a traffic signal is likely to be warranted at this location once the site builds out and was therefore considered to be installed at this intersection as a potential site mitigation measure. With a new traffic signal, the intersection would operate at acceptable levels of service during both peak hours. A left-turn lane on westbound Old Philadelphia Road (onto Site Access Drive) would be needed to accommodate site traffic. On the Site Access Drive approach, a left-turn lane and a shared through/right-turn lane are recommended to achieve LOS A during the AM peak hour and LOS B during the PM peak hour.

Site C

For Site C, the SHA Priority Improvements and Ultimate Improvements are the same; therefore, the following observations are applicable to both.

Under 2015 Build MTC conditions, the US 40/MD 715 intersection would continue to operate similarly to 2015 No-Build MTC conditions except for the intersection of the Right-turn from NB US 40 Off-Ramp and MD 715 which would now operate at LOS E during the AM peak hour.

The MD 715/Old Philadelphia Road intersection would now operate at LOS D during the AM peak hour and LOS B during the PM peak hour.

The US 40/Hickory Drive intersection would experience higher delays than the No-Build MTC condition; however, it would still operate at similar levels of service as No-Build MTC condition (LOS A during the AM peak hour and LOS F during the PM peak hour).

The MD 715/Site Access Drive would experience high delays during the PM peak hour and would operate at LOS F. Although a detailed signal warrant analysis was outside the scope of this study, a traffic signal is likely to be warranted at this location once the site builds out and was therefore considered to be installed at this intersection as a potential site mitigation measure. Even with a new signal, the Site Access Drive would

operate at LOS E during the PM peak hour. A left-turn lane on southbound MD 715 (onto Site Access Drive) would be needed to accommodate site traffic. On the Site Access Drive approach, a shared left-turn/right-turn lane is proposed to achieve LOS A during the AM peak hour; during the PM peak, the intersection would still operate at LOS E.

Comparative Analysis between Sites A, B, and C

To evaluate the effectiveness and the advantages/disadvantages of each of the alternative site locations, a comparative analysis was performed and is shown in **Table 10**.

Traffic Study Conclusions

Following are the conclusions based on this traffic study:

- Most of the study area intersections would operate at failing levels under 2015 conditions if no roadway improvements are implemented, even if the site is not built.
- With SHA's 2015 SHA Priority Improvements for MD 715/US 40 and Old Philadelphia Road in place, the study intersections included in the analyses for Sites B and C would operate at acceptable levels of service *without the development of the site*.
- The US 40/MD 132 intersection (included for the analysis of Site A) would still operate at failing levels by 2015 *without the development of the site*; and would require the Ultimate Improvements suggested in SHA's study to operate at acceptable levels of service. With SHA improvements in place, the US 40/MD 132 intersection would operate at acceptable levels *with or without the MTC* in place.
- If no roadway improvements are implemented at the US 40/MD 132 intersection, it would continue to operate at LOS F *when the site is completely developed* and under this condition, the traffic operation of Site A would be worse than that of Site B or Site C.



Table 10
Comparative Analysis between Alternative Site Locations (2015 Conditions)

Effectiveness Parameter	Site A	Site B	Site C
Failing Intersection Operation Due to 2015 No-Build MTC Traffic?	US 40/MD 132 (under SHA Priority Improvements)	None	None
Failing Intersection Operation Due to Site Traffic?	None	None	MD 715/Site Access Drive
			Right turn from EB US 40 Off-Ramp and MD 715
Mitigation (Roadway Improvements Needed)	Signalize US 40/Cecil Street/Market Street	Signalize Old Philadelphia Road/Site Access Drive	Signalize MD 715/Site Access Drive
		Left turn lane on Westbound Old Philadelphia Road approach at Site Drive	Left turn lane on southbound MD 715 approach at Site Drive

- The Site Access Drive intersections for each of the alternatives are considered to be signalized in this study. With signalization, the intersections associated with Sites A and B would operate at acceptable levels of service. Site C, however, would still have the site access drive intersection operating at failing levels of service.

Transit Access and Circulation

Development of a MTC on Site A would not require any transit route diversions. If developed on Sites B or C, however, transit route diversions would be required in order to serve the MTC.

The existing train station, Site A, is currently served by Harford Transit Routes 1, 4, and 6. In addition, MTA Route 420 passes adjacent to the site on MD 40.

Harford Transit Routes 4 and 6 and MTA Route 420 travel on Old Philadelphia Road adjacent to Site B. Diverting these routes into Site B would be relatively straightforward with little change in overall travel time. Harford Transit Route 1 would need to be

extended from Site A to serve Site B.

Existing bus routes would need to be extended to serve Site C. The bus routes would need to approach the site via MD 715. The peak period traffic at the APG gate on MD 715 would likely result in delays to buses going to and from Site C.

Pedestrian/Bicycle Connectivity

Good pedestrian and bicycle connectivity exists at Site A. Sites B and C have poor pedestrian and bicycle connectivity, coupled with the lack of residential property within ½ mile. The *Aberdeen Comprehensive Plan, Transportation Element* (April 2009) recommends a proposed bicycle network extension from Old Post Road to MD 715, which would improve connectivity for Sites B and C.

Summary of Transportation Impacts

Development of a MTC on Site A would likely require a new traffic signal on US 40 at Market Street. There would be no significant change to transit operations and the site has good connectivity for bicycles and



pedestrians.

Site B would likely require a new traffic signal on Old Philadelphia Road at the site access drive. Existing transit routes would need to be restructured to serve the site. The site has poor connectivity for pedestrians and bicycles.

Site C would likely require a new traffic signal on MD 715 at the Site Access Drive. Even with this signal, there would be significant delays for traffic on MD 715 due to the overlap of station oriented traffic and APG traffic. Existing transit routes would need to be restructured to serve the site. The site has poor connectivity for pedestrians and bicycles.

The *Aberdeen Comprehensive Plan, Transportation Element* (April 2009) contains the following roadway and intersection improvements as Mid-Term and Long-Term Transportation Improvements, which would improve traffic operations in the study area:

- US 40/MD 132 (Increase Intersection Capacity; Mid-Term Implementation; 2015-2020)
- US 40 Road Widening between Robin Hood Road and MD 7 (Long-Term Implementation; after 2020)
- MD 715 Road Widening between US 40 and APG Gate (Long-Term Implementation; after 2020)

Land Use and Transit Oriented Development Potential

Each of the three potential MTC sites were evaluated based on land use and transit oriented development (TOD) potential.

Site A

The majority of the existing land uses in the vicinity of Site A (**Figure 26**) are residential and commercial, which are supportable of transit and TOD. The location of Site A proximate to downtown Aberdeen, existing supportive pedestrian and vehicular infrastructure,

the higher intensity residential and commercial uses in the area provide, and supportive economics and demographics within the transit zone provide strong opportunities for TOD. Opportunities for TOD are primarily infill development given the limited land resources available for TOD.

Site B

The majority of the existing land uses in the vicinity of Site B (**Figure 27**) are industrial in nature and APG-related, which are generally not supportive of transit. There are large parcels of underutilized land that have potential for new development, but the lack of connections to the downtown area, as well as the nature of surrounding uses, inhibit near-term opportunities for TOD and may require additional significant public investment in needed infrastructure to address TOD goals.

Site C

As with Site B, the majority of the existing land uses in the vicinity of Site C are industrial in nature and APG-related, which are generally not supportive of transit. There are large parcels of underutilized land that have potential for new development, but the lack of connections to the downtown area, as well as the nature of surrounding uses, inhibit near-term opportunities for TOD and may require additional significant public investment in needed infrastructure to address TOD goals. Additionally, restrictions on use of property on the APG could discourage any future TOD opportunities.

Potential Relocation of Existing Station

The potential relocation of the existing Aberdeen Train Station provides unique challenges. If Site A is chosen, the existing station is expanded, remains in active use, contributes to the vitality of the downtown area, and provides opportunity to enhance connections to the downtown area. If the existing station is relocated, it may be difficult to identify appropriate and supportive land uses for the existing property.



Figure 26
Existing Land Use within ½ Mile of Site A

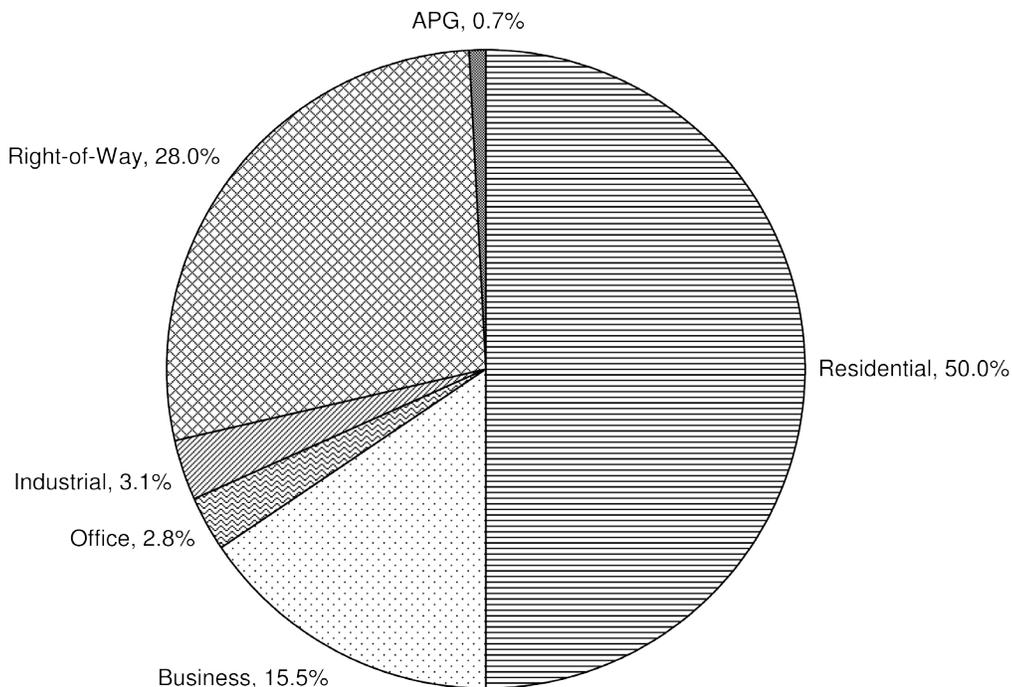
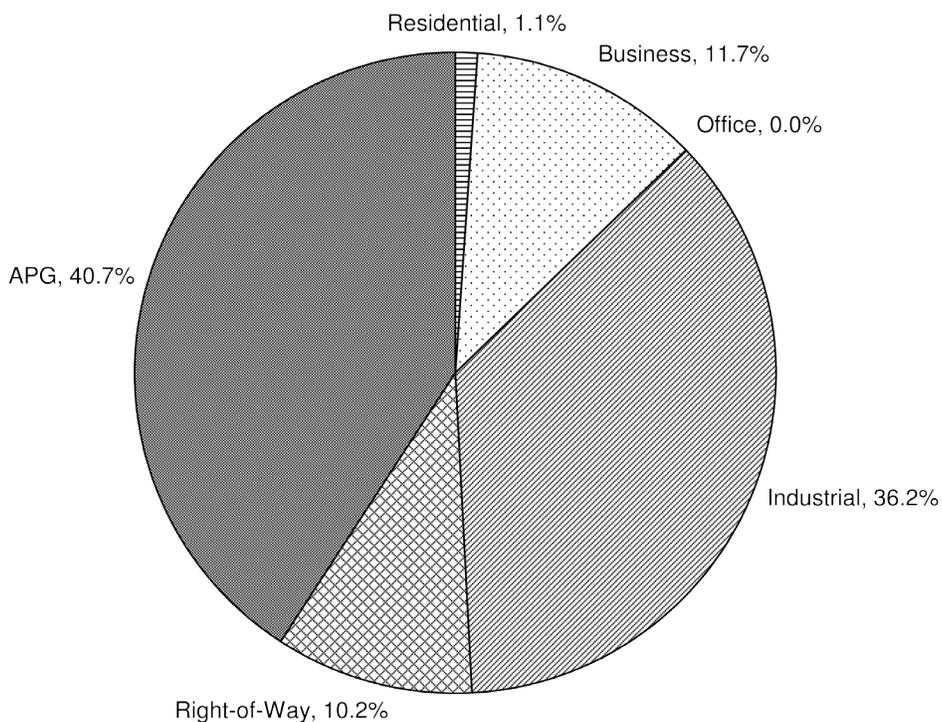


Figure 27
Existing Land Use within ½ Mile of Sites B and C



The existing station property presents development challenges, such as its narrow size and being bounded by US 40 and railroad tracks. Physical constraints on the existing station could delay redevelopment of the property if the station is relocated.

Cost Implications

The capital costs for construction of a MTC on each site have been estimated based on the concept site plans (**Figures 8 through 12**) and detailed cost estimates are available in **Appendix C**, on the included CD. Quantities of various construction elements were estimated and multiplied by unit costs determined from similar projects. Some of the key assumptions that were incorporated into the cost estimates are as follows:

- All estimates include a contingency factor of 35 percent to account for unknowns at this conceptual level of design development.
- All estimates include a factor of 30 percent of net construction to account for professional services, including preliminary engineering, final design, project management, construction administration, and insurance, legal, and survey costs.
- The estimates do not include costs for any railroad improvements such as new or realigned track or catenary. An allowance has been made for maintenance of traffic for work within the Amtrak right-of-way.
- Right-of-way costs were estimated as follows:
 - For existing businesses, assessed values were multiplied by 1.67 to estimate the cost to acquire and relocate the business. This process applied to the properties required for Site A.
 - For sites B and C, a fixed rate of \$12 per square foot was applied to the land requirements for each site. This

amount was estimated based on a review of assessed property values in Harford County and represents a commercial business use.

- It is recognized that land for Site C would likely be a long term lease from the APG or a sub-lease from the Enhanced Use Lease (EUL) leaseholder. However, for purposes of this comparative evaluation, Site C property was valued the same as Site B.

The cost implications of each of the site alternatives are discussed below:

- **Site A – Existing Aberdeen Station**

The estimated capital costs associated with a MTC on Site A range from \$31.5 to \$33.1 million. Additional right-of-way required for expansion of the existing station is estimated to cost \$3.6 to \$5.0 million.

- **Site B – Mitchell Property**

The estimated capital costs associated with a MTC on Site B range from \$34.8 (surface parking) to \$57.7 million (structured parking). Right-of-way required for the station is estimated to cost \$5.0 to \$5.9 million.

- **Site C – APG Property**

The estimated capital costs associated with a MTC on Site C range from \$36.2 (surface parking) to \$59.1 million (structured parking). Right-of-way required for the station is estimated to cost \$5.8 to \$6.6 million.

Summary of Site Evaluations

Table 11 summarizes the results of the evaluation of the alternatives.



**Table 11
Evaluation of Site Alternatives**

	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
Physical Impacts			
Residential Displacements	0	0	0
Business Displacements	Option 1: 15 Option 2: 7	0	0
Stream/Wetland Impacts (acres)	0	0	0
Agricultural Land (acres)	0	3.79 (zoned industrial)	0
Forest Impact (acres)	0.37	4.78	10.19
Parkland/Section 4(f) Resources	0	0	0
Historic Resources	0	1	0
Floodplain (acres)	0	0	0
Endangered Species	0	0	0
Potential Forest Interior Dwelling Species Habitat (acres)	0	1.19	6.89
Potential Contamination Sites	2 (historic underground storage tanks, lead site)	0	0
Transportation Impacts			
Roadway Improvements Needed	Signalize US 40 / Cecil Street / Market Street	Signalize Old Philadelphia Road / Site Access Drive	Signalize MD 715 / Site Access Drive
	Add right turn lanes along existing US 40 continuous shoulder	Add left-turn lane on westbound Old Philadelphia Road approach	Add left-turn lane on southbound MD 715 approach
Failing Intersection(s) due to Site Traffic	None	None	MD 715 / Site Access Drive
Transit Access and Circulation	No route diversions required	Route diversions required	Route diversions required
Pedestrian/Bicycle Connectivity	Good	Poor - lack of residential property within 1/2 mile	Poor - lack of residential property within 1/2 mile



**Table 11
Evaluation of Site Alternatives**

	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
Land Use			
Residential within 1/2 mile	50.0%	1.1%	1.1%
Business within 1/2 mile	15.5%	11.7%	11.7%
Office within 1/2 mile	2.8%	0.0%	0.0%
Industrial within 1/2 mile	3.1%	36.2%	36.2%
APG Property within 1/2 mile	0.7%	40.7%	40.7%
TOD Potential	High TOD Potential; Supportive existing infrastructure; primarily infill development opportunities	Moderate TOD Potential; Large parcels of underutilized land available but poor connectivity to existing community	Moderate to low TOD Potential; Large parcels of underutilized land available but poor access and connectivity to existing community
Cost Implications			
Construction Cost (2009 \$ Millions)	Option 1: \$33.1 (shopping center displacement) Option 2: \$31.5 (no shopping center displacement)	Option 1: \$34.8 (surface parking) Option 2: \$57.7 (structured parking)	Option 1: \$36.2 (surface parking) Option 2: \$59.1 (structured parking)
ROW Costs (2009 \$ Millions)	Option 1: \$5.0 (shopping center displacement) Option 2: \$3.6 (no shopping center displacement)	Option 1: \$5.9 (surface parking) Option 2: \$5.0 (structured parking)	Option 1: \$6.6 (surface parking) Option 2: \$5.8 (structured parking)



Implementation Plan

Recommended Site and Site Plan Features

Based on the evaluation of three alternative sites and options for the MTC, the site recommended for development of an MTC is Site A, the existing train station. This recommendation is based on the following:

- Site A allows for reuse of existing facilities. While much of the site will need to be reconstructed and property will need to be acquired, the existing surface parking lot as well as some of the other paved surfaces will likely be able to be reused as part of the new MTC.
- The estimated capital cost for an MTC on Site A is less than an MTC on either Site B or Site C.
- Traffic impacts associated with Site A will be fewer than those associated with Site B or Site C. The station-oriented traffic will be separate from APG oriented traffic.
- The proximity to Downtown Aberdeen will enhance pedestrian and bicycle connections

and will best serve the population of the city.

- Infill TOD opportunities in the vicinity of Site A will take advantage of existing public infrastructure and will tend to strengthen existing businesses in the downtown area.

Another benefit associated with expanding the existing station site is that the station property remains in active use and contributes to the vitality of Downtown Aberdeen. If the station were to be relocated, it may be difficult to identify appropriate, supportive land uses for the existing station property. The station site is relatively narrow and is bounded by US 40 on one side and the railroad tracks on the other. The physical constraints on the existing station site could delay redevelopment of the property until more desirable properties are no longer available.

Figures 28 and 29 are visualizations of the proposed MTC at Site A. These graphics are for concept illustration only. In future phases of the study, more detailed design studies will need to be undertaken to refine the site plan and develop the architectural treatment of the station, the pedestrian overpass, as well as the landscape architecture of the site itself.





Site A
Existing
Aberdeen Station
Station Rendering
View Looking North

Figure 28

August 2009

Not to Scale

Harford County
Multi-Modal
Transportation Center





Site A
Existing
Aberdeen Station
Station Rendering
View Looking South

Figure 29

August 2009

Not to Scale

Harford County
Multi-Modal
Transportation Center



Funding

Developing a connected transportation system takes cooperation from state, local, and national leaders. Financing for the new MTC in Aberdeen will likely include a mix of federal, state, and local sources. Even though the mechanisms for financing transportation improvements have increased and changed in the last decade, Federal funds remain the backbone of transportation financing. As such, an “innovative” approach to funding the MTC is to maximize Federal funding opportunities. In addition, there are a growing number of localities and states securing funding earmarks from Congress and state legislatures; using local bond measures to generate funds; and using a variety of creative financing methods to provide funds for intermodal transportation center projects.

Funding for a new MTC in Aberdeen is likely to come from a number of sources. Major transportation projects are rarely funded from a single source. Rather, a funding program is developed to take advantage of directed funding sources that may exist at a local, state, and federal level. At this time, the most promising sources of funding are described below:

Maryland Transportation Trust Fund (TTF) - Transportation needs in Maryland are funded from an integrated account called the Transportation Trust Fund. Sources of funds include motor fuel taxes, motor vehicle excise (titling) taxes, motor vehicle fees (registrations, licenses and other fees), and federal-aid. In addition, the Trust Fund also includes corporate income taxes, operating revenues (e.g., transit fares, port fees, airport fees), and bond proceeds. The TTF supports all activities of the Maryland Department of Transportation (MDOT) including modal agency operations (including the MTA), capital projects and debt service. The allocation of funds to projects and programs is made in conjunction with state and local elected officials.

BRAC Zone Funding – The area in the vicinity of the City of Aberdeen has been designated as a BRAC Zone. BRAC Zone funds (\$5 million per year shared between all BRAC Zones) can be used to reimburse local areas for expenses associated with new developments and associated infrastructure. Benefits are available for the 10-year life of the zone designation and the area must be designated for mixed use development that includes residential development.

Public/Private Partnership – Public/private partnerships are an increasingly important means of getting transportation infrastructure developed. The private sector sees value not only in getting additional transportation infrastructure constructed, but can participate in the project upside. This includes:

- *Revenue from leasing of air rights* (e.g. for parking). This is similar to long-term ground lease where the private sector provides a usable site for development while the city maintains control and use of the land below for development. There is value assigned to the air space, and thus the added cost to the developer, can be computed at a high value, or as an incentive to the developer, it can be calculated at a low value
- *Joint development*. A public/private joint development between revenue generating private sector space (e.g. commercial/retail) and public sector space provides revenue to the public sector. There could be capital/operating cost saving/sharing from joint development.
- *Ground lease of subject property*. Revenues from long-term ground lease of intermodal facility wherein the city, as owner of the property, leases the site for a minimum base payment plus a percentage of income generated by the project and/or by a graduated arrangement.



Tax Increment Financing and Special Taxing Districts – Municipalities and counties can form special taxing districts to support public infrastructure investments. Particularly in the vicinity of an expanding rail station, a tax increment financing district (TIF) or transportation improvement district could be established to form a dedicated revenue stream which could be used to support the issuance of a bond for public infrastructure improvements.

American Recovery and Reinvestment Act (ARRA) – There are a variety of opportunities for funding with economic stimulus funds available through the ARRA. The Department of Transportation TIGER (Grants for Transportation Investment Generating Economic Recovery) program will provide \$1.5 billion of discretionary funds. The guidance for TIGER funds specifically identify passenger rail transportation projects and projects that contribute to traveler mobility through intermodal connections. The Federal Railroad Administration is accepting applications for funding of projects that are part of the High Speed Intercity Passenger Rail (HSIPR) Program. While the Aberdeen station is not a part of the HSIPR, it is on the Northeast Corridor, which is part of the HSIPR. Applications for these special sources of funding will generally be coordinated through the Maryland Department of Transportation. These ARRA funds are directed towards project which are ‘shovel ready.’ Since the Aberdeen MTC is not ‘shovel ready,’ it is advisable to move forward with design and environmental review so that the project is better positioned for future stimulus money.

Surface Transportation Authorization Act of 2009 (STAA) – The initial version of the STAA proposes \$99.8 billion for public transportation, a more than 90 percent increase compared with SAFETEA-LU levels. The bill also calls for investing \$50 billion in high-speed rail. At this time it is unclear whether SAFETEA-LU will be extended for some period or

whether Congress will pass a new bill.

Other Federal Funding Sources – The current MTC feasibility study has been funded through a Department of Defense Office of Economic Adjustment (OEA) grant. The OEA is the Department of Defense’s primary source for assisting communities that are adversely impacted by Defense program changes, including BRAC actions. To assist affected communities, OEA manages and directs the Defense Economic Adjustment Program, and coordinates the involvement of other Federal Agencies. The State of Maryland and its counties and jurisdictions have been the beneficiary of several OEA grants to date. These grants have been used to conduct studies through the planning and 30 percent design phase. A grant from OEA could be used to fund the planning or preliminary design phases of the MTC project.

Another source of federal funds is the Defense Access Road (DAR) Program, which provides a means for the military to pay its share of the cost of public highway improvements necessary to mitigate an unusual impact of a defense activity. While only a small portion of the MTC involves roadway improvements, the APG may be willing to coordinate a request for DAR funds to cover the intersection and signal improvements recommended as part of the alternatives.

Implementation Steps and Responsibilities

The basic steps in the implementation process are described below.

Identify a Project Champion or Sponsor – The first step in moving the MTC project forward is to identify a project champion – an individual or group of individuals who are committed to working with local, State, and Federal legislators and governmental agencies that make decisions about the distribution of transportation funds and project priorities. A project



champion, such as an elected official, would be able to work with all stakeholders to educate them on the need to construct the MTC and garner support for the project.

Formally Identify the MTC as a Local Priority

– Each year, MDOT works with Counties and local jurisdictions to solicit input to its Consolidated Transportation Program (CTP). Each fall, MDOT conducts the Annual Consultation Process, also known as the Fall Tour, where the Secretary of Transportation and the Modal Administrators visit each county and Baltimore City to present and solicit input on the draft CTP. Local elected officials, State legislators, and citizens are generally present at these meetings.

Preliminary Engineering – Once funding is secured for some or all phases of project development, the next step in implementation would be to conduct a preliminary engineering study directed at more detailed definition of the MTC. This would include more detailed site design and architectural design of the station and pedestrian overpass. The preliminary engineering would define the proposed MTC to a level of design sufficient to develop refined cost estimates and the completion of an environmental review.

Environmental Assessment – The National Environmental Policy Act (NEPA) requires federal agencies to prepare detailed statements assessing the environmental impact of and alternatives to major federal actions significantly affecting the environment. If federal funds are used for the MTC, a NEPA document would need to be prepared. It is anticipated that an Environmental Assessment (EA) could be prepared to satisfy NEPA requirements. Based on the documentation contained in this report, it is likely that an EA would result in a Finding of No Significant Impact (FONSI) which is required before proceeding with design activities.

Final Design – Following completion of the NEPA

process, final design would be completed to develop detailed construction drawings to support the right-of-way acquisition, bid, and construction process.

Right-of-Way – Implementation of the MTC will require acquisition of properties currently in private ownership. The final design process would develop detailed plans of project right-of-way requirements that could be used in support of property acquisition negotiations.

Construction – Construction of the MTC will be complicated by its location on the railroad right-of-way and the need to maintain passenger and freight rail service throughout construction.

Figure 30 identifies an approximate time frame for each of the tasks described above. The schedule anticipates preliminary engineering and the environmental review process to be completed in approximately one year. If it is determined that the impacts of the project can be adequately addressed as a Categorical Exclusion (CE), this time period could be reduced. If an Environmental Impact Statement (EIS) is required, the environmental review process could take 18 months to two years to complete.

The schedule allows six months for the final design and permitting process. This assumes that sufficient design information is developed during the preliminary engineering stage or the initial part of the final design stage to prepare and process permit applications.

The schedule anticipates six months for property acquisition. This time frame could vary depending on the willingness of the buyers and market conditions at the time of the purchase.

As noted above, construction of the MTC will be complicated by its location on the railroad right-of-way and the need to maintain passenger and freight rail service throughout construction. The schedule allows



may be possible to work with Amtrak to develop a temporary fourth track through the station area when the new MTC is constructed. However, this would likely add significant additional cost to the project.

Priority – The State of Maryland has significant demands for capital improvements to its transportation system that exceed available funding. In order to be funded and built, the Aberdeen MTC needs to become a priority at the local, regional, and state level.

Railroad Coordination – Construction of the MTC will involve work in the railroad right-of-way. All work within the railroad right-of-way needs to be carefully coordinated with the railroad. A variety of complicating issues can arise when working in the railroad right-of-way, including maintenance of service, safety, hazardous materials, access, and timing. These issues need to be carefully managed to maintain project schedules and budgets.

Timing – An aggressive schedule for completion of the multi-modal station is three years. This assumes that funding is in place and that railroad coordination issues can be overcome. Even with this aggressive schedule, it is unlikely that the MTC will be complete and fully open to service until 2013. The majority of the employment to be added at the APG is expected to be on-site by 2011. A comprehensive transit service program would be most effective if it were substantially in-place as people move into the area. Thus, while it may not be possible to construct a new MTC before people move in, it will be important to provide for the majority of the station program elements on a temporary basis.

APG Shuttle – As discussed above, a comprehensive transit service program would be most effective if it were substantially in-place as people move into the area. The APG Shuttle providing service between the MTC and the base is a critical link in this comprehensive transit service program. Numerous issues need to be resolved before an APG shuttle system can be put in-place. These issues include:

- Funding
- Security
- Routing
- Base stop locations
- Operational plan.

Private Funding of Site B – It should be noted that other than the difficulty of reusing the existing station site, there are no significant fatal flaws associated with Site B, the Mitchell Property. Black Oak Development has proposed a mixed-use development for the Mitchell Property that could include a multi-modal transit station. There has been some indication that Black Oak could contribute to the cost of a new station on the Mitchell Property. If a significant private contribution toward the cost of a new MTC could be negotiated, Site B could be a more promising option.





