CORRIDOR CITIES TRANSITWAY – OPERATIONS AND MAINTENANCE FACILITIES

ALTERNATIVES DEVELOPMENT AND ANALYSIS – FINAL

May 2007

MTA Maryland

Office of Planning
6 St. Paul Street
Baltimore, Maryland 21202-1614

Table of Contents

List of Figures

List of Tables

I. OVERVIEW

The Corridor Cities Transitway (CCT) Operation, Maintenance, and Storage Facility (O&M Facility) is a component of the larger Interstate 270 (I-270)/US 15 Multi-Modal Corridor Study. The O&M Facility would provide storage and maintenance facilities where transit vehicles are inspected, repaired, cleaned and stored. The mode for the transitway, light rail transit (LRT) or bus rapid transit (BRT), as well as the operating entity, has yet to be determined. Therefore, possible facility site locations were evaluated for both modes and it should be noted that each site is not necessarily viable for both modes due to operational and engineering constraints. It is anticipated that only one site and mode will be selected for the transitway facility.

The sites evaluated are loosely grouped into three main areas: Shady Grove, Metropolitan Grove, and the area near COMSAT. The Shady Grove area is located near the Shady Grove Metro Station, south of Interstate 370 (I-370) at the southern terminus of the proposed transitway. The Metropolitan Grove area is near I-270 and Quince Orchard Road in Gaithersburg. The COMSAT area is located near I-270 and West Old Baltimore Road in Clarksburg.

The purpose of this report is to document the further development of the O&M Facility Alternatives identified in the *I-270/US-15 Multi-Modal Corridor Study for Frederick and Montgomery Counties Maryland, Draft Environmental Impact Statement (DEIS) and Section 4(f) Evaluation*, conducted by the US Department of Transportation (DOT), Federal Highway Administration (FHWA), Federal Transit Authority, Maryland DOT, Maryland State Highway Administration, and Maryland Transit Administration (MTA) (May 2002). This includes the evaluation of the preliminary sites identified in the DEIS as well as the identification and evaluation of new sites that would best provide the services required.

II. ALTERNATIVES DEVELOPMENT

A. INTRODUCTION

There are a number of factors to consider in searching for an appropriate site for an O&M Facility. These include the size, shape, and topography of the site as well as access, adjacent land uses, and utility locations. Specific factors can vary depending on the mode. The facility components would differ between the two modes as well. Several sites have been considered as a candidate location for the facility. This chapter outlines the design criteria developed for both BRT and LRT; preliminary screening criteria, including potential environmental effects; sites that have been eliminated from further consideration; and sites that have been retained for detailed study.

B. DESIGN CRITERIA

As part of this site selection study, design criteria was developed specifically for both BRT and LRT O&M facilities for the CCT. The criteria is based on existing criteria, industry standards and best practices, field visits to current MTA facilities, and input from MTA operations and maintenance personnel.

1. BRT Operation, Maintenance, and Storage Facility Design Criteria

Introduction

This section provides criteria for the planning and preliminary design of a BRT O&M Facility for the CCT. The BRT O&M Facility is the core of the BRT operations. The vehicles will be inspected, maintained, repaired, cleaned and stored at this facility. With the operation as currently proposed, a single facility will be provided for the initial operation of a minimum operating segment with sufficient capacity for expansion to accommodate future expansion to the full CCT build-out. For operational convenience, the storage and maintenance facility for revenue vehicles will co-occupy a site that will include maintenance-of-way staging and storage facilities, emergency response equipment storage, and an operations control center.

During the development of the BRT O&M Facility design criteria, team members toured MTA's NW Bus Maintenance Facility and met with facility managers. Notes from this tour are included in **Appendix A**. **Appendix B** includes an evaluation of indoor vs. outdoor storage for buses. Indoor (or covered) storage for at least a portion of the bus fleet provides many benefits in snow-prone or colder regions. Buses do not have to run at night to stay warm, reducing noise effects and energy consumption, and buses do not have to be cleared of snow or ice prior to being put in service. All of this input went into the final design criteria.

General Fleet Requirements

The fleet size is based on projected ridership, service frequency, and an allowance for some vehicles to be out of service and in maintenance. The fleet size will initially be 75 vehicles and will eventually increase to 150-200 vehicles. All facilities, parking, and bus storage lots should be arranged to accommodate left-hand turns and a counter-clockwise circulation. The maintenance facilities will accommodate its scheduled work within two eight-hour shifts daily with provisions for a light duty third shift.

Two different BRT vehicles will be used, including a 40-foot long conventional standard bus and a 60-foot long articulated vehicle. Both vehicles will have a low floor design and multiple doors on the right side.

Facility Buildings

The BRT Facility is comprised of a number of buildings with varying functions. They should be arranged with efficiency and the safety of employees in mind. The areas for the dispatching, communications, Supervisory Control Facility, and the Administrative and Welfare Facility will be located so that these employees do not access or cross the maintenance areas. Many of the functions outlined below can be located in the same structure.

Service Lane. The service lane is a separate building or an area within one of the maintenance buildings reserved for the daily cleaning and servicing of the buses. One service lane is needed for the given number of vehicles. The service lane will be located so that a vehicle will enter it directly after leaving revenue service and before being placed in the bus storage lot. Refueling, fluid dispensing, and interior cleaning will take

place in the service lane. Exterior cleaning (bus wash) may or may not take place at the service lane. Additional requirements for the bus facility are discussed under **Yard**.

Maintenance Building. The maintenance building provides space for routine maintenance, minor repairs, inspections, long interval inspections, scheduled major repairs, running repairs, and major non-scheduled maintenance. Fifteen pull-through bays will be provided. Other functions that require space in this building are the shop area, blowdown pit and paint shop, and parts storage. Major, mid-life overhauls will be outsourced.

Non-Vehicle Maintenance and Maintenance-of-Way Facility. The non-vehicle maintenance and maintenance-of-way facility provides an area for the storage of supplies for station clean-up and repair, as well as fare machine maintenance and the restocking of fare machines. This facility may be a separate building or an area within one of the maintenance buildings.

Dispatching, Communications, and Supervisory Control Facility. The dispatching, communications, and Supervisory Control Facility provides an area for the operations control center that supervises and communicates with the revenue service and all BRT vehicles within the yard. In addition, closed-circuit television (CCTV) monitors will be arrayed in the center to oversee the public areas of stations and parking lots, entries to secure areas, and other areas where visual control may be desirable. This facility also provides areas for operator training, dispatchers, supervisors, and safety monitoring. It provides space for the bus operators and fare inspectors and will include restrooms, showers, lockers, ready rooms, and lunchrooms. It may be located in any of the buildings. Ideally, this area will be located as near as possible to the bus staging and return areas in order to minimize the amount of walking for the operators and to avoid having the operators and inspectors walk through the maintenance facilities.

Administrative and Welfare Facility. Administrative and employee welfare areas will be included in the design of the facility. The administrative space provides offices for such functions as management, human resources, labor relations, purchasing, contracts administration, finance and accounting, security, and public information. A conference and training room will also be provided. The employees' welfare space includes restrooms, showers, locker rooms, and lunchrooms for maintainers and maintenance-of-way personnel. It may be located in any of the buildings.

Yard

Bus Storage Lot. The bus storage lot will provide indoor parking for articulated and non-articulated vehicles. The capacity of the lot will be phased, with Phase 1 accommodating at least 75 vehicles. Phase 2 will accommodate an ultimate capacity of 150-200 buses. A repair staging area will be provided to store buses while awaiting repair or maintenance. The ideal layout for Phase 1 of the BRT would accommodate 87 vehicles, including 39 articulated and 48 non-articulated vehicles. The ultimate layout for the facility would accommodate 174 vehicles, including 78 articulated and 96 non-articulated vehicles.

Bus Wash. The bus washing system will be a drive-through type and does not necessarily need to be located in the service lane. It does need to be situated so that

once a vehicle passes through the service lane it can proceed directly to the bus wash prior to being parked in the bus storage lot.

Bypass Lane. A bypass lane will be provided so that a vehicle returning to the yard from revenue service can bypass the service lane and bus wash and go directly to the bus storage lot.

Overall Site Design

The utilities that will be provided to the facility include electrical, water, sanitary sewer, telephone, and natural gas. The vehicle storage and maintenance facility will have a storm sewer system and provide stormwater management per state and county guidelines. Parking will be provided for approximately 215 employees at one time and will be located as close as possible to the operations (dispatch, administrative, welfare, etc.) and maintenance building. This number of parking spaces assumes a total of 250 employees distributed over multiple shifts. An outdoor storage area, used to store miscellaneous materials such as wheels, rail, or ballast, will also be provided.

The entire Storage and Maintenance Facility will be enclosed by a chain-link fence with a guard house and gate at the entrance. Wide-area lighting will be provided throughout the site for employee parking area, bus storage lot, and maintenance building areas. Outdoor spot or zone lighting will be provided as needed in work areas. CCTV will be used in the bus storage lot and at the guard house. Space will be provided to accommodate tow trucks and snow plows. Provisions will be made for a loading dock at the Maintenance Facility building.

2. LRT Operation, Maintenance, and Storage Facility Design Criteria

Introduction

This section provides criteria for the planning and preliminary design of a LRT O&M Facility for the CCT. The LRT O&M Facility is the core of the LRT operations. The vehicles are inspected, maintained, repaired, cleaned, and stored at this facility. With the operation as currently proposed, a single facility at one location will be provided for the initial operation of a minimum operating segment with sufficient capacity for expansion to the full CCT build-out. For operational convenience, the storage and maintenance facility for revenue vehicles will co-occupy a site that will include maintenance-of-way staging and storage facilities, emergency response equipment storage, and an operations control center.

Depending upon the location of the facility relative to the terminus of the system, some vehicles may be stored on tailtracks outside of the yard limits to reduce deadhead time in the morning and evening. If the facility is located at the Shady Grove end of the system, then tailtracks can be used for storage at the northern terminus. If a northern location is chosen for the facility, tailtracks will not be used at the Shady Grove end due to the expense of relocating the WMATA traction power substation which is located immediately south of the CCT Shady Grove station platform.

During the development of the LRT O&M Facility design criteria, team members toured the North Avenue LRT yard and shop facility and met with facility managers. Notes from this tour are included in **Appendix C**. In addition, in order to develop the geometric

portion of the design criteria, a comparison was made between the Red Line/Green Line, Purple Line (Bi-County Transitway), and the existing Central Light Rail Line criteria. The horizontal alignment, vertical alignment, and vehicle data (i.e. height, width, and length) was compared. Based on these criteria and the fact that the proposed vehicle will be more flexible than the existing MTA Central Light Rail vehicle, the proposed criteria for the LRT yard was developed. The results of this comparison, as well as the proposed geometric criteria, can be found in **Appendix D**. This geometric criteria was then incorporated into the LRT O&M Facility design criteria that also address the facility's buildings, vehicle storage, and the overall site design.

General Fleet Requirements

The fleet size is based on projected ridership, service frequency, and an allowance for some vehicles to be out of service and in maintenance. The fleet size will be initially 30 vehicles and will increase to 50 vehicles. The facility will accommodate its scheduled work within two daily eight-hour shifts with a light-duty third shift.

The LRT vehicle has not been selected but a number of elements are being assumed for the purpose of this design. The vehicle is a bi-directional articulated car that can be operated individually or grouped into two or three car consists. Other data is as follows:
- Vehicle length over couplers = 95 feet
- Vehicle width = 9'-6" without mirrors
- Vehicle height at centerline to top of pantograph = 12'-6"
- The clearance envelope will be the same as the existing Baltimore LRT system

Facility Buildings

The LRT Vehicle Storage and Maintenance Facility will be comprised of a number of buildings with varying functions and should be arranged for the safety and efficiency of the employees. With this in mind, the areas for the Dispatching, Communications, and Supervisory Control Facility, the Operators' Facility, and the Administrative and Welfare Facility will be located so that these employees do not access or cross the maintenance areas. The vehicle space requirements in the following text are based upon the ultimate system capacity of 50 vehicles.

Service and Inspection Facility. The Service and Inspection Facility provides space for routine maintenance, minor repairs (where all incoming cars are diagnosed and light repairs are made), and inspections. Other functions that require space in this building are the various shop areas, blowdown pit and paint shop, and parts storage. A total of seven vehicle spaces are required for this facility, including three spaces for minor repairs, three spaces for routine maintenance and inspections, and one space for blowdown pit/paint shop. The spaces may be arranged consecutively along one length of track to create one bay, provided that the bay has access from both ends of the building.

Heavy Maintenance Facility. The Heavy Maintenance Facility provides space for long interval inspections, major repairs (more serious repairs that average approximately two days to complete), running repairs, and major non-scheduled maintenance. Major mid-life overhauls will be outsourced. Three vehicle spaces are required for this facility. Up to two spaces may be arranged consecutively along one length of track to create one bay with access from one building end. If three spaces are arranged consecutively, the bay

must have access from both ends of the building. Vehicles requiring long term major repairs are vehicles with very serious malfunctions or damage that can take up to a few weeks or more to repair. These long term repairs require one space. The four vehicle spaces mentioned above may be within the same building as the Service and Inspection Facility.

Car Wash Facility. The car washing system will be a drive-through type on a dedicated track and may be a separate stand-alone building or attached to the main maintenance facility building. Daily exterior washing is preferred to prevent carbon dust buildup from the pantograph collector bar. Daily washing will require one three-car track and, assuming the initial system of 30 vehicles, two shifts per day will be required. For the ultimate capacity of 50 vehicles, three shifts are required. Consists will be broken down into single cars for washing. Washing as single units will allow a wash system to be designed that will effectively wash and rinse the car ends.

Non-Vehicle Maintenance and Maintenance of Way Building. This facility provides area for the storage of supplies for station clean-up and repair, fare machine maintenance, and supplies for restocking the fare machines. One vehicle space is required for this building, which will also require rubber tired vehicular access and parking for hi-rail vehicles.

Dispatching, Communications, and Supervisory Control Facility. This facility provides an area for the operations control center that supervises and communicates with all LRT vehicles within the yard and revenue service. All interlockings and traction power will be controlled from within the center. In addition, CCTV monitors will be arrayed in the center to oversee the public areas of stations and parking lots, entries to secure areas, and other areas where visual control may be desirable. This facility may be located in any of the maintenance buildings.

Operators' Facility. The Operators' Facility provides areas for classrooms for LRT operator training, restrooms, showers, lockers, ready rooms and lunchrooms. It may be located in any of the buildings. Ideally, this area will be located as near as possible to the storage yard in order to minimize the number of active tracks that the operators must cross and to avoid having the operators walk through the maintenance facilities.

Administrative and Welfare Facility. Administrative and employee welfare areas will be included within the facility and may be located within any of the buildings. The administrative space provides offices for such functions as management, human resources, labor relations, purchasing, contracts administration, finance and accounting, security, and public information. Conference and training rooms will be provided. The employees' welfare space includes restrooms, showers, locker rooms, and lunchrooms for maintainers and maintenance-of-way personnel.

Traction Power Substation. The traction power substation will be located in a separate building and will provide power to the vehicles within the yard limits via an overhead contact system.

Yard

The tracks within the facility will be arranged to provide for movements between the mainline and vehicle storage with the option of bypassing the car wash facility. They will also provide for the movements between mainline and the maintenance facility.

The basic design guidelines are as follows:

- Initial storage capacity = 30 vehicles
- Ultimate storage capacity = 50 vehicles
- The storage tracks will have parallel, alternating 14-feet and 18-feet track centers to accommodate a paved aisle for cleaning carts and crews.
- The storage tracks will be double ended wherever possible for increased operational flexibility.
- The length of the storage tracks will be in multiples of two or three vehicles (planned consist length).
- A double throat lead track from the mainline to the storage yard is desirable to prevent a complete blockage of the throat when a turnout is not functioning.
- A loop track is desirable for maximum operational flexibility.

Geometric Criteria. This geometric criteria is for the yard only, not the mainline CCT alignment. Horizontal alignment is as follows:

- Desired minimum track radius = 100 feet
- Absolute minimum track radius = 82 feet
- Absolute minimum horizontal curve length = 45 feet
- Absolute minimum horizontal tangent = 30 feet
- Minimum horizontal tangent past platform = 45 feet
- Minimum horizontal tangent from end of platform to PS = 45 feet
- Absolute minimum tangent from PC/PT to PS
  - If curve is in same direction as curve in turnout = 10 feet
  - If curve is in opposite direction as curve in turnout = 45 feet
- Minimum turnout size = No. 6
- Minimum track centers spacing = 14 feet
- Minimum track centers spacing within shop = 25 feet

Vertical alignment is as follows:

- Absolute minimum vertical tangent = 45 feet between successive vertical curves
- Minimum vertical tangent past platform = 45 feet
- Absolute minimum vertical curve length = 50 feet
- Maximum grade for double ended storage tracks = 0.20 percent towards sag
- Maximum grade for single ended storage track = 0.20 percent down towards bumping post
- Maximum grade for shop tracks = 0.00 percent

Storage Yard. The vehicle storage yard will be arranged so as to minimize the number of reverse movements made by the LRT vehicles moving between the mainline and storage tracks and conversely between the storage tracks and the mainline. The storage

yard will have paved aisles between the tracks with the 18-feet track centers. This is to provide access for the daily cleaning crews.

Maintenance-of-Way Track and Storage. One 400-feet track or two 200-feet tracks will be provided for the storage of maintenance equipment. These storage tracks will provide space to accommodate a locomotive, a catenary inspection and maintenance car, two flat cars, and a ballast car. The locomotive will require a fueling facility. Indoor and outdoor space will be provided for the storage and assembly of maintenance-of-way materials and vehicles. Materials that can be stored outdoors include, but are not limited to, track and switch materials, wire and cable reels, ceramic, and/or glazing materials for station finishes, parking lot exterior equipment, and signage. Materials and functions that require indoor space include, but are not limited to, the maintenance and repair of station equipment, fare collection equipment, electronic signage, and communications and signal equipment.

Bypass Track. A bypass track will be provided so that a vehicle returning to the yard from revenue service can bypass the Maintenance Buildings and Car Wash and go directly to the storage yard.

Overall Site Design

Utilities provided to the facility will include electrical, water, sanitary sewer, telephone, and natural gas.

The facility will have a storm sewer system and provide stormwater management per state and county guidelines. The yard tracks will have a network of interconnecting pipes to provide adequate drainage of the ballast. Stormwater management may be provided by either an aboveground pond or an underground chamber.

Paved roads will provide access to all buildings and daily service aisles within the vehicle storage yard. Parking will be provided for approximately 215 employees at one time and will be located as close as possible to the work area, minimizing the number of tracks that the employees must cross on foot. This number of parking spaces assumes a total of 250 employees distributed over multiple shifts.

The entire facility will be enclosed by a chain link fence with a guard house and gate at the entrance. Wide-area lighting will be provided throughout the site for employee parking area, vehicle storage area, and maintenance building areas. Outdoor spot or zone lighting will be provided as needed in work areas. CCTV will be used in the vehicle storage area and at the guard house. Provisions will be made for a loading dock at the Maintenance Facility building.

C. PRELIMINARY SCREENING CRITERIA

The preliminary sites identified in the DEIS, as well as new sites identified by the study team, were screened so that the most promising sites were retained for detailed study. This initial screening included both geometric and design requirements as well as potential environmental impacts.

Based on the design criteria, site acreage requirements were developed. For BRT, the size of the site should range from 16 to 19 acres, preferably rectangular in shape. For LRT, the size of the site should range from 18 to 23 acres, also preferably rectangular in shape. The less rectangular the site is, the greater the acreage needs. Any wetlands or easements within the site will increase the acreage requirement. The site should be located in an area with compatible land uses, such as industrial or commercial, not residential. The access to the site should not be through a residential street as there will be high traffic volumes especially during shift changes.

Ideally, existing utilities (electrical, telephone, sanitary sewer, gas, etc.) should be located nearby. This will reduce the cost for extending the utilities to the site.

The site size and shape dictates to a large degree the layout of the facility. This is especially true in the case of the LRT layouts where the track is constrained by the horizontal geometry and to a lesser degree with the BRT layouts. As a result, the layout for each site is unique. Important elements of the configuration include: through storage, location of the vehicle wash, and among others, the safety of the operators moving about the yard. Also evaluated was the ability of each site to accommodate all the functions necessary for a fully built-out storage and maintenance facility.

Preliminary screening also included an assessment of the potential environmental impacts associated with each site. This first level screening was more qualitative rather than quantitative and looked to identify the presence of resources and probability of impacts.

A summary of the preliminary screening is included in the tables in **Appendix E**.

D. SITES ELIMINATED FROM CONSIDERATION

Based on preliminary screening, the following sites were eliminated from further consideration. These sites had been considered for either BRT or LRT and are shown on **Figure 1**.

1. Sites in the Vicinity of Shady Grove

During the development of the DEIS, several site layouts were considered in the vicinity of Shady Grove. These included Sites 1, 1A, 1B, and 1C. However, only Site 1 was included in the DEIS document. In this study, each site was revisited. In addition, in order to maximize the efficiency of the sites while minimizing impacts a variation, Site 1B/C, was considered as well.

Site 1 and Site 1A – Vicinity of Indianola Drive and CSX/Metro Railroad Tracks

Sites 1 and 1A were included in the DEIS and are located adjacent to the southbound CSX/Metro railroad tracks at the Shady Grove Metro Station and are bounded by Indianola Drive to the north. These sites were eliminated from further consideration due to the inability to meet the minimum building size requirements necessary to provide all yard and shop functions on one site.

Site 1B, Site 1C, and Site 1B/C– Vicinity of Indianola Drive and CSX/Metro Railroad Tracks

These sites were included in the DEIS and are located to the southwest of Sites 1 and 1A, adjacent to the southbound CSX/Metro railroad tracks at the Shady Grove Metro Station and bounded by Indianola Drive to the north. These sites were eliminated from further consideration due to the inability to provide a vehicle maintenance and storage facility for the total number of vehicles.

Site 3 – Vicinity of Shady Grove Road and Crabbs Branch Way

This site was included in the DEIS and is located near the Shady Grove Road and Crabbs Branch Way intersection – behind the Montgomery County administration buildings (Department of Parks, Transfer and Facility Maintenance and public school bus parking area). Site 3 was eliminated from further consideration due to the inability to provide a vehicle maintenance facility for the total number of vehicles and additional costs and engineering challenges associated with extending the transitway to this location.

Site 5 – Intersection of Frederick Road and King Farm Blvd

This site was included in the DEIS and is located on existing Washington Metropolitan Area Transit Authority (WMATA) property at Frederick Road, across from King Farm Boulevard. This site was eliminated from further consideration due to the inability to provide drive–through maintenance bays, inadequate staff parking, and a less than ideal operational configuration for the tracks (LRT), in addition to impacting WMATA's parking for the Shady Grove station.

2. Sites in the Vicinity of Metropolitan Grove

Site 2A – East of CSX Railroad Tracks and South of Game Preserve Road

Site 2A was included in the DEIS and is located adjacent to the CSX railroad tracks, just south of Game Preserve Road. It is situated within the boundaries of the City of Gaithersburg. This site was eliminated from further consideration due to the inability to provide a vehicle maintenance and storage facility for the total number of vehicles.

3. Sites in the Vicinity of COMSAT

Site 2 – Gateway Center Drive and Shawnee Lane

This site was included in the DEIS and is located at the intersection of Gateway Center Drive and Shawnee Lane. Site 2 has been eliminated from further consideration, as this property is currently being developed as residential and a preliminary subdivision plan and site plan have been submitted.

Site 4 – Northeast Side of Shawnee Lane

This site was included in the DEIS and is located to the east of and adjacent to Site 2. It has also been eliminated from further consideration. Site 4 is currently occupied by the Montgomery Public School Bus Depot Facility. The Clarksburg Master Plan

recommends residential use for the site. The residential site plan that was submitted at the Site 2 location shows interconnecting streets to this property.

E. SITES RETAINED FOR DETAILED STUDY

As a result of the preliminary screening, the following sites have been retained for detailed study.

1. Sites in the Vicinity of Shady Grove

Site 1D – Vicinity of Redland Road and Frederick Road (LRT and BRT)

Shady Grove Option 1D is a new site developed since the publication of the DEIS and is located at the southern terminus of the proposed CCT line, just south of the CCT Shady Grove Station. The property is in a developed area and is currently occupied by various industrial/commercial businesses. The property is bounded by the existing WMATA and CSX tracks to the east, Frederick Road (MD 355) to the west, Redland Road to the north, and partly by Paramount Drive and McDonalds on the south. This site is also referred to as the Shady Grove site in the wetland and forest stand delineation reports. Preliminary site layouts for BRT and LRT are shown on **Figures 2** and **3**, respectively.

The BRT site would have two access points: a bus entrance along Redland Road and a staff and visitor entrance along Paramount Drive. A one-way, two-lane, loop road would be provided around the inside perimeter of the site to provide good site circulation and improved emergency vehicle access. The loop road provides queuing space for the buses coming off their shifts and waiting to have their fare boxes pulled and prevents them from queuing along Redland Road. The loop road also aids security by enabling the parking areas to be separately fenced from the storage and maintenance areas without interfering with the queued buses.

For the LRT layout, WMATA's Traction Power Substation (TPSS) located immediately south of the CCT Shady Grove Station would be impacted by the location of the yard lead tracks. The TPSS building would need to be reconstructed in a nearby location before the existing one can be taken out of service in order to prevent an interruption of service to WMATA. It is not known at this time whether or not WMATA is planning on improvements to the TPSS due to WMATA's Metro Matters Program.

The CCT yard lead tracks would impact the Redland Road Bridge. Redland Road crosses over the existing WMATA and CSX tracks. The proposed yard lead tracks are parallel to the WMATA tracks and there isn't enough lateral clearance to accommodate the proposed tracks under the existing bridge. As a result, the southwest abutment would need to be rebuilt to the west.