Appendix A

Stakeholder Meeting Minutes



**Harford County Multi-Modal Transportation Center
Feasibility Study**

**Final Report
August 2009**



In reply, please refer to: 20833483

MEMORANDUM

TO: Ms. Karen L. Holt
BRAC Manager
APG-CSSC Regional BRAC Office
1201 Technology Drive, Suite 109
Aberdeen, Maryland 21001

FROM: Mr. Rick Nau, AICP
Project Manager
URS Corporation

DATE: January 15, 2009

RE: Meeting Summary
Harford County Multi-Modal Transportation Center Feasibility Study
January 8, 2008 Stakeholder Meeting #1

A meeting for the Harford County Multi-Modal Transportation Center Feasibility Study was held on January 8, 2009 from 11:30 AM to 1:00 PM at the HEAT Center in Aberdeen, Maryland. The following team members were in attendance:

Karen Holt	CSSC Regional BRAC Office
Steven Overbay	CSSC Regional BRAC Office
Bill Richardson	Harford County Office of Economic Development
Denise Carnaggio	Harford County Office of Economic Development
Bridgette Johnson	Harford County Office of Economic Development
Tony McClune	Harford County Office of Planning and Zoning
Phyllis Grover	City of Aberdeen
Beth Hendrix	Harford Transit
Nicole Katsikides	MDOT / OPCP
Harry Romano	Maryland Transit Administration, Planning
Sam Minnitte	STV / MTA
Ralph Cardenuto	APG BRAC PM
Rick Nau	URS Corporation
Janie Tiedeman	URS Corporation
David Starnes	Basile Baumann Prost Cole & Associates (BBPC)

The purpose of this meeting was to kick-off the project, introduce the study team members, discuss UJRS' project work plan and schedule, review the study area, and review possible evaluation criteria that will guide the study.

After a brief welcome from Karen Holt, Rick Nau, the URS Project Manager, presented a brief overview of the project background and purpose. He then walked through the steps that URS and BBPC will follow throughout this study, including defining the program requirements of the station, collecting inventory, developing station concepts and cost estimates, evaluating each



alternative site, conducting stakeholder outreach, and preparing an implementation plan and final report. Rick then presented the following milestone schedule:

- Project Kick-off: January 8, 2009
- Concept Designs and TOD Analysis: April 2009
- Alternatives Evaluation: April 2009
- Access Management Concept: May 2009
- Implementation Plan and Final Report: June 30, 2009

The group reviewed the study area map and noted that the second alternative site which should be shown is on the east side of the tracks, across from the Mitchell property. In addition, the Aberdeen gate should be labeled “closed,” as there are currently no plans to upgrade this gate to accommodate daily vehicular traffic (some construction equipment is permitted to use this gate). The other gates shown on the map, are being upgraded to accommodate BRAC and EUL related traffic that is anticipated to access APG.

There was discussion about the availability of MDOT’s Phase I study results. Nicole noted that the final report will be submitted to MDOT, as planned, on January 31, 2009. There may be draft elements of the report that can be shared prior to its formal release and Nicole will coordinate with the team to share information if and when appropriate.

The team then participated in a discussion of potential evaluation criteria, which are summarized below:

- If possible, the cost estimates should include operating costs, as these may be different for each site.
- The team must consider the impact of moving the station from downtown Aberdeen to the “outskirts” of the city as well as possible reuse of the existing station site.
- What is the potential for expanding the existing station?
- The team should consider innovative and alternative funding sources, which also may differ for each site. What funding might be available? Are there new ideas for financing, possibly related to a stimulus package?
- Can the team consider a scenario in which the middle gate would be opened permanently? Ralph noted that the costs associated with upgrading the gate and the approach roadway would need to be considered.
- Can the team look for examples of other installations that provide shuttle service from the base to a transit station?
- What are possible incentives for using transit? Currently, APG employees can be reimbursed for transit costs up to \$130 per month. However, this program is rarely used because opportunities to use transit are scarce.



Meeting Summary
January 15, 2009
Page 3

The next step in the project is to conduct interviews with stakeholder representatives to help formulate the station program. Nicole and Karen will assist URS by providing contacts, including those involved in the Phase I study. One suggestion was to also interview members of the public who will use the station (BRAC workforce early arrivers) as well as downtown business owners and commuters to better understand their vision for transit oriented development opportunities such as retail and others services. It was suggested that the team use available media such the local newspaper, the CSSC website, and kiosks at the train station as part of the outreach process.

The meeting was adjourned at 12:45. The next stakeholder meeting has not yet been scheduled, but every attempt will be made for future meetings to be held immediate following the regular APG-CSSC Regional BRAC meetings on the second Thursday of the month.



MEMORANDUM

TO: Ms. Karen L. Holt
BRAC Manager
APG-CSSC Regional BRAC Office
1201 Technology Drive, Suite 109
Aberdeen, Maryland 21001

FROM: Mr. Rick Nau, AICP
Project Manager
URS Corporation

DATE: March 16, 2009

RE: Meeting Summary
Harford County Multi-Modal Transportation Center Feasibility Study
March 12, 2009 Meeting With Harford Transit

A meeting for the Harford County Multi-Modal Transportation Center Feasibility Study was held on March 12, 2009 from 10:00 AM to 11:00 AM at the HEAT Center in Aberdeen, Maryland. The following team members were in attendance:

Beth Hendrix	Harford Transit
Jim Macgill	Harford Transit
Rick Nau	URS Corporation

Rick Nau noted that he had previously met with Harford County staff but wanted to be sure to understand and incorporate the needs of Harford Transit into the plans for the Multimodal Transportation Center (MTC).

Beth Hendrix explained that Harford Transit has been working with KFH to refine the Phase 1 Transit Plan. It is likely that proposed Route H-3 with service to Forest Hill is probably not feasible and will probably not be a priority recommendation.

The other priority routes recommended in Phase 1 (C-2, B-1, B-2) all travel outside of Harford County. Therefore, it is assumed that these will not be Harford Transit routes but will be operated by MTA.

Harford Transit was the recipient of stimulus funds that will enable them to purchase 9 new buses. Harford transit intends to use these buses to equip three new express routes to serve the APG from three locations in Harford County. These express routes would be in addition to existing Harford Transit service and in addition to the proposed Phase 1 routes. These will likely be 30 to 35 passenger buses and will likely operate on 30-minute frequencies during peak periods.

With the three existing routes and the three proposed express routes, Harford Transit would like 6 bus bays at the MTC.



A lower priority need of Harford Transit is additional bus storage and service area. They are currently short of space and could use an alternative storage location in the vicinity of the MTC to reduce bus deadheading. Harford Transit would like one bus service bay and 9 secure bus parking bays for overnight storage.

The MTC should also include a driver facility consisting of restrooms and a break room.



In reply, please refer to: 20833483

MEMORANDUM

TO: Ms. Karen L. Holt
BRAC Manager
APG-CSSC Regional BRAC Office
1201 Technology Drive, Suite 109
Aberdeen, Maryland 21001

FROM: Mr. Rick Nau, AICP
Project Manager
URS Corporation

DATE: April 23, 2009

RE: Meeting Summary
Harford County Multi-Modal Transportation Center Feasibility Study
April 22, 2009 Stakeholder Meeting

A meeting for the Harford County Multi-Modal Transportation Center Feasibility Study was held on April 22, 2009 from 2:00 to 4:00 PM at the HEAT Center in Aberdeen, MD.

The purpose of this meeting was to gather feedback from stakeholders about potential site locations and prepare for the public session being held at 5:30 PM.

1. Rick Nau provided an introduction to the meeting and noted that the purpose was to gather feedback from the stakeholders in order to move forward with the evolution of site concept designs and locations, in addition to reviewing the agenda and presentation for the 5:30 PM public session. Agendas were distributed, along with copies of the public session presentation and graphical handouts (Study Area Map, Forces and Issues Maps, and Site Concept Plans).
2. At the last stakeholder meeting, the physical elements of the proposed station were discussed in comparison to the existing station. These elements include:
 - Lengthening the platform from 250 feet to 950 feet
 - Raising the platform from 0.75 feet to four feet
 - Providing elevator access to the pedestrian overpass
 - Increasing the available parking spaces from 188 to 500
 - Increasing the number of pick-up/drop-off spaces from four to fifteen
 - Increasing the number of Harford Transit bus bays from three to seven
 - Adding four MTA bus bays
 - Adding three APG Shuttle bus bays
 - Adding bus driver facilities (restrooms and break room).
3. The total number of proposed bus bays was increased to fourteen in order to support Harford Transit operations.
4. Each of the alternative site plan concepts was presented. Site A is the existing station, Site B is the Mitchell property, and Site C is the APG property.



Meeting Summary

April 22, 2009

Page 2

5. Structured parking could be possible at all sites, but may be more beneficial to Sites B and C. Due to downtown aesthetics, expense, and available footprint, structured parking was only shown as an option at Sites B and C.
6. There were two options presented for Site A. In both options, the existing station building is shown as being removed – there is a possibility that it could be re-worked into the site plan. The addition of parking spaces brings the total to 533 available spaces. This site can be accessed at three locations – one is currently signalized and potential signalizations could be added to the other two (Custis Street and Market Street). Both signals may not be warranted, however, due to length requirements and installing a signal at Market Street may be the only likely addition. At this point, the need for new signalization has not been fully addressed.
7. At Site A, Custis Street is likely to become the major pedestrian access point, as it is central to the proposed station and concept layout.
8. Amtrak and Harford County do not favor the existing pedestrian tunnel at the Aberdeen Station due to issues regarding security, drainage, etc.). The tunnel could be removed in the proposed station design, along with the pedestrian overpass; the overpass serves a community circulation purpose, linking the east side of the tracks with downtown Aberdeen.
9. The station platform can be accommodated at Site B without affecting property owned by Aberdeen Proving Ground (APG). The railroad right-of-way is approximately 200 feet wide. The proposed station plans have a cross section of 130 feet.
10. If Site B is chosen, fairly significant upgrades will be needed on Old Philadelphia Road to accommodate traffic. Station-oriented traffic would be mixing with APG traffic heading towards the main gate.
11. Sites B and C have greater environmental impacts than Site A. Site A adds no additional impervious surface and thus no stormwater management (SWM) facilities were shown on the concept plans. Although no impervious surface will be added, SWM facilities may need to be updated at Site A. If structured parking is utilized instead of surface parking, smaller SWM facilities are required.
12. Sites B and C are both approximately twelve acres.
13. Access to Site B was initially considered at the northern edge of the Walmart parking lot – this would align the entrance with the existing signal on US 40. This option was not presented due to drainage and environmental impacts (using farm field space instead of forest space). The team recommended that this option be re-examined due to the fact that it would shift more traffic off of MD 715 and line up with the existing signal on US 40.
14. There is a 250-year-old house on the Site B property that should not be impacted.



Meeting Summary

April 22, 2009

Page 3

15. Site C involves moving the APG security fence. Opus currently rents this property from APG, so a sub-lease would need to be negotiated with Opus to use this property as a station site.
16. There is an aquifer recharge area for the City of Aberdeen located near Sites B and C – it should be determined whether or not either of the site concepts encroaches on this area.
17. David Starnes discussed land use, transit-oriented development (TOD), and economic development. TOD potential for each of the three sites was evaluated using 19 criteria as measures of TOD success (Local Government, Market & Development, Existing Conditions, Other Factors). Each site was rated as meeting, partially meeting, or not meeting each of the criteria. The tabulated results are as follows:
 - Meets Criteria: Site A - 7, Site B - 4, Site C – 1
 - Partially Meets Criteria: Site A - 12, Site B - 6, Site C – 5
 - Does Not Meet Criteria: Site A - 1, Site B - 5, Site C – 13
18. Site A is the only site conducive to TOD based on existing land use analysis.
19. Site A is the only site supportive to TOD based on existing zoning (50% residential).
20. The City of Aberdeen Comprehensive Plan strongly endorses TOD in land use, housing, transportation, and economic development.
21. Rick noted that considering the cost of land in the evaluation process of Sites B and C may be difficult. Team feedback was requested in order to approach cost estimating.
22. The team agreed that displays should be mounted in the existing station to obtain public feedback. Dave Ricker at MARC should be contacted to coordinate.
23. Rick discussed the next steps of the project. The study is currently on-schedule and the contract will be terminating at the end of June. Detailed evaluations will continue and one more stakeholder meeting will be needed to choose the desired site and elements of the implementation plan.



APG – CSSC REGIONAL BRAC OFFICE

CSSC Consortium Meeting Agenda Thursday, June 11, 2009 10:00 AM HEAT Ctr. - Room 119

MEMBER JURISDICTIONS

Harford County, MD

Baltimore City, MD

Baltimore County, MD

Cecil County, MD

STRATEGIC PARTNERS

Aberdeen Proving
Ground, MD

Baltimore
Metropolitan Council

Chester County, PA

Economic Alliance of
Greater Baltimore

Greater Baltimore
Committee

Lancaster County, PA

New Castle County,
DE

Wilmington Area
Planning Council

York County, PA

Welcome & Introductions

Karen Holt, CSSC BRAC Office

Karen Holt welcomed everyone and introductions were made around the room.

Old Business

Financial Update

Karen Holt

Grant Status

An expenditure report for May 09 was included in the handouts and was briefly discussed. Karen reported to the group that the six-month, no-cost grant extension was approved on June 10, 2009. The extension will take CSSC funding through December 31, 2009, and will allow us to extend completion of existing project reporting and deliverables, but provides no additional funding for projects during this period. It does also allow for a 90-day window at the end of the grant for all deliverables to be documented and final reporting submitted to OEA.

Karen briefly referenced the CSSC Staff Activities handout and encouraged the group to review the variety of activities in which staff participate and utilize CSSC staff in similar capacities if they are not currently doing so.

New Business

Presentations

Multi-Modal Transportation

Feasibility Study

Richard Nau, URS et al

Rick Nau presented preliminary results, conclusions and recommendations of the Multi-Modal Transportation Feasibility Study for committee review and comment. The presentation covered the following topics: (See handout for full presentation)

- Recommended Station Elements
- Alternative Station Locations
 - Site A – Existing Station – Option 1
 - Site A – Existing Station – Option 2
 - Site B – Mitchell Property
 - Site C – APG Property - MD 715
- Public Comments
 - Sixteen comment cards completed and returned:
 - 11 people preferred Site A
 - Four preferred Site B
 - One preferred Site C
- Physical Impacts
- Transportation Impacts
- Land Use and Transit Oriented Development
- Cost Implications
- Recommendation
 - Site A – Existing Station Site is Recommended:
- Next Steps

- Develop implementation strategy
- Identify funding opportunities
- Produce final report

South Christina Sewer

Planning Study

Ed Kuipers, New Castle County, DE
Dept. of Special Services

Robert Kocher, consultant from Johnson, Miamian and Thompson (JMT) presented to the Group the South Christina Sewer Planning Study. The presentation covered the following topics:
(See handout for full presentation)

- Determine amount of BRAC Area growth
- Evaluate the influence of BRAC Area growth on the receiving sanitary sewer system
- Provide recommendations on system improvements
- Conclusions
 - Exact location of BRAC growth is not critical for this Study
 - CPT = flexible loading tool
 - CPT includes future developments
 - Sewer capacity constantly assessed using capacity model
 - Growth is planned but improvements may be necessary

ROC Drill Recap

Bill Baxter, BRAC HR Program
Manager, Army Materiel Command

Bill reported to the Group an overview of the activities/topics that occurred during the Rehearsal of Concept (ROC) Drill. The following topics were the main focus:

- Civilian hiring
- IT issues
- Off-Post transportation

Ft. Monmouth Activity Update

Daisy Yanez, BRAC Division,
CE-LCMC, Ft. Monmouth

- Currently there are 394 projected new hires
- 362 Selections have been made so far
- 242 of the selected have excepted jobs
- There are 469 employees currently at APG; this number includes new hires and early movers.
- A total of 1234 employees are expected between now and the end of the year.
- Relocatables should be ready by July 20th
- The Garrison is currently assisting in finding new office space.
- The Relocation Fair will be held on October 14th and 15th at Gibbs Hall.

APG Update

Syreeta Gross, APG BRAC
Transformation Office

- June 12th APG will hold an Army Ball
- June 17th and 18th the APG Technology Showcase will be held
- June 19th & 20th Ruggles Golf Course will hold grand opening and Father's Day events. Note the Ruggles is now located off Post.
- July 10th APG will hold their Change of Command Ceremony at which time COL Orlando Ortiz will take command.
- August 15th APG will hold there summer concert featuring Brooks & Dunn.

Sub-Committee Highlights

Karen Holt

GIS- Rail –Marketing

GIS

The GIS committee continues to move forward. The GIS application design is currently underway. The State of Maryland will be featured at the annual ESRI conference in San Diego for its leadership in the GIS and the CSSC GIS model will be featured.

Rail

Currently there are no regional rail meetings scheduled, the last meeting was held in April. There have been discussions about further congressional outreach with this initiative.

MTA

There are two MTA Toll Plaza Planning Study Results meetings scheduled that will address the toll in Cecil County. The first meeting will be held on June 16th at Elkton High School and the second meeting will be held on June 18th at Perryville High School.

Marketing

The eighth edition of the Relocation Guide is in process. A mass email will be distributed announcing it. This will be the Fall/Winter publication. The deadline for ads is July 17th.

Participants briefly discussed planning for an expo tentatively set for the Saturday after the Relocation Fair in Ft. Monmouth. Erika Quesenbery (Cecil) was awaiting venue confirmations. It was decided that a marketing meeting will follow the July CSSC Consortium meeting to specifically discuss details of both the Ft. Monmouth Relocation Fair and the Expo (7/9, 11-noon)

Jurisdictional News/Good of the Cause

All Participants

The CSSC will not hold a Consortium meeting in August.

Bob Hellauer from the GBC encouraged participants to attend the Transportation Summit on Thursday, June 25th.

Events Up & Coming

June 16 MdTA Public Mtg on I-95 Toll Plaza Study Results, Elkton High, 5-8:00 PM

June 17 & 18 - APG Tech Showcase, Harford Community College- Amoss Center

June 18 MTA Public Mtg on I-95 Toll Plaza Study Results, Perryville High, 5-8:00 PM

June 20 Grand Reopening Tournament at Ruggles Golf Course, 410-278-9452

June 22 - Lt. Governor's BRAC Sub-Cabinet Visit to the APG Community

June 25- GBC Transportation Summit

June 26-Susquehanna Workforce Annual Breakfast Meeting, 7:45 AM, Bulle Rock,

July 10- APG Garrison Change of Command



Appendix B

Transit Oriented Development Analysis



**Harford County Multi-Modal Transportation Center
Feasibility Study**

**Final Report
August 2009**

Transit Oriented Economic Development Analysis

Harford County Multi-Modal Transportation Center Feasibility Study



Source: URS Corp.

PREPARED FOR



Chesapeake Science and Security Corridor

1201 Technology Drive
Aberdeen, MD 21001

PREPARED BY



Basile Baumann Prost Cole & Associates, Inc.
177 Defense Highway, Suite 10
Annapolis, MD 21401

June 2009

1. Introduction..... 2

2. Existing Conditions 9

3. Local Government 23

4. Market & Development 33

5. Other Factors 62

6. Summary TOD Station Area Evaluation..... 66

1. Introduction

1.1 Purpose of this Document

The purpose of this analysis is to examine the TOD potential for a proposed Multi-Modal Transportation Center (MTC) in the City of Aberdeen. This analysis is part of a Phase II feasibility study that examines the optimal operations and location for a proposed MTC that best serves Harford County, the City of Aberdeen and APG. The study assesses the feasibility of the current Amtrak/MARC station site and two properties adjacent to the MD 715 APG gate.

This report examines the TOD potential for each of the candidate station locations based on a number of criteria that impact the success for implementing TOD. These include but are not limited to: TOD supportive land uses and zoning, adequate infrastructure within station area, supportive pedestrian and vehicular accessibility and visibility, existing and future local government goals and policies, adequate market support, presence of development opportunity sites, supportive economic and demographic characteristics, private sector interest in TOD, community goals and joint development / financing for TOD.

Field surveys of the proposed station areas and surrounding market areas, an evaluation of vacant and underutilized land and buildings within the immediate station areas and identification of potential development opportunity sites were performed. Selected interviews with key public and private stakeholders such as business and property owners, City and County planning and economic development staff, real estate developers, state transportation agencies and others were also conducted to gain further insight to help identify policy initiatives, public and private sector interests, and key elements that may impact the future character of the transit station areas.

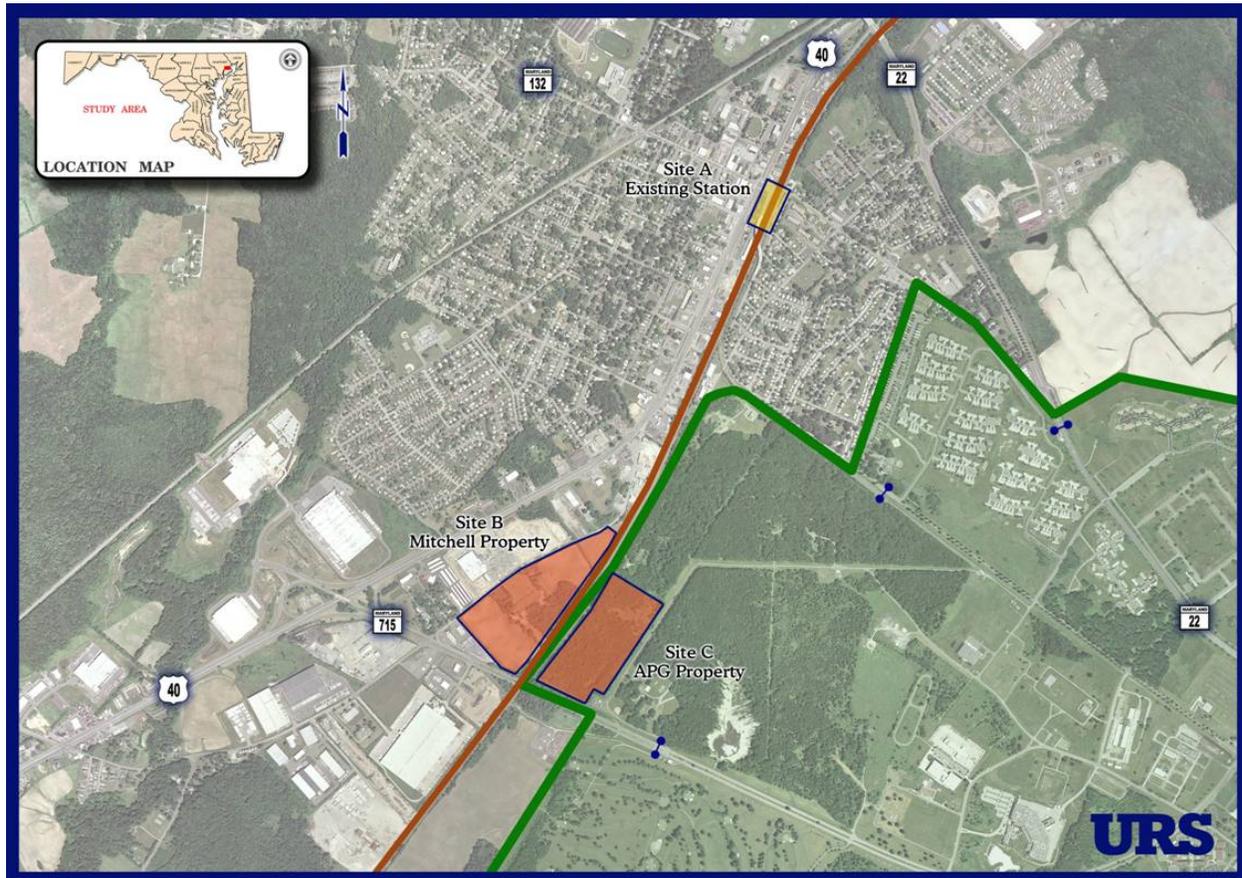
This analysis has been prepared using an industry standard research process, taking into consideration existing and emerging demographic and economic factors, TOD factors, and public/private development opportunities. The analysis provides quantitative and qualitative information and data analysis in order to examine the TOD market demand and development potential of each of the candidate sites for a proposed MTC.

1.2 Overview of Site Sites

Three sites have been identified for evaluation as part of the Aberdeen MTC Feasibility Study. These sites include the following:

Site A	Existing Aberdeen Station	Located in the downtown area of the City of Aberdeen with the following boundaries: Route 40 to the west, East Bel Air Road to the north, the existing MARC/Amtrak rail line to the east.
Site B	Mitchell Property	Located approximately 1.6 miles south of the existing station with the following boundaries: Old Philadelphia Road to the north, Short Lane (MD 715) to the east, and the existing MARC / Amtrak rail line and APG to the south.
Site C	APG Property	Station location opposite side (south) of Site B station with the following boundaries: APG to the south, Short Lane (MD 715) to the east, and the existing MARC / Amtrak rail line to the north.

Exhibit 1-1. Aberdeen MTC Alternative Site Locations



1.3 Goals for the Overall Study and MTC

The Aberdeen Rail Station is currently the only station between Wilmington and Baltimore providing both Amtrak and MARC service. In September 2007, the Maryland Transit Administration (MTA) announced a MARC Growth and Investment Plan which included a proposed relocation of the Aberdeen station in the year 2015 which was added to the plan simply to assess whether another location was feasible from the perspective of railroad operations as well as the adequacy of a rail/track segment. Further analysis was identified as needed to address such issues as facility type, access and redevelopment potential.

The existing rail service is primarily commuter oriented with service focused on Baltimore and Washington, DC. In anticipation of the Department of Defense Base Realignment and Closure (BRAC) related growth at APG and in the area, this project seeks to evaluate the current train station in Aberdeen and other candidate sites that will: (1) continue to serve commuter rail needs, (2) serve the expanding needs of APG, and (3) support the land use and economic development goals of Harford County and the City of Aberdeen.

This study is Phase II of a multi-phased feasibility study to examine optimal operations and location for a proposed Multi-Modal Transportation Center (MTC). Phase II focuses on building off of the Phase I transit and market needs analysis and evaluates the existing station location and two alternative locations to include an estimation of the size of a MTC facility and proposed conceptual site plans. This Phase II programming stage includes the following stages:

- Programming – defines the functions to be accommodated at the station
- Inventory – identifies the physical characteristics that existing in the vicinity of the Site station sites
- Concept Design – conceptual design plans that fit the programmed uses into the physical constraints of each site
- Evaluation – evaluates each Site plan relative to a common set of criteria
- Implementation Plan – refines the recommended plan and identifies potential phasing and funding

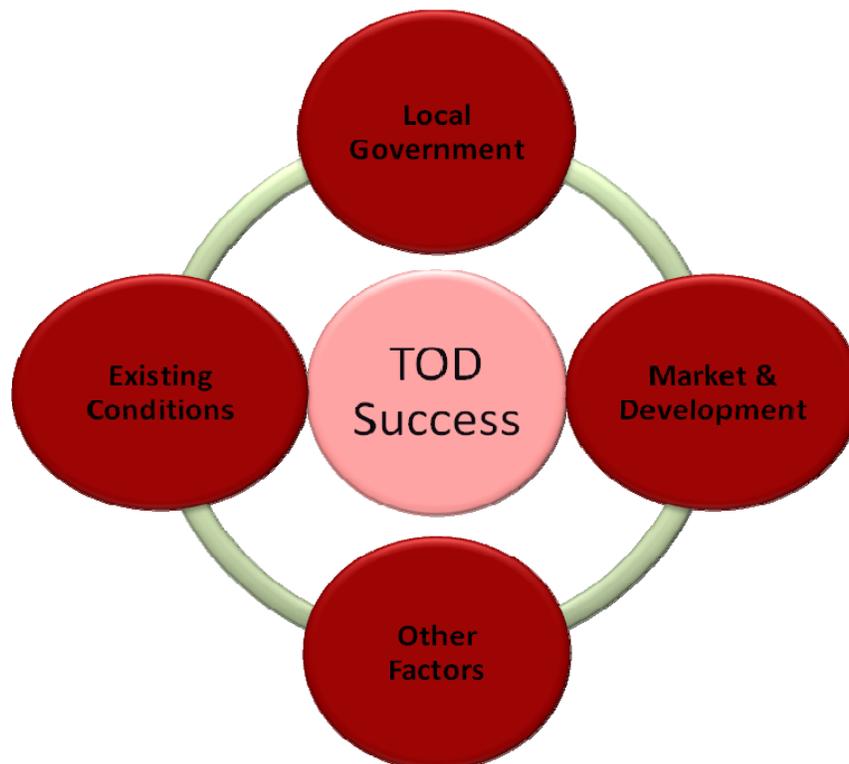
It is envisioned that the MTC would serve as a regional transportation hub, with the following uses:

- Amtrak and MARC station platforms
- Ticketing kiosks
- Patron waiting areas
- Loading and unloading areas for local buses and APG shuttles
- Park and ride facilities
- Pedestrian and bicycle access and facilities
- Automobile passenger drop-off and pick-up provisions

One important consideration when evaluating alternative sites for a station is the potential for TOD. TOD, as broadly defined, is higher density, mixed use development that is supportive of transit and neighborhood goals located within a reasonable walk distance to the station itself, approximately one half mile radius around the station. This task evaluates the TOD potential for each of the alternative station sites (1/2 mile radius around the station) based on 19 different criteria for TOD success. These criteria are described in the following section.