Due to the track requirement of a flat site, a retaining wall would be needed along the entire frontage of Frederick Road, a portion of Redland Road, and along the property line between Site 1D and McDonalds. The proposed site would be approximately 20 feet lower in elevation than Frederick Road.

While the site is consistent with existing land uses, the area has been the subject of re-zoning and is planned for mixed-use, transit-oriented development.

Crabbs Branch Way Site – Vicinity of I-370 and Crabbs Branch Way (BRT only)

The Crabbs Branch Way site is a new site developed since the publication of the DEIS. It is currently on an undeveloped property located less than three-quarters of a mile from the Shady Grove Station and surrounded by commercial and industrial uses. This is the only site that is not immediately adjacent to the transitway mainline and is therefore only considered for BRT. It is also the only BRT site that does not accommodate the ultimate storage capacity of 174 vehicles by providing storage for only 79 vehicles. A preliminary site layout is shown on **Figure 4**.

The Crabbs Branch Way site is located on a parcel that is bounded by I-370 to the northwest, Crabbs Branch Way to the east, Shady Grove Road to the south, and CSX's tracks to the west. This site is also being considered for a potential maintenance facility for the Intercounty Connector (ICC). The potential site layout was developed to accommodate both uses. The ICC portion is shown to the west of the CCT Facility and occupies approximately three acres. Access to the ICC Facility would be along the access road through the CCT portion of the parcel. Access to the parcel for all vehicles is from Crabbs Branch Way.

2. Sites in the Vicinity of Metropolitan Grove

The Metropolitan Grove Station area was considered for potential operation, maintenance, and storage facility sites. This would facilitate possible phased construction of the CCT. One of the future benefits of this location is that the facility would be located near the center of the system, which would reduce the amount of deadhead time for the vehicles. Also, tailtracks, for the overnight storage of vehicles, would not be required. There are two sites located within the Metropolitan Grove Station area, as discussed below.

Site 6 – Adjacent to CSX Railroad Tracks and the I-270 ramps at Quince Orchard Road (LRT and BRT)

Metropolitan Grove Site 6 is a new site developed since the publication of the DEIS and is located immediately south of the proposed Metropolitan Grove Station. It is under consideration as both a LRT and BRT site. It is adjacent to CSX's tracks and the I-270 ramps at Quince Orchard Road. A portion of the site currently houses the Montgomery County Police Department's Vehicle Impound Lot and the remainder of the site is wooded. It is located in a commercial and industrial area. The Police Department is planning to construct a forensics lab on the property in the spring of 2007.

Current access to the site is via Metropolitan Grove Road, which crosses CSX's tracks at an at-grade crossing and terminates at the Police Impound Lot. The proposed CCT mainline is parallel to CSX's tracks and the yard lead tracks/busway would be adjacent to the CCT tracks. Due to the high volume of traffic to the yard facility and the number of tracks/busway that need to be crossed, an at-grade crossing is not feasible. To access the yard site, a grade separated crossing would need to be constructed over the CSX tracks. Alternatively, an access roadway would need to be built to connect to the development under construction to the north. The BRT Metropolitan Grove Site 6 is in the same location as the LRT Metropolitan Grove Site 6 and occupies a slightly smaller area. BRT and LRT layouts for the sites are shown on **Figures 5** and **6**, respectively. In

addition, the BRT site has a bus entrance and a staff and visitor entrance, both located along the proposed extension of Metropolitan Grove Road.

Site 4/5 (Revised) – Adjacent to PEPCO Transmission Lines (LRT only)

The Metropolitan Grove Option Site 4/5 is a revision to the sites shown in the DEIS and is located less than one mile northwest of the proposed Metropolitan Grove Station. It is adjacent and parallel to a PEPCO easement and Seneca Creek State Park. The site is currently wooded and in a rural area. This site has also been referred to as the Game Preserve Road site in the wetland and forest stand delineation reports. Due to site constraints and access, the merged Site 4/5 would not be feasible as a BRT Facility and is therefore only being considered for LRT.

The access to the site would be through a proposed residential street. The planned layout of this residential area was not available and is therefore not shown on the accompanying plans.

Due to the track requirement of a flat site, a substantial amount of cut would be required, approximately 30 feet in depth, and would require retaining walls along two of the four sides of the site. A preliminary site layout is shown on **Figures 7A** and **7B**.

3. Site in the Vicinity of COMSAT

Observation Drive Site – Adjacent to I-270 and West Old Baltimore Road (BRT only)

The Observation Drive site is a new site developed since the publication of the DEIS and is currently farmland with a house, outbuildings, and open fields. This site is also referred to as the Old Baltimore Road site in the wetland and forest stand delineation reports. It is located less than a half mile south of the proposed northern terminus of the system at the COMSAT Station. This site would only be viable for LRT if the construction of the system was not phased since the tracks need to be constructed for the rail vehicles to access the facility. Therefore, due to the high probability that the system will be phased, the site is only being considered for BRT at this time.

The site is bounded by I-270 to the southwest, West Old Baltimore Road to the northwest, Little Seneca Creek to the southeast, and the proposed Observation Drive to the northeast. The proposed CCT mainline runs down the median of Observation Drive. The site entrance would front onto West Old Baltimore Road. A preliminary layout is shown on **Figure 8**.

Due to the steep grades, a retaining wall, approximately 20 to 40 feet in height, would be needed along a portion of Observation Drive.

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

A. INTRODUCTION

This section includes a description of the affected environment and environmental consequences associated with each site. It is important to note that the O&M Facility is part of a larger overall project and some elements, such as air quality and noise, will be evaluated quantitatively for the entire project as a whole. The O&M Facility is also a necessary element of either BRT or LRT and the impacts associated with any site should be evaluated in light with the overall benefits provided by the project as a whole. The environmental resources and potential effects described in this report will be incorporated into the environmental documentation for the study. Information contained in this section will help to evaluate and compare the various sites under consideration. Unless specifically noted, the impacts associated with the BRT and LRT layouts at each site are expected to be the same. A cultural resources study was conducted as part of the DEIS process. None of the candidate sites are located near any identified historical or archaeological resources. However, coordination with the Maryland Historical Trust will be required during environmental documentation to confirm this finding. Forest stand and wetland delineation reports were conducted for each of the sites retained for detailed study.

B. SITES IN THE VICINITY OF SHADY GROVE

Site 1D and the Crabbs Branch Way site are located within the vicinity of Shady Grove. As a result, several of the environmental resources will be similar for both sites.

Both of the candidate sites are located within the Middle Potomac River Basin. Site 1D is located on the boundary between two watersheds. The far western edge of the site is within the Potomac River Montgomery County watershed and the rest of the site is within the Rock Creek watershed. Crabbs Branch Way is located entirely within the Rock Creek watershed.

According to the United States Geological Survey (USGS), the candidate sites are located within the Piedmont Physiographic Province. The entire area is underlain primarily by crystalline-rock aquifers, the most widespread aquifers in the Piedmont Province. Most of the rocks that compose these aquifers are crystalline metamorphic and igneous rocks of many types. The main types of crystalline rocks are coarse-grained gneisses and schists of various mineral compositions. However, fine-grained rocks, such as phyllite and metamorphosed volcanic rocks, are common in places. Most of the metamorphic rocks were originally sediments. Some, however, were igneous rocks or volcanic tuff, ash, and lava flows. Unconsolidated material called regolith overlies the crystalline-rock aquifers almost everywhere. The regolith and fractures in the bedrock serve as the principal places for the storage and transmission of water, and groundwater movement is generally along short flow paths from interstream recharge areas to the nearest stream. Crystalline-rock aquifers generally yield the smallest sustained amount of groundwater.

Coordination with the Maryland Department of Natural Resources (DNR) indicates that a total of twelve rare, threatened, or endangered species of plants or animals have been documented along the I-270 corridor in Montgomery County. However, there are no records of any federal- or state-listed rare, threatened, or endangered species within the footprint of Site 1D or the Crabbs Branch Way site.

1. Site 1D – Vicinity of Redland Road and Frederick Road

Site 1D, shown on **Figures 9** and **10**, is located in the Shady Grove area at the southeast corner of the Redland Road/Frederick Road intersection. Land use at Site 1D is designated as industrial in the *Shady Grove Sector Plan* (Montgomery County Planning Board, January 2006). This site is surrounded by various land uses, including industrial, vacant, and residential. WMATA parking is located to the north. A strip mall with several different types of shops and restaurants, a large storage facility with several storage units, and several vehicle and machine maintenance shops are located within the footprint of the proposed site. Two large vehicle impound storage lots are located to the east of the strip mall, adjacent to the existing CSX tracks. Future land use at Site 1D is designated as Commercial.

According to the *Shady Grove Sector Plan*, Site 1D is zoned I-1 (Light Industrial). Areas zoned I-1 within Montgomery County generally involve small- to medium-scale industrial activities, including but not limited to research and development, warehousing and storage activities, light manufacturing and assembly of products, and other similar uses. Both BRT and LRT would be compatible land uses at Site 1D and would be permitted uses within the I-1 zone. While the site is consistent with existing land uses, the area has been the subject of re-zoning and is planned for mixed-use, transit-oriented development. As such, the use of a BRT or LRT at this site would not be consistent with planned uses for the area.

The implementation of either the BRT or LRT at Site 1D would require the relocation of the strip mall, storage facility, vehicle and machine maintenance shops, and impound storage lots. The acquisition of any businesses would be required to conform to the regulations set forth in P.L. 91-646, the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*. There are no residential displacements resulting from Site 1D.

To comply with the goals of Order 12898, US Census Bureau (2000) data was reviewed to determine the presence of minority and/or low-income populations within the Census Block Groups in which each of the candidate sites are located. Site 1D is located within Census Tract 7012.11, Block Group 1, which has a total population of 980 persons. The total minority population within this block group is 323, which is 33 percent of the total population, and the number of persons below poverty is 29, which is 3 percent of the population. The average annual income within Census Tract 7012.11, Block Group 1 is $92,531.

According to the *Soil Survey of Montgomery County, Maryland* [United States Department of Agriculture (USDA) 2002], Glenelg silt loam, 3 to 8 percent slopes (2B) and Elioak silt loam, 3 to 8 percent slopes (4B), soils designated by the USDA as prime farmland, are located within the footprint of Site 1D. Although these soils are designated as prime farmland, the site is zoned for industrial use and is committed to urban development. As such, neither soil at this site would be considered prime farmland.

The *"Waters of the U.S." Identification and Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* [A.D. Marble and Company (ADM) January 2007] indicated that no wetlands or waterways are located within the Site 1D study area. Therefore, impacts would not occur.

According to Federal Emergency Management Agency (FEMA) floodplain mapping, Community Panel Number 24031 C 0331D (September 29, 2006), Site 1D is not located within the 100-year floodplain of any streams or tributaries.

The *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that urban development located on Site 1D has limited the amount of forest resources within the limit of disturbance (LOD) to ornamental species planted for landscaping purposes and early-successional trees and shrubs, which do not qualify as a forest stand. As such, forest impacts would not occur with the implementation of either a BRT or LRT Facility at Site 1D.

The *Hazardous Waste Report for Corridor Cities Transitway LRT/BRT Maintenance Facilities* (ADM December 2006) indicated that no sites of concern were identified within the footprint of Site 1D. InfoMap reported that eight Resource Conservation and Recovery Information System Large and Small Quantity Generators (RCRA GEN) sites, one Emergency Response Notification System (ERNS) site, 10 registered underground storage tank (UST) and aboveground storage tank (AST) sites, 28 leaking underground storage tank (LUST) sites, and one Solid Waste Acceptance Facility (SWL) are located within a 0.5-mile radius of Site 1D. In addition, the Site 1D study area has the highest number of high contaminate value properties of the candidate sites. A preliminary site investigation would be required, as LUSTs are located in close enough proximity to the potential site that the properties should be investigated for contamination that may be disturbed by the proposed project.

2. Crabbs Branch Way Site – Vicinity of I-370 and Crabbs Branch Way

The Crabbs Branch Way site, shown on **Figure 11**, is located in the Shady Grove area on land that is bounded by I-370 to the north, Crabbs Branch Way to the east, Shady Grove Road to the south, and CSX railroad tracks to the west. This site is located on land that is designated as vacant in the *Shady Grove Sector Plan*. A site reconnaissance has confirmed that this site is currently undeveloped. There would be no residential or business displacements resulting from the Crabbs Branch Way site. Surrounding land uses include industrial, institutional, vacant, commercial, and transportation. Future land use at the Crabbs Branch Way site is designated as Commercial.

According to the *Shady Grove Sector Plan*, the Crabbs Branch Way site is zoned I-1. Areas zoned I-1 within Montgomery County generally involve small-scale to medium-scale industrial activities, including but not limited to research and development, warehousing and storage activities, light manufacturing and assembly of products, and other similar uses.

This site is also being considered for a potential maintenance facility for the ICC. The site layout was developed to accommodate both uses and further coordination would be required if both facilities move forward on this site.