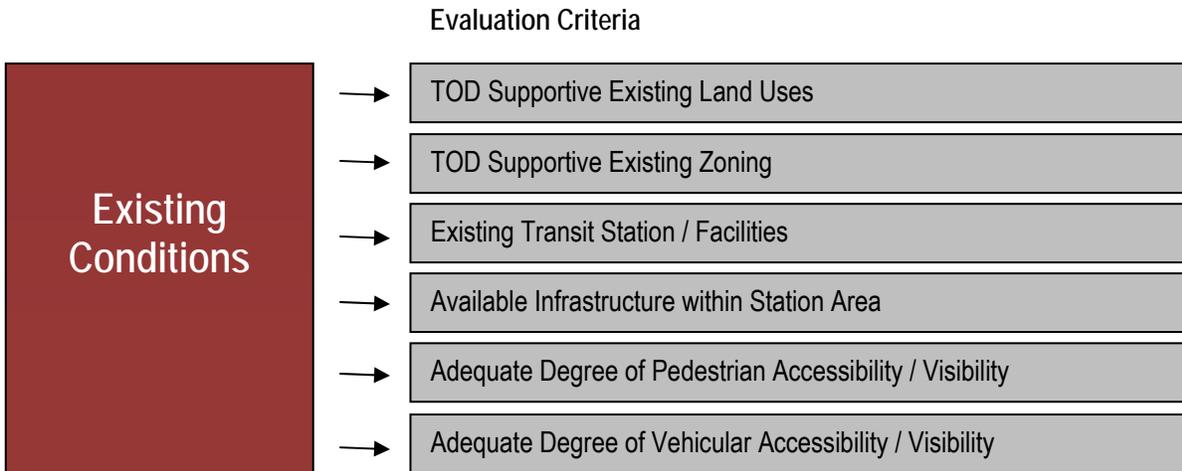
1.4 Overview of TOD Evaluation Criteria

The degree and timing to which TOD occurs and is successful around a transit station area is impacted by many factors. As defined by the American Public Transportation Association (APTA), *"TOD is compact, mixed-use development near new or existing public transportation infrastructure that serves housing, transportation and neighborhood goals"*. It has a pedestrian-oriented design that encourages residents and workers to drive their cars less and ride mass transit more.¹ These factors that impact the success potential for TOD are based on local conditions and the attributes of other successful TOD projects nationwide. At the macro level these factors relate to: existing conditions, local government, market and development, and, other considerations.

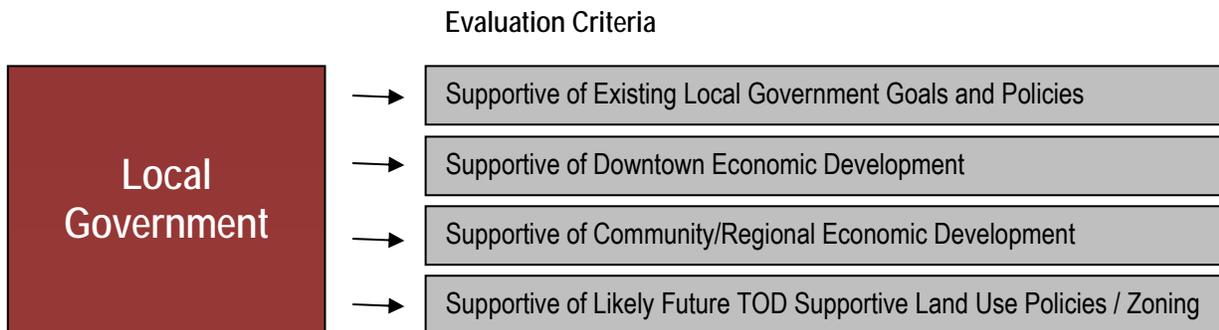


To evaluate each of the alternative sites for their potential for TOD, each of the macro-level factors were further evaluated at a micro level. For example, existing conditions around a transit station play a critical role in determining the potential for TOD around a station. Does the station area have TOD-supportive existing land uses and zoning? Is there already an existing transit station? Is there adequate infrastructure to support TOD? Is there adequate pedestrian and vehicular accessibility to provide seamless connections to other modes of transit and development opportunities?

¹ American Public Transportation Association, Transit Resource Guide.
http://www.apta.com/research/info/briefings/briefing_8.cfm



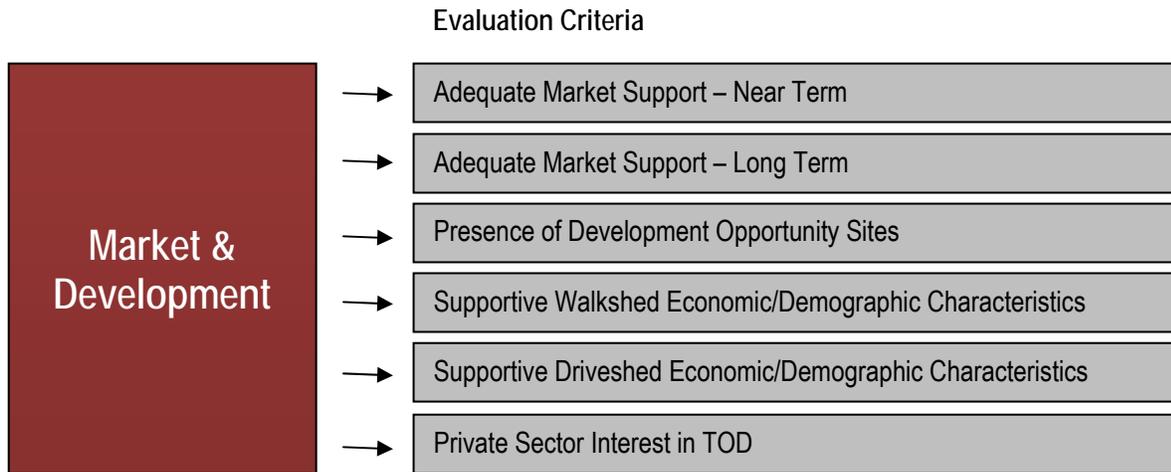
Local government plays a key role in providing policy direction and land use / zoning to support economic development around transit stations. Transit stations with supportive zoning and land use controls and design standards have codified requirements that encourage increased development densities, endorse mixed use development, reduce parking requirements, reduce buildings setbacks, and promote pedestrian friendly development. For example, are local government goals, policies and plans that impact the station area supportive of TOD? Is the local government planning for investment in TOD through supportive land use and zoning plans? Are these plans supportive of downtown development or are they a community/regional economic development driver or both?



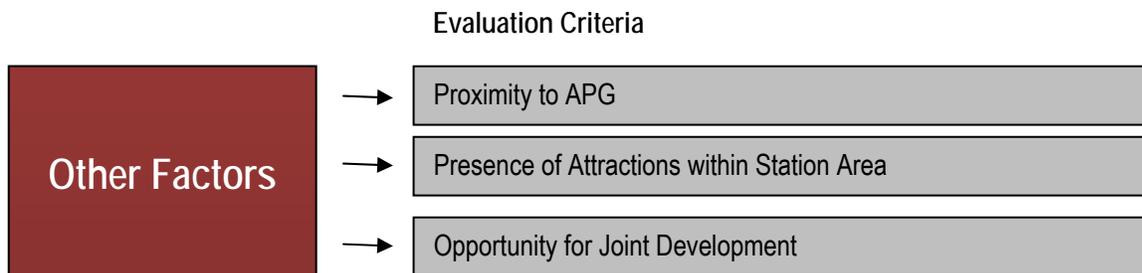
Supportive demographics, local economic conditions and development opportunities within the station area are all critical in determining the potential for TOD. For example, the degree and timing of concentrated development is tied to the extent of the existing residential population and commercial base and the station area's potential for increased density and/or an employment base to support TOD. Growth trends in the various market audiences supportive of TOD – buyers versus renters, families versus childless singles and couples, empty nesters and young professionals all impact the market demand for TOD related uses such as residential, retail and office.

A strong local real estate market to support higher density residential, office, lodging, retail and entertainment uses along with development opportunity sites and private sector interest are important factors in evaluating a station area's potential for TOD. In addition, transit station areas offering property available for development or redevelopment either through acquisition or land assembly offer near-term potential for TOD. This includes the

presence of large vacant or underutilized sites which may provide an opportunity for a more large-scale development opportunity.



Community and financing related factors are also a major factor to determine the market support for TOD. For example, stronger near-term potential is found at station areas that are proximate to major attractions that create a destination for riders or visitors. In addition, TOD potential increases when the opportunity exists for potential public/private joint development within identified sites in the transit station area. This includes City and transportation owned property adjacent to the existing and proposed train stations.



To evaluate each of the alternative sites potential for TOD based on these criteria, the Project Team assessed each of the selected station candidate sites according to whether or not the station (area) meets the criteria, partially meets the criteria or does not meet the criteria.

- Meets Criteria
- ◐ Partially Meets Criteria
- Does Not Meet Criteria

Sections 2-6 assess each of the candidate sites based on these 19 factors that impact the success for TOD.

1.5 Report Format

The *Site Analysis – Transit Oriented Economic Development Potential* report is organized into the following sections:

1. Introduction
2. Existing Conditions
3. Local Government
4. Market & Development
5. Other Factors
6. Summary TOD Station Area Evaluation

1.6 Acknowledgments

The *Site Analysis – Transit Oriented Economic Development Potential* report was informed by the insight of a variety of stakeholders. Individuals that lent their time and expertise to the Project Team include representatives of a variety of organizations, including the following:

Nicole Katsikides, Maryland Department of Transportation
Harry Romano, Maryland Transit Administration
Keith Kucharek, Maryland State Highway Administration
Mike Paone, Maryland Department of Planning
Sam Minnitte, STV Incorporated
Karen Holt, Chesapeake Science and Security Consortium
Jim Richardson, Harford County Office of Economic Development
Bridgette Johnson, Harford County Office of Economic Development
Bob Cooper, Harford County Public Works
Mike Hannan, Harford Transit
Phyllis Grover, City of Aberdeen
Ralph Cardenuto, APG
Steve Johnson, Aberdeen Economic Development Corporation
Art Helton, Art Helton Properties
Michael Trenary, Black Oak Associates

2. Existing Conditions

2.1 TOD Supportive Existing Land Uses

Existing land uses that are supportive of TOD include uses that promote concentrated development that is generally pedestrian-friendly, mixed use and caters to the needs of residents, employees and transit stop users. This can include medium to high density residential (e.g. apartments, condos, townhomes), office (including governmental offices), restaurants, and retail (e.g. food markets, newsstands, personal services, drug stores, etc.). Uses that entertain or create activity on the street, or attract day and night activity can also be transit supportive, such as movie theaters and sidewalk cafes.

Uses that are not transit supportive are those that detract from or interrupt the flow of interesting, pedestrian oriented uses along the street or do not create a concentrated residential or employment base. These can include surface parking lots, gas stations, auto dealerships and auto repair shops. Uses that have few employees per square foot, or do not attract pedestrians or transit oriented patrons, such as big box retail and warehousing are not typically considered TOD supportive land uses.

2.1 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
Existing Land Uses within the Transit Station Area are Supportive of TOD	●	○	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

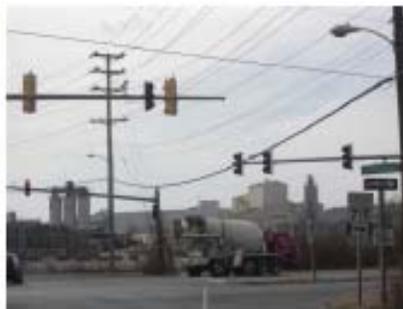
Site A, the existing Aberdeen Station, is located adjacent to the downtown area of Aberdeen. In general, the existing land uses within ½ mile walkshed of the site are supportive of TOD. Half of the land uses are medium to high density residential. The station area includes the central core of downtown Aberdeen which has a mix of uses including retail, office, government and entertainment related uses. The downtown core contains a number of distinctive buildings which are historic in character such as the Police Station, the Post Office, City Hall and the Community Services buildings. Uses along Route 40 are commercial strip oriented and include a variety of uses such as new and used automobile dealerships, gas stations, automobile repair, business and personal services, etc. Route 40 is a significant barrier separating the existing Aberdeen Station to the downtown area.

The existing land uses surrounding Sites B and C, the Mitchell Property and the APG Property, are generally not conducive to TOD in its present form. Approximately one third of the property within ½ mile of sites is industrial in nature and includes uses such as a concrete factory, a mulch facility, warehousing and storage. More than 40% of the land is located within the security fences of APG. This area is predominantly undeveloped wooded land currently with future redevelopment potential in the area of the GATE project which will include office, storage and research related space. A large big box retail store as well as medium density residential uses are located within the station area along the Route 40 corridor.

Exhibit 2-1. Site A – Existing Aberdeen Station Area Land Uses



Exhibit 2-2. Site B/C – Mitchell Property and APG Property Area Land Uses



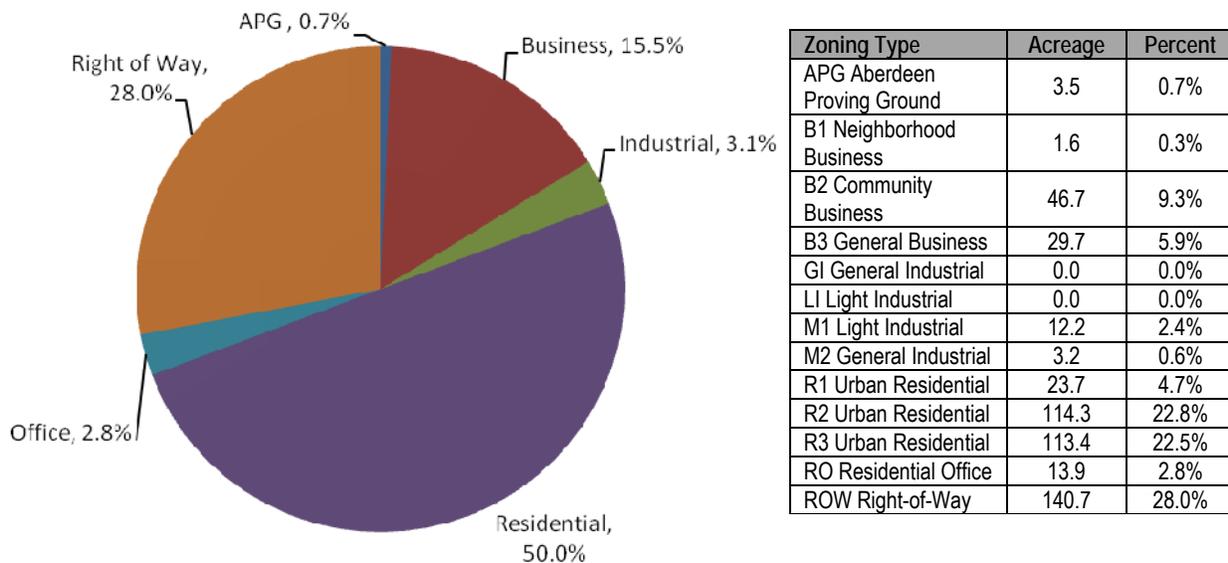
2.2 TOD Supportive Existing Zoning

Transit station areas with TOD supportive zoning / land use controls and design standards have codified requirements that encourage increased development densities, endorse mixed use development, reduce parking requirements, reduce building setbacks, and promote pedestrian friendly development. This includes zoning that allows for medium to high density residential, mixed use, retail, office, entertainment, and other higher intensity uses. Non-supportive zoning allows for such uses as industrial, manufacturing, auto oriented services and retail which are not supportive of TOD.

2.2 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
Existing Zoning within the Transit Station Area is Supportive of TOD	●	○	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Site A, the Existing Aberdeen Station, is located adjacent to the downtown area of Aberdeen. In general, the existing zoning within ½ mile walkshed of the site is supportive of TOD. Approximately half of the property is zoned medium to high density residential (Medium and High Density Residential District, R-2 and R-3) followed by commercial zoning (Central and Highway Commercial District, B-2 and B-3) at 15% of the land area and office (Residential Office, RO) at 3% of the land area. Only 3% of the land is zoned industrial (Light Industrial, M-1) which generally is not supportive of TOD. Right of way comprises 28% of the land area within ½ mile of the station.

Exhibit 2-3. Site A – Existing Aberdeen Station
Existing Zoning (1/2 mile radius)



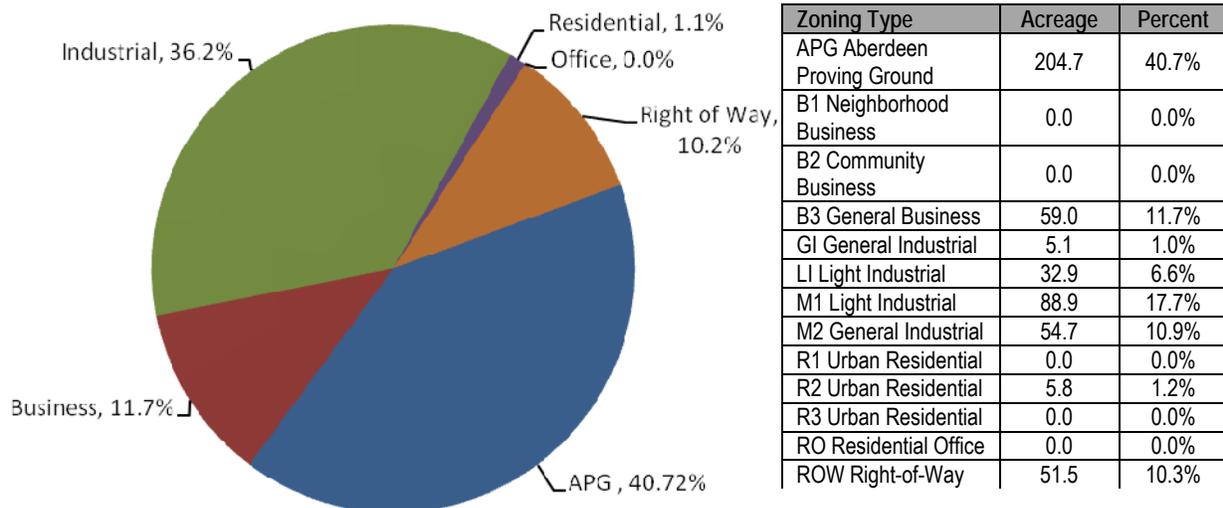
2. Existing Conditions

The existing neighborhood, community and general business zoning found surrounding Site A allows for retail and office development within the central business district of the city, including residential. The medium and high density residential zoning provides for single-family, two-family and multi-family residential developments of city-scale character, together with such public buildings, schools, churches, public recreational facilities and accessory uses as may be necessary or which are normally compatible with residential surroundings.

A portion of the area is located within the Downtown Revitalization Overlay District. The purpose of this district is to build upon the existing assets located in downtown which are the Aberdeen Train Station, Aberdeen Archives and Museum, Aberdeen Municipal Complex and the other government and commercial service uses. This district is subject to design requirements.

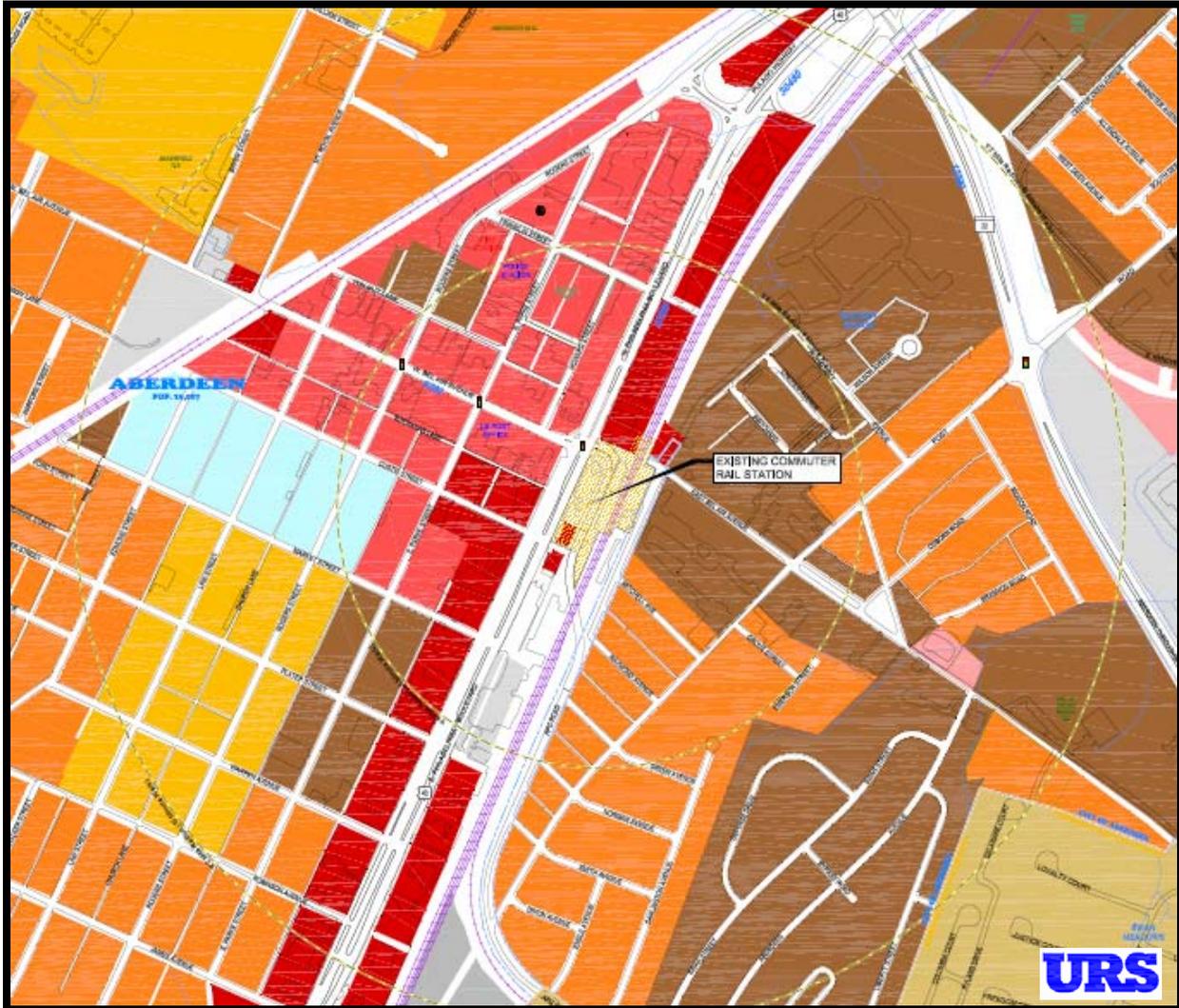
Existing zoning surrounding Sites B and C, the Mitchell Property and the APG Property, is generally not conducive to TOD in its current form. Approximately 36% of the property within ½ mile of sites is zoned industrial (Light Industrial and General Industrial, M-1 and M-2) and nearly 41% of the property is within APG that is predominantly undeveloped wooded land. The remaining area is zoned business (General Business, B-3) at 12% and residential (Urban Residential, R-2) at 1%. Right of way comprises 10% of the land area within ½ mile of the stations.

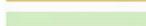
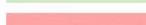
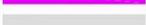
Exhibit 2-4. Site B/C – Mitchell Property and APG Property
Existing Zoning (1/2 mile radius)



The industrial zoning found within this area allows for light and heavy manufacturing, fabricating, warehousing and wholesale distributing in low-rise buildings with off-street loading and off-street parking for employees and with access by major thoroughfares or rail. Commercial uses are permitted, primarily for service to employees in the district.

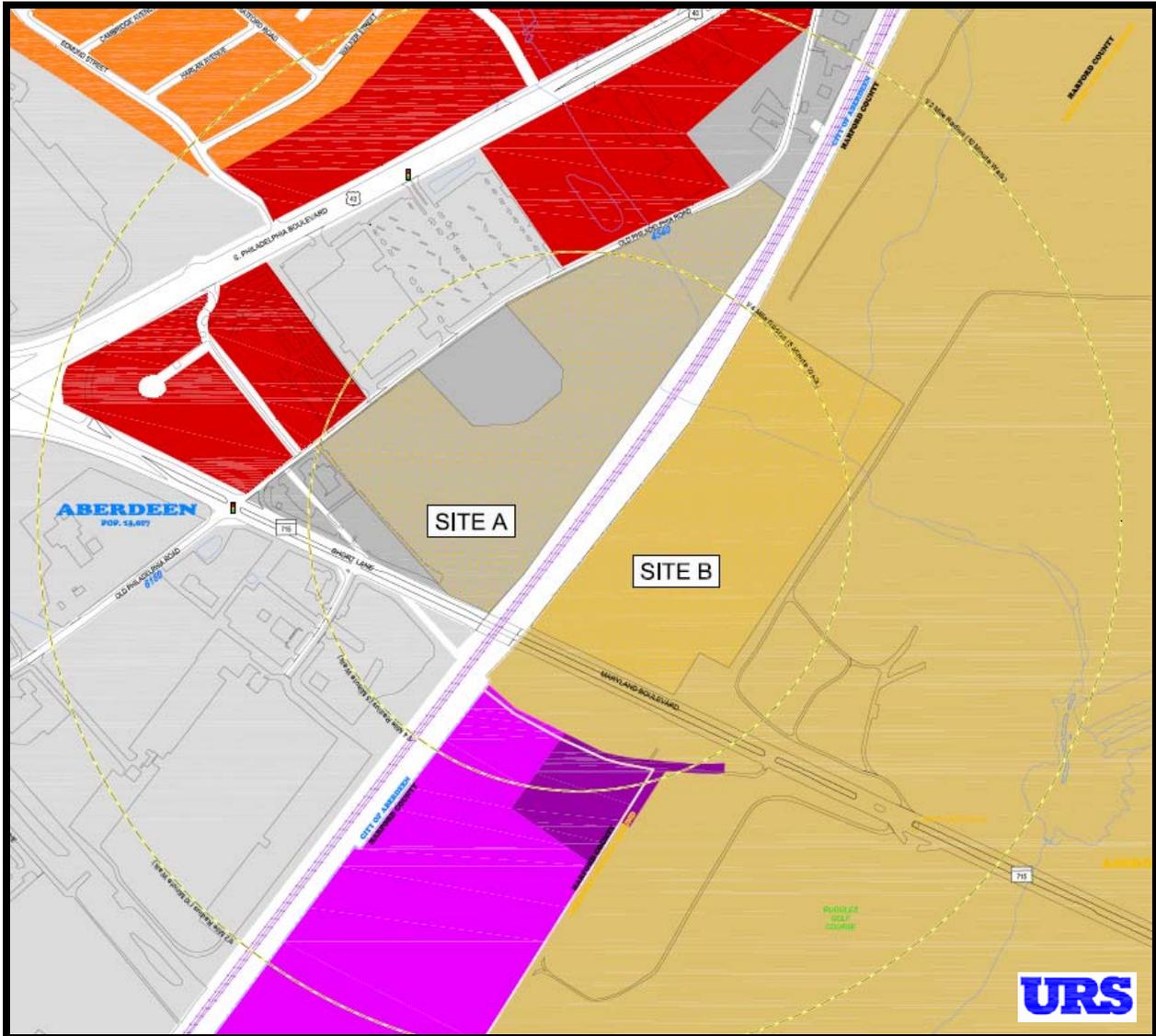
Exhibit 2-5. Site A – Existing Aberdeen Station Existing Zoning

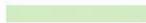


 APG	 CI Commercial Industrial	 R2 Urban Residential
 AG Agricultural	 GI General Industrial	 R3 Urban Residential
 B1 Neighborhood Business	 LI Light Industrial	 R4 Urban Residential
 B2 Community Business	 M1 Light Industrial	 RO Residential Office
 B3 General Business	 M2 General Industrial	 MO Mixed Office
 IBD Integrated Business District	 R Residential	 RR Rural Residential
	 R1 Urban Residential	 VB Village Business
		 VR Village Residential

Zoning Legend

Exhibit 2-6. Site B/C – Mitchell Property and APG Property Existing Zoning



 APG	 CI Commercial Industrial	 R2 Urban Residential
 AG Agricultural	 GI General Industrial	 R3 Urban Residential
 B1 Neighborhood Business	 LI Light Industrial	 R4 Urban Residential
 B2 Community Business	 M1 Light Industrial	 RO Residential Office
 B3 General Business	 M2 General Industrial	 MO Mixed Office
 IBD Integrated Business District	 R Residential	 RR Rural Residential
	 R1 Urban Residential	 VB Village Business
		 VR Village Residential

Zoning Legend

2.3 Existing Transit Station

From an economic and market perspective, the presence of an existing transit station supports TOD in that the station already has established infrastructure and transit elements in place. This includes an existing station ticketing area, parking, access (pedestrian and vehicular) and connections to surrounding neighborhood. Reuse of existing station elements and property is also a possibility for a site with an existing station, which could offer potential cost savings. The MARC Growth and Investment Plan also outlines future requirements which includes an expansion of parking (currently under construction) for a net gain of 154 parking spaces, service extended to Elkton and Newark and expansion of peak service and limited off-peak service at the Aberdeen station.

2.3 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Site has an Existing Transit Station	●	○	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

The existing Aberdeen Station, Site A, currently has a 3,500 square foot station, a pedestrian tunnel and overpass, a 250 foot platform for boarding, and 188 surface parking spaces. Access to the station is provided via Route 40. Some of these elements may be reused if the existing site is retained. However, other elements would need to be retrofitted to accommodate Amtrak platform standards for the Northeast Corridor which include a 950 foot platform length to support 12-car trains and high platforms (4 feet above top of rail) as well as a new pedestrian crossing to access Northbound trains.



Site A- Existing Aberdeen Station main parking lot. View looking Southwest from the pedestrian bridge.



Site A- Existing Aberdeen station. Marc train stopped at station on northbound tracks. View looking South from the pedestrian bridge.

2. Existing Conditions



Site A- Existing Aberdeen station from the southbound side. Green structure is stairs that go underground to the Northbound tracks.



Site A- Existing Aberdeen station from the southbound track side. Viewed looking North.

Sites B and C currently lack an existing transit station and transit facilities including needed infrastructure (pedestrian and vehicular) to access the station which would need to be provided.



Site B- proposed Mitchell property station location. View looking North.



Site C- proposed APG station location. Proposed property is to the right of the existing tracks. View looking Northeast.