The Crabbs Branch Way site is located within Census Tract 7007.11, Block Group 2, which has a total population of 2,620 persons. The total minority population within this block group is 1,411, which is 54 percent of the total population, and the number of persons below poverty is 141, which is 5 percent of the population. The overall minority population of this census block group is considered to be meaningfully greater than the minority population of Montgomery County. The average annual income within Census Tract 7007.11, Block Group 2 is $78,405.

According to the *Soil Survey of Montgomery County, Maryland*, Glenelg silt loam, 3 to 8 percent slopes (2B), which is designated as prime farmland by the USDA, is located within the Crabbs Branch Way study area. In addition, Gaila silt loam, 8 to 15 percent slopes (1C), which is designated by the USDA as farmland of statewide importance, is located within the study area. Further coordination with the USDA's Natural Resource Conservation Service (NRCS) would be required to determine the amount of impacts anticipated and what, if any, mitigation would be required.

According to FEMA floodplain mapping, Community Panel Number 24031 C 0193D (September 29, 2006), the Crabbs Branch Way site is not located within the 100-year floodplain of any streams or tributaries.

The *"Waters of the U.S." Identification and Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that one wetland system is located within the footprint of the Crabbs Branch Way site. Wetland/Waterway RP7 is a wetland system that includes an intermittent stream, forested wetland, and emergent/scrub-shrub wetland located to the north and south of I-370. The wetland system, identified as a palustrine scrub-shrub broad-leafed deciduous wetland system with a temporarily flooded water regime (PSS1A), extends north through the study area into an intermittent stream. The wetland is open-ended and extends out of the study area. Approximately 0.04 acres of wetland buffer would be affected if this site were selected. The site layout has been developed to minimize impacts to this wetland.

The *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that the Crabbs Branch Way site is described as heavily disturbed with limited amounts of forest resources located within the proposed LOD. Due to the small size of vegetated areas, they do not qualify as a forest stand.

The *Hazardous Waste Report for Corridor Cities Transitway LRT/BRT Maintenance Facilities* (ADM December 2006) indicated that no sites of concern were identified within the footprint of the Crabbs Branch Way site. InfoMap reported that 11 RCRA GEN sites, one Spills-1990 site, 22 registered UST/AST sites, 23 LUST sites, one SWL site, one State Site, and one Brownfield site are located within a 0.5-mile radius of this site.

C. SITES IN THE VICINITY OF METROPOLITAN GROVE

Site 6 and Site 4/5 are located within the vicinity of Metropolitan Grove. As a result, several of the environmental resources will be similar for both sites.

Both of the candidate sites are located within the Middle Potomac River Basin. Sites 6 and 4/5 are located within the Seneca Creek Watershed.

According to the USGS, the candidate sites are located within the Piedmont Physiographic Province. The entire area is underlain primarily by crystalline-rock aquifers, the most widespread aquifers in the Piedmont Province. For further information on aquifers typically found in this area, see the discussion under **Sites in the Vicinity of Shady Grove** on page 14.

Coordination with the Maryland DNR indicates that a total of twelve rare, threatened, or endangered species of plants or animals have been documented along the I-270 corridor in Montgomery County. However, there are no records of any federal- or state-listed rare, threatened, or endangered species within the footprint of either site.

1. Site 6 – Adjacent to CSX Tracks and I-270 ramps at Quince Orchard Road

Site 6, shown on **Figures 12** and **13**, is located within the City of Gaithersburg, southwest of I-270, northwest of Quince Orchard Road, northeast of the CSX tracks, and adjacent to Metropolitan Grove Road. This site is located within the Casey – Metropolitan Grove Road Special Study Area of the City of Gaithersburg planning area. The northwestern portion of Site 6 is currently owned by the City of Gaithersburg and is undeveloped. The southeastern portion of the site is currently occupied by in the Montgomery County Police Department's Vehicle Impound Lot.

According to the *City of Gaithersburg Land Use Plan* (City of Gaithersburg Planning and Code Administration, April 6, 2004), land uses at Site 6 are designated as Open Space and Institutional. Future land use at Site 6 is designated as Commercial and Residential.

There would be no residential displacements associated with Site 6. The Montgomery County Police Department is planning to expand their current impound facility with the construction of a forensics lab anticipated to begin in early 2007. The impound lot and forensics lab would be displaced by Site 6. The study team has coordinated with representatives from Montgomery County government and the Police department and they are not opposed to relocating their operations in the future.

Site 6 is located within Census Tract 7007.06, Block Group 2, which has a total population of 1,832 persons. The total minority population within this block group is 904, which is 49 percent of the total population, and the number of persons below poverty is 167, which is 9 percent of the population. The average annual income within Census Tract 7007.06, Block Group 2 is $42,315. The minority population of this block group exceeds the average percentage of minority population for Montgomery County, which is 35 percent. However, the site results in no residential displacements and is not adjacent to any existing residential areas.

According to the *Soil Survey of Montgomery County, Maryland*, soil 2B, which is designated as prime farmland by the USDA, is located within the Site 6 study area. In addition, soil 1C, which is designated by the USDA as farmland of statewide importance, is located within the study area. Further coordination with the USDA's NRCS would be required to determine the amount of impacts anticipated and what, if any, mitigation would be required.

According to FEMA floodplain mapping, Community Panel Number 24031 C 0188D (September 29, 2006), Site 6 is not located within the 100-year floodplain of any streams or tributaries.

The *"Waters of the U.S." Identification and Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that part of a stormwater management system is located within the boundary of Site 6. This stormwater management pond is not considered a wetland. Four streams, classified as Waters of the U.S., are present in the Site 6 study area. All of the streams are classified as intermittent and total 2,977 feet. Approximately 486 linear feet of streams would be impacted with the implementation of the LRT. However, stream impacts associated with the BRT would be 328 linear feet.

The *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that Site 6 is located in an area that is described as a stand of mature timber with limited understory growth. The forest stand was in good condition and health with no pests or disease present. The stand is dominated by tulip poplar. Other dominant species include black oak, white oak, and red maple. Additional details on this forest stand may be found in the *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM, January 2007). Approximately 10.2 acres of forest would be impacted by an LRT layout at this site, whereas a BRT layout would affect approximately 7.8 acres of forest. In addition, the LRT and BRT layouts would impact 102 significant trees and 128 specimen trees and 76 significant and 90 specimen trees, respectively. Within the identified forested area, 241 significant trees and 245 specimen trees would be affected. The site layout was modified for the LRT in order to minimize impacts to forest resources. This is shown in the minimization options discussed on Page 23.

The forest stand at Site 6 contains "Priority Areas" as described in *Maryland – National Capital Park and Planning Commission (M-NCPPC) Trees Technical Manual* (M-NCPPC 1992). The forest stand has been classified as a Priority 1 Stand, as intermittent streams are located within the LOD and the area is adjacent to a highway right-of way.

The use of Site 6 would result in impacts to existing forest resources. Further coordination with MDNR would be required to determine mitigation measures, should this site be selected as the preferred site.

An additional layout was done for the LRT option at Site 6 to include minimization options in an effort to decrease the amount of anticipated impacts to natural resources. Impacts to wetlands and wetland buffers would be the same. However, approximately 192 linear feet of streams would be impacted with this option. In addition, forest impacts

would decrease to approximately 8.9 acres. This layout would affect 51 significant trees and 79 specimen trees.

The *Hazardous Waste Report for Corridor Cities Transitway LRT/BRT Maintenance Facilities* (ADM December 2006) indicated that no sites of concern were identified within the footprint of Site 6. Two RCRA GEN sites, one Spills-1990 site, three registered UST/AST sites, and 20 LUST sites were identified within a 0.5 mile radius of Site 6. The Hazardous Waste Report concluded that Site 6 has one property with a high contaminate value within a 0.5-mile radius. As such, further research and/or a preliminary site investigation would be recommended for this site if it were selected as the preferred site.

2. Site 4/5 – Adjacent to PEPCO Transmission Line

Site 4/5, shown on **Figure 14**, is located between Germantown and Gaithersburg, immediately west of I-270. This site is bordered by a high-voltage power line and Game Preserve Road to the north, I-270 to the east, and undeveloped land to the west and south. Land use at Site 4/5 is primarily forested and low-density residential, as four single-family residences are located within and would be displaced by this site. Future land use at Site 4/5 is designated as Commercial and Residential.

Four residences would be directly impacted by the location of the facility. The access to the site would be through a proposed residential street. The planned layout of this residential area was not available and is therefore not shown on the accompanying plans.

To comply with the goals of Order 12898, the US Census Bureau (2000) data was reviewed to determine the presence of minority and/or low-income populations within the Census Block Groups in which each of the candidate sites are located. Site 4/5 is located within Census Tract 7007.06, Block Group 2, which has a total population of 1,832 persons. The total minority population within this block group is 904, which is 49 percent of the total population, and the number of persons below poverty is 167, which is 9 percent of the population. The minority population within this block group exceeds the average percentage of minority populations for Montgomery County. The average annual income within Census Tract 7007.06, Block Group 2 is $42,315.

According to the *Soil Survey of Montgomery County, Maryland* (USDA 2002), soil 2B, which is designated as prime farmland by the USDA, is located within the Site 4/5 study area. In addition, Brinklow-Blocktown channery silt loam, 8 to 15 percent slopes (16C), which is designated by the USDA as farmland of statewide importance, is located within the study area. As such, further coordination with the USDA's NRCS would be required to determine the amount of impacts anticipated and what, if any, mitigation would be required.

According to FEMA mapping, Community Panel Number 24031 C 0186D (September 29, 2006), Site 4/5 is not located within the 100-year floodplain of any streams or tributaries.

The *"Waters of the U.S." Identification and Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that four streams are located within the Site 4/5 study area. Three of the

streams are classified as intermittent and one is classified as perennial. A total of 1,167 linear feet of streams are located within this study area. Approximately 660 linear feet of streams would be affected by the implementation of Site 4/5.

The *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that Site 4/5 is located in an area that is described as a stand of mature timber with limited understory growth. The stand was observed to be in good condition and health with no evidence of pests or disease. The stand is dominated by *Liriodendron tulipifera* (tulip poplar). Other dominant species include *Quercus palustris* (pin oak), *Quercus velutina* (black oak), *Quercus alba* (white oak), and *Acer rubrum* (red maple). Additional details on this forest stand may be found in the *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM, January 2007). Approximately 18.7 acres of forest would be affected by the implementation of Site 4/5. Within the forested area, 111 significant trees and 87 specimen trees would be impacted.

The forest stand at Site 4/5 is generally in a late-successional stage and dead trees and woody debris are common. The forest stand contains "Priority Areas" as described in *M-NCPPC Trees Technical Manual* (M-NCPPC 1992). The forest stand at this site has been classified as a Priority 1 Stand, as perennial and intermittent streams are present within the study area, erodible soils on slopes of 15 percent or greater are present, and the area is adjacent to the PEPCO transmission line.

The use of Site 4/5 would result in significant impacts to existing forest resources. Further coordination with MDNR would be required to determine mitigation measures, should this site be selected as the preferred site.

The *Hazardous Waste Report for Corridor Cities Transitway LRT/BRT Maintenance Facilities* (ADM December 2006) indicated that no sites of concern were identified within the footprint of Site 4/5. InfoMap reported that one LUST site is located within a 0.5-mile radius of Site 4/5. As such, no further research and/or preliminary site investigations would be required.

D. Site in the Vicinity of COMSAT

1. Observation Drive Site – Adjacent to I-270 and Old Baltimore Road

The proposed site at Observation Drive, shown on **Figure 15**, is located in the Brink Road Transition Area of Clarksburg, south of West Old Baltimore Road to the south of Comsat Road, and east of I-270. Seneca Creek abuts the site to the south. Existing land use at the Observation Drive site is designated as Major Employment in the *Clarksburg Master Plan and Hyattstown Special Study Area* (Montgomery County Planning Board, June 1994). This site is surrounded by various land uses, including park, proposed park, residential, and agricultural reserve. Planned land uses in the vicinity of this site include Light Industrial, Public Park and Greenway System, and Office Industrial Park to the north of the site.

According to the *Clarksburg Master Plan and Hyattstown Special Study Area* (Montgomery County Planning Board, June 1994), the Observation Drive site is zoned I-

3 (Technology and Business Park) and I-4 (Low-Intensity, Light Industrial) by Montgomery County. Areas zoned I-3 and I-4 within Montgomery County generally allow most uses relating to transportation, communication, and utilities.

The BRT O&M Facility would be a compatible land use at the Observation Drive site and would be permitted uses within the I-3 and I-4 zone. However, coordination with Montgomery County Planning Department is recommended to determine whether or not permits would be required.

The Observation Drive site is located within Census Tract 7003.02, Block Group 1, which has a total population of 1,261 persons. The total minority population within this block group is 80, which is 7 percent of the total population, and the number of persons below poverty is 56, which is 4 percent of the population. The average annual income within Census Tract 7003.02, Block Group 1 is $81,373.

According to the *Soil Survey of Montgomery County, Maryland*, Occoquan loam, 3 to 8 percent slopes (17B), which is designated as prime farmland by the USDA, is located within the Observation Drive study area. In addition, Occoquan loam, 8 to 15 percent slopes (17C), which is designated by the USDA as farmland of statewide importance, is located within the study area. Further coordination with the USDA's NRCS would be required to determine the amount of impacts and mitigation anticipated.

Observation Drive is located within the Seneca Creek watershed within the Middle Potomac River Basin. According to FEMA floodplain mapping, Community Panel Number 2400490050B (July 2, 1979), the Observation Drive site is not located within the 100-year floodplain of any streams or tributaries.

The *"Waters of the U.S." Identification and Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that the eastern boundary of the Observation Drive site is bordered by the Little Seneca Creek floodplain. Three wetland areas are located within the study area and are associated with this floodplain. Wetland W-2 is classified as a palustrine forested, broad-leaved deciduous, temporarily flooded (PFO1A) wetland and the area of the wetland within the study area is 2.81 acres in size. Wetland W-3 is classified as a palustrine emergent, persistent, temporarily flooded (PEM1A) wetland. The area of the wetland within the study limits is 0.31 acres. Wetland W-4 is also classified as a PEM1A and is 0.14 acres in size. One stream, classified as perennial and totaling 1,769 linear feet, is located within the Observation Drive study area. Of this total, approximately 3.3 acres of wetlands and 2.1 acres of wetland buffer would be impacted by the implementation of this site.

According to the USGS, the Observation Drive site is located within the Piedmont Physiographic Province. The entire area is underlain primarily by crystalline-rock aquifers, the most widespread aquifers in the Piedmont Province. For further information on aquifers typically found in this area, see the discussion under **Sites in the Vicinity of Shady Grove** on page 14. According to the United States Environmental Protection Agency's (EPA) website, the Observation Drive site is underlain by the Piedmont Sole Source Aquifer.

Coordination with the Maryland DNR indicates that a total of twelve rare, threatened, or endangered species of plants or animals have been documented along the Interstate

270 corridor in Montgomery County. However, there are no records of any federal- or state-listed rare, threatened, or endangered species within the footprint of the Observation Drive site.

The *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007) indicated that the Observation Drive site contains two stands of mature forests, identified as Stand 1 and Stand 2. Approximately 0.84 acres of forest would be impacted by the implementation of this site. In addition, four significant trees and one specimen tree would be affected.

Stand 1 is located along the western side of the site and follows I-270 for most of the length of the site. This forest stand appeared to be in good health and condition with no evidence of pests or disease. This forest stand is dominated by *Quercus prinus* (chestnut oak), Prunus *serotina* (black cherry), tulip poplar, black oak, white oak, *Nyssa sylvatica* (black gum), and red maple. Additional details on this forest stand may be found in the *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM, January 2007). This forest stand is generally in a mid-successional stage.

Forest Stand 1 contains "Priority Areas" as described in *M-NCPPC Trees Technical Manual* (M-NCPPC 1992). The forest stand has been classified as a Priority 1 Stand, as the stand is adjacent to utility or road right-of-way.

Stand 2 is located within the southern tip of the Observation Road site. This forest stand appeared to be in good health and condition with no evidence of pests or disease. This forest stand is dominated by *Fraxinus americana* (white ash), tulip poplar, black oak, white oak, *Carpinus caroliniana* (American hornbeam), and red maple. Additional details on this forest stand may be found in the *Forest Stand Delineation Report for Corridor Cities Transitway LRT/BRT Maintenance Facility Alternative Analysis* (ADM January 2007). This forest stand is generally in a late-successional stage.

Forest Stand 2 contains "Priority Areas" as described in *M-NCPPC Trees Technical Manual* (M-NCPPC 1992). The forest stand has been classified as a Priority 1 Stand, as perennial streams are located adjacent to the study area.

The *Hazardous Waste Report for Corridor Cities Transitway LRT/BRT Maintenance Facilities* (ADM December 2006) indicated that one LUST was located within a 0.5 mile radius of the Observation Drive site. As such, no further research and/or preliminary site investigations would be required.

The proposed extension of Observation Drive results in the displacement of an existing farmhouse. The COMSAT Observation Drive site would result in the displacement of several outbuildings associated with the farm house. Since the extension of Observation Drive would result in the displacement of the farmhouse before any proposed construction associated with the proposed BRT site, impacts to the farmhouse would not occur as a result of the BRT site at this location.

Black Hill Regional Park abuts the Observation Drive site on the northwestern side of the site. A right-of-way has been taken out of the park for the construction of Observation Drive. The Observation Drive site does not fall within Black Hill Regional Park or the right-of-way for Observation Drive. The current layout of the Observation Drive site

would require the acquisition of a small parcel of property outside of the larger farm property, on the northwest corner of the site. This parcel is not part of Black Hill Regional Park. The proposed North Germantown Greenway is located directly east of the Observation Drive site. No part of the proposed site layout would fall within the proposed park. As a result, impacts to existing and proposed park resources would be minimal.

IV. MINIMIZATION OPTIONS

The preliminary O&M site layouts were developed in order to avoid and minimize impacts to the maximum extent feasible. However, the design constraints associated with a yard often dictate the site layout, especially in the case of LRT. The design criteria established for the sites is appropriate for this phase of the study as there is no decision on mode, operating entity, or specific vehicles. As these decisions are made, and the design moves forward, there will be additional opportunities to refine the preliminary site layouts to further avoid and/or minimize potential impacts.

Shady Grove Site 1D has no natural or cultural resource impacts. This site does result in the relocation of the strip mall, storage facility, vehicle and machine maintenance shops, and impound storage lots. There are no residential displacements resulting from Site 1D. It is not possible to further minimize these business displacements as the entire site is required for the layout of the facility.

The Shady Grove – Crabbs Branch Way Site has one wetland system that encroaches into the site. The layout of the parking was developed to avoid the wetland and the preliminary parking layout only encroaches slightly into the wetland buffer in one location. If this site were selected, the design would be refined to further minimize impacts to the wetland buffer.

Metropolitan Grove Site 6 is the most promising from an engineering and operational standpoint. Wetland impacts associated with this site result from the relocation of the stormwater management pond associated with the existing police impound lot. This site also has impacts to large forested areas as well as to numerous significant and specimen trees. Potential impacts to the existing stormwater management pond can not be avoided at this site; however, in order to further minimize impacts to the forested areas (and the number of individual significant and specimen trees) a minimization option was developed as shown on **Figure 16**. The initial layout was contained solely on publicly-owned lands. The minimization option shown is for the LRT layout which had the greater impacts between the LRT and BRT layouts. It was developed to reduce forest impacts, especially in the area along the stream, and to minimize the number of individual significant and specimen trees. The minimization option takes some private land but it reduces the forest impacts from 10.2 acres to 8.9 acres, reduces the stream impact from 486 linear feet to 192 linear feet, and reduces the number of significant and specimen trees from 102 and 128 to 51 and 79, respectively. Similar reductions can be expected for the BRT site as well.

Metropolitan Grove Site 4/5 has the greatest stream and forest impacts of all of the sites as well as the largest residential displacements. It is difficult to minimize these impacts since the site is adjacent to a park and the PEPCO easement and it is surrounded by contiguous forested areas.

The proposed extension of Observation Drive results in the displacement of an existing farmhouse. The COMSAT Observation Drive site would result in the displacement of several outbuildings associated with the farm house. In addition, the site would result in 0.84 acres of forest impacts. Since the extension of Observation Drive would result in the displacement of the farmhouse before the proposed construction associated with the proposed BRT site, impacts to the farmhouse would not occur as a result of the BRT site at this location.

As stated above, once decisions on mode, operating entity, and vehicle are made; there will be additional opportunities to refine the preliminary site layouts to further avoid and/or minimize potential impacts.

V. COSTS

The costs estimates were based upon the actual layout and quantities for each site and do not include design or property acquisition. The general pricing follows SHA's 2005 Highway Construction Cost Estimating Manual with modifications made to accommodate BRT and LRT related work as well as additional detail provided to stormwater management.

The costs for the building, shop equipment, and trackwork were developed from cost estimates prepared for the DART Northwest Rail Operating Facility (July 2005), WMATA's Shady Grove Shop Expansion (July 2004), Sprinter Light Rail Maintenance Facility (July 2005), TTA Regional Rail (June 2005), and Metro South Extension (2004).

For the LRT and BRT specific related items, the costs were consistent between the different sites. One of the significant differentiators includes the $6.5 million WMATA traction power substation that must be rebuilt for the Shady Grove Site 1D LRT option. Other differentiators include the amount of excavation/borrow materials and retaining walls, and the use above ground stormwater management vs. below ground.

Preliminary costs for each site are summarized in **Table 1**. Additional back-up is included in **Appendix F**.

Table 1 – Summary of Costs

SITE	COST (in millions $)
Shady Grove	
Site 1D	**64.9 (BRT)**
	85.0 (LRT)
Crabbs Branch Way Site	**39.7 (BRT)**
Metropolitan Grove	
Site 6	**53.7 (BRT)**
	67.2 (LRT)
Site 4/5	**93.7 (LRT)**
COMSAT	
Observation Drive Site	**70.6 (BRT)**

VI. SUMMARY

The CCT O&M Facility study is part of the larger I-270/US 15 Multi-Modal Corridor Study. The O&M Facility would provide storage and maintenance facilities where transit vehicles are inspected, repaired, cleaned and stored. The mode for the transitway, light rail transit or bus rapid transit, as well as the operating entity, has yet to be determined. Therefore, possible facility site locations were evaluated for both modes.

As part of this site selection study, design criteria were developed specifically for both BRT and LRT O&M facilities for the CCT. The criteria is based on existing criteria, industry standards and best practices, field visits to current MTA facilities, and input from MTA operations and maintenance personnel.

The study assessed both the sites initially considered in the May 2002 DEIS as well as new sites identified in cooperation with study team members from the local jurisdictions. Some sites were eliminated due to site constraints and potential impacts. Following this initial screening, five sites were retained for further analysis.

Table 2 summarizes the anticipated environmental impacts associated with siting an O&M Facility at any of the candidate sites. A more detailed comparison of the sites including engineering, environmental, and operational issues is included in Appendix E. The totals listed for the Site 6 LRT are for the minimization option. Below is a brief discussion of the environmental impacts expected at each candidate site location.

Site 1D

The implementation of either the BRT or LRT layout at this location would require the relocation of the strip mall, storage facility, vehicle and machine maintenance shops, and impound storage lots. There are no residential displacements or natural resources would be impacted by the implementation of the BRT or LRT layout Site 1D. While the site is consistent with existing land uses, the area has been the subject of re-zoning and is planned for mixed-use, transit-oriented development. As such, the use of Site 1D as a BRT or LRT site would not be compatible with planned use of the area.

The *Hazardous Waste Report for Corridor Cities Transitway LRT/BRT Maintenance Facilities* indicated that no sites of concern were identified within the footprint of Site 1D. However, InfoMap reported that eight RCRA GEN sites, one ERNS site, 10 registered UST and AST sites, 28 LUST sites, and one SWL are located within a 0.5-mile radius of Site 1D. In addition, the Site 1D study area has the highest number of high contaminate value properties of the candidate sites. A preliminary site investigation would be required, as LUSTs are located in close enough proximity to the potential site that the properties should be investigated for contamination that may be disturbed by the proposed project.

Crabbs Branch Way

According to the *Shady Grove Sector Plan*, the Crabbs Branch Way site is zoned I-1. Existing land use at this site is designated as vacant and future land use is commercial. This site would not be compatible with existing land use but would be compatible with

future land use. This site is being considered for a potential maintenance facility for the ICC. The site layout was developed to accommodate both uses and further coordination would be required if both facilities move forward on this site.

The Crabbs Branch Way site is located within Census Tract 7007.11, Block Group 2, which has a total population of 2,620 persons. The total minority population within this block group is 1,411, which is 54 percent of the total population. The overall minority population of this census block group is considered to be meaningfully greater than the minority population of Montgomery County.

According to the *Soil Survey of Montgomery County, Maryland*, soil 2B, which is designated as prime farmland, and soil 1C, which is designated as farmland of statewide importance, is located within the study area. Further coordination with the USDA's NRCS would be required to determine the amount of impacts anticipated and what, if any, mitigation would be required.

Approximately 0.04 acres of wetland buffer would be affected if this site were selected. The site layout has been developed to minimize impacts to this wetland. No floodplains, forest resources, rare, threatened, or endangered species or other natural resources would be affected by the implementation of the BRT at this site.

The *Hazardous Waste Report for Corridor Cities Transitway LRT/BRT Maintenance Facilities* indicated that no sites of concern were identified within the footprint of the Crabbs Branch Way site. InfoMap reported that 11 RCRA GEN sites, one Spills-1990 site, 22 registered UST/AST sites, 23 LUST sites, one SWL site, one State Site, and one Brownfield site are located within a 0.5-mile radius of this site.