2.4 Adequate Infrastructure within Station Area

Transit station areas served by available and adequate infrastructure are relatively more desirable from a development perspective because these areas are more development ready, which can save developers time and money. Types of infrastructure that are supportive of TOD include: transportation, stormwater management, and water and sewer facilities. Transportation facilities include the presence of roadway access, as well as, the availability of adequate pedestrian amenities and bicycle facilities. These are described in more detail in the “Adequate Degree of Pedestrian/Bicycle Accessibility & Visibility” section. In addition to presence of such infrastructure, these infrastructure elements should have adequate capacity to support the planned TOD.

2.4 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
There is Adequate Infrastructure within the Transit Station Area	●	◐	◐
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Site A is served by both existing roadway and stormwater infrastructure; US 40 and West Bel Air Avenue provide access to the existing transit station. With the closure of the Aberdeen gate to the APG minimal future conflicts between APG and station traffic are anticipated. Since the area surrounding Site A is already paved there would not be an increase in impervious surface and no resulting need for new stormwater retention ponds. Site A is served by public water from the City of Aberdeen.

Sites B and C, the Mitchell Property and the APG Property, offer existing roadways and public water, however significant roadway improvements would need to be completed to provide access to each of the stations. Both sites would need stormwater retention improvements. Accessibility to the Mitchell Property is planned via Old Philadelphia Road, which is currently a two lane roadway. Old Philadelphia Road would require enhancements including turn lanes into the site as well as the likely expansion of the roadway with additional travel lanes (discussed further in the description of “Adequate Degree of Vehicular Accessibility/Visibility”). The introduction of impervious surface through development of the MTC would also require the construction of stormwater retention ponds to service Site B.

The APG property also requires significant roadway enhancements and stormwater retention to accommodate a MTC. Access to the station is currently not available, and would require the introduction of a signalized intersection and access road from Maryland Boulevard 715. This roadway also will service traffic to the main APG access gate, the Maryland Boulevard Gate, creating the potential for traffic conflicts between APG and station traffic (discussed further in the description of “Adequate Degree of Vehicular Accessibility/Visibility”). Development of the station and associated parking will create new impervious surface creating a need for the construction of stormwater retention ponds which are not currently available on the site.

2.5 Adequate Degree of Pedestrian / Bicycle Accessibility & Visibility

Transit station areas with an adequate degree of existing pedestrian and bicycle accessibility and visibility are developed at a scale that is convenient and easy to travel to and from by foot or bicycle. These station areas offer a strong degree of directness for reaching destinations and simplicity of finding destinations with clearly marked signage. Station areas with poor pedestrian / bicycle accessibility and visibility often do not have the supportive infrastructure such as sidewalks, bicycle lanes, and bicycle parking to make it convenient for pedestrian and bicycles to access the site and station area.

2.5 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
There is Adequate Pedestrian / Bicycle Accessibility & Visibility within the Transit Station Area	◐	○	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Site A, the existing Aberdeen Station, is generally pedestrian oriented with sidewalk access to the station from the downtown area. There are no dedicated bicycle lanes providing access to the station nor are there any bicycle parking racks. The most pedestrian friendly area of the City of Aberdeen is the downtown area which is in walking access to the existing Aberdeen Station. However, Route 40, a four lane divided highway, is a significant pedestrian barrier separating the downtown area and the existing station.



Site A-Existing Aberdeen station area. Downtown Aberdeen along West Bel Air Avenue.



Site A-Existing Aberdeen station area. View of Route 40 commercial district across from rail station.

2. Existing Conditions

Both Sites B and C, the Mitchell and APG Property, currently do not offer pedestrian and bicycle facilities to access each respective potential station location. These station areas are industrial in nature with poor pedestrian connections (there are no sidewalks in the immediate vicinity of the station areas). Site C, the APG Property, poses an additional potential security issue with respect to providing pedestrian and bicycle access to the station through APG. There are no dedicated bicycle lanes providing access to the station sites nor are there any bicycle parking racks present.



Site B/C – Mitchell and APG Property station area. View of vacant lot along MD 715 and Old Philadelphia Road.



Site B/C – Mitchell and APG Property station area. View looking west along MD 715 and Old Philadelphia Road.

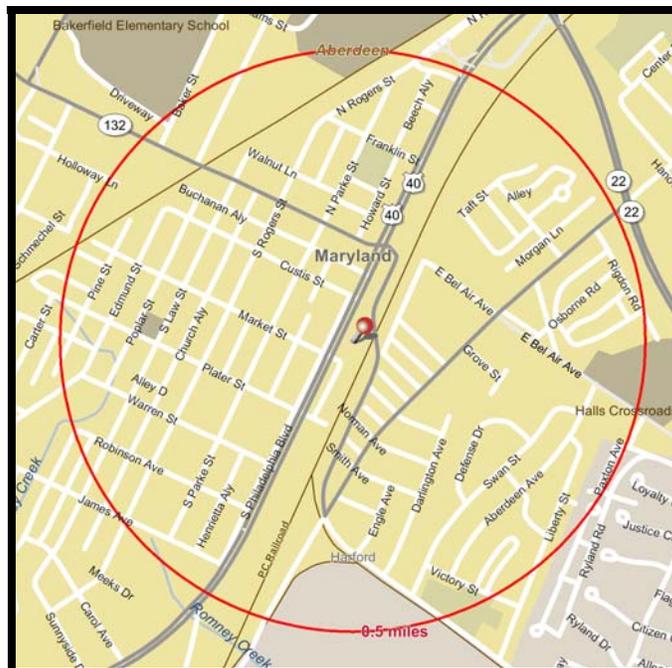
2.6 Adequate Degree of Vehicular Accessibility / Visibility

Transit station areas with a high degree of vehicular accessibility and visibility are convenient and easy to travel to and from by automobiles. These station areas offer a strong degree of directness for reaching destinations and simplicity of finding destinations with clearly marked signage. Station areas with poor vehicular accessibility and visibility do not offer direct access to the station and are not visible or have obstructed views from the roadway.

2.6 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
There is Adequate Vehicular Accessibility / Visibility within the Transit Station Area	●	◐	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Vehicular access to Site A (existing Aberdeen Station) is currently provided from US 40 (Pulaski Highway), a four lane divided highway. US 40 is an auto oriented commercial strip corridor that generally runs parallel to the railroad tracks as it passes through Aberdeen in Harford County. The station itself is partially hidden from view from US 40 as it is located behind the raised APG Road overpass which crosses over the railroad tracks to connect to APG via a security gate that is currently not open to APG staff nor is staffed. Station area parking is available in a surface lot off of US 40 and the rail line on the east side of the train station and railroad tracks. The Maryland Transit Administration (MTA) is planning the addition of 95 new surface parking spaces on street and in a dedicated parking lot north of East Bel Air Avenue.

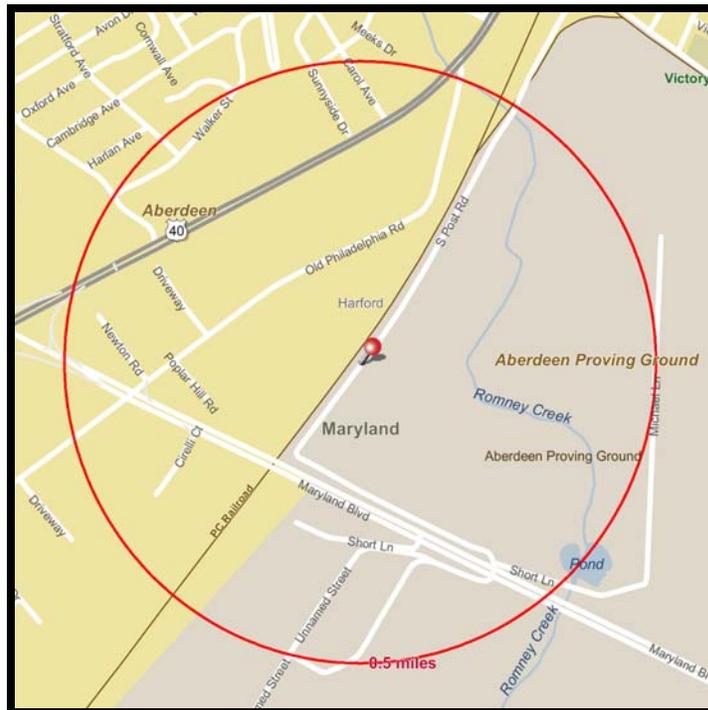
Exhibit 2-7: Station Areas Vehicular Road Network (1/2 Mile Radius)
Site A (Existing Aberdeen Station)



Vehicular access to the Site B (Mitchell Property) is planned to be off of Old Philadelphia Road, a 2-lane rural roadway. The site itself has limited visibility from Old Philadelphia Road and MD 715, a two lane roadway that connects to the Maryland Boulevard Gate of APG, one of two existing security gates open to APG staff (the other is the Harford Gate on MD Route 22). The Maryland Boulevard Gate of APG is currently being expanded and relocated to accommodate the influx of approximately 8,200 new employees associated with BRAC coming to APG as well as associated contractor positions related to the GATE project. Future roadway improvements may include turn lanes into the site and eventually - with the proposed Aberdeen Cannery development - an upgrade of Old Philadelphia Road to a 5-lane or 4-lane divided roadway.

Vehicular access to the Site C (APG Property) is planned to be off of MD 715, the same road as the main APG access gate. The intersections of MD 715 at Philadelphia Road and at US 40 are both forecast to operate at LOS F with APG BRAC related traffic. This will impact access to both sites B and C. Site C has limited visibility from MD 715.

**Exhibit 2-8: Station Areas Vehicular Road Network (1/2 Mile Radius)
Site B/C (Mitchell Property and APG Property)**



3. Local Government

3.1 Supportive Existing Public Policies and Tools for TOD

Successful TOD requires supportive public policies and tools that facilitate development and reinvestment within transit station areas or encourage (re)development of land for activities that generate pedestrian activity and transit access.

Examples of regulatory and incentive-based strategies initiated by the public sector can include: station area plans of what a local government envisions for the future (re)development of a transit station area; zoning to allow for higher density, mixed use development such as specialized TOD overlay districts; design standards/guidelines that ensure new (re)development is pedestrian-oriented, attractive and connects the neighborhood to the transit station; and incentives such as special taxing districts and expedited development permitting to make it attractive for the private development community to participate in TOD.

3.1 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
Existing Public Policies and Tools that Impact the Transit Station Area are Supportive for TOD	●	○	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

There are three existing public policies and tools that impact the Transit Station Sites. These include the City of Aberdeen *Comprehensive Plan*, the *Aberdeen Transportation Center – Revitalization Concept Narrative*, and the *Downtown Aberdeen Revitalization Strategy*.

While the Comprehensive Plan focuses on the City of Aberdeen as a whole, the *Aberdeen Transportation Center – Revitalization Concept Narrative* and the *Downtown Aberdeen Revitalization Strategy* focus on the area surrounding Site A - existing Aberdeen Station.

City of Aberdeen Comprehensive Plan (2009)

The Comprehensive Plan is the official long-range policy statement for the City of Aberdeen. It is a major component of the planning process and guides the long-range, comprehensive decision making process regarding primarily physical development and those City actions expected to influence development in the long term. The plan reflects the optimal land uses in the City during the long term consistent with Smart Growth principles.

The Comprehensive Plan provides the following objectives related to TOD:

Element	Objective
Land Use	<ul style="list-style-type: none"> • Develop zoning requirements that support mixed land use design, transit oriented development , Main Street development, and urban revitalization • Develop a zoning district that allows transit supportive land uses around the Aberdeen Train Station • Create incentives for new businesses and residential development that support TOD and urban revitalization • Encourage connectivity between infill and redevelopment sites and existing communities by providing public sidewalks
Transportation	<ul style="list-style-type: none"> • Adopt bicycle and pedestrian friendly network plans as a way to promote healthy and sustainable alternatives to automobile-dependant travel • Improve the connections between transportation modes and promote alternatives to single-occupancy vehicular travel through transit investment including the provision of a multi-modal transportation center in the City • Identify opportunities for transit-focused development and redevelopment that are consistent with the land use plans and policies for public safety and economic development
Housing	<ul style="list-style-type: none"> • Provide opportunities for Transit Oriented Design and promote a mixture of uses in close proximity to the Aberdeen Train Station including office, residential, retail and civic
Economic Development	<ul style="list-style-type: none"> • Market the downtown as a viable center for transit, retail, customer service uses, professional offices, civic and government functions • Promote the Aberdeen Train Station as a prominent feature of the town center and provide opportunities for TOD

Aberdeen Transportation Center Revitalization Concept (1997)

In 1997, a *Revitalization Concept Plan* was prepared for the Aberdeen Transportation Center in downtown Aberdeen. The vision of this study was the transformation of the existing station into a multi-modal transportation hub serving the travel and commuting needs of residents, businesses and employers in Aberdeen and the surrounding area of the Harford County. The City's objectives include:

- Increase the visibility of the site and enhance its image as a transit center
- Improve the visual and pedestrian linkages with the downtown area
- Assure adequate security for passengers using the transit center
- Increase ridership on all the mass transit systems using the site
- Link the transit system routes
- Reduce congestion and air pollution by replacing single occupancy vehicle trips with mass transit travel

As a result of this study, the City purchased two commercial properties, expanded the parking area and reopened the pedestrian tunnel under the tracks. The original budget of \$3 million included public art (murals and painting of overpass) and other improvements that were not made due to budget cuts. The City partnered with MTA for approximately \$1.5 million in improvements around 2002.

Downtown Revitalization Strategy (2004, 2008 Update)

The *2008 Downtown Revitalization Strategy* is an update to the original 2004 revitalization strategy initiated by the Aberdeen Economic Development Commission (EDC) to ensure the continued advancement of the downtown commercial district. This 2008 update reflects recent developments that impact Aberdeen including: (1) BRAC related growth as an economic opportunity to shape the future of the City's downtown commercial districts through redevelopment and revitalization; and (2) increased commercial occupancy rate in downtown and Route 40 corridor that indicates a growing demand for commercial space in Aberdeen.

The ultimate goal of the revitalization strategy is to reinvent the City of Aberdeen into one of the County's urban centers. The goals and objectives of this downtown revitalization strategy are supportable of TOD, and include:

Goals

- Encourage downtown shopping
- Foster a pride of ownership
- Attract more local people
- Attract office and retail business to take advantage of underutilized and vacant commercial property
- Diversify retail and services

Objectives

- Create a Downtown Revitalization Committee that focuses on revitalization efforts
- Advertise potential properties for redevelopment to developers
- Attract restaurants, retail, Class A office space and customer service uses
- Continue to minimize property vacancies
- Make visual improvements to commercial facades
- Increase downtown amenities to include parking, lighting, and public safety

The strategy focuses on four districts that form the downtown overlay that are referred to the Target Revitalization Areas (TRA):

- **Core Downtown (Main Street)** – The “Main Street” district is the location of financial, retail and professional services and serves as the heart of the City of Aberdeen. Top priority is given to this district for revitalization.
- **Boulevard District** – This district is a highway transition district and includes properties from Route 40 to Amtrak and Amtrak to the City line. The goal is to provide consistency for the development of properties.
- **Retail Office District** – This district provides retail, commercial and professional services.
- **Festival Park District** – This district contains the Festival Park and Municipal/Government services.

3.2 Supportive of Downtown Economic Development

For communities that want to revitalize their downtowns, the degree of and possibility for connections between the transit station and the downtown are important in that such linkages can offer new opportunities for downtown revitalization. Such opportunities result from demand for goods and services presented by riders, including demand for retail and restaurant sales at downtown businesses and demand for housing near transit.

3.2 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Transit Station Area is Supportive of Downtown Economic Development	●	○	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Site A, the existing Aberdeen Station, is located in the downtown Aberdeen area. Though US 40 serves as a barrier that separates the existing station from the downtown commercial district, increased future pedestrian linkages could result in potential new opportunities for revitalization. As described in the “Supportive Existing Public Policies and Tools for TOD” section, the downtown area is a targeted area for revitalization for the City and cites the importance of TOD as a tool to facilitate downtown revitalization. Specific TOD related strategies were outlined in the City’s 2004 and 2008 Downtown Revitalization Strategy, the 2009 City of Aberdeen Comprehensive Plan and the 1997 Aberdeen Transportation Center Revitalization Concept. Maintaining the station in its existing location will support transit oriented economic development in the downtown area.

Sites B and C, the Mitchell and APG Property, are not physically located adjacent to downtown Aberdeen and do not provide opportunities for immediate connections to the downtown area.

3.3 Supportive of Community/Regional Economic Development

In addition to supporting downtown economic development, transit stations and surrounding station areas can enhance opportunities for the larger community and region. When transit station areas provide opportunities for the location or expansion of larger scale community- and regionally-oriented commerce, they enhance community and regional economic development.

3.3 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Transit Station Area is Supportive of Community / Regional Economic Development	●	●	●
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Site A, the existing Aberdeen Station, provides support for the broader community in that the station is located adjacent to the downtown commercial core and provides opportunities for linkages to the City’s four Target Revitalization Areas (TRA): the Core Downtown (Main Street), the Boulevard District, the Retail Office District, and the Festival Park District.

The Mitchell Property, Site B, offers opportunities for larger-scale TOD in the long term. The Aberdeen Cannery is planned as a mixed use TOD that would provide office space targeted for defense firms and a hotel to serve APG and Cannery Station visitors. These larger-scale uses could provide for community and regional economic development by attracting new jobs and visitors to the area.

Larger-scale uses of regional economic significance are planned for the potential station area at Site C, APG. The 200-acre research and development and technology business park planned by Opus East, LLC in partnership with APG would serve government and non-government users and accommodate high-paying research and development and technology jobs that would benefit the region economically. However, such uses are not considered transit oriented.

3.4 Future TOD Supportive Public Policies and Tools

Public sector investment in policies, plans and regulations that support TOD is one of the first key steps in facilitating the type of development that will support transit service. These can include new zone districts with TOD supportive attributes, adopted plans and general development plans, parking districts, joint development guidelines, memoranda of understanding, and special tax assessments that have been used successfully by many other jurisdictions and transit agencies to facilitate TOD.

3.4 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
Future Public Policies and Tools that Impact the Transit Station Area are Supportive for TOD	●	◐	◐
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

There have been several actions by the public sector to facilitate TOD through the development of policies and regulations that are transit supportive. These include a proposed new City TOD zoning overlay district (Multi-Modal Transportation Center MMTC Overlay District) to support desired development around the existing Aberdeen station and the City’s application to the State of Maryland for the designation of a BRAC Zone which impact all three Transit Station sites.

Multi-Modal Transportation Center (MMTC) Overlay District

The City of Aberdeen has proposed a new TOD zoning overlay district – the *Multi-Modal Transportation Center (MMTC) Overlay District* – to allow the development of a multi-modal transportation center which would upgrade the area’s transportation network and accommodate the anticipated growth at APG and the surrounding community resulting from BRAC. The purpose and intent of the MMTC Overlay District is to create a major multi-modal transportation center to serve the City of Aberdeen, Harford County, APG and the surrounding community which include facilities for MARC/Amtrak trains, MTA bus facilities, commuter parking areas, and other support services.

The goals of the MMTC overlay district are:

- To promote the use of mass transit facilities;
- To create a facility that is a hub for Amtrak and MARC rail service, bus services, taxi services, loading services for airport shuttles and, that may include multi-level parking garages, automobile passenger drop-off and pick-up areas, indoor waiting areas, ticket kiosks for Amtrak and MARC rail services and bus service, tenant retail shops, rest rooms and additional support services.
- To create a multi-modal transportation center that will support travelers and commuters for both APG and the local communities;
- To reduce traffic on local roadways;
- To reduce congestion at the gates at APG;

- To contribute to the quality of life in the community by creating travel options for commuters who travel to and from work at APG;
- To be a stimulus for economic development in the downtown and US 40 area.
- To provide housing convenient to APG and the MMTC in order to promote pedestrian commuting to work.

The boundaries of the MMTC Overlay District include all land situated immediately adjacent to the existing Aberdeen Amtrak/MARC Rail Station beginning at East Bel Air Avenue and continuing to Rt. 22 and West Bel Air Avenue to the intersection of Mt. Royal Avenue.

Exhibit 3-1. Proposed MMTC Overlay District Boundaries



The design requirements of the MMTC Overlay District are based upon the existing design requirements for Overlay Districts in the City of Aberdeen pursuant to the Aberdeen Development Code, which are to be used as a guide to be amended and adapted to an MMTC. These include design requirements intended for uniformity of development in areas such as building design, height and mass; building setbacks; parking; pedestrian/bicycle circulation; lighting and landscaping.

Noteworthy design requirements related to TOD for the MMTC Overlay District include:

- **Scale:** Buildings should be built on a human scale and lend an intimate and personal feel to the streetscape.
- **Building Setbacks:** Many commercial buildings in the Downtown Revitalization Overlay District have no setbacks on the front or side property lines, and only a minimal setback from the rear line. The location of new buildings or additions to existing buildings shall respect the established setbacks of existing buildings on a street and shall provide a setback that is consistent with the existing structures.
- **Parking Lots and Structures:** Buildings should not be separated from each other by "a sea of parking." The line and massing of the buildings and structures should be arranged such that they are as close to each other as possible and linked by crosswalks and pedestrian paths.
- **Parking/Shared Parking:** For any sites or developments that include significant amounts of parking, site design should avoid large uninterrupted expanses of asphalt from the fronting streets. In general parking structures should not be located along the street; they should move to the rear of the parcels. If parking structures must be located along the street frontage, they should have active ground floor uses, high grade architectural finishes on the façade, and ideally, "liner" space on the façade for residential or commercial uses.
- **Pedestrian/Bicycle Circulation:** Access to developments should serve the needs of the pedestrian and bicyclist as well as the motorist. Site designs should balance the needs of pedestrian, vehicular and bicycle traffic, emphasizing the pedestrian/bicyclist and reducing the dominance of the automobile.
- **Sidewalks:** For streets that have buildings or development on both sides of the street, sidewalks must be provided on both sides; for streets that have buildings or development on only one side of the street, a sidewalk must be provided on that side only.

Permitted uses within the MMTC include:

<p>Athletic Facilities or Clubs (indoor) Apartment, accessory to commercial use Apartment, multi-family Automobile rental Art galleries Banks with or without drive-thru facilities Bus Station, train station, taxi depot, transit center Business service Community Center Commercial, amusement, entertainment and recreation facilities Communication tower or monopoles Conference centers</p>	<p>Convenience retail establishment with fuel pumps Day Care centers Dwelling, accessory apartment Dwelling, garden apartment Dwelling, mid-rise apartment Dwelling, semi-detached Dwelling, townhouse Electronic and electronic equipment Gourmet food establishment Health Clubs Medical services Museums Offices and office buildings</p>	<p>Parking garages, automobile Parks Personal services Pharmacy with drive thru Professional services. Public or governmental buildings Public utilities or buildings Recreational areas, centers and facilities Research facilities (R&D) Restaurants Retail Facilities; free standing Schools, colleges and universities, including trade and vocational schools</p>
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BRAC Revitalization and Incentive Zone Program (SB206 BRAC Community Enhancement Act)

In April 2009, the City of Aberdeen submitted an application for a BRAC Zone designation, a State of Maryland funded program organized through the Maryland Department of Business and Economic Development, in cooperation with the Departments of Transportation, Housing & Community Development, Environment and Planning. The purpose of the program is to:

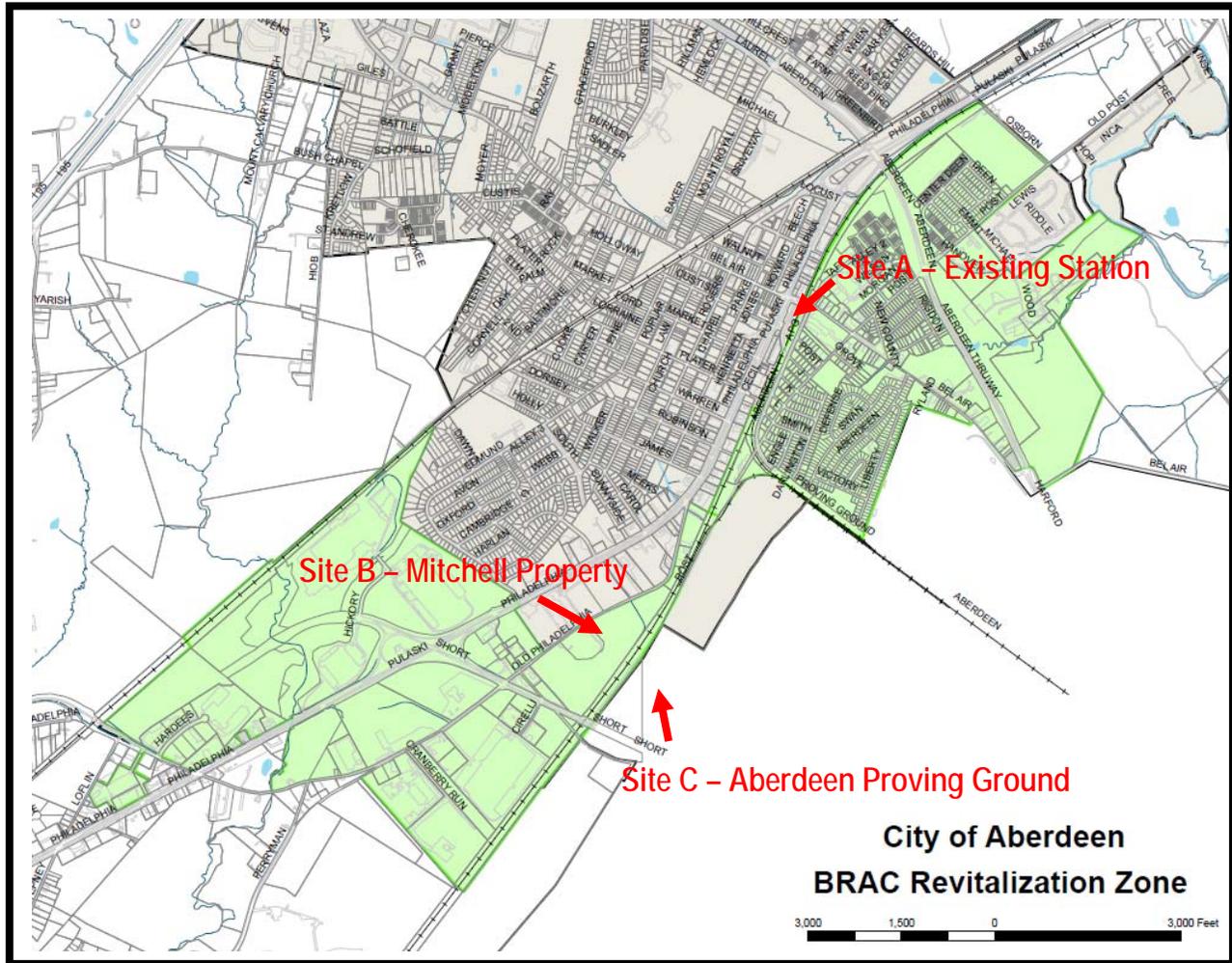
- Focus growth resulting from BRAC in areas that are designated for growth – otherwise known as Priority Funding Areas (PFAs)
- Provide local governments with financial assistance for public infrastructure in these well defined areas
- Align other state resources and programs to local governments and businesses located in the BRAC zones for a coordinated State effort on making the zones the focus of BRAC growth

The BRAC Zone designation carries out the goal of focusing growth by providing local governments additional funding and other State resources to provide the public infrastructure necessary to support development or redevelopment of the area. Priority is given to areas that are served by public transportation and have the greatest capacity for economic growth. Local governments whose designated area is part of the BRAC Zone program receive: (1) payment of 100% of state real property tax increment on qualified properties; (2) payment equal to 50% of the local jurisdiction's real property tax increment on qualified properties; and (3) funds may be used to pay back bonds, including TIF bonds, issued for infrastructure improvements.

Benefits are available for the 10 year life of the zone. Program requirements include that the proposed designated area is within a Priority Funding Area (PFA), is served by public or community water and sewer system or planned to be served by public or community water system under the approved 10 year water and sewer plan, is designated for mixed use development that includes residential uses and has an average density of at least 3.5 units per acre in part of the area designated for residential uses.

The boundaries of the City of Aberdeen's BRAC Zone include the area to the east of the railroad tracks around Route 22 and around Route 715 and Route 40 to the south of the downtown area. This includes the area surrounding Site A to the south of APG Road and surrounding Site B/C to the west of the railroad tracks around MD 715, Old Philadelphia Road and Route 40.

Exhibit 3-2. City of Aberdeen Proposed BRAC Revitalization Zone



4. Market & Development

4.1 Supportive Walkshed Economic & Demographic Characteristics

The characteristics of our nation’s economic and demographic makeup are gradually changing. Some of these changes are creating opportunities for TOD nationwide. For example, household size is shrinking creating more empty nesters, singles and non-family households. Studies have shown that these types of households are less interested in the typical single family home on a quarter acre lot but are attracted to a more urban lifestyle with transit access, smaller homes, greater mix of amenities and entertainment options including employment opportunities. These types of characteristics are the hallmark of TOD. We are also becoming more diverse. While immigrants have traditionally settled in cities, trends are changing in that more immigrants are settling in suburban or rural locations. Furthermore, because immigrant households tend to have lower incomes, these households possess fewer vehicles and tend to be more transit dependent. This trend is creating more opportunities for transit oriented housing.

4.1 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Transit Station Area has Supportive Economic and Demographic Characteristics for TOD	●	○	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Overall, a national TOD housing study by the *Center for Transit Oriented Development* finds that households living within a half mile of transit stations are smaller, home ownership rates are lower, car ownership rates are significantly lower and significantly fewer residents commute by cars when compared to those households not living within the transit zone.² An evaluation of the housing and employment characteristics within the Site A and Site B/C transit zones (e.g. ½ mile walkshed around the station) finds that the Site A transit zone has stronger existing economic and demographic characteristics that are supportive of TOD when compared to Site B/C transit zone.

Key demographic and economic observations include:

- Site A’s transit zone contains significantly more households (1,307) than the Site B/C transit zone (76). Site A’s existing base of homes and employers is an asset for attracting additional households and firms
- Site A’s transit zone has significantly more employees (2,350 at-place employees) compared to Site B/C (817 employees)
- More than 86% of jobs located within Site A’s transit zone can be considered TOD supportive while Site B/C has 59% TOD supportive jobs
- Site A’s transit zone has nearly twice as many non-family households when compared to Site B/C. Non-family households have been cited as one of the primary drivers for TOD related housing

² *Hidden in Plain Site: Capturing the Demand for Housing Near Transit*, Reconnecting America’s Center for Transit Oriented Development, September 2004.

- Average household size is significant larger in the Site B/C transit zone (3.07 individuals per household) compared to the Site A transit zone (2.28 individuals per household). Typically, smaller households are prime candidates for higher-density, more compact living associated with TOD
- Households living within the Site A transit zone own, on average, 40% less vehicles when compared to Site B/C households
- More than one third of households living within the Site A station area commute to work by other means than driving alone compared to one quarter of households within Site B/C
- There is a greater percentage of rental occupied housing units within the Site A transit zone compared to the Site B/C transit zone, 51% compared to 21% respectively

Exhibit 4-1: Demographic & Economic Profile (2008)

	Site A	Site B/C	City of Aberdeen	Harford County
Population	3,055	233	14,876	249,753
Households	1,307	76	5,999	92,446
Average Household Size	2.28	3.07	2.46	2.68
At-Place Employment	2,350	817	8,535	71,270
% TOD Supportive Jobs	86%	59%	79.6%	79.3%
% Non-Family Households	39.1%	21.9%	32.2%	24.2%
Average Number of Vehicles Available (Households, 2000)	1.3	1.8	1.5	1.9
Means of Transportation to Work (% Drove Alone, 2000)	64.7%	75.9%	74.4%	83.4%
% Rental Occupied Housing Units	51.3%	21.4%	37.6%	20.4%

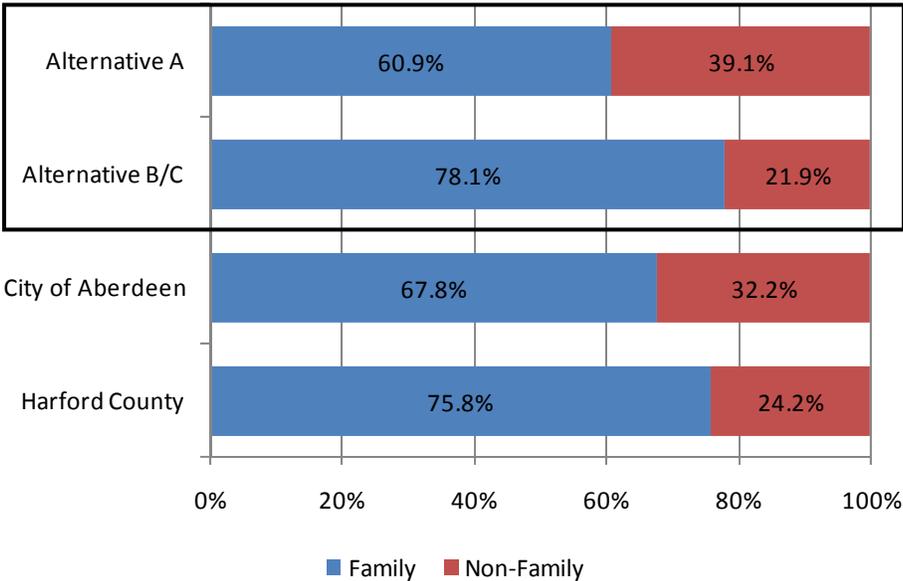
Source: ESRI Business Solutions

The Site A station area has nearly twice as many non-family households³ compared to the Site B/C station area, 39% compared to 21%, respectively. According to a study by the Center for Transit Oriented Development, non-family households, such as singles, couples without children and empty nesters, will generate the majority of the potential demand for TOD as they are one of the fastest growing demographic segments in society today and are fueling much of the growth for TOD products.⁴ In addition, a 2001 study by the Federal Highway Administration found that 57% of the Echo Boomer generation, aged 24-34, preferred small lot housing and that 53% felt that an easy walk to stores was an extremely important determinant in housing and neighborhood choice. The American Association for Retired Persons (AARP) also reports that 71% of older households want to live within walking distance of transit.

³ According to the US Census, a non-family household consists either of one person living alone or of two or more persons who share a dwelling, but do not constitute a family (e.g., a couple with or without children).

⁴ *Hidden in Plain Site: Capturing the Demand for Housing Near Transit*, Reconnecting America's Center for Transit Oriented Development, September 2004.

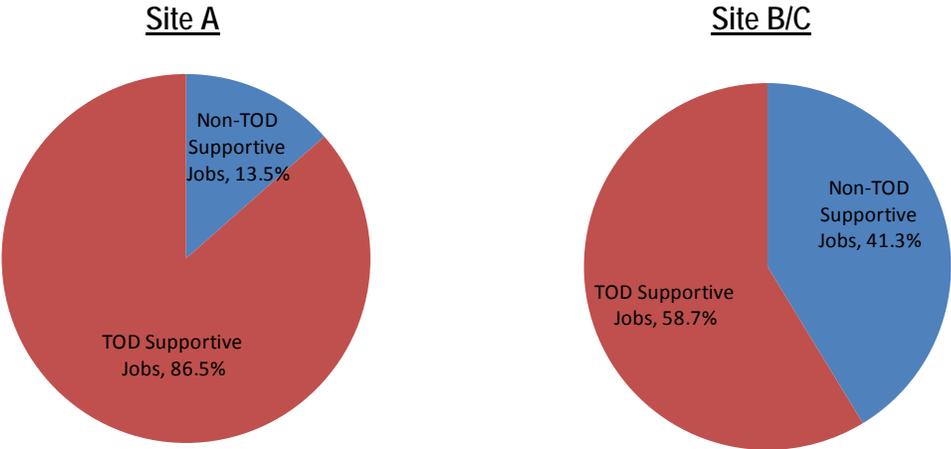
Exhibit 4-2: Household by Type (2000)



Source: ESRI Business Solutions

When examining at-place employment, the Site A transit zone has more than three times as many existing jobs compared to the Site B/C transit zone, more than 2,350 existing jobs within the Site A transit zone compared to 817 for Site B/C transit zone. Furthermore more than 86% of existing jobs located within the Site A transit zone can be considered TOD supportive. These include jobs in retail trade, information, finance, insurance and real estate, services and governmental occupations. Conversely 58% of jobs within the Site B/C transit zone are considered supportive to transit oriented development. The prevalence of TOD supportive jobs provides opportunities to further concentrate development that is supportive of TOD.

Exhibit 4-3: TOD Supportive Jobs (2008)



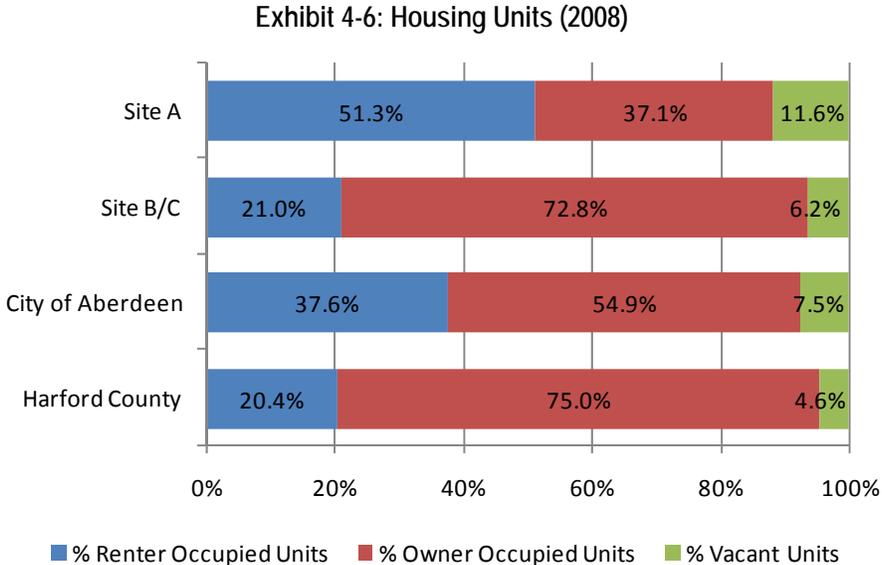
Source: ESRI Business Solutions

Exhibit 4-4: At-Place Employment by Occupational Category (2008)				
	Site A		Site B/C	
	Employees	Percent	Employees	Percent
TOD Supportive				
Retail Trade	228	9.7%	288	35.2%
Information	54	2.3%	0	0.0%
FIRE	122	5.2%	28	3.4%
Services	1,361	57.9%	164	20.1%
Government	268	11.4%	0	0.0%
Subtotal	2,033	86.5%	480	58.7%
Non-TOD Supportive				
Agriculture	0	0.0%	1	0.1%
Construction	82	3.5%	17	2.1%
Manufacturing	14	0.6%	120	14.7%
Wholesale Trade	146	6.2%	142	17.4%
Transportation / Utilities	75	3.2%	57	7.0%
Subtotal	317	13.5%	337	41.3%
Total	2,350	100%	817	100%
Source: ESRI Business Solutions				

More than one third of households living within the Site A transit zone used alternative means of transportation to get to and from work rather than driving alone compared to one quarter of households living within Site B/C. According to the US Census, 35% of households living within Site A carpooled, used public transportation, walked, worked at home or used other means of transportation. 24% of households living within Site B/C used these alternative means of transportation to work. This suggests that good TOD not only offers residents the option of using transit, but also other alternative means of transportation. For example the high percentage of households that walk to work within the Site A transit zone (6.4%) compared to less than 1% for Site B provides opportunities for TOD.

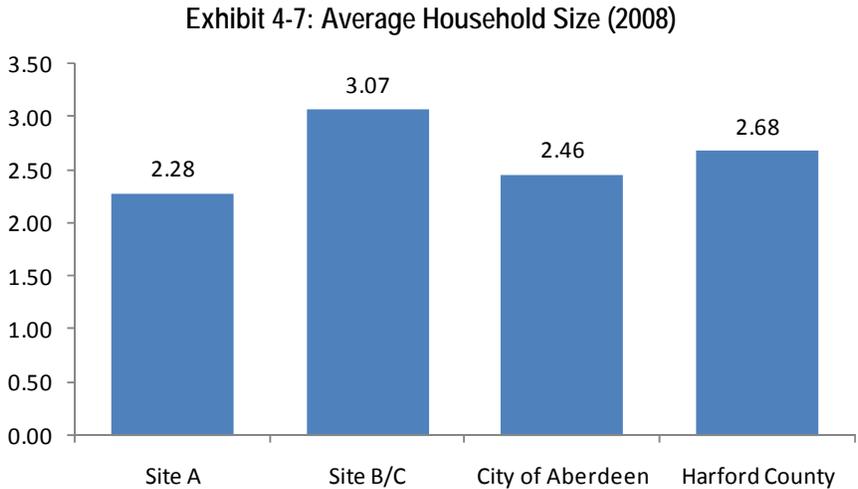
Exhibit 4-5: Means of Transportation to Work (2000)				
	Site A	Site B/C	City of Aberdeen	Harford County
Drove Alone	64.7%	75.9%	74.4%	83.4%
Carpooled	23.1%	16.4%	18.5%	10.4%
Public Transportation	1.4%	4.3%	2.0%	1.0%
Walked	6.4%	0.9%	2.4%	1.4%
Other Means	2.6%	0.0%	0.9%	0.8%
Worked at Home	1.8%	2.5%	1.8%	3.0%
Source: ESRI Business Solutions				

More than half (51.3%) of the housing units located within the Site A transit zone are renter occupied compared to 21% of households within Site B/C. Studies have shown that transit zones provide more opportunities for renter housing and in areas with tight housing markets, transit helps make housing more affordable by reducing household transportation expenditures.



Source: ESRI Business Solutions

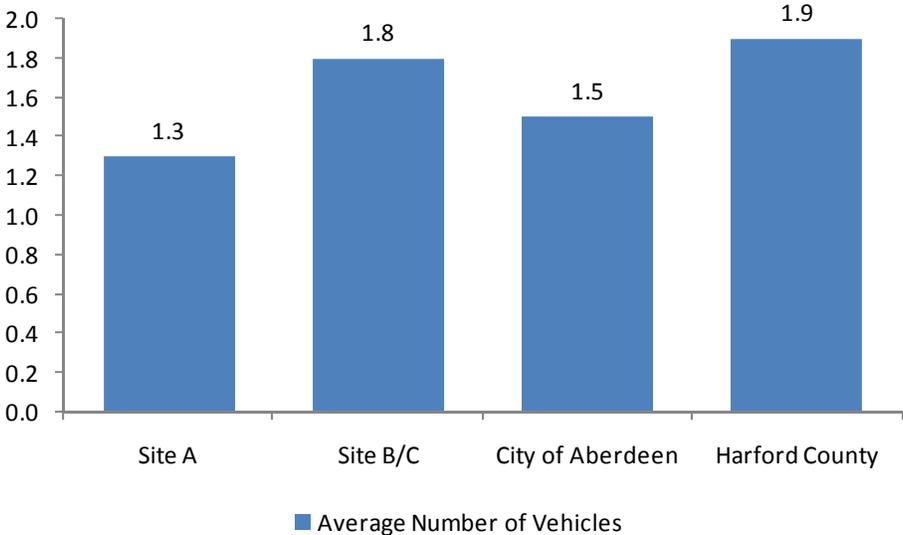
Another demographic trend is the shrinking of the nation’s average household size. The traditional family that made up 40% of households in 1970 now comprises less than 24% of households. As previously noted, these non-family groups include aging baby boomers, empty nesters, young singles and childless couples. The average size of households living within Site A’s transit zone is nearly 35% less than Site B/C’s transit zone, 2.28 versus 3.07 for Site A and Site B/C respectively. According to the 1995 National Personal Transportation Survey, single adults with no children, and households of two or more adults with no children were most likely to live in urban locations. These are the type of households that would be most interested in the urban, mixed use environment that TOD offers.



Source: ESRI Business Solutions

Vehicle ownership rates also varied in transit zones compared to non-transit zones. For example, studies have shown that vehicle ownership rates are significantly lower in transit zones as predicted. Households located within the Site A transit zone have, on average, 40% less vehicles compared to households living within Site B/C. Site A transit zone households have an average of 1.3 vehicles per household compared to 1.8 vehicles per household for Site B/C transit zone households. Fewer vehicles per household suggest that opportunities exist for households located within the transit zone to utilize transit and associated TOD demand.

Exhibit 4-8: Average Number of Vehicles per Household (2000)



Source: ESRI Business Solutions

4.2 Adequate Market Support – Near Term

Across the nation, mixed-use, pedestrian friendly and transit supportive development is a unique product type that is gaining increased interest among various types of households and firms. Recent research has found that the primary audiences for housing in such developments include older adults (i.e. “empty nesters”), younger adults (i.e. “Generation Y” born from 1981 to 1999), and some families with young children, each of whom report interest in living in communities where walking to work, retail services and restaurants, and community amenities (i.e. libraries and recreational offerings) is possible. These groups are opting for more compact living in townhomes, smaller single-family homes on compact lots, condominiums and rental apartments in order to live in a mixed-use and walkable environment.

4.5 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
There is Adequate Market Support for TOD within the Station Area	◐	◐	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

In terms of demand presented by firms for office locations near transit, firms that value transit as a means to access their workforce and that prefer the presence of retail services and restaurants in walking distance as an amenity for their employees offer a niche market for transit oriented office space.

Though trends in demographics and the preferences of employers have demonstrated that demand for TOD is growing at the national level, the current national recession has dampened near-term demand for all types of real estate product, including transit supportive mixed-use environments. However, the longer term trends toward increasing interest in transit oriented living, working, shopping and dining environments should increase when the broader economy recovers.

Local Context Surrounding Demand for Real Estate and TOD

Despite broad near-term national economic troubles in 2009, the areas surrounding APG are positioned to fare better economically because of BRAC. As a result of the 2005 round of BRAC recommendations, APG stands to directly add thousands of highly paid, highly educated workers, most notably from the Command, Control, Communication, Computers, Intelligence, Surveillance and Reconnaissance (Team C4ISR) out of Fort Monmouth, New Jersey. In addition to the direct addition of these employees, thousands of additional, spin-off employment opportunities for defense contractors may be created in the region. Altogether, the influx of employees to APG could result in demand not only for commercial space to accommodate firms but also in demand for housing for the new households relocating to the region.

The BRAC-related defense contractors are likely to value proximity to APG, secure facilities, and a combination of office and flex space, dependent upon the type of contracting performed. Such values are less conducive to demand for office space in mixed-use, compact environments that typically lack secure, flex spaces.

Large-scale development projects within the City of Aberdeen (albeit outside the alternative sites for the MTC) are already in the pipeline (i.e. under construction, planned or proposed) to address the need for commercial space to house BRAC-related defense contractors. In addition to the 2 to 3 million square feet of proposed development associated with the Government and Technology Enterprise (GATE) commercial office and technology park on APG property, several other projects that are projected to add space in the area include:

- Hickory Ridge – a joint county/city office project that will add 1.35 million square feet off of Route 715 and Route 40
- James Run Corporate Campus – mixed use corporate office project that is projected to 1.25 million square feet of commercial space off of MD Route 543 and I-95 including 1 million square feet of office, 267,000 square feet of retail and 120,000 square foot hotel
- Northgate Business Park – 800,000 square feet of office space on a 56 acre site located for area north of Route 22 near the APG gate; to also include 30,000 square feet of retail space

While pipeline projects may be prepared to accommodate the majority of defense contractors requiring space within larger-scale, secure facilities, the influx of households to the region may create opportunities for mixed-use, higher-density transit supportive development, including housing and retail.

Such possibilities were investigated in the Phase I market assessment for the Aberdeen Multi-Modal Transportation Center. Key findings from that evaluation included the following:⁵

- No existing or competing development products were available within the market area (defined to include all the land from the Harford County line at the Susquehanna River to past Edgewood and along the Interstate 95/Route 40 corridor) to compete with a mixed use, higher density development that is walkable and provides good access to transit, offering an opportunity for a new product type in the market.
- New households brought to Harford County as a result of BRAC as well as baseline growth were identified as primary sources of demand for mixed-use, pedestrian friendly and transit supportive development.
- BRAC-related households include middle-age and older individuals, families and couples (i.e. 40 to 60 years of age) relocating from Fort Monmouth, many of which have indicated preference for eventual purchase of homes but may, in the first few years of relocation, opt to rent housing.
- The near-term demand for rental housing presented by BRAC-related households could stem not only from a need for employees to learn about the area before purchasing a home, but also from a need for older employees nearing retirement to rent housing near APG while maintaining a permanent home in New Jersey (with plans to age in place upon retirement).
- Such demand for housing presents a strong opportunity to develop higher density housing as “lifestyle” products currently not available in the Harford County market.
- An estimated 100 to 300 new transit oriented housing units could be added per year based on the capture of a small amount of BRAC-related household growth, baseline household growth and the movement of existing households
- Retail space will likely follow new rooftops in the area, and the best site opportunities for retail will be found in areas with strong visibility, access, and proximity to households.
- Given the emphasis on households as the primary source of demand for retail, the strongest retail opportunities are most likely neighborhood and convenience oriented retail rather than regional draws.

⁵ Aberdeen Station Area Transportation Needs Assessment and Market Analysis, Technical Memorandum Subtask 2.4: Summary of Development Opportunities, Bay Area Economics, February 2009

- Though BRAC-related defense contractors will likely be accommodated through the office product in the pipeline at and around APG, and though these contractors typically are less ready candidates for transit oriented working environments because of needs for security and flex spaces, there may be opportunities to accommodate smaller service-oriented firms (e.g. insurance providers, financial advisors) in mixed-use environments.
- The attraction of smaller service-oriented firms such as insurance providers and financial advisors may be limited in the near-term given the national recession and its particularly hard impact upon the business and financial services sector.
- Unmet demand for hotel rooms is modest, and with planned new hotels in the market, opportunities for new hotel development will likely be longer term rather than near term.

In summary, the analysis found that demand for new housing will be the primary driver for mixed use development commonly associated with transit, with rental housing representing the best opportunity to cater to BRAC-related household growth.

Site Real Estate Market Context

In addition to understanding trends in demand for TOD at the national and local levels, it is important to understand local supply conditions within the walksheds surrounding the alternative sites for the MTC.

The following table provides a “snapshot” of office market conditions within the walksheds and within the surrounding City and County.

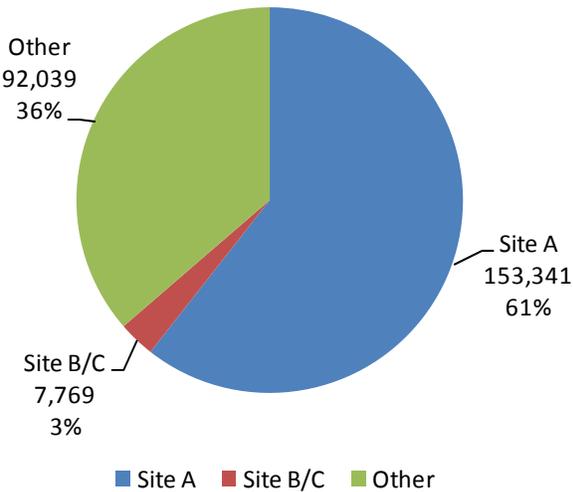
Exhibit 4-9: Office Market Snapshot (1 st Quarter 2009)					
	Site A	Site B/C	Remaining City of Aberdeen	City of Aberdeen (Total)	Harford County
Number of Buildings	22	2	7	31	459
Existing Inventory (SF)	153,341	7,769	92,039	253,149	3,984,043
Total Vacant SF	17,098	0	13,329	30,427	303,590
% Vacant	11.2%	0.0%	14.5%	12.0%	7.7%
Average Rental Rate	\$12.16	-	\$17.50	\$14.83	\$23.04
Source: CoStar					

Key observations regarding the office market supply conditions include the following:

- With a larger base of employment, the Site A walkshed not surprisingly also features a larger number of existing office properties (22) representing approximately 150,000 square feet compared to the two properties representing nearly 8,000 square feet within the Site B/C area.
- The vacancy rate reported for the Site A properties was higher, at 11.2%, compared to the 0% vacancy rate within the Site B/C walkshed.
- The Site A vacancy rate also was higher than that of office properties in Harford County (7.7%).
- However, the Site A vacancy rate was lower than that of the 7 office properties not located in the Site A nor B/C walksheds, which exhibited a 14.5% vacancy rate across approximately 90,000 square feet.
- Rental rates for available space within the Site A walkshed (at \$12.16 per square foot) were lower than that of other City properties (at \$17.50 per square foot) and of County properties (at \$23.04 per square foot).

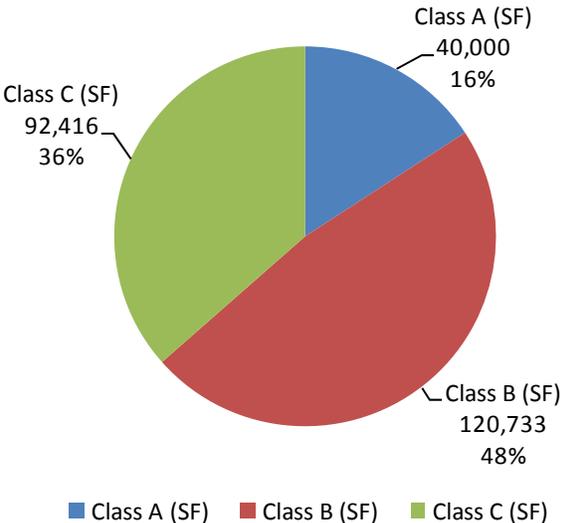
The lower rental rates in the Site A walkshed compared to the City is in part explained by the lack of available Class A space within the walkshed compared to the City. Despite together comprising 97% of the office space in the City, neither the Site A nor Site B/C walksheds contained Class A space. The distribution of office space in the City and space breakout by class and area are illustrated in the following exhibits.

Exhibit 4-10: City of Aberdeen - Office Market Inventory (Square Feet), 2009



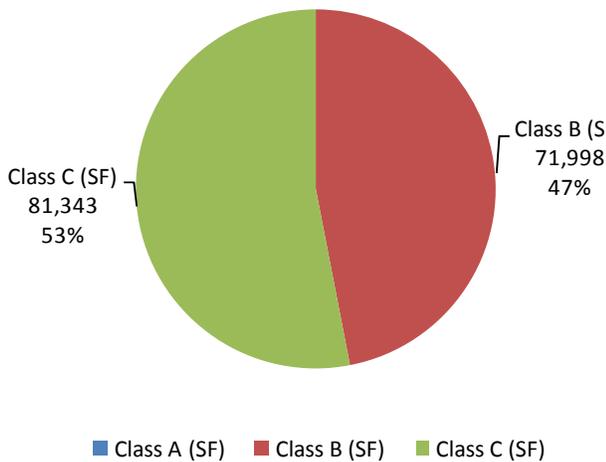
Source: CoStar

Exhibit 4-11: City of Aberdeen - Office Market by Class Type, 2009



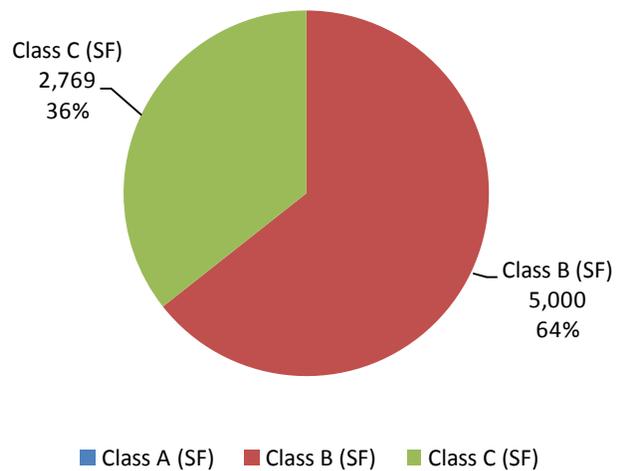
Source: CoStar

Exhibit 4-12: Site A – Office Market by Class Type, 2009



Source: CoStar

Exhibit 4-13: Site B/C – Office Market by Class Type, 2009



Source: CoStar

Retail real estate market conditions within the Sites A and B/C walksheds and the City and County are depicted in the following exhibits. Key observations with regards to the retail market based on this snapshot include:

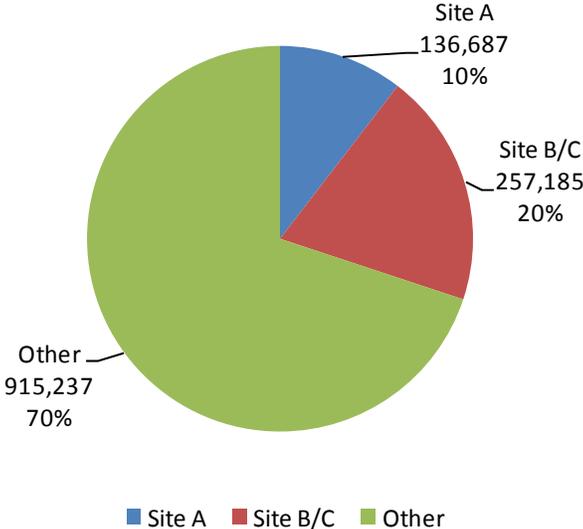
- Site A contains many more retail buildings (28) than Site B/C (7).
- The 7 properties within the Site B/C walkshed together provide more square feet (over 250,000 square feet which includes a 200,000 square foot Wal-Mart) compared to the 28 properties in the Site A walkshed (nearly 140,000 square feet), indicative of smaller retail properties more appropriate to a downtown setting in the Site A walkshed.
- The vacancy rate in each of the Site walksheds (16.6% within the Site A walkshed and 6.9% within the Site B/C walkshed) was lower than that of the City’s retail properties (19.1% vacant) but higher than that of Harford County retail properties (4.8% vacant).
- Rental rates within the Site A walkshed, at \$12.06 per square foot, were lower than that of the Site B/C walkshed (\$16.00 per square foot), City (\$14.83 per square foot) and County (\$18.51 per square foot).

Compared to retail areas elsewhere in the County, retail properties in each of the Site’s walksheds and the City can be described as relatively less strong, with higher vacancy rates and lower rental rates per square foot. These conditions are in part explained by the presence of thriving large retail centers in the area around Bel Air, such as Harford Mall, which contains much of the County’s prime retail space. Overall, the City of Aberdeen, with 1.3 million square feet, contains a small share (nearly 13%) of the retail space in Harford County (10.2 million square feet).

Exhibit 4-14: Retail Market Snapshot (1 st Quarter 2009)					
	Site A	Site B/C	Remaining City	City of Aberdeen	Harford County
Number of Buildings	28	7	31	66	645
Existing Inventory (SF)	136,687	257,185	915,237	1,309,109	10,165,383
Total Vacant SF	22,624	17,850	210,170	250,644	486,176
% Vacant	16.6%	6.9%	23.0%	19.1%	4.8%
Average Rental Rate	\$12.06	\$16.00	\$13.31	\$14.83	\$18.51
Source: CoStar					

While the City of Aberdeen contains 13% of the retail space in Harford County, the two walksheds surrounding Sites A and B/C together contains 30% (400,000 square feet) of the 1.3 million square feet of retail space in the City. The Site A walkshed contains 10% of the City’s retail space, while the Site B/C walkshed contains 20% of the inventory.