Site 6

According to the *City of Gaithersburg Land Use Plan*, land uses at Site 6 are designated as Open Space and Institutional. Future land use at Site 6 is designated as Commercial and Residential. The Montgomery County Police Department is planning to expand their existing impound facility with the construction of a forensics lab anticipated to begin in early 2007. The impound lot and forensics lab would be displaced by Site 6. The study team has coordinated with representatives from Montgomery County government and the Police department and they are not opposed to relocating their operations in the future.

Site 6 is located within Census Tract 7007.06, Block Group 2, which has a total population of 1,832 persons. The total minority population within this block group is 904, or 49 percent of the total population, which exceeds the average percentage of minority population for Montgomery County.

According to the *Soil Survey of Montgomery County, Maryland*, soil 2B, which is designated as prime farmland, and soil 1C, which is designated as farmland of statewide importance, are located within the study area. Further coordination with the USDA's NRCS would be required to determine the amount of impacts anticipated and what, if any, mitigation would be required.

A wetland delineation indicated approximately 486 linear feet of streams would be impacted with the implementation of the LRT layout. Stream impacts associated with the BRT layout would be 328 linear feet.

Approximately 7.8 acres of forest would be impacted by the BRT layout at this site. In addition, the BRT layout would impact 76 significant and 90 specimen trees. An additional layout was done for the LRT option at Site 6 to include minimization options in an effort to decrease the amount of anticipated impacts to natural resources. The minimization option takes some private land but it reduces the forest impacts from 10.2 acres to 8.9 acres, reduces the stream impact from 486 linear feet to 192 linear feet, and reduces the number of significant and specimen trees from 102 and 128 to 51 and 79, respectively. Similar reductions can be expected for the BRT site as well. Further coordination with MDNR and M-NCPPC would be required to determine mitigation measures, should this site be selected as the preferred site.

The Hazardous Waste Report indicated that no sites of concern were identified within the footprint of Site 6. Two RCRA GEN sites, one Spills-1990 site, three registered UST/AST sites, and 20 LUST sites were identified within a 0.5 mile radius of Site 6. The Hazardous Waste Report concluded that Site 6 has one property with a high contaminate value within a 0.5-mile radius. As such, further research and/or a preliminary site investigation would be recommended for this site if it were selected as the preferred site.

Site 4/5

Land use at Site 4/5 is primarily forested and low-density residential and future land use is designated as Commercial and Residential. Four residences would be directly impacted by the location of the facility. The LRT at Site 4/5 would not be compatible with existing or future land use. The access to the site would be through a proposed residential street. The planned layout of this residential area was not available and is therefore not shown on the accompanying plans.

Site 4/5 is located within Census Tract 7007.06, Block Group 2, which has a total population of 1,832 persons. The total minority population within this block group is 904, which is 49 percent of the total population. The minority population within this block group exceeds the average percentage of minority populations for Montgomery County.

According to the *Soil Survey of Montgomery County, Maryland* (USDA 2002), soil 2B, which is designated as prime farmland, and soil 16C, which is designated as farmland of statewide importance, are located within the study area. As such, further coordination with the USDA's NRCS would be required to determine the amount of impacts anticipated and what, if any, mitigation would be required.

A wetland delineation indicated that four streams are located within the Site 4/5 study area. Three of the streams are classified as intermittent and one is classified as perennial. Approximately 660 linear feet of streams would be affected by the implementation of Site 4/5.

A forest stand delineation indicated that approximately 18.72 acres of forest would be affected by the implementation of Site 4/5. Within the forested area, 111 significant trees and 87 specimen trees would be impacted. Further coordination with MDNR and

M-NCPPC would be required to determine mitigation measures, should this site be selected as the preferred site.

Observation Drive

According to the *Clarksburg Master Plan and Hyattstown Special Study Area*, existing land use at the Observation Drive site is designated as Major Employment. This site is zoned I-3 (Technology and Business Park) and I-4 (Low-Intensity, Light Industrial) by Montgomery County. This site would be compatible with existing and future land use. The planned extension of Observation Drive and the implementation of the BRT O&M Facility at this site would displace the existing farmhouse and outbuildings.

According to the *Soil Survey of Montgomery County, Maryland*, soil 17B, which is designated as prime farmland, and soil 17C, which is designated as farmland of statewide importance, is located within the study area. Further coordination with the USDA's NRCS would be required to determine the amount of impacts and mitigation anticipated.

A wetland delineation indicated that approximately 3.3 acres of wetlands and 2.1 acres of wetland buffer would be impacted by the implementation of this site.

A forest stand delineation indicated that approximately 0.84 acres of forest would be impacted by the implementation of the Observation Drive site. In addition, four significant trees and one specimen tree would be removed. Further coordination with MDNR would be required to determine mitigation measures, should this site be selected as the preferred site.

This report summarizes the site identification and screening for potential O&M facilities. Once a mode is selected for the transitway facility, a final O&M site will be selected. Once the site is selected and more information is known on the operating entity and vehicle selection, the preliminary design and layout of the O&M site will be refined to further avoid and/or minimize potential environmental impacts.

Table 2
Summary of Environmental Impacts

Resources	Site 1D - BRT	Site 1D - LRT	Crabbs Branch Way - BRT	Site 4/5 - LRT	Site 6 - BRT	Site 6 – LRT (minimization)	Observation Drive - BRT
Residential Displacements	None	None	None	4	None	None	1
Business Displacements	29	29	None	None	Police Impound Lot/Future Forensics Lab	Police Impound Lot/Future Forensics Lab	None
Soils	PF - 5.89 acres	PF - 7.40 acres	PF - 8.23 acres SI - 0.72 acres	PF - 2.68 acres SI - 12.03 acres	PF - 12.48 acres SI - 0.55 acres	PF - 15.05 acres SI - 1.92 acres	PF - 6.29 acres SI - 5.74 acres
Floodplain Impacts	None	None	None	None	None	None	None
Stream Impacts	None	None	None	660 linear feet	328 linear feet	486 linear feet	None
Wetland and Buffer Impacts	None	None	0.4 acres	None	None	None	None
Forest Impacts	None	None	None	18.72 acres	7.8 acres	8.87 acres	0.84 acres
Significant trees	None	None	None	111	76	51	4
Specimen trees	None	None	None	87	90	79	1
Hazardous Waste potential	Low- no hazardous wastes onsite; four high contaminant value sites located within 0.10 miles	Low - no hazardous wastes onsite; four high contaminant value sites located within 0.10 miles	Low - no hazardous wastes onsite; one high contaminant value site located within 0.16 miles	Low - no hazardous wastes onsite or in the immediate vicinity	Low - no hazardous wastes onsite; one high contaminant value site located within 0.11 miles	Low - no hazardous wastes onsite; one high contaminant value site located within 0.11 miles	Low - no hazardous wastes onsite; one high contaminant value site located within 0.5 miles
Existing Land Use	Commercial/ Industrial	Commercial/ Industrial	Undeveloped	Rural Residential	Commercial/ Industrial	Commercial/ Industrial	Undeveloped
Compatible with Future Planned Land Use	No	No	Yes	Yes	Yes	Yes	No
Park Impacts	No	No	No	No	No	No	No
Environmental Justice Impacts*	33% minority	33% minority	54% minority	49% minority	49% minority	49% minority	None

PF=Prime Farmland
SI= Farmland of Statewide Importance
*If the block group percentage is at least 50% greater than the county average with regard to the percent of minority or low-income populations, the block group was identified as having a “meaningfully greater” amount and, therefore, counted as an EJ area. In the project area, the “meaningfully greater” percentage threshold is 52.9%.

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JACOBS

Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE & STORAGE FACILITY

SITES ELIMINATED FROM CONSIDERATION

DATE: JANUARY 15, 2007 SCALE: 1" = 3500'

FIGURE 1

REDLAND ROAD

BUS ENTRANCE

SOMERVILLE DR

GATE

FENCE (TYP)

INDOOR BUS STORAGE (INITIAL)

INDOOR BUS STORAGE (FUTURE)

REPAIR STAGING AREA

SERVICE LANE

SERVICE LANE

FARE COLLECTION

LOADING DOCK

OPERATIONS & MAINTENANCE BUILDING (2 STORIES)

MAINTENANCE/INSPECTION BAYS

FREDERICK ROAD

STORMWATER MANAGEMENT POND

GUARD BUILDING

24' ACCESS ROAD

GATE

GATE

PARAMOUNT DRIVE

STAFF AND VISITOR ENTRANCE

EXISTING WMATA TRACKS

EXISTING CSX TRACKS

TRANSPORTATION

0 50 100

PRELIMINARY

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

PARKING SPACES = 265
OPERATIONS, MAINTENANCE & STORAGE (INITIAL)
BUILDINGS SQUARE FOOTAGE = 145,060
NUMBER OF MAINTENANCE BAYS = 15
YARD BRT VEHICLE STORAGE CAPACITY:
INITIAL = 87 (39 - 60' LONG VEHICLES & 48 - 40' LONG VEHICLES)
ULTIMATE = 174 (78 - 60' LONG VEHICLES & 96 - 40' LONG VEHICLES)

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

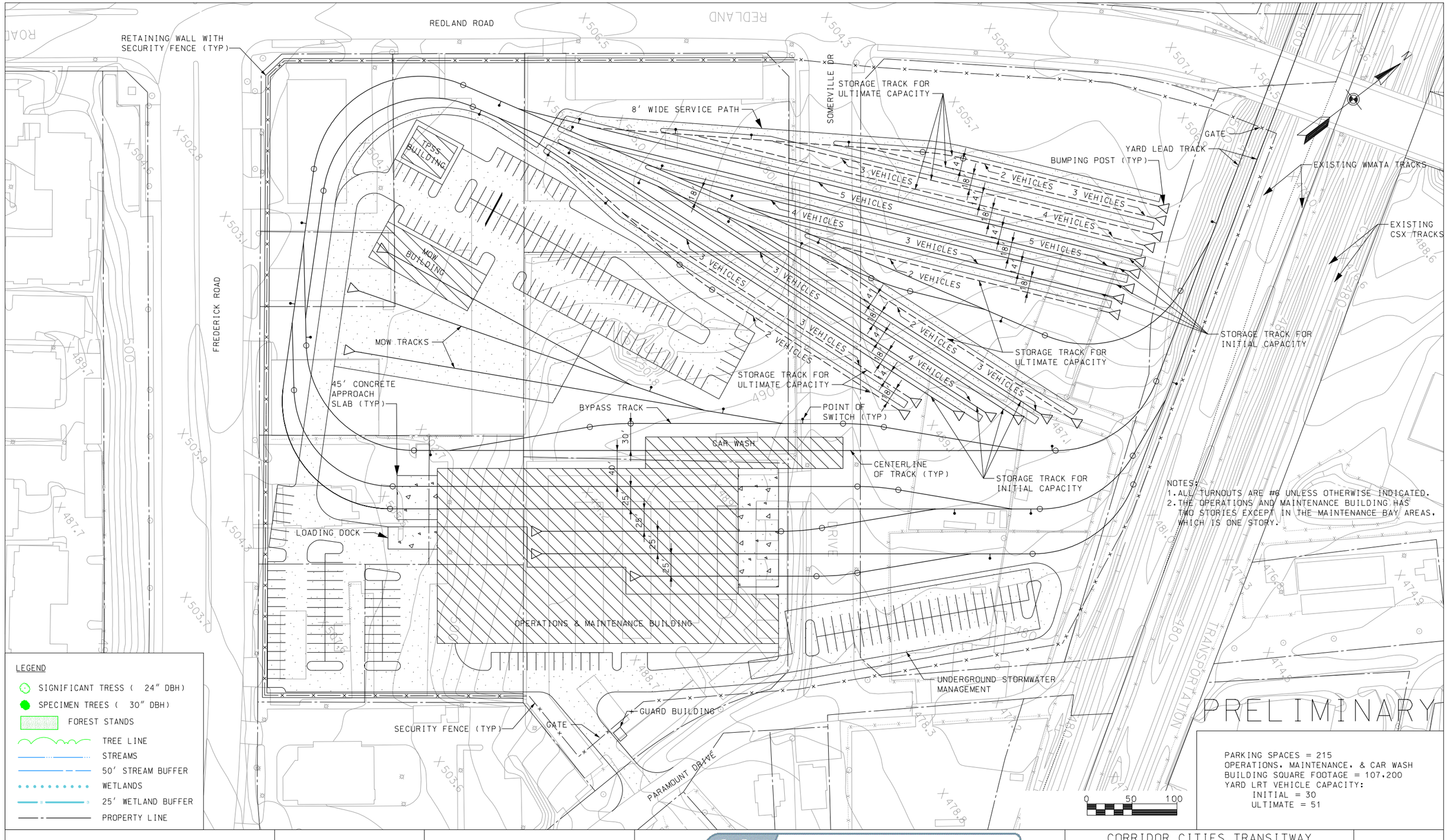
CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY OPERATIONS, MAINTENANCE & STORAGE FACILITY

SHADY GROVE SITE 1D PRELIMINARY BRT LAYOUT

DATE:JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 2



LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

NOTES:
1. ALL TURNOUTS ARE #6 UNLESS OTHERWISE INDICATED.
2. THE OPERATIONS AND MAINTENANCE BUILDING HAS TWO STORIES EXCEPT IN THE MAINTENANCE BAY AREAS, WHICH IS ONE STORY.