Exhibit 4-15: City of Aberdeen – Retail Market Inventory (Square Feet), 2009



Source: CoStar

In summary, despite the broader national recession, Harford County and the candidate transit station sites offer opportunities for real estate development (transit supportive and otherwise) related to baseline growth and the near-term influx of new firms and households associated with BRAC. For the sites, the opportunities include:

- Higher density rental “lifestyle” housing in mixed-use environments providing walking access to transit, retail services and restaurants, and community amenities
- Neighborhood and convenience oriented retail
- Limited levels of office space for smaller service-oriented firms
- Longer-term potential opportunities for hotel development

These opportunities will be enhanced by supportive demographic and economic conditions in surrounding drivesheds in that the spending power of households within driving distance of the sites can further support retail development. Conditions in the drivesheds are described in the following section.

4.3 Supportive Driveshed Economic & Demographic Characteristics

Successful TODs – in particular, the retail component of such developments – must cater to the needs of audiences beyond simply transit riders for success. As such, analysis of households and firms in drivesheds surrounding potential station areas is necessary to understand the depth of potential demand to support retail services and restaurants in transit supportive environments.

4.2 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
There are Supportive Driveshed Economic and Demographic Characteristics for TOD	●	●	●
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Summary Observations

In determining the level of supportiveness for TOD at Site A and Site B/C, an examination of local drivesheds of 5-, 10- and 15-minute for both locations was conducted. The following factors were examined for each site and their respective drivesheds:

- Demographic and economic profile
- At-place employment
- Household annual spending
- Retail supply vs. demand

In comparing the 5-, 10- and 15-minute drivesheds for Site A to Site B/C, all are comparable, although the 5- and 10-minute driveshed differ slightly. Even though both sites are located along Route 40 and are only approximately 1.6 miles apart, the 5-minute driveshed from Site A (Existing Aberdeen Station) includes more favorable characteristics when compared to Site B/C.

When compared to Site B/C, Site A's 5- and 10-minute drivesheds includes:

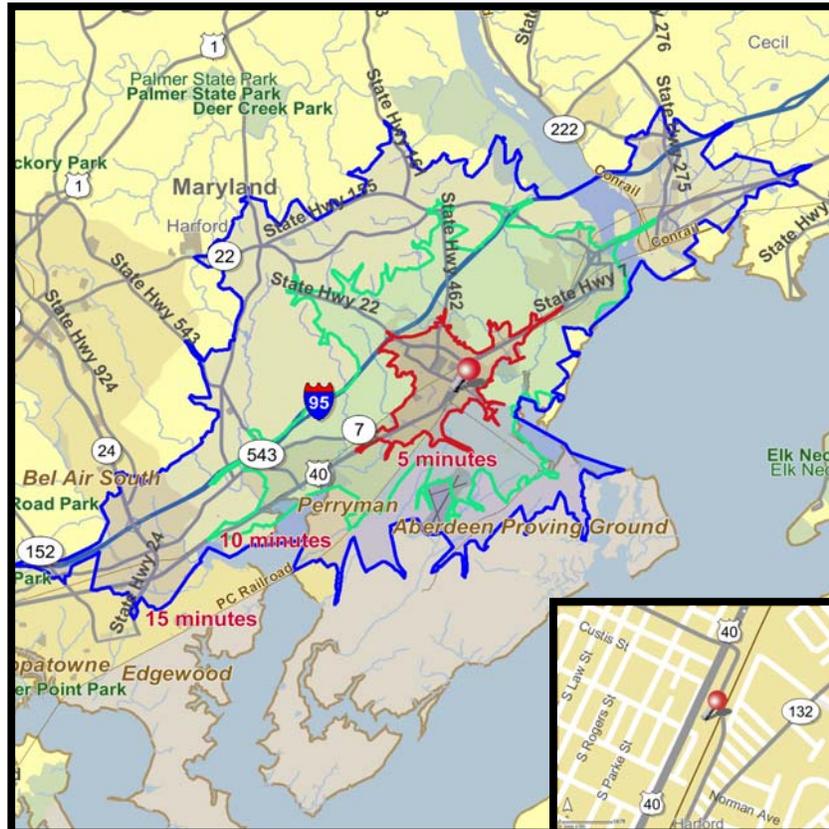
- A larger population
- More households
- More at-place employees
- Households with higher median household incomes
- Higher median home values

When comparing the economic and demographic factors of Site A to Site B/C, Site A drivesheds offer more supportive characteristics for TOD.

Site A – Existing Aberdeen Station

The 5-, 10-, and 15-Minute drivesheds surrounding the Existing Aberdeen Station are illustrated in the following exhibit.

Exhibit 4-16: Site A – Existing Aberdeen Station Driveshed (5-, 10-, 15-Minute)



Source: ESRI Business Solutions

Key demographic and economic characteristics of the drivesheds surrounding Site A include:

- 6% of Harford County's population is reached within the 5-minute driveshed, and 31 percent within the 15-minute driveshed
- 6% of Harford County's households are found within the 5-minute driveshed, and 32 percent within the 15-minute driveshed
- The 5-minute driveshed contains 11% of Harford County's at-place employees while the 15-minute driveshed contains 45% of the County's at-place employees
- Median household income within the 5-minute driveshed, at \$45,998, is \$28,715 less than that of Harford County (\$74,713), while the 15-minute driveshed, at \$60,941, is \$13,772 less
- Median ages within the drivesheds, at 37.7 in the 5-minute driveshed, 36.4 in the 10-minute driveshed, and 36.8 in the 15-minute driveshed, are slightly lower than that of Harford County (38.4)

4. Market & Development

- Lower home values are found in the drivesheds than in Harford County as a whole (\$337,402), most notably within the 5-minute driveshed (\$229,155)

Exhibit 4-17: Demographic and Economic Profile (2008)				
Site A – Existing Aberdeen Station Driveshed				
	5-Minute	10-Minute	15-Minute	Harford County
Population	13,706	43,728	76,538	249,753
Households	5,620	17,154	29,652	92,446
Average Household Size	2.42	2.52	2.55	2.68
Labor Force	6,396	20,601	36,848	126,964
At-Place Employment	7,932	21,276	32,124	71,270
Median Household Income	\$45,998	\$57,526	\$60,941	\$74,713
Per Capita Income	\$22,961	\$25,911	\$27,524	\$32,255
Median Age	37.7	36.4	36.8	38.4
Median Home Value	\$229,155	\$263,617	\$277,113	\$337,402

Source: ESRI Business Solutions

Aside from population, the number of at-place employees within a particular geography can support TOD as far as they may patronize retail services and restaurants in the TOD or consider housing options there. Within a 5-minute drive of Site A, nearly 8,000 employees are presently found; within 10-minutes, there are over 20,000 employees; and within a 15-minute drive over 30,000 employees are reached.

Major employment sectors within the respective drivesheds include the services and retail trade industries, which represent approximately 65 – 75 percent of the at-place employment in the drivesheds. Other industries that represent a strong share include government, manufacturing and wholesale trade. Similar employment characteristics exist in Harford County, accounting for an at-place employment workforce of over 70,000.

Exhibit 4-18: At-Place Employment								
Site A – Existing Aberdeen Station Driveshed (2008)								
	5-Minute		10-Minute		15-Minute		Harford County	
	At-Place Emp.	Percent	At-Place Emp.	Percent	At-Place Emp.	Percent	At-Place Emp.	Percent
Agriculture	20	0.3%	40	0.2%	113	0.4%	214	0.3%
Construction	191	2.4%	488	2.3%	1,644	5.1%	5,702	8.0%
Manufacturing	425	5.4%	1,854	8.7%	2,779	8.7%	3,991	5.6%
Wholesale Trade	515	6.5%	2,137	10.0%	2,495	7.8%	3,492	4.9%
Retail Trade	2,293	28.9%	6,961	32.7%	9,624	30.0%	15,323	21.5%
Transportation / Utilities	396	5.0%	705	3.3%	948	3.0%	1,354	1.9%
Information	32	0.4%	75	0.4%	87	0.3%	641	0.9%
FIRE	180	2.3%	434	2.0%	728	2.3%	3,777	5.3%
Services	3,412	43.0%	7,661	36.0%	12,228	38.1%	32,998	46.3%
Government	468	5.9%	921	4.3%	1,481	4.6%	3,777	5.3%
Total	7,932	100%	21,276	100%	32,127	100%	71,270	100%

Source: ESRI Business Solutions

Another indicator for supportive TOD development is the level of annual consumer spending and demand for goods and services in the drivesheds. Households within the drivesheds of Site A typically spend the majority (approximately 85 percent) of their discretionary income on retail goods. Within the 5-minute driveshed of Site A, average retail spending per household was over \$34,000; within the 10-minute driveshed, average retail spending per household was nearly \$40,000; and within the 15-minute driveshed, average retail spending per household was nearly \$43,000. In comparison, the average City household spent over \$35,000 annually on retail goods and services, while the average Harford County household with a higher median income spent over \$52,000.

Exhibit 4-19: Annual Spending Profile Site A - Existing Aberdeen Station (2008)				
	Retail Goods ¹		Other ²	
	Total Spending	Average Household	Total Spending	Average Household
5-Minute	\$182.8 M	\$34,245	\$29.2 M	\$5,239
10-Minute	\$681.1 M	\$39,716	\$104.4 M	\$6,102
15-Minute	\$1,266 M	\$42,711	\$194.5 M	\$6,565
City of Aberdeen	\$212.9 M	\$35,532	\$32.4 M	\$5,436
Harford County	\$4,834 M	\$52,288	\$745.8 M	\$8,068

Source: ESRI Business Solutions

1: Includes retail goods, household furnishings, health care, food away from home, food at home, entertainment and recreation

2: Includes apparel and services, computers, TV/video/sound equipment, travel and vehicle maintenance and repairs

The total retail spending potential in the drivesheds surrounding Site A is substantial: total consumer spending on retail goods was nearly \$183 million for households within a 5-minute drive of the site; over \$681 million within a 10-minute drive; and \$1,266 million within a 15-minute drive.

While consumer spending patterns indicate the overall level of demand for retail goods and services in a market, such demand must be compared to existing sales in the market in order to identify types of retail goods and services that may be undersupplied. Such undersupply is apparent when demand (expenditures) exceeds supply (sales), suggesting that the demand is currently being “leaked” to purchase retail goods and services in other markets. Such analysis can help to pinpoint particular types of retail which will be more successful in a TOD because they address an already unmet need in the community.

Within each of Site A’s drivesheds, retail leakage is occurring in many retail categories, including: health and personal care stores, shoe stores, sporting goods and hobby stores, book periodical and music stores, and drinking establishments. This leakage indicates the stores are relatively undersupplied given local household expenditures, and that there may be opportunities to supply such retail goods and services in a TOD.

Exhibit 4-20: Selected Retail Demand vs. Retail Supply (2008)
 Site A - Existing Aberdeen Station

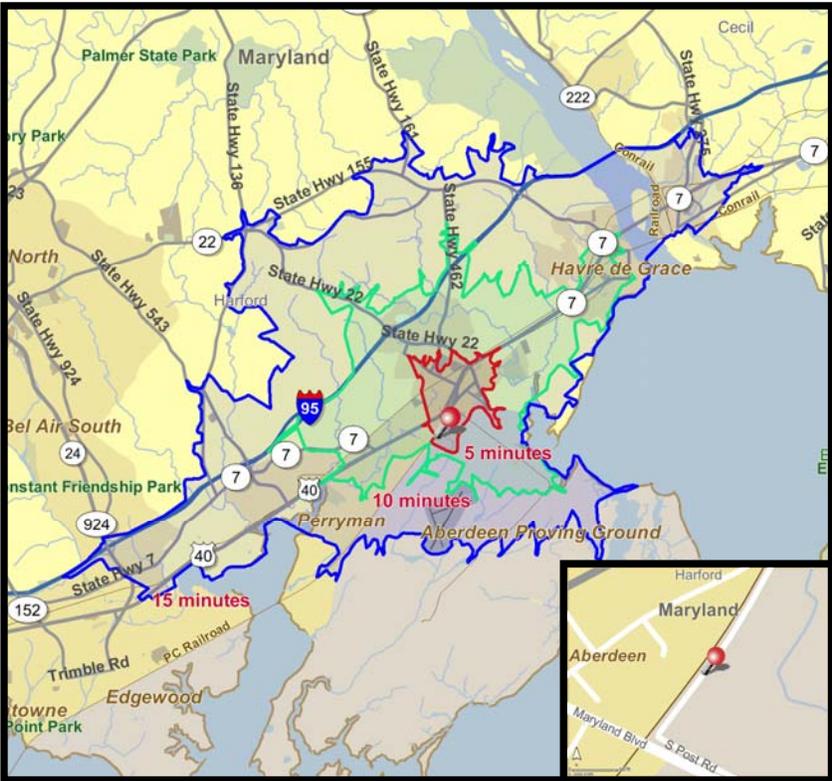
	5-Minute			10-Minute			15-Minute		
	Demand	Supply	Capture	Demand	Supply	Capture	Demand	Supply	Capture
Home Furnishings Stores	\$814,421	\$377,226	46%	\$2,984,641	\$615,074	21%	\$5,770,156	\$4,876,740	85%
Electronics & Appliance Stores	\$2,320,429	\$303,640	13%	\$8,406,888	\$2,172,473	26%	\$15,616,344	\$16,450,002	105%
Specialty Food Stores	\$563,617	\$21,839	4%	\$1,953,009	\$689,158	35%	\$3,714,119	\$4,235,191	114%
Health & Personal Care Stores	\$6,937,131	\$2,873,764	41%	\$23,717,272	\$11,352,372	48%	\$42,742,381	\$18,345,872	43%
Clothing Stores	\$2,952,206	\$3,301,986	112%	\$10,486,867	\$6,447,173	61%	\$19,879,670	\$15,488,317	78%
Shoe Stores	\$755,840	\$85,797	11%	\$2,659,620	\$85,797	3%	\$5,030,719	\$2,970,977	59%
Sporting Goods & Hobbies	\$1,466,986	\$319,117	22%	\$5,271,858	\$1,830,404	35%	\$9,447,257	\$2,999,942	32%
Book, Periodical & Music Stores	\$780,874	\$0	0%	\$2,784,752	\$374,674	13%	\$4,980,636	\$1,402,804	28%
Drinking Places	\$809,741	\$905,046	112%	\$2,888,839	\$1,308,105	45%	\$5,469,337	\$2,321,261	42%

Source: ESRI Business Solutions

Site B/C – Mitchell Property & APG

The 5-, 10-, and 15-Minute drivesheds surrounding Site B/C are illustrated in the following exhibit.

Exhibit 4-21: Site B/C – Mitchell Property & APG Property Driveshed (5-, 10-, 15-Minute)



Source: ESRI Business Solutions

Key demographic and economic characteristics of the drivesheds from Site B/C include:

- Within a 5-minute drive of Site B/C, 2.5 percent of Harford County's population is accessed; within the 15-minute driveshed 24 percent of the County's population is reached.
- 2.8 percent of Harford County's households are located within the 5-minute driveshed, and 25 percent within the 15-minute driveshed.
- The 5-minute driveshed contains 5 percent of Harford County's at-place employees while the 15-minute driveshed contains 38 percent of the County's at-place employees.
- Median household income within the 5-minute driveshed, at nearly \$40,000, is approximately \$35,000 less than that of than Harford County (nearly \$75,000), while the 15-minute driveshed, at \$60,000 is approximately \$15,000 less.
- Median ages in the drivesheds, at 35 in the 5-minute driveshed and approximately 37 in the 10- and 15-minute drivesheds, are lower than that of Harford County (38.4).
- Home values are lower than Harford County (\$337,402), most notably within the 5-minute driveshed (\$200,000)

Exhibit 4-22: Demographic and Economic Profile (2008)				
Site B/C – Mitchell Property & APG Property Driveshed				
	5-Minute	10-Minute	15-Minute	Harford County
Population	6,368	25,247	59,356	249,753
Households	2,595	9,973	23,126	92,446
Average Household Size	2.42	2.51	2.53	2.68
Labor Force	2,852	11,303	28,396	126,964
At-Place Employment	3,597	14,600	26,926	71,270
Median Household Income	\$39,501	\$47,711	\$60,242	\$74,713
Per Capita Income	\$20,900	\$23,158	\$26,865	\$32,255
Median Age	35.1	36.7	37.3	38.4
Median Home Value	\$200,000	\$240,931	\$276,312	\$337,402
Source: ESRI Business Solutions				

Thousands of employees are within driving distance of Site B/C; nearly 3,600 employees are within a 5-minute drive; 14,600 in the 10-minute driveshed; and nearly 27,000 within a 15-minute drive. These employees work primarily in the services and retail trade industries, which accounts for approximately 65 to 75 percent of the at-place employment in each of the drivesheds. Other industries that represent a strong share of area employment include government, manufacturing and wholesale trade. Harford County's 71,270 at-place employees also work primarily in the service and retail trades sectors.

Exhibit 4-23: At-Place Employment (2008)
Site B/C – Mitchell Property & APG Property Driveshed

	5-Minute		10-Minute		15-Minute		Harford County	
	At-Place Emp.	Percent	At-Place Emp.	Percent	At-Place Emp.	Percent	At-Place Emp.	Percent
Agriculture	9	0.3%	29	0.2%	63	0.2%	214	0.3%
Construction	88	2.4%	347	2.4%	1,062	3.9%	5,702	8.0%
Manufacturing	85	2.4%	1,115	7.6%	2,092	7.8%	3,991	5.6%
Wholesale Trade	250	7.0%	915	6.3%	2,297	8.5%	3,492	4.9%
Retail Trade	535	14.9%	5,539	37.9%	8,078	30.0%	15,323	21.5%
Transportation / Utilities	147	4.1%	542	3.7%	768	2.9%	1,354	1.9%
Information	23	0.6%	41	0.3%	82	0.3%	641	0.9%
FIRE	129	3.6%	254	1.7%	546	2.0%	3,777	5.3%
Services	1,982	55.1%	5,025	34.4%	10,701	39.7%	32,998	46.3%
Government	349	9.7%	793	5.4%	1,240	4.6%	3,777	5.3%
Total	3,597	100%	14,600	100.0%	26,929	100.0%	71,270	100%

Source: ESRI Business Solutions

Annual consumer spending amongst households located in the drivesheds surrounding Site B/C on average spend 87 percent of their discretionary income on retail goods. Within the 5-minute driveshed, households spent, on average, nearly \$31,000 annually on retail goods; within 10-minutes, the average household spent over \$35,000; and within the 15-minute driveshed, the average household spent nearly \$42,000. Such spending levels are similar to the average spending per household in the City (over \$35,000) but lower than that of Harford County (over \$50,000), which is attributable to the County’s higher median income.

Exhibit 4-24: Annual Spending Profile (2008)
Site B/C – Mitchell Property and APG Property Driveshed

	Retail Goods		Other	
	Total Spending	Average Household	Total Spending	Average Household
5-Minute	\$79.5 M	\$30,736	\$12.0 M	\$4,696
10-Minute	\$352.8 M	\$35,397	\$53.8 M	\$5,421
15-Minute	\$963.9 M	\$41,687	\$147.9 M	\$6,404
City of Aberdeen	\$212.9 M	\$35,532	\$32.4 M	\$5,436
Harford County	\$4,834 M	\$52,288	\$745.8 M	\$8,068

Source: ESRI Business Solutions

Comparison of 2008 retail expenditures (demand) in the drivesheds compared to sales (supply) indicates there are many types of retail stores currently undersupplied in the area, with demand exceeding supply suggesting that expenditures are being leaked elsewhere. Such undersupplied categories include: home furnishings stores, specialty food stores, health and personal care stores, clothing stores, shoe stores, sporting goods and hobby stores, book, periodical and music stores, and drinking establishments.

Exhibit 4-25: Selected Retail Demand vs. Retail Supply (2008)
Site B/C - Mitchell Property & APG Property Driveshed

	5-Minute			10-Minute			15-Minute		
	Demand	Supply	Capture	Demand	Supply	Capture	Demand	Supply	Capture
Home Furnishings Stores	\$331,778	\$377,228	114%	\$1,490,709	\$421,950	28%	\$4,408,606	\$1,689,390	38%
Electronics & Appliance Stores	\$967,402	\$61,196	6%	\$4,291,765	\$1,476,629	34%	\$11,867,457	\$12,525,705	106%
Specialty Food Stores	\$235,620	\$0	0%	\$1,030,964	\$344,858	33%	\$2,838,083	\$1,475,345	52%
Health & Personal Care Stores	\$2,883,943	\$907,862	31%	\$12,619,365	\$7,698,847	61%	\$32,500,581	\$13,515,643	42%
Clothing Stores	\$1,233,323	\$739,504	60%	\$5,438,361	\$5,534,982	102%	\$15,158,030	\$12,899,563	85%
Shoe Stores	\$319,276	\$85,797	27%	\$1,393,946	\$85,797	6%	\$3,829,702	\$2,615,229	68%
Sporting Goods & Hobbies	\$611,368	\$125,384	21%	\$2,709,846	\$1,009,912	37%	\$7,148,691	\$2,097,149	29%
Book, Periodical & Music Stores	\$329,400	\$0	0%	\$1,452,168	\$294,820	20%	\$3,760,332	\$1,040,761	28%
Drinking Places	\$329,236	\$58,626	18%	\$1,476,247	\$1,004,636	68%	\$4,168,610	\$1,829,899	44%

Source: ESRI Business Solutions

In summary, economic and demographic conditions in the drivesheds surrounding the sites are supportive of TOD. Within an easy 5-, 10-, or 15-minute drive of each site, thousands of households and employees are reached. These households and employees offer spending power to support retail goods and services. The drivesheds are also undersupplied with retail goods and services, suggesting opportunities exist for new and expanded retail store offerings.

4.4 Private Sector Interest in TOD

Potential for near-term TOD is heightened when transit station areas have private sector support and ongoing or proposed private development projects in place, which will support TOD. The level of recent and proposed development activity was assessed for each of the candidate transit station sites.

4.3 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
There is Private Sector Interest in TOD within the Transit Station Area	◐	●	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Site A – Existing Aberdeen Station area has no examples of recent and proposed TOD projects, which is related to the presence of few development opportunity sites in the already mostly built-out downtown area. However, there is a recently constructed townhome development, Winston’s Choice (92 townhomes), which provides compact homes (~1,200 square feet) within walking distance of the station. While the townhomes are within the station walkshed, they are not being marketed as transit oriented in that they are not being offered as a “higher-density lifestyle alternative” to quote the Phase I market study, but rather are being offered as a lower-cost alternative to single-family detached housing.

At the Site B – Mitchell Property station area, a large scale TOD called Cannery Station is proposed. Other recent and planned development projects within the station area that are not considered transit oriented but nonetheless represent private sector interest in development within the station area include Aberdeen Xchange, a 7 acre retail pad site off of MD 715, and the GATE project on APG. These projects are profiled below.

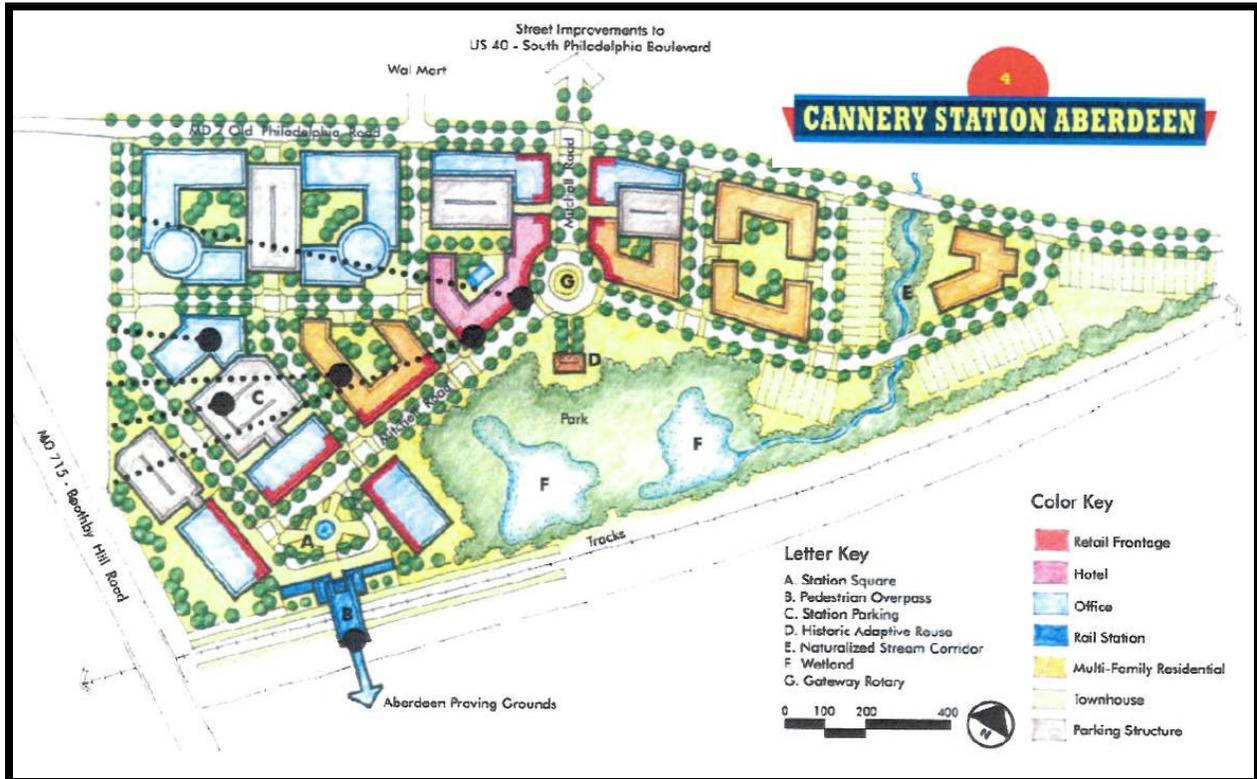
Cannery Station

Black Oak Associates, a Baltimore-based private real estate development company, is proposing a mixed use, TOD on 44 acres at the intersection of MD 715 and Old Philadelphia Road on the Mitchell Property site. Called Cannery Station Aberdeen, the planned development features multi-family residential, service oriented retail (such as sit down restaurants, quick service food, coffee shops, cleaners, banks, salon, etc.), defense oriented office space, and a hotel for APG and Cannery Station visitors. The project is being marketed as a gateway to APG.

At build out, the planned development could include:

- 250-500 multi-family residential units
- 250-500 room hotel
- 366,000 – 732,000 square feet of commercial space (office, retail, services)
- More than 2,000 structured parking spaces

Exhibit 4-26. Preliminary Concept Plan – Cannery Station Aberdeen



Source: Black Oak Associates

Aberdeen Xchange

Located at the intersection of Old Philadelphia Road and MD 715 with frontage along Route 40, Aberdeen Xchange is currently a 6.9 acre vacant lot being marketed as a future retail pad site development. The proposed site plan calls for the development of six sites from 0.86+/- acres to 1.5+/- acres totaling approximately 32,000 square feet of retail. Potential uses could include gas stations, banks, drug stores, restaurants.

Within the Site C – APG site, the large scale GATE project is underway. Like Aberdeen Xchange at the Site B – Mitchell Property site, the GATE project is not considered transit oriented but still does illustrate the level of private sector interest in development. The project is profiled below.

The GATE Project (APG)

Opus East, LLC in partnership with APG, is developing the Government and Technology Enterprise (GATE), a 200-acre R&D and technology business park for both the government sector and non-government users. Located on the grounds of APG along the MD 715 within the security gate, the GATE master plan envisions approximately 20 buildings in 10 land bays that at build out could accommodate 2 million square feet. The first building was recently completed – a 60,000 square foot single story research and development facility leased to military contractor CACI. The second building is an 80,000 square foot three story speculative office building is planning to break ground in 2009. All buildings in the GATE project will be designed to meet the Department of Defense minimum antiterrorism

standards for buildings with enhanced security features. Access to the GATE buildings is only accessible through APG security checkpoints.

The GATE project is part of the Army's Enhanced Use Lease (EUL) program. Under the terms of the EUL, Opus will lease each land bay for 50 years and allow the Army to develop underutilized property and redirect the proceeds back into the maintenance and improvement of APG facilities.

Exhibit 4-27. GATE Site Plan



Source: OPUS East LLC

4.5 Presence of Development Opportunity Sites

The presence of sites for (re)development for TOD within the station area site is one of the primary factors that impact the potential for TOD within a transit station area. TOD opportunity sites include a range of potential sites – rehabilitation of older buildings, small infill parcels, larger vacant parcels and large potential redevelopment sites. Short-term opportunities should not preclude more ambitious long-term (i.e. 20-30 year) opportunities.

Development opportunity sites within the Site A – Existing Aberdeen Station walkshed are primarily in the form of smaller infill sites. Development opportunity site within the Site B/C – Mitchell Property and APG Property have larger vacant and redevelopment opportunities that may represent longer term opportunities for TOD.

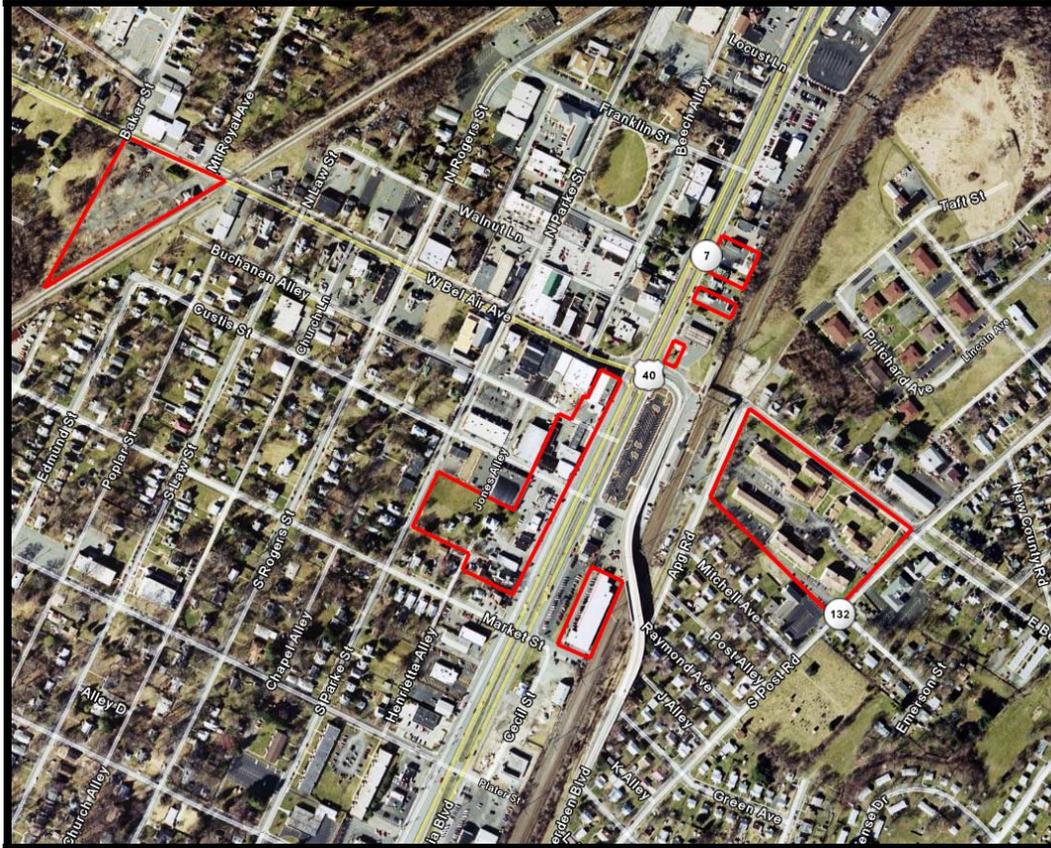
4.4 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Transit Station Area has Development Opportunity Sites for TOD	◐	●	◐
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Small Infill Parcels

The City’s Downtown Revitalization Strategy outlines potential properties in the downtown area for potential future redevelopment and revitalization over time. These include small infill parcels range from 0.2 acres to nearly 6.5 acres and primarily located in the vicinity of the existing Aberdeen station along Route 40. One of the largest of these parcels is a 2.07 acre site located on the west side of Route 40 that is currently for sale. In addition, there is a vacant 4 acre lot at the intersection of West Bel Air Road and the B&O railroad track just north of downtown that is for sale. This site has been discussed as a potential site for a 70,000 square foot office building.

The pros of developing infill are that infill development can quickly fill in “gaps” in the street wall and, in some instances, provide continuous commercial frontage as well as help ensure a variety of building types. The cons are that the sites are small and existing zoning may provide insurmountable development obstacles and achievable densities as-of-right may not be great enough to make it worth the investment for developers. The piecemeal approach takes time to make transformative changes. Furthermore an insufficient number of parcels to fulfill a significant portion of the future land use program can make meaningful redevelopment challenging.

Exhibit 4-28: Site A – Potential TOD Opportunity Sites



Source: BBPC, City of Aberdeen

Large Undeveloped Parcels

Large undeveloped parcels present opportunities to create TOD at a larger scale that can accommodate a mix of uses such as retail, office and residential. Potential development opportunity sites of this scale are primarily located around Site B/C, which has relatively large parcels that are undeveloped and represent future development opportunities. This includes properties such as the 44-acre Mitchell Property that is being proposed as Cannery Station Aberdeen.

The pros of developing large undeveloped parcels include the opportunity to create development that is of sufficient scale as to change the local community character and serve as a catalyst for future (re)development. Furthermore, the amount of development that is possible can capture potential demand for housing and retail/commercial development.

Large Potential Redevelopment Parcels

Large parcels currently in use might be positioned for redevelopment in the future for TOD. These include a 22-acre parcel that is the site of an existing concrete block site at the intersection of Route 40 and Route 715 by the Mitchell property. The property owner has commissioned a study for potential re-use of this site in the future. Another

potential large scale future redevelopment opportunity is the 8.5 acre mulch factory off of Route 715 across from the Mitchell property. Both of these properties are located within the Site B/C station area.

Exhibit 4-29: Site B/C – Potential TOD Opportunity Sites



4.2 Adequate Market Support and Opportunity for TOD Development – Long Term

The build-out of entire transit station areas is often a long-term proposition. Widely-known TOD success stories, such as Arlington’s Rosslyn-Ballston corridor, were not built overnight but rather took several decades to reach their current status. Over the long term, near term market constraints may be overcome as downturns enter into recovery and as developments are completed in phases.

4.4 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Transit Station Area has Adequate Market Support and Opportunity for TOD Development in the Long Term	◐	●	◐
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

The long-term build-out of transit station areas and the resulting addition of households and businesses should not be discounted because of near-term market constraints, but evaluated as part of the comprehensive evaluation of TOD sites.

Site A – Existing Aberdeen Station

The smaller properties offering potential for infill development located within the Site A – Existing Aberdeen Station site represent potential opportunities, particularly in that long-term land assembly would be needed for development of meaningful scale. In addition to land assembly issues, individual property owners may have different near- and long-term goals for properties which may result in longer-term opportunities. Another long-term consideration for the Site A station area is the potential movement of the station, which would result in additional infill opportunities for mixed-use, pedestrian friendly development consistent with downtown Aberdeen. Potential long-term infill development scenarios for Site A are illustrated below.

Exhibit 4-30: Site A – Long Term Infill Development Potential Scenario		
Total Acreage	13.18	
Total Square Feet (foot print)	574,000 square feet	
Assumed FAR	0.5-1	
Ratio	60% Residential / 40% Commercial	
	@ FAR = 0.5	@ FAR = 1.0
# of Housing Units	85	170
Commercial Square Feet	57,000	114,000
Estimated Employment (@300/SF)	190	380
Existing Households	1,307	
Existing Employment	2,350	
Source: BBPC, City of Aberdeen		

The long-term development of 13.18 acres of Site A infill parcels would result in between 85 and 170 homes and 57,000 and 114,000 square feet of commercial space, assuming the intensity of development is equivalent to either a Floor Area Ratio (FAR) of 0.5 or 1.0, and that 60 percent of the space is residential and 40 percent commercial. The resulting addition of employees associated with such development would range from 190 to 380 (assuming 1 employee per 300 square feet), and the total number of households 85 to 170 (assuming a 1:1 ratio between housing units and households).

This would result in an increase of the existing station area households by approximately 6 to 12 percent (addition of 190-380 households) and the number of jobs by 8 to 16 percent (addition of 190-380 jobs) within the existing station area. Household density would increase from 2.6 households per acre to 3 households per acre (adding 190 households) or 3.35 households per acre.

Site B/C – Mitchell Property/APG

Within Site B/C – Mitchell Property/APG, large undeveloped parcels are present which lack the need for time-consuming land assembly typically associated with smaller infill sites. However, the introduction of large-scale development on such large undeveloped parcels often requires phasing over time, requiring a longer-term development timeframe.

Site B/C also contains large potential redevelopment parcels which are currently in use for business enterprise but nevertheless could be redeveloped over time. These parcels include an 8.5 acre mulch factory and a 22-acre concrete block factory site, which may require a long-term timeframe for development given the presence of existing enterprise, the need for pre-development evaluations such as environmental testing, and the need to potentially address site constraints related to visibility, access and infrastructure dependent upon future desired uses.

Based on the proposed development of Aberdeen Cannery Station and the potential development of the concrete and mulch factory sites, potential long-term development scenarios have been identified below. The long-term development of Aberdeen Cannery Station, with 44 acres at an assumed FAR of 0.4 or 0.8 would result in 250 to 500 housing units, 250 to 500 hotel rooms, and 366,000 to 732,000 square feet of commercial space. Assuming 1 employee per 300 square feet, such development would result in 1,220 to 2,440 employees, and assuming a 1:1 ratio between housing units and households, this development would result in 250 to 500 households.

With 22 acres for development, the development of the concrete factory site could result in the addition of 240 to 480 housing units and 160,000 to 320,000 square feet of commercial space, assuming an FAR of 0.4 to 0.8 and a mix of 60 percent residential and 40 percent commercial development. Such development would bring 530 to 1,060 employees (at 1 employee per 300 square feet) and 240 to 480 households (at 1:1 housing units to households).

If the 8.5 acre mulch factory site is redeveloped over the long-term, and assuming an FAR of 0.4 to 0.8 and a 60:40 mix of residential to commercial space, the site would hold 90 to 180 units of housing and 58,000 to 116,000 square feet of commercial space. Such development would result in the addition of 190 to 380 employees (assuming 1 employee per 300 square feet) and 90 to 180 households (assuming a 1:1 ratio of housing units to households).

If these scenarios would be developed the station area household density would increase from 0.15 households per acre to 1.3 households per acre, an eight fold increase. In addition the number of jobs located within the station area would increase by nearly 2,000 jobs, or an increase of nearly 240 percent, from the existing 817 jobs.

Exhibit 4-31: Site B/C – Long Term Development Potential Scenarios

A. Aberdeen Cannery Station			
Total Acreage	44		
Total Square Feet (foot print)	1.92 M		
Assumed FAR	0.4-0.8		
	@ FAR = 0.4	@ FAR = 0.8	
# of Housing Units	250	500	
# of Hotel Rooms	250	500	
Commercial Square Feet	366,000	732,000	
Estimated Employment (@300/SF)	1,220	2,440	
B. Concrete Factory			
Total Acreage	22		
Total Square Feet (foot print)	1 M		
Assumed FAR	0.4-0.8		
Ratio	60% Residential / 40% Commercial		
	@ FAR = 0.4	@ FAR = 0.8	
# of Housing Units	240	480	
Commercial Square Feet	160,000	320,000	
Estimated Employment (@300/SF)	530	1,060	
C. Mulch Facility			
Total Acreage	8.5		
Total Square Feet (foot print)	370,000		
Assumed FAR	0.4-0.8		
Ratio	60% Residential / 40% Commercial		
	@ FAR = 0.4	@ FAR = 0.8	
# of Housing Units	90	180	
Commercial Square Feet	58,000	116,000	
Estimated Employment (@300/SF)	190	380	
Existing Households	76		
Existing Employment	817		
Source: BBPC, City of Aberdeen			

5. Other Factors

5.1 Proximity to APG

Proximity to APG is a consideration unique to the potential Aberdeen TOD sites in that access to APG could enhance the marketability and overall level of development interest in residential, office and retail space. Access to APG brings with it an added amenity for households and firms considering locating in the area, whether these households and firms work directly with APG or indirectly with its contractors. In addition, the increased visibility of locating adjacent to the APG gate provides greater accessibility for APG employees, visitors and others to patronize TOD opportunity sites.

5.1 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Transit Station is Proximate to APG	◐	●	●
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Site A – Existing Aberdeen Station lacks direct access to APG. The current nearest access is the Route 22 gate located just north of the station area. There is an existing gate located connecting the existing station to APG via APG Road, but this gate is currently not open for public, employee or visitor access. Should this gate be opened in the future, the station area will gain enhanced visibility and traffic of vehicles entering and leaving APG where they will need to pass by the existing station.

Site B/C – Mitchell Property and APG Property offer direct access to APG through the MD 715 gate. The MD 715 gate is the primary access gate to APG and is currently being expanded to accommodate the influx of new employees associated with BRAC and the GATE project that will be working on site.

5.2 Presence of Attractions within Station Area

Stronger near-term potential is found at station areas that are proximate to major attractions that create a destination for riders or visitors. The presence and scale of sporting/entertainment venues, large educational institutions, and commercial nodes/corridors were evaluated as they relate to this criterion.

5.2 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Transit Station is Proximate to Attractions that Create a Destination for Riders or Visitors	◐	○	○
<ul style="list-style-type: none"> ● Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

Within the Site A – Existing Aberdeen Station area site, attractions are limited to downtown area employment and business offerings, including the governmental offices for the City. An important goal for downtown revitalization in Aberdeen is to make the downtown core more of a destination over time.

The relatively undeveloped nature of Site B/C – Mitchell Property and APG Property means that there are no attractions currently present in the potential station area. The industrial nature of the area inhibits its attractiveness for visitors. Proposed large-scale developments, including the planned Aberdeen Cannery Station, will however introduce employment nodes and retail/entertainment to the station area. The GATE development in particular is envisioned to bring new jobs to the area and create a major commercial and employment node.



Site A – Existing Aberdeen station downtown area



Site B/C – Mitchell / APG Property station area

5.3 Potential for Joint Development

TOD potential increases when the opportunity exists for potential public/private joint development within identified sites in the transit station area. Joint development is a form of transit-oriented development that is often project specific and takes place on, above or adjacent to the transportation facility. Sponsored by the Federal Transit Administration (FTA), FTA Joint Development regulations allow for potential federal funding / assistance of transportation and other capital investments that enhance the economic viability or incorporates private investment of property controlled and/or owned by a transit operator. Eligible activities include:

- Pedestrian / bicycle infrastructure
- Construction, renovation, and improvement of transit facilities
- Renovation and improvement of historic transportation facilities
- Certain activities supporting commercial and residential development
- Real estate acquisition, demolition and site preparation
- Transit related parking

5.3 Criteria	Site A Existing Aberdeen Station	Site B Mitchell Property	Site C APG Property
The Transit Station Area Offers Potential for Public/Private Joint Development	◐	◐	○
<ul style="list-style-type: none"> • Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria 			

For a project to be eligible for FTA Joint Development funding, the project must provide the following: (1) Economic Link - enhances economic development or incorporates private investment; (2) Public Transportation Benefit - enhances the effectiveness of a public transportation project, and relates physically or functionally; or establishes new or enhanced coordination between public transportation; (3) Revenue for Public Transportation – provides a fair share of revenue for public transportation that will be used for public transportation.

One benefit of joint development is that the property owner (e.g. transit terminal landowner) can enter into cost sharing arrangements or partnerships with the private sector for construction / operation of a transit and transit supportive facilities through land leases, air rights development, special assessment districts, sharing of construction expenses and density bonuses offered in exchange for infrastructure construction. While joint development funding assistance would be available for any new or existing transit station, eligibility for the funding would require the transit entity to control the land and would likely be available “faster” for existing stations such as the situation for Site A – Existing Aberdeen Station. While Site B or Site C may be eligible for joint development funding, the government agency (e.g. transit agency, city, county or state department of transportation) would need to acquire property for the new station and must retain sufficient continuing control over the property to ensure its continued physical or functional relationship to transit.

State funding and financing initiatives under consideration could potentially apply to transit oriented joint development. Governor O’Malley’s 2009 legislative agenda calls for Smart, Green and Growing Initiatives to address Smart Growth and TOD, including allowing local municipalities to use tax increment financing and special taxing districts to finance TOD. Presumably, such incentives could be applied to joint development.

For example, a proposed State of Maryland bill (SB-274/HB-300) would expand counties' and municipalities' authority to use tax increment financing (TIF) and special taxing districts to support public infrastructure for TOD. The bill authorizes local governments to undertake the following to support public improvements located within TODs:

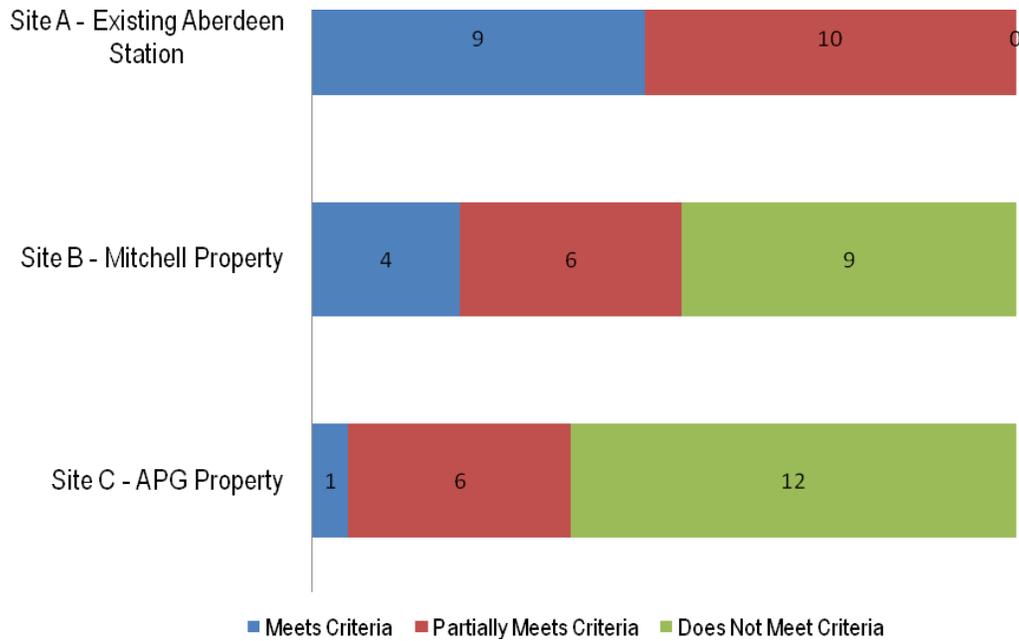
- Use any of the new local taxes generated from a new TOD towards a TIF
- Use Maryland Economic Development Corporation (MEDCO)-issued bonds for TIFs and special taxing districts
- Use special taxes to pay for State- and MEDCO-owned improvements in addition to improvements owned by the locality
- Apply special tax revenues directly towards capital improvements
- Apply special taxes directly toward costs to operate and maintain improvements

While the precise criteria for participation in such emerging programs are not yet known, use of such financing mechanisms will likely have to be consistent with the City of Aberdeen's Comprehensive Plan. Currently, the comprehensive plan describes goals related to TOD around the existing Aberdeen station.

6. Summary TOD Station Area Evaluation

Each of the alternative sites for the proposed Multi-Modal Transportation Center (MTC) in the City of Aberdeen offer potential for TOD, with each alternative site meeting at least some of the 19 criteria for TOD described in this report. The summary results for each site in terms of criteria that were met, partially met, or not met is provided in the following chart.

Exhibit 6-1: Summary Observations – TOD Success Criteria



Site A – Existing Aberdeen Station met 9 out of 19 criteria for TOD, and partially met 10 of 19 criteria. Site B – Mitchell Property met 4 of 19 criteria and partially met 6 of the criteria. Site C – APG Property met 1 of the criteria and partially met 6 of the criteria. Whether or not the station areas met the criteria for TOD success was varied and based on a number of factors, including existing land use and zoning characteristics, public policy tools to facilitate TOD, private sector development interest in TOD, presence of future development opportunity sites that could be transformed into TOD projects and other factors such as its location relative to APG, presence of attractions and the joint development potential.



Appendix C

Cost Estimates



**Harford County Multi-Modal Transportation Center
Feasibility Study**

**Final Report
August 2009**

Harford County Multi-Modal Transportation Center - Site A, Option 1 (2009 \$)

Description		Quantity	Unit	Unit Price (\$)	Total Cost (\$)
CATEGORY 1 - PRELIMINARY					
1	Mobilization	1	LS	805,062	805,062
2	Construction Stakeout	1	LS	10,000	10,000
3	Maintenance of Traffic				
3.1	Vehicular and pedestrian (along US 40, within site, and both sides of rail)	1	LS	125,000	125,000
3.2	Within Amtrak right-of-way	1	LS	75,000	75,000
4	Clearing and Grubbing	0.37	AC	6,000	2,220
5	Demolition				
5.1	Removal of existing asphalt	614	SY	8.50	5,220
5.2	Removal of existing platform	806	SY	17	13,694
5.3	Removal of existing building(s)	1	LS	1,302,632	1,302,632
5.4	Removal of existing utilities	1	LS	10,000	10,000
6	Temporary Construction	1	LS	25,000	25,000
7	Temporary Access Road Construction (14' Wide)	0	LF	21	0
8	APG Security Fence Relocation	0	LF	50	0
SUBTOTAL					2,373,828
CATEGORY 2 - GRADING					
9	Excavation	333	CY	37	12,321
10	Common Borrow	6,851	CY	40	274,040
SUBTOTAL					286,361
CATEGORY 3 - DRAINAGE					
11	Stormwater Management (SWM) Facilities	1	LS	900,000	900,000
12	Wire Grid System for SWM Facilities (Bird Repellent)	0	LS	10,000	0
13	Erosion and Sediment Control	1	LS	483,037	483,037
SUBTOTAL					1,383,037
CATEGORY 4 - STRUCTURES					
14	Structured Parking	0	spaces	20,000	0
15	Platform Construction				
15.1	Two platforms, each 15' x 950' and four feet tall; includes footings (one every five feet), reinforced concrete platform, conduit for lighting, and ramps	1,900	LF	18.75	71,250
15.2	Railing (42" x 1200' per platform)	2,400	LF	150	360,000
16	Station				
16.1	Building (plumbing, electrical, HVAC, fire protection, restrooms, ticketing, offices, telephones, vending)	3,200	SF	300	960,000
16.2	Ticket validation machine	3	EA	75,000	225,000
16.3	Bollards near building (six feet on center)	14	EA	1,000	14,000
17	Bus Facility				
17.1	Driver breakroom and restroom	1,710	SF	175	299,250
17.2	Bus canopies and shelters	1,092	SF	125	136,500
18	Platform Facilities				
18.1	Canopy (2/3 length of platform = 630'; 12' wide)	7,560	SF	150	1,134,000
18.2	Shelters (glass enclosed with bench; five per platform)	10	EA	50,000	500,000
18.3	Benches (eight feet long; 10 per platform)	20	EA	2,000	40,000
18.4	Trash Receptacles (every 200'; five per platform)	10	EA	1,200	12,000
18.5	Plumbing Facilities (Hose Bibs; five per platform)	10	EA	800	8,000
18.6	Tactile Warning Strip (950' x 2')	1,900	SF	35	66,500
18.7	Kiosks (real-time train information and schedules; three per platform)	6	EA	25,000	150,000
18.8	Bicycle lockers	12	EA	1,500	18,000
18.9	Bicycle racks	12	EA	1,000	12,000
18.10	Security, CCTV, Public Address Systems (1 per platform)	2	LS	50,000	100,000
19	Overhead Pedestrian Connector (ventilated overhead connector (15' x 230'), two elevators, elevator towers, two sets of stairs)	1	LS	5,500,000	5,500,000
SUBTOTAL					9,606,500
CATEGORY 5 - PAVING					
20	Roadway				
20.1	12" stone base - new pavement	614	SY	15	9,212
20.2	8" bituminous base - new pavement	614	SY	28	17,195
20.3	2" surface course - new pavement	614	SY	9	5,527
21	Busway				
21.1	12" stone base	4,364	SY	15	65,455
21.2	6" reinforced concrete rigid pavement	4,364	SY	56	244,365
22	Surface Parking				
22.1	10" stone base	11,879	SY	13	154,431
22.2	6" bituminous base	11,879	SY	23	273,225
22.3	2" surface course	11,879	SY	9	106,914
23	Crosswalks (decorative asphalt)	2,071	SF	3	6,213
SUBTOTAL					882,537
CATEGORY 6 - SHOULDERS					
24	Curb and Gutter				
24.1	6" curb and gutter	5,136	LF	20	102,720
24.2	8" curb and gutter	903	LF	40	36,120
25	Sidewalk (5" reinforced walkway on 4" stone base)	106,598	SF	10	1,065,980
SUBTOTAL					1,204,820
CATEGORY 7 - LANDSCAPE					
26	Landscaping	1	LS	241,519	241,519
27	Seeding (turf establishment)	7,092	SY	1.65	11,702
28	Reforestation Off-Site (excludes land acquisition)	2.47	AC	15,000	37,050
SUBTOTAL					290,270
CATEGORY 8 - TRAFFIC					
29	Signage				
29.1	Primary site signage	1	LS	25,000	25,000
29.2	Main lighted station sign	1	LS	25,000	25,000
30	Lighting				
30.1	Parking area lighting (20' height)	25	EA	10,000	250,000
30.2	Platform lighting (14' height; 25 poles per platform)	50	EA	6,000	300,000
30.3	Pedestrian sidewalk lighting (14' height; 45' on center)	100	EA	7,500	750,000
31	Pavement Marking				
31.1	Parking (257 new spaces proposed)	5,654	LF	1	5,654
31.2	Lane lines	810	LF	1	810
31.3	Crosswalks at new traffic signals (2035' per four-leg intersection)	2,035	LF	1	2,035
32	Signals				
32.1	New traffic signal (four-leg mast arm fully actuated)	1	EA	220,000	220,000
32.2	Accessible pedestrian signals (APS)	1	EA	25,000	25,000
SUBTOTAL					1,603,499
CATEGORY 9 - UTILITIES					
33	Electric, water, communications, sewer (15% of above total)	1	LS	2,415,185	2,415,185
SUBTOTAL					2,415,185
CONTINGENCY					
34	35% contingency for above items	1	LS	7,016,113	7,016,113
SUBTOTAL					7,016,113
PROFESSIONAL SERVICES (ENGINEERING AND ADMIN.)					
35	Preliminary engineering, design, project management, construction administration, insurance, legal, and survey costs (30% of above items)	1	LS	6,013,811	6,013,811
SUBTOTAL					6,013,811
RIGHT-OF-WAY ACQUISITION					
36	Right-of-Way Acquisition (Including Displacement Costs)	1	LS	4,988,791	4,988,791
SUBTOTAL					4,988,791
TOTAL					38,064,753

EXCLUSION

- Does not include costs in rail right-of-way, such as catenary modifications

SOURCE: URS

Harford County Multi-Modal Transportation Center - Site A, Option 2 (2009 \$)

Description		Quantity	Unit	Unit Price (\$)	Total Cost (\$)
CATEGORY 1 - PRELIMINARY					
1	Mobilization	1	LS	766,589	766,589
2	Construction Stakeout	1	LS	10,000	10,000
3	Maintenance of Traffic				
3.1	Vehicular and pedestrian (along US 40, within site, and both sides of rail)	1	LS	125,000	125,000
3.2	Within Amtrak right-of-way	1	LS	75,000	75,000
4	Clearing and Grubbing	0.37	AC	6,000	2,220
5	Demolition				
5.1	Removal of existing asphalt	614	SY	8.50	5,220
5.2	Removal of existing platform	806	SY	17	13,694
5.3	Removal of existing building(s)	1	LS	625,478	625,478
5.4	Removal of existing utilities	1	LS	10,000	10,000
6	Temporary Construction	1	LS	25,000	25,000
7	Temporary Access Road Construction (14' Wide)	0	LF	21	0
8	APG Security Fence Relocation	0	LF	50	0
SUBTOTAL					1,658,201
CATEGORY 2 - GRADING					
9	Excavation	333	CY	37	12,321
10	Common Borrow	6,851	CY	40	274,040
SUBTOTAL					286,361
CATEGORY 3 - DRAINAGE					
11	Stormwater Management (SWM) Facilities	1	LS	900,000	900,000
12	Wire Grid System for SWM Facilities (Bird Repellent)	0	LS	10,000	0
13	Erosion and Sediment Control	1	LS	459,953	459,953
SUBTOTAL					1,359,953
CATEGORY 4 - STRUCTURES					
14	Structured Parking	0	spaces	20,000	0
15	Platform Construction				
15.1	Two platforms, each 15' x 950' and four feet tall; includes footings (one every five feet), reinforced concrete platform, conduit for lighting, and ramps	1,900	LF	18.75	71,250
15.2	Railing (42" x 1200' per platform)	2,400	LF	150	360,000
16	Station				
16.1	Building (plumbing, electrical, HVAC, fire protection, restrooms, ticketing, offices, telephones, vending)	3,200	SF	300	960,000
16.2	Ticket validation machine	3	EA	75,000	225,000
16.3	Bollards near building (six feet on center)	14	EA	1,000	14,000
17	Bus Facility				
17.1	Driver breakroom and restroom	1,710	SF	175	299,250
17.2	Bus canopies and shelters	1,092	SF	125	136,500
18	Platform Facilities				
18.1	Canopy (2/3 length of platform = 630'; 12' wide)	7,560	SF	150	1,134,000
18.2	Shelters (glass enclosed with bench; five per platform)	10	EA	50,000	500,000
18.3	Benches (eight feet long; 10 per platform)	20	EA	2,000	40,000
18.4	Trash Receptacles (every 200'; five per platform)	10	EA	1,200	12,000
18.5	Plumbing Facilities (Hose Bibs; five per platform)	10	EA	800	8,000
18.6	Tactile Warning Strip (950' x 2')	1,900	SF	35	66,500
18.7	Kiosks (real-time train information and schedules; three per platform)	6	EA	25,000	150,000
18.8	Bicycle lockers	12	EA	1,500	18,000
18.9	Bicycle racks	12	EA	1,000	12,000
18.10	Security, CCTV, Public Address Systems (1 per platform)	2	LS	50,000	100,000
19	Overhead Pedestrian Connector (ventilated overhead connector (15' x 230'), two elevators, elevator towers, two sets of stairs)	1	LS	5,500,000	5,500,000
SUBTOTAL					9,606,500
CATEGORY 5 - PAVING					
20	Roadway				
20.1	12" stone base - new pavement	614	SY	15	9,212
20.2	8" bituminous base - new pavement	614	SY	28	17,195
20.3	2" surface course - new pavement	614	SY	9	5,527
21	Busway				
21.1	12" stone base	4,367	SY	15	65,498
21.2	6" reinforced concrete rigid pavement	4,367	SY	56	244,527
22	Surface Parking				
22.1	10" stone base	11,508	SY	13	149,601
22.2	6" bituminous base	11,508	SY	23	264,679
22.3	2" surface course	11,508	SY	9	103,570
23	Crosswalks (decorative asphalt)	3,929	SF	3	11,787
SUBTOTAL					871,596
CATEGORY 6 - SHOULDERS					
24	Curb and Gutter				
24.1	6" curb and gutter	5,136	LF	20	102,720
24.2	8" curb and gutter	903	LF	40	36,120
25	Sidewalk (5" reinforced walkway on 4" stone base)	98,693	SF	10	986,930
SUBTOTAL					1,125,770
CATEGORY 7 - LANDSCAPE					
26	Landscaping	1	LS	229,977	229,977
27	Seeding (turf establishment)	6,076	SY	1.65	10,026
28	Reforestation Off-Site (excludes land acquisition)	2.47	AC	15,000	37,050
SUBTOTAL					277,052
CATEGORY 8 - TRAFFIC					
29	Signing				
29.1	Primary site signage	1	LS	25,000	25,000
29.2	Main lighted station sign	1	LS	25,000	25,000
30	Lighting				
30.1	Parking area lighting (20' height)	25	EA	10,000	250,000
30.2	Platform lighting (14' height; 25 poles per platform)	50	EA	6,000	300,000
30.3	Pedestrian sidewalk lighting (14' height; 45' on center)	100	EA	7,500	750,000
31	Pavement Marking				
31.1	Parking (228 new spaces proposed)	5,016	LF	1	5,016
31.2	Lane lines	810	LF	1	810
31.3	Crosswalks at new traffic signals (2035' per four-leg intersection)	2,035	LF	1	2,035
32	Signals				
32.1	New traffic signal (four-leg mast arm fully actuated)	1	EA	220,000	220,000
32.2	Accessible pedestrian signals (APS)	1	EA	25,000	25,000
SUBTOTAL					1,602,861
CATEGORY 9 - UTILITIES					
33	Electric, water, communications, sewer (15% of above total)	1	LS	2,299,766	2,299,766
SUBTOTAL					2,299,766
CONTINGENCY					
34	35% contingency for above items	1	LS	6,680,821	6,680,821
SUBTOTAL					6,680,821
PROFESSIONAL SERVICES (ENGINEERING AND ADMIN.)					
35	Preliminary engineering, design, project management, construction administration, insurance, legal, and survey costs (30% of above items)	1	LS	5,726,418	5,726,418
SUBTOTAL					5,726,418
RIGHT-OF-WAY ACQUISITION					
36	Right-of-Way Acquisition (Including Displacement Costs)	1	LS	3,610,039	3,610,039
SUBTOTAL					3,610,039
TOTAL					35,105,340