PRELIMINARY

PARKING SPACES = 215
OPERATIONS, MAINTENANCE, & CAR WASH BUILDING SQUARE FOOTAGE = 107,200
YARD LRT VEHICLE CAPACITY:
INITIAL = 30
ULTIMATE = 51

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

JACOBS

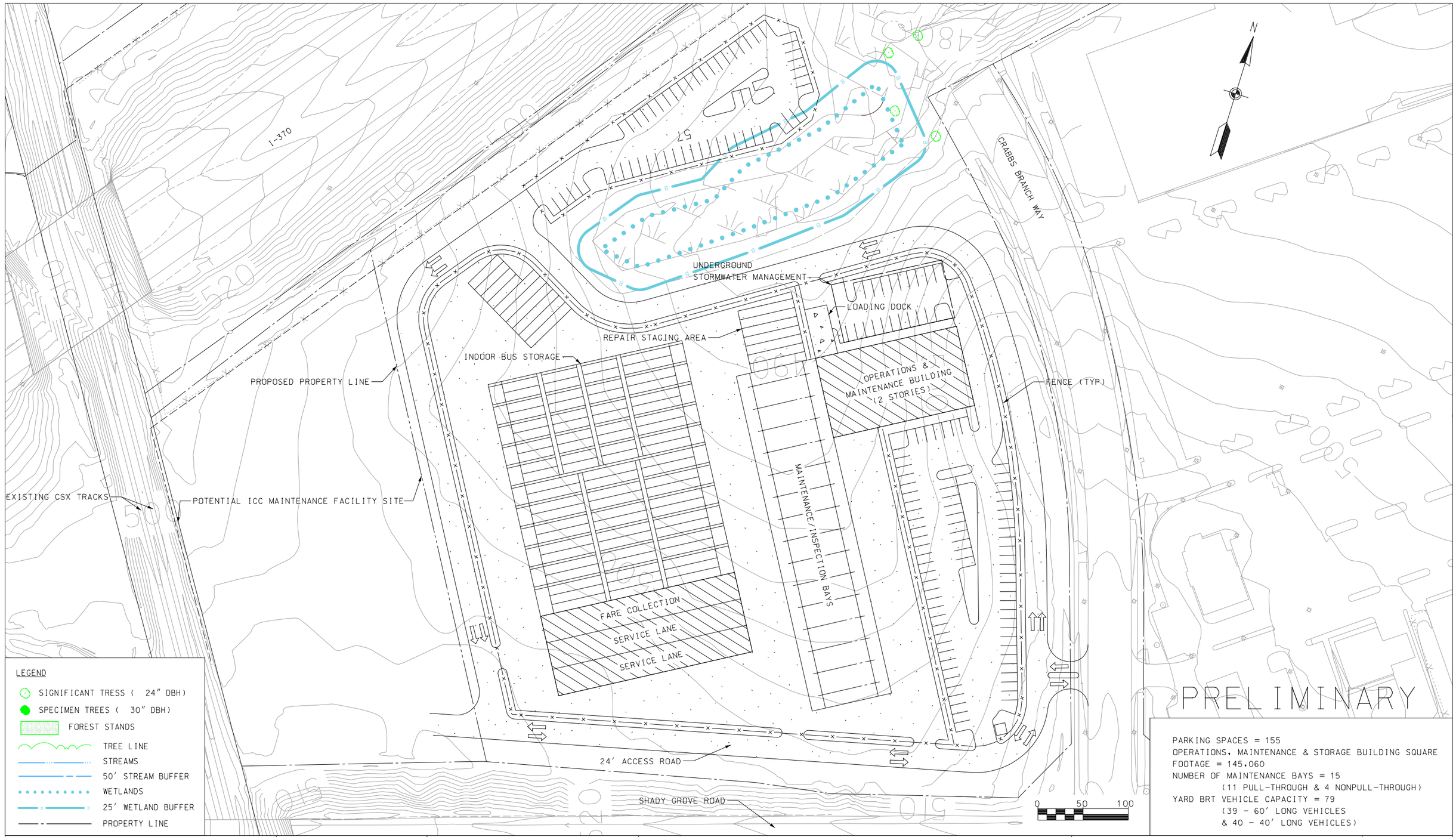
Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE & STORAGE FACILITY

SHADY GROVE SITE 1D
PRELIMINARY LRT LAYOUT

DATE: JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 3



PRELIMINARY

PARKING SPACES = 155
OPERATIONS, MAINTENANCE & STORAGE BUILDING SQUARE FOOTAGE = 145,060
NUMBER OF MAINTENANCE BAYS = 15
(11 PULL-THROUGH & 4 NONPULL-THROUGH)
YARD BRT VEHICLE CAPACITY = 79
(39 - 60' LONG VEHICLES
& 40 - 40' LONG VEHICLES)

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

JE JACOBS

CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE & STORAGE FACILITY

CRABBS BRANCH WAY SITE
PRELIMINARY BRT LAYOUT

DATE:JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 4

EXISTING CSX TRACKS

PROPOSED CCT MAINLINE

FENCE (TYP)

INDOOR BUS STORAGE (FUTURE)

INDOOR BUS STORAGE (INITIAL)

SERVICE LANE

SERVICE LANE

FARE COLLECTION

BUS ENTRANCE

QUINCE ORCHARD ROAD

I-270 RAMP

METROPOLITAN GROVE ROAD

MAINTENANCE INSPECTION BAYS

OPERATIONS & MAINTENANCE BUILDING (2 STORIES)

STORMWATER MANAGEMENT POND

STAFF AND VISITOR ENTRANCE

REPAIR STAGING AREA

LOADING DOCK

24' ACCESS ROAD

PROPOSED PROPERTY LINE

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

0 50 100

PRELIMINARY

PARKING SPACES = 311
OPERATIONS, MAINTENANCE & STORAGE (INITIAL)
BUILDING SQUARE FOOTAGE = 145,060
NUMBER OF MAINTENANCE BAYS = 15
YARD BRT VEHICLE STORAGE CAPACITY:
INITIAL = 87 (39 - 60' LONG VEHICLES & 48 - 40' LONG VEHICLES)
ULTIMATE = 174 (78 - 60' LONG VEHICLES & 96 - 40' LONG VEHICLES)

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

JE JACOBS

CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& OPERATIONS FACILITY

METROPOLITAN GROVE SITE 6
PRELIMINARY BRT LAYOUT

DATE:JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 5

PROPOSED CCT MAINLINE

STORAGE TRACK FOR INITIAL CAPACITY

SECURITY FENCE (TYP)

BYPASS TRACK

8' WIDE SEVICE PATH

6 VEHICLES

6 VEHICLES

6 VEHICLES

GATE

YARD LEAD TRACKS

BYPASS TRACK

6 VEHICLES

6 VEHICLES

6 VEHICLES

6 VEHICLES

5 VEHICLES

4 VEHICLES

MOW BUILDING

MOW TRACKS

STORAGE TRACK FOR ULTIMATE CAPACITY

POINT OF SWITCH (TYP)

TPSS BUILDING

GUARD BUILDING

GATE

OPERATIONS & MAINTENANCE BUILDING

CENTERLINE OF TRACK (TYP)

LOADING DOCK

VISITOR PARKING

CAR WASH

45' CONCRETE APPROACH SLAB (TYP)

STORMWATER MANAGEMENT POND

PROPOSED PROPERTY LINE

0 50 100

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

NOTES:
1. ALL TURNOUTS ARE #6 UNLESS OTHERWISE INDICATED.
2. THE OPERATIONS AND MAINTENANCE BUILDING HAS TWO STORIES EXCEPT IN THE MAINTENANCE BAY AREAS, WHICH IS ONE STORY.

PRELIMINARY

PARKING SPACES = 313
OPERATIONS, MAINTENANCE, & CAR WASH BUILDING SQUARE FOOTAGE = 122,474
YARD LRT VEHICLE CAPACITY:
INITIAL = 30
ULTIMATE = 51

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

JACOBS

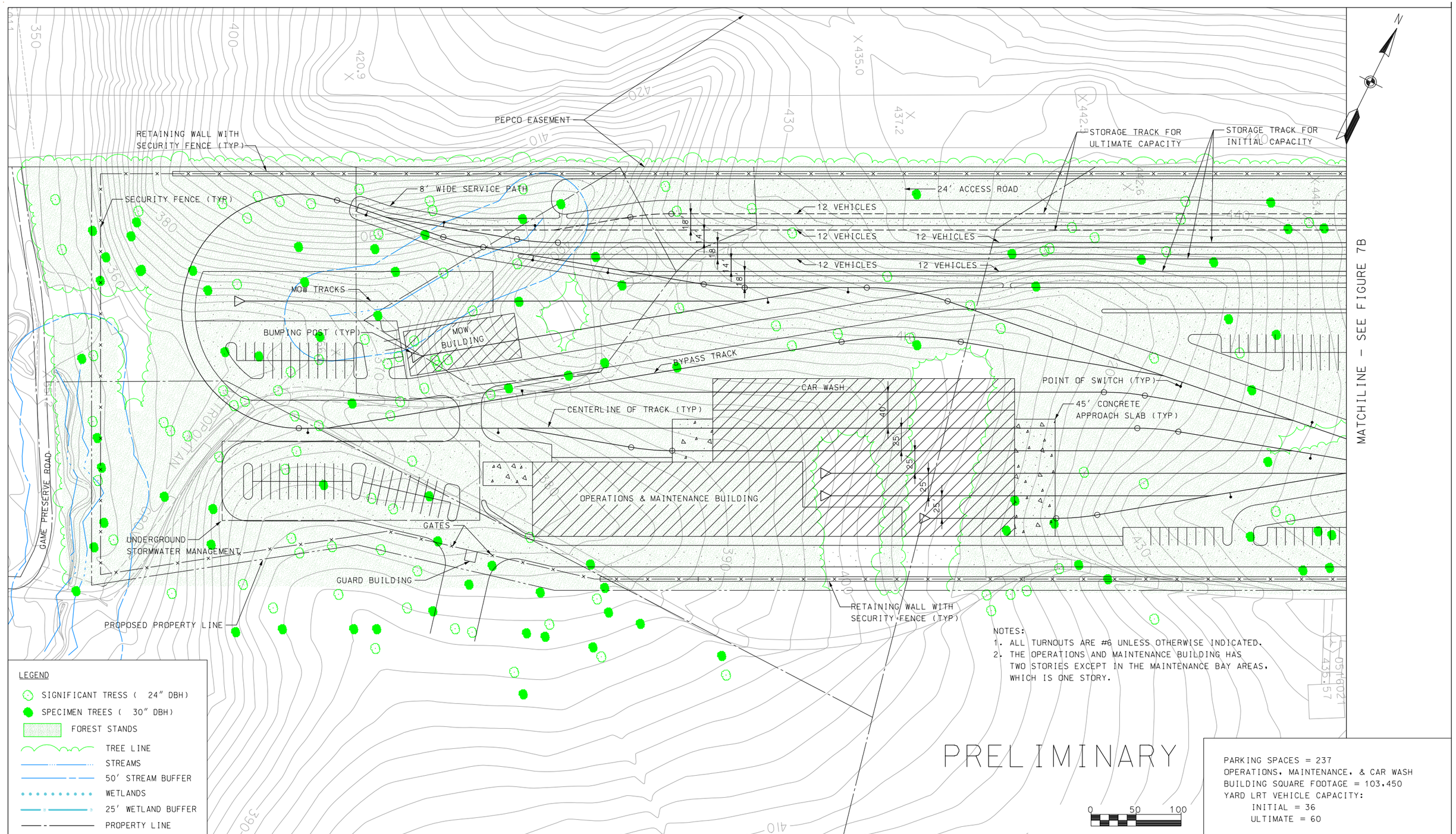
CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& OPERATIONS FACILITY

METROPOLITAN GROVE SITE 6
PRELIMINARY LRT LAYOUT

DATE: JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 6



LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

NOTES:
1. ALL TURNOUTS ARE #6 UNLESS OTHERWISE INDICATED.
2. THE OPERATIONS AND MAINTENANCE BUILDING HAS TWO STORIES EXCEPT IN THE MAINTENANCE BAY AREAS, WHICH IS ONE STORY.