EXCLUSION

- Does not include costs in rail right-of-way, such as catenary modifications

SOURCE: URS

Harford County Multi-Modal Transportation Center - Site B, Option 1 (2009 \$)

Description		Quantity	Unit	Unit Price (\$)	Total Cost (\$)
CATEGORY 1 - PRELIMINARY					
1	Mobilization	1	LS	847,927	847,927
2	Construction Stakeout	1	LS	10,000	10,000
3	Maintenance of Traffic				
3.1	Vehicular and pedestrian	1	LS	25,000	25,000
3.2	Within Amtrak right-of-way	1	LS	130,000	130,000
4	Clearing and Grubbing	4.78	AC	6,000	28,680
5	Demolition				
5.1	Removal of existing asphalt	0	SY	8.50	0
5.2	Removal of existing platform	0	SY	17	0
5.3	Removal of existing building(s)	0	LS	625,478	0
5.4	Removal of existing utilities	0	LS	10,000	0
6	Temporary Construction	1	LS	25,000	25,000
7	Temporary Access Road Construction (14' Wide)	3100	LF	21	65,100
8	APG Security Fence Relocation	0	LF	50	0
SUBTOTAL					1,131,707
CATEGORY 2 - GRADING					
9	Excavation	12,881	CY	37	476,597
10	Common Borrow	47,103	CY	40	1,884,120
SUBTOTAL					2,360,717
CATEGORY 3 - DRAINAGE					
11	Stormwater Management (SWM) Facilities	1	LS	275,000	275,000
12	Wire Grid System for SWM Facilities (Bird Repellent)	1	LS	10,000	10,000
13	Erosion and Sediment Control	1	LS	508,756	508,756
SUBTOTAL					793,756
CATEGORY 4 - STRUCTURES					
14	Structured Parking	0	spaces	20,000	0
15	Platform Construction				
15.1	Two platforms, each 15' x 950' and four feet tall; includes footings (one every five feet), reinforced concrete platform, conduit for lighting, and ramps	1,900	LF	18.75	71,250
15.2	Railing (42" x 1200' per platform)	2,400	LF	150	360,000
16	Station				
16.1	Building (plumbing, electrical, HVAC, fire protection, restrooms, ticketing, offices, telephones, vending)	3,200	SF	300	960,000
16.2	Ticket validation machine	3	EA	75,000	225,000
16.3	Bollards near building (six feet on center)	14	EA	1,000	14,000
17	Bus Facility				
17.1	Driver breakroom and restroom	1,710	SF	175	299,250
17.2	Bus canopies and shelters	1,092	SF	125	136,500
18	Platform Facilities				
18.1	Canopy (2/3 length of platform = 630'; 12' wide)	7,560	SF	150	1,134,000
18.2	Shelters (glass enclosed with bench; five per platform)	10	EA	50,000	500,000
18.3	Benches (eight feet long; 10 per platform)	20	EA	2,000	40,000
18.4	Trash Receptacles (every 200'; five per platform)	10	EA	1,200	12,000
18.5	Plumbing Facilities (Hose Bibs; five per platform)	10	EA	800	8,000
18.6	Tactile Warning Strip (950' x 2')	1,900	SF	35	66,500
18.7	Kiosks (real-time train information and schedules; three per platform)	6	EA	25,000	150,000
18.8	Bicycle lockers	12	EA	1,500	18,000
18.9	Bicycle racks	12	EA	1,000	12,000
18.10	Security, CCTV, Public Address Systems (1 per platform)	2	LS	50,000	100,000
19	Overhead Pedestrian Connector (ventilated overhead connector (15' x 230'), two elevators, elevator towers, two sets of stairs)	1	LS	5,500,000	5,500,000
SUBTOTAL					9,606,500
CATEGORY 5 - PAVING					
20	Roadway				
20.1	12" stone base - new pavement	300	SY	15	4,500
20.2	8" bituminous base - new pavement	300	SY	28	8,400
20.3	2" surface course - new pavement	300	SY	9	2,700
21	Busway				
21.1	12" stone base	5,900	SY	15	88,500
21.2	6" reinforced concrete rigid pavement	5,900	SY	56	330,400
22	Surface Parking				
22.1	10" stone base	24,500	SY	13	318,500
22.2	6" bituminous base	24,500	SY	23	563,500
22.3	2" surface course	24,500	SY	9	220,500
23	Crosswalks (decorative asphalt)	1,500	SF	3	4,500
SUBTOTAL					1,541,500
CATEGORY 6 - SHOULDERS					
24	Curb and Gutter				
24.1	6" curb and gutter	11,200	LF	20	224,000
24.2	8" curb and gutter	400	LF	40	16,000
25	Sidewalk (5" reinforced walkway on 4" stone base)	90,900	SF	10	909,000
SUBTOTAL					1,149,000
CATEGORY 7 - LANDSCAPE					
26	Landscaping	1	LS	254,378	254,378
27	Seeding (turf establishment)	20,100	SY	1.65	33,165
28	Reforestation Off-Site (excludes land acquisition)	5.98	AC	15,000	89,700
SUBTOTAL					377,243
CATEGORY 8 - TRAFFIC					
29	Signing				
29.1	Primary site signage	1	LS	25,000	25,000
29.2	Main lighted station sign	1	LS	25,000	25,000
30	Lighting				
30.1	Parking area lighting (20' height)	25	EA	10,000	250,000
30.2	Platform lighting (14' height; 25 poles per platform)	50	EA	6,000	300,000
30.3	Pedestrian sidewalk lighting (14' height; 45' on center)	100	EA	7,500	750,000
31	Pavement Marking				
31.1	Parking (520 new spaces proposed)	11,440	LF	1	11,440
31.2	Lane lines	700	LF	1	700
31.3	Crosswalks at new traffic signals (2035' per four-leg intersection)	2,035	LF	1	2,035
32	Signals				
32.1	New traffic signal (four-leg mast arm fully actuated)	1	EA	220,000	220,000
32.2	Accessible pedestrian signals (APS)	1	EA	25,000	25,000
SUBTOTAL					1,609,175
CATEGORY 9 - UTILITIES					
33	Electric, water, communications, sewer (15% of above total)	1	LS	2,543,781	2,543,781
SUBTOTAL					2,543,781
CONTINGENCY					
34	35% contingency for above items	1	LS	7,389,682	7,389,682
SUBTOTAL					7,389,682
PROFESSIONAL SERVICES (ENGINEERING AND ADMIN.)					
35	Preliminary engineering, design, project management, construction administration, insurance, legal, and survey costs (30% of above items)	1	LS	6,334,014	6,334,014
SUBTOTAL					6,334,014
RIGHT-OF-WAY ACQUISITION					
36	Right-of-Way Acquisition	489346	SF	12	5,872,152
SUBTOTAL					5,872,152
TOTAL					40,709,227

EXCLUSION

- Does not include costs in rail right-of-way, such as catenary modifications

SOURCE: URS

Harford County Multi-Modal Transportation Center - Site B, Option 2 (2009 \$)

Description		Quantity	Unit	Unit Price (\$)	Total Cost (\$)
CATEGORY 1 - PRELIMINARY					
1	Mobilization	1	LS	2,699,854	2,699,854
2	Construction Stakeout	1	LS	10,000	10,000
3	Maintenance of Traffic				
3.1	Vehicular and pedestrian	1	LS	25,000	25,000
3.2	Within Amtrak right-of-way	1	LS	130,000	130,000
4	Clearing and Grubbing	4.78	AC	6,000	28,680
5	Demolition				
5.1	Removal of existing asphalt	0	SY	8.50	0
5.2	Removal of existing platform	0	SY	17	0
5.3	Removal of existing building(s)	0	LS	625,478	0
5.4	Removal of existing utilities	0	LS	10,000	0
6	Temporary Construction	1	LS	25,000	25,000
7	Temporary Access Road Construction (14' Wide)	3100	LF	21	65,100
8	APG Security Fence Relocation	0	LF	50	0
SUBTOTAL					2,983,634
CATEGORY 2 - GRADING					
9	Excavation	12,881	CY	37	476,597
10	Common Borrow	47,103	CY	40	1,884,120
SUBTOTAL					2,360,717
CATEGORY 3 - DRAINAGE					
11	Stormwater Management (SWM) Facilities	1	LS	275,000	275,000
12	Wire Grid System for SWM Facilities (Bird Repellent)	1	LS	10,000	10,000
13	Erosion and Sediment Control	1	LS	809,956	809,956
SUBTOTAL					1,094,956
CATEGORY 4 - STRUCTURES					
14	Structured Parking	520	spaces	20,000	10,400,000
15	Platform Construction				
15.1	Two platforms, each 15' x 950' and four feet tall; includes footings (one every five feet), reinforced concrete platform, conduit for lighting, and ramps	1,900	LF	18.75	71,250
15.2	Railing (42" x 1200' per platform)	2,400	LF	150	360,000
16	Station				
16.1	Building (plumbing, electrical, HVAC, fire protection, restrooms, ticketing, offices, telephones, vending)	3,200	SF	300	960,000
16.2	Ticket validation machine	3	EA	75,000	225,000
16.3	Bollards near building (six feet on center)	14	EA	1,000	14,000
17	Bus Facility				
17.1	Driver breakroom and restroom	1,710	SF	175	299,250
17.2	Bus canopies and shelters	1,092	SF	125	136,500
18	Platform Facilities				
18.1	Canopy (2/3 length of platform = 630'; 12' wide)	7,560	SF	150	1,134,000
18.2	Shelters (glass enclosed with bench; five per platform)	10	EA	50,000	500,000
18.3	Benches (eight feet long; 10 per platform)	20	EA	2,000	40,000
18.4	Trash Receptacles (every 200'; five per platform)	10	EA	1,200	12,000
18.5	Plumbing Facilities (Hose Bibs; five per platform)	10	EA	800	8,000
18.6	Tactile Warning Strip (950' x 2')	1,900	SF	35	66,500
18.7	Kiosks (real-time train information and schedules; three per platform)	6	EA	25,000	150,000
18.8	Bicycle lockers	12	EA	1,500	18,000
18.9	Bicycle racks	12	EA	1,000	12,000
18.10	Security, CCTV, Public Address Systems (1 per platform)	2	LS	50,000	100,000
19	Overhead Pedestrian Connector (ventilated overhead connector (15' x 230'), two elevators, elevator towers, two sets of stairs)	1	LS	5,500,000	5,500,000
SUBTOTAL					20,006,500
CATEGORY 5 - PAVING					
20	Roadway				
20.1	12" stone base - new pavement	300	SY	15	4,500
20.2	8" bituminous base - new pavement	300	SY	28	8,400
20.3	2" surface course - new pavement	300	SY	9	2,700
21	Busway				
21.1	12" stone base	5,900	SY	15	88,500
21.2	6" reinforced concrete rigid pavement	5,900	SY	56	330,400
22	Surface Parking				
22.1	10" stone base	16,500	SY	13	214,500
22.2	6" bituminous base	16,500	SY	23	379,500
22.3	2" surface course	16,500	SY	9	148,500
23	Crosswalks (decorative asphalt)	1,500	SF	3	4,500
SUBTOTAL					1,181,500
CATEGORY 6 - SHOULDERS					
24	Curb and Gutter				
24.1	6" curb and gutter	11,200	LF	20	224,000
24.2	8" curb and gutter	400	LF	40	16,000
25	Sidewalk (5" reinforced walkway on 4" stone base)	90,900	SF	10	909,000
SUBTOTAL					1,149,000
CATEGORY 7 - LANDSCAPE					
26	Landscaping	1	LS	404,978	404,978
27	Seeding (turf establishment)	20,100	SY	1.65	33,165
28	Reforestation Off-Site (excludes land acquisition)	5.98	AC	15,000	89,700
SUBTOTAL					527,843
CATEGORY 8 - TRAFFIC					
29	Signing				
29.1	Primary site signage	1	LS	25,000	25,000
29.2	Main lighted station sign	1	LS	25,000	25,000
30	Lighting				
30.1	Parking area lighting (20' height)	25	EA	10,000	250,000
30.2	Platform lighting (14' height; 25 poles per platform)	50	EA	6,000	300,000
30.3	Pedestrian sidewalk lighting (14' height; 45' on center)	100	EA	7,500	750,000
31	Pavement Marking				
31.1	Parking (520 new spaces proposed)	11,440	LF	1	11,440
31.2	Lane lines	700	LF	1	700
31.3	Crosswalks at new traffic signals (2035' per four-leg intersection)	2,035	LF	1	2,035
32	Signals				
32.1	New traffic signal (four-leg mast arm fully actuated)	1	EA	220,000	220,000
32.2	Accessible pedestrian signals (APS)	1	EA	25,000	25,000
SUBTOTAL					1,609,175
CATEGORY 9 - UTILITIES					
33	Electric, water, communications, sewer (15% of above total)	1	LS	4,049,781	4,049,781
SUBTOTAL					4,049,781
CONTINGENCY					
34	35% contingency for above items	1	LS	12,237,087	12,237,087
SUBTOTAL					12,237,087
PROFESSIONAL SERVICES (ENGINEERING AND ADMIN.)					
35	Preliminary engineering, design, project management, construction administration, insurance, legal, and survey costs (30% of above items)	1	LS	10,488,932	10,488,932
SUBTOTAL					10,488,932
RIGHT-OF-WAY ACQUISITION					
36	Right-of-Way Acquisition	417346	SF	12	5,008,152
SUBTOTAL					5,008,152
TOTAL					62,697,276

EXCLUSION

- Does not include costs in rail right-of-way, such as catenary modifications

SOURCE: URS

Harford County Multi-Modal Transportation Center - Site C, Option 1 (2009 \$)

Description		Quantity	Unit	Unit Price (\$)	Total Cost (\$)
CATEGORY 1 - PRELIMINARY					
1	Mobilization	1	LS	881,684	881,684
2	Construction Stakeout	1	LS	10,000	10,000
3	Maintenance of Traffic				
3.1	Vehicular and pedestrian	1	LS	25,000	25,000
3.2	Within Amtrak right-of-way	1	LS	100,000	100,000
4	Clearing and Grubbing	10.19	AC	6,000	61,140
5	Demolition				
5.1	Removal of existing asphalt	0	SY	8.50	0
5.2	Removal of existing platform	0	SY	17	0
5.3	Removal of existing building(s)	0	LS	625,478	0
5.4	Removal of existing utilities	0	LS	10,000	0
6	Temporary Construction	1	LS	25,000	25,000
7	Temporary Access Road Construction (14' Wide)	2100	LF	21	44,100
8	APG Security Fence Relocation	2300	LF	50	115,000
SUBTOTAL					1,261,924
CATEGORY 2 - GRADING					
9	Excavation	12,881	CY	37	476,597
10	Common Borrow	47,103	CY	40	1,884,120
SUBTOTAL					2,360,717
CATEGORY 3 - DRAINAGE					
11	Stormwater Management (SWM) Facilities	1	LS	400,000	400,000
12	Wire Grid System for SWM Facilities (Bird Repellent)	1	LS	10,000	10,000
13	Erosion and Sediment Control	1	LS	529,010	529,010
SUBTOTAL					939,010
CATEGORY 4 - STRUCTURES					
14	Structured Parking	0	spaces	20,000	0
15	Platform Construction				
15.1	Two platforms, each 15' x 950' and four feet tall; includes footings (one every five feet), reinforced concrete platform, conduit for lighting, and ramps	1,900	LF	18.75	71,250
15.2	Railing (42" x 1200' per platform)	2,400	LF	150	360,000
16	Station				
16.1	Building (plumbing, electrical, HVAC, fire protection, restrooms, ticketing, offices, telephones, vending)	3,200	SF	300	960,000
16.2	Ticket validation machine	3	EA	75,000	225,000
16.3	Bollards near building (six feet on center)	14	EA	1,000	14,000
17	Bus Facility				
17.1	Driver breakroom and restroom	1,710	SF	175	299,250
17.2	Bus canopies and shelters	1,092	SF	125	136,500
18	Platform Facilities				
18.1	Canopy (2/3 length of platform = 630'; 12' wide)	7,560	SF	150	1,134,000
18.2	Shelters (glass enclosed with bench; five per platform)	10	EA	50,000	500,000
18.3	Benches (eight feet long; 10 per platform)	20	EA	2,000	40,000
18.4	Trash Receptacles (every 200'; five per platform)	10	EA	1,200	12,000
18.5	Plumbing Facilities (Hose Bibs; five per platform)	10	EA	800	8,000
18.6	Tactile Warning Strip (950' x 2')	1,900	SF	35	66,500
18.7	Kiosks (real-time train information and schedules; three per platform)	6	EA	25,000	150,000
18.8	Bicycle lockers	12	EA	1,500	18,000
18.9	Bicycle racks	12	EA	1,000	12,000
18.10	Security, CCTV, Public Address Systems (1 per platform)	2	LS	50,000	100,000
19	Overhead Pedestrian Connector (ventilated overhead connector (15' x 230'), two elevators, elevator towers, two sets of stairs)	1	LS	5,500,000	5,500,000
SUBTOTAL					9,606,500
CATEGORY 5 - PAVING					
20	Roadway				
20.1	12" stone base - new pavement	300	SY	15	4,500
20.2	8" bituminous base - new pavement	300	SY	28	8,400
20.3	2" surface course - new pavement	300	SY	9	2,700
21	Busway				
21.1	12" stone base	9,200	SY	15	138,000
21.2	6" reinforced concrete rigid pavement	9,200	SY	56	515,200
22	Surface Parking				
22.1	10" stone base	24,700	SY	13	321,100
22.2	6" bituminous base	24,700	SY	23	568,100
22.3	2" surface course	24,700	SY	9	222,300
23	Crosswalks (decorative asphalt)	2,600	SF	3	7,800
SUBTOTAL					1,788,100
CATEGORY 6 - SHOULDERS					
24	Curb and Gutter				
24.1	6" curb and gutter	12,700	LF	20	254,000
24.2	8" curb and gutter	400	LF	40	16,000
25	Sidewalk (5" reinforced walkway on 4" stone base)	100,900	SF	10	1,009,000
SUBTOTAL					1,279,000
CATEGORY 7 - LANDSCAPE					
26	Landscaping	1	LS	264,505	264,505
27	Seeding (turf establishment)	23,600	SY	1.65	38,940
28	Reforestation Off-Site (excludes land acquisition)	10.72	AC	15,000	160,800
SUBTOTAL					464,245
CATEGORY 8 - TRAFFIC					
29	Signing				
29.1	Primary site signage	1	LS	25,000	25,000
29.2	Main lighted station sign	1	LS	25,000	25,000
30	Lighting				
30.1	Parking area lighting (20' height)	25	EA	10,000	250,000
30.2	Platform lighting (14' height; 25 poles per platform)	50	EA	6,000	300,000
30.3	Pedestrian sidewalk lighting (14' height; 45' on center)	100	EA	7,500	750,000
31	Pavement Marking				
31.1	Parking (520 new spaces proposed)	11,440	LF	1	11,440
31.2	Lane lines	900	LF	1	900
31.3	Crosswalks at new traffic signals (2035' per four-leg intersection)	2,035	LF	1	2,035
32	Signals				
32.1	New traffic signal (four-leg mast arm fully actuated)	1	EA	220,000	220,000
32.2	Accessible pedestrian signals (APS)	1	EA	25,000	25,000
SUBTOTAL					1,609,375
CATEGORY 9 - UTILITIES					
33	Electric, water, communications, sewer (15% of above total)	1	LS	2,645,051	2,645,051
SUBTOTAL					2,645,051
CONTINGENCY					
34	35% contingency for above items	1	LS	7,683,873	7,683,873
SUBTOTAL					7,683,873
PROFESSIONAL SERVICES (ENGINEERING AND ADMIN.)					
35	Preliminary engineering, design, project management, construction administration, insurance, legal, and survey costs (30% of above items)	1	LS	6,586,176	6,586,176
SUBTOTAL					6,586,176
RIGHT-OF-WAY ACQUISITION					
36	Right-of-Way Acquisition	551390	SF	12	6,616,680
SUBTOTAL					6,616,680
TOTAL					42,840,651

EXCLUSION

- Does not include costs in rail right-of-way, such as catenary modifications

SOURCE: URS

Harford County Multi-Modal Transportation Center - Site C, Option 2 (2009 \$)

Description		Quantity	Unit	Unit Price (\$)	Total Cost (\$)
CATEGORY 1 - PRELIMINARY					
1	Mobilization	1	LS	2,767,367	2,767,367
2	Construction Stakeout	1	LS	10,000	10,000
3	Maintenance of Traffic				
3.1	Vehicular and pedestrian	1	LS	25,000	25,000
3.2	Within Amtrak right-of-way	1	LS	100,000	100,000
4	Clearing and Grubbing	10.19	AC	6,000	61,140
5	Demolition				
5.1	Removal of existing asphalt	0	SY	8.50	0
5.2	Removal of existing platform	0	SY	17	0
5.3	Removal of existing building(s)	0	LS	625,478	0
5.4	Removal of existing utilities	0	LS	10,000	0
6	Temporary Construction	1	LS	25,000	25,000
7	Temporary Access Road Construction (14' Wide)	2100	LF	21	44,100
8	APG Security Fence Relocation	2300	LF	50	115,000
SUBTOTAL					3,147,607
CATEGORY 2 - GRADING					
9	Excavation	12,881	CY	37	476,597
10	Common Borrow	47,103	CY	40	1,884,120
SUBTOTAL					2,360,717
CATEGORY 3 - DRAINAGE					
11	Stormwater Management (SWM) Facilities	1	LS	400,000	400,000
12	Wire Grid System for SWM Facilities (Bird Repellent)	1	LS	10,000	10,000
13	Erosion and Sediment Control	1	LS	830,210	830,210
SUBTOTAL					1,240,210
CATEGORY 4 - STRUCTURES					
14	Structured Parking	520	spaces	20,000	10,400,000
15	Platform Construction				
15.1	Two platforms, each 15' x 950' and four feet tall; includes footings (one every five feet), reinforced concrete platform, conduit for lighting, and ramps	1,900	LF	18.75	71,250
15.2	Railing (42" x 1200' per platform)	2,400	LF	150	360,000
16	Station				
16.1	Building (plumbing, electrical, HVAC, fire protection, restrooms, ticketing, offices, telephones, vending)	3,200	SF	300	960,000
16.2	Ticket validation machine	3	EA	75,000	225,000
16.3	Bollards near building (six feet on center)	14	EA	1,000	14,000
17	Bus Facility				
17.1	Driver breakroom and restroom	1,710	SF	175	299,250
17.2	Bus canopies and shelters	1,092	SF	125	136,500
18	Platform Facilities				
18.1	Canopy (2/3 length of platform = 630'; 12' wide)	7,560	SF	150	1,134,000
18.2	Shelters (glass enclosed with bench; five per platform)	10	EA	50,000	500,000
18.3	Benches (eight feet long; 10 per platform)	20	EA	2,000	40,000
18.4	Trash Receptacles (every 200'; five per platform)	10	EA	1,200	12,000
18.5	Plumbing Facilities (Hose Bibs; five per platform)	10	EA	800	8,000
18.6	Tactile Warning Strip (950' x 2')	1,900	SF	35	66,500
18.7	Kiosks (real-time train information and schedules; three per platform)	6	EA	25,000	150,000
18.8	Bicycle lockers	12	EA	1,500	18,000
18.9	Bicycle racks	12	EA	1,000	12,000
18.10	Security, CCTV, Public Address Systems (1 per platform)	2	LS	50,000	100,000
19	Overhead Pedestrian Connector (ventilated overhead connector (15' x 230'), two elevators, elevator towers, two sets of stairs)	1	LS	5,500,000	5,500,000
SUBTOTAL					20,006,500
CATEGORY 5 - PAVING					
20	Roadway				
20.1	12" stone base - new pavement	300	SY	15	4,500
20.2	8" bituminous base - new pavement	300	SY	28	8,400
20.3	2" surface course - new pavement	300	SY	9	2,700
21	Busway				
21.1	12" stone base	9,200	SY	15	138,000
21.2	6" reinforced concrete rigid pavement	9,200	SY	56	515,200
22	Surface Parking				
22.1	10" stone base	16,700	SY	13	217,100
22.2	6" bituminous base	16,700	SY	23	384,100
22.3	2" surface course	16,700	SY	9	150,300
23	Crosswalks (decorative asphalt)	2,600	SF	3	7,800
SUBTOTAL					1,428,100
CATEGORY 6 - SHOULDERS					
24	Curb and Gutter				
24.1	6" curb and gutter	12,700	LF	20	254,000
24.2	8" curb and gutter	400	LF	40	16,000
25	Sidewalk (5" reinforced walkway on 4" stone base)	100,900	SF	10	1,009,000
SUBTOTAL					1,279,000
CATEGORY 7 - LANDSCAPE					
26	Landscaping	1	LS	415,105	415,105
27	Seeding (turf establishment)	23,600	SY	1.65	38,940
28	Reforestation Off-Site (excludes land acquisition)	10.72	AC	15,000	160,800
SUBTOTAL					614,845
CATEGORY 8 - TRAFFIC					
29	Signage				
29.1	Primary site signage	1	LS	25,000	25,000
29.2	Main lighted station sign	1	LS	25,000	25,000
30	Lighting				
30.1	Parking area lighting (20' height)	25	EA	10,000	250,000
30.2	Platform lighting (14' height; 25 poles per platform)	50	EA	6,000	300,000
30.3	Pedestrian sidewalk lighting (14' height; 45' on center)	100	EA	7,500	750,000
31	Pavement Marking				
31.1	Parking (520 new spaces proposed)	11,440	LF	1	11,440
31.2	Lane lines	900	LF	1	900
31.3	Crosswalks at new traffic signals (2035' per four-leg intersection)	2,035	LF	1	2,035
32	Signals				
32.1	New traffic signal (four-leg mast arm fully actuated)	1	EA	220,000	220,000
32.2	Accessible pedestrian signals (APS)	1	EA	25,000	25,000
SUBTOTAL					1,609,375
CATEGORY 9 - UTILITIES					
33	Electric, water, communications, sewer (15% of above total)	1	LS	4,151,051	4,151,051
SUBTOTAL					4,151,051
CONTINGENCY					
34	35% contingency for above items	1	LS	12,543,092	12,543,092
SUBTOTAL					12,543,092
PROFESSIONAL SERVICES (ENGINEERING AND ADMIN.)					
35	Preliminary engineering, design, project management, construction administration, insurance, legal, and survey costs (30% of above items)	1	LS	10,751,222	10,751,222
SUBTOTAL					10,751,222
RIGHT-OF-WAY ACQUISITION					
36	Right-of-Way Acquisition	479390	SF	12	5,752,680
SUBTOTAL					5,752,680
TOTAL					64,884,399

EXCLUSION

- Does not include costs in rail right-of-way, such as catenary modifications

SOURCE: URS