PRELIMINARY

PARKING SPACES = 237
OPERATIONS, MAINTENANCE, & CAR WASH BUILDING SQUARE FOOTAGE = 103,450
YARD LRT VEHICLE CAPACITY:
INITIAL = 36
ULTIMATE = 60

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

JE JACOBS

Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE & STORAGE FACILITY
METROPOLITAN GROVE SITE 4/5
PRELIMINARY LRT LAYOUT

DATE: JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 7A

MATCHLINES – SEE FIGURE 7A

PERCO EASEMENT

RETAINING WALL WITH SECURITY FENCE (TYP)

8' WIDE SERVICE PATH

STORAGE TRACK FOR ULTIMATE CAPACITY

12 VEHICLES

12 VEHICLES

12 VEHICLES

12 VEHICLES

12 VEHICLES

24' ACCESS ROAD

STORAGE TRACK FOR INITIAL CAPACITY

SECURITY FENCE (TYP)

STORMWATER MANAGEMENT POND

TPSS BUILDING

NO. 6 DOUBLE CROSSOVER

POINT OF SWITCH (TYP)

RETAINING WALL WITH SECURITY FENCE (TYP)

PROPOSED PROPERTY LINE

PROPOSED CCT MAINLINE

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

0 50 100

PRELIMINARY

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

METROPOLITAN GROVE SITE 4/5
PRELIMINARY LRT LAYOUT

DATE: JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 7B

FENCE (TYP)

INDOOR BUS STORAGE (FUTURE)

INDOOR BUS STORAGE (INITIAL)

FARE COLLECTION

SERVICE LANE

SERVICE LANE

REPAIR STAGING AREA

MAINTENANCE/INSPECTION BAYS

OPERATIONS & MAINTENANCE BUILDING (2 STORIES)

STORMWATER MANAGEMENT POND

BLACK HILL REGIONAL PARK

BUS ENTRANCE

STAFF AND VISITOR ENTRANCE

LOADING DOCK

WEST OLD BALTIMORE ROAD

24' ACCESS ROAD

RETAINING WALL

PROPOSED OBSERVATION DRIVE

NORTH GERMANTOWN GREENWAY (PROPOSED)

NORTH GERMANTOWN GREENWAY (PROPOSED)

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE
- PARK/OPEN SPACE BOUNDARY

0 50 100

PRELIMINARY

PARKING SPACES = 361
OPERATIONS, MAINTENANCE, & CAR WASH BUILDING SQUARE FOOTAGE = 145,060
NUMBER OF MAINTENANCE BAYS = 15
YARD BRT VEHICLE CAPACITY:
INITIAL = 87 (39 - 60' LONG VEHICLES & 48 - 40' LONG VEHICLES)
ULTIMATE = 174 (78 - 60' LONG VEHICLES & 96 - 40'LONG VEHICLES)

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE & STORAGE FACILITY

COMSAT OBSERVATION DRIVE SITE
PRELIMINARY BRT LAYOUT

DATE: JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 8

REDLAND ROAD

FREDERICK ROAD

PARAMOUNT DRIVE

EXISTING WMATA TRACKS

EXISTING CSX TRACKS

DERWOOD STREET

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

0 100 200

PRELIMINARY

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

SHADY GROVE SITE 1D
BRT LAYOUT - ENVIRONMENTAL RESOURCES

DATE:JANUARY 15, 2007 SCALE: 1"=200'

FIGURE 9

PROPOSED CCT SHADY GROVE STATION

PROPOSED WMATA TRACTION POWER SUBSTATION

EXISTING WMATA TRACTION POWER SUBSTATION TO BE RELOCATED

NO.6 CROSSOVERS

CCT YARD LEAD TRACKS

REDLAND ROAD

FREDERICK ROAD

PARAMOUNT DRIVE

EXISTING WMATA TRACKS

EXISTING CSX TRACKS

DERWOOD ROAD

N

0 100 200

PRELIMINARY

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

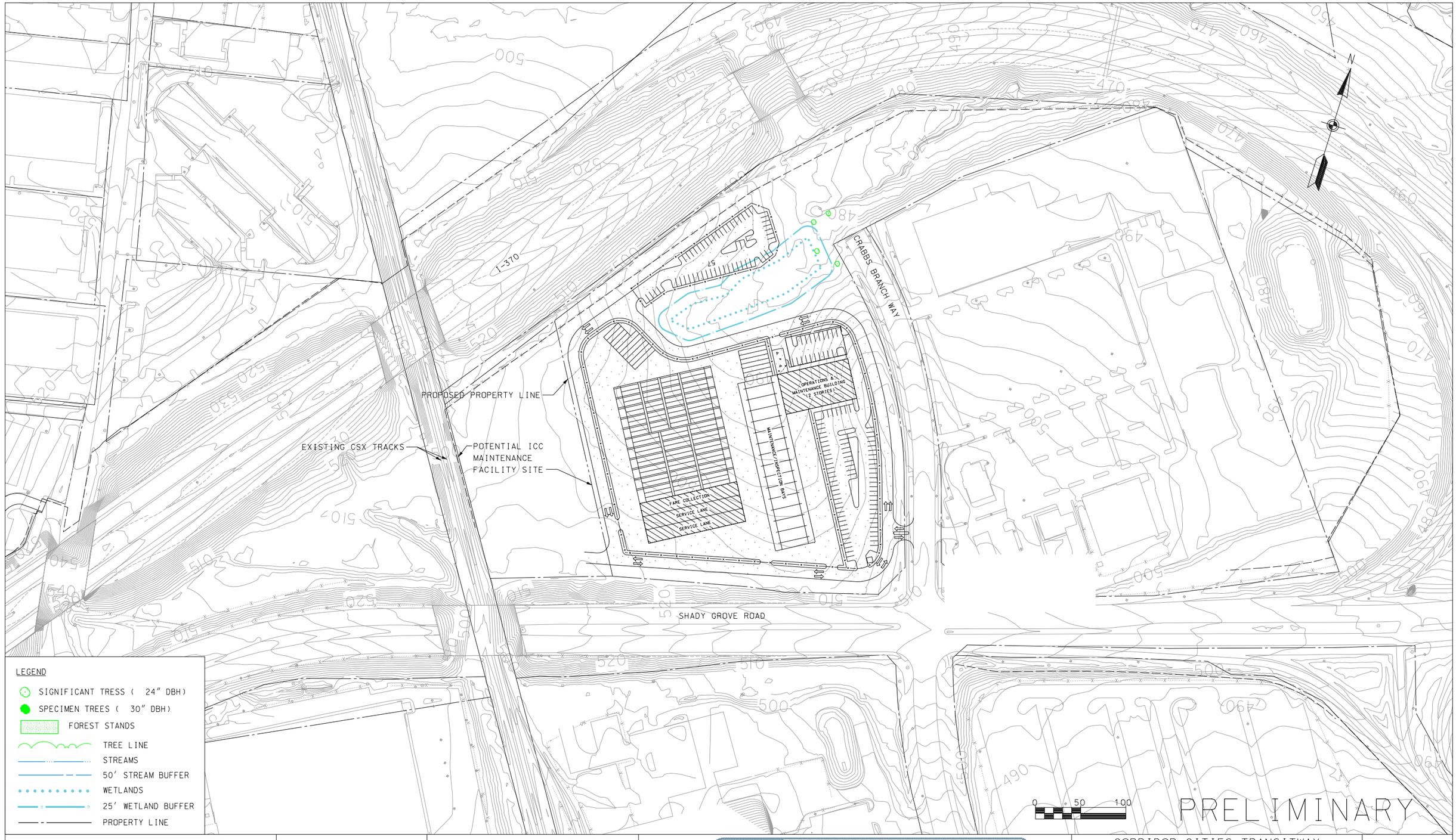
CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

SHADY GROVE SITE 1D
LRT LAYOUT - ENVIRONMENTAL RESOURCES

DATE:JANUARY 15, 2007 SCALE: 1"=200'

FIGURE 10



MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

CRABBS BRANCH WAY SITE
BRT LAYOUT - ENVIRONMENTAL RESOURCES

DATE:JANUARY 15, 2007 SCALE: 1"=200'

FIGURE 11

EXISTING CSX TRACKS

METROPOLITAN GROVE ROAD

PROPOSED CCT MAINLINE

PROPOSED CCT METROPOLITAN GROVE STATION

QUINCE ORCHARD ROAD

I-270 RAMP

I-270

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

0 100 200

PRELIMINARY

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

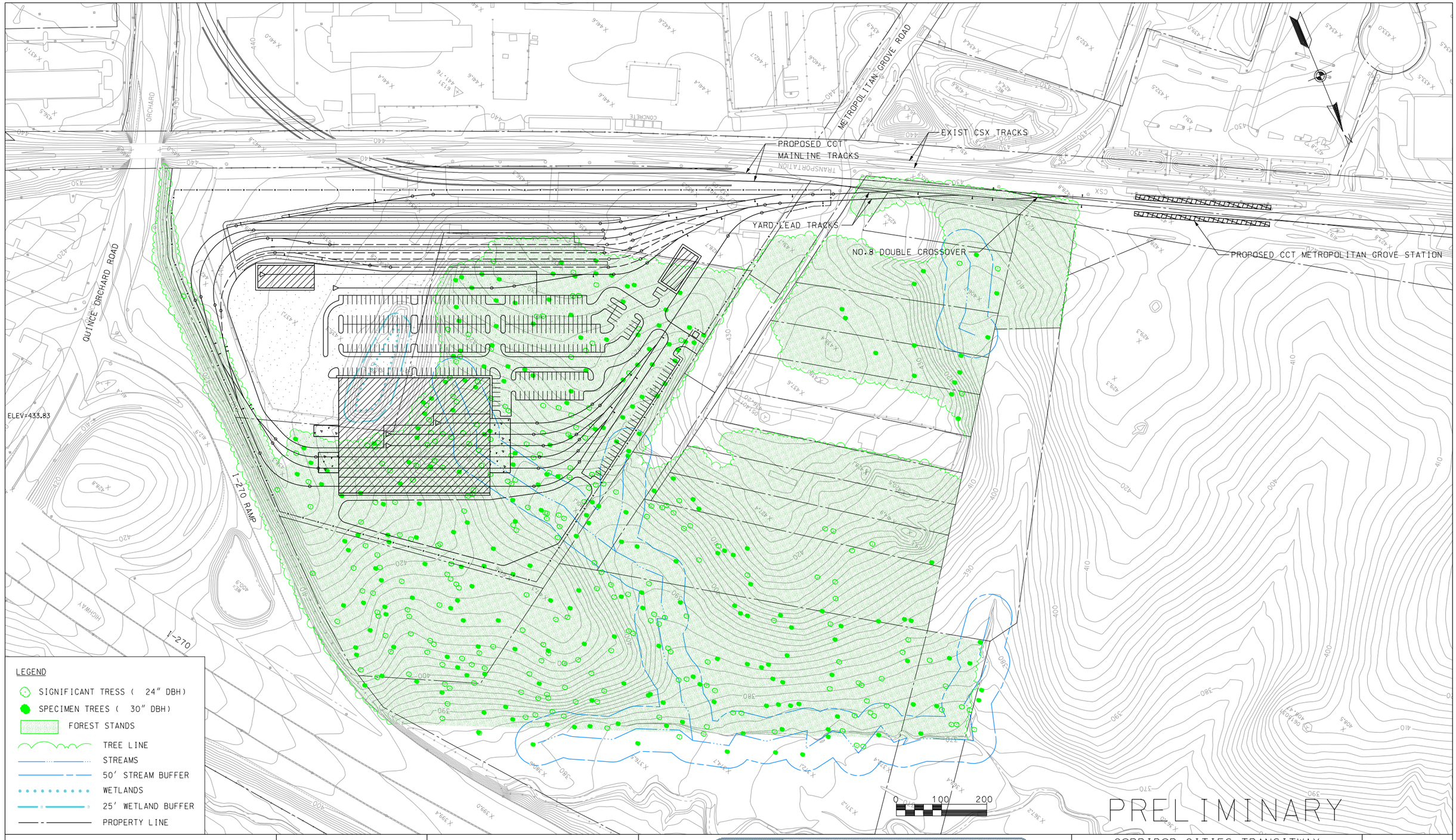
CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

METROPOLITAN GROVE SITE 6
BRT LAYOUT - ENVIRONMENTAL RESOURCES

DATE:JANUARY 15, 2007 SCALE: 1"=200'

FIGURE 12



MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

METROPOLITAN GROVE SITE 6
LRT LAYOUT - ENVIRONMENTAL RESOURCES

DATE: JANUARY 15, 2007 SCALE: 1"=200'

FIGURE 13

NO.8 CROSSOVER

YARD LEAD TRACKS

PROPOSED CCT MAINLINE

PROPOSED PROPERTY LINE

EXISTING PEPCO

GAME PRESERVE ROAD

I-270

415+00

ELEV=385

Z418+00

V421+00

V422+00

N

0 100 200

PRELIMINARY

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JACOBS

Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

METROPOLITAN GROVE SITE 4/5
LRT LAYOUT - ENVIRONMENTAL RESOURCES

DATE: JANUARY 15, 2007 SCALE: 1"=200'

FIGURE 14

BLACK HILL REGIONAL PARK

BLACK HILL REGIONAL PARK

INTERSTATE 270

DWIGHT D. EISENHOWER HWY

WEST OLD BALTIMORE ROAD

PROPOSED OBSERVATION DRIVE

NORTH GERMANTOWN GREENWAY (PROPOSED)

N

0 50 100

PRELIMINARY

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE
- PARK/OPEN SPACE BOUNDARY

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

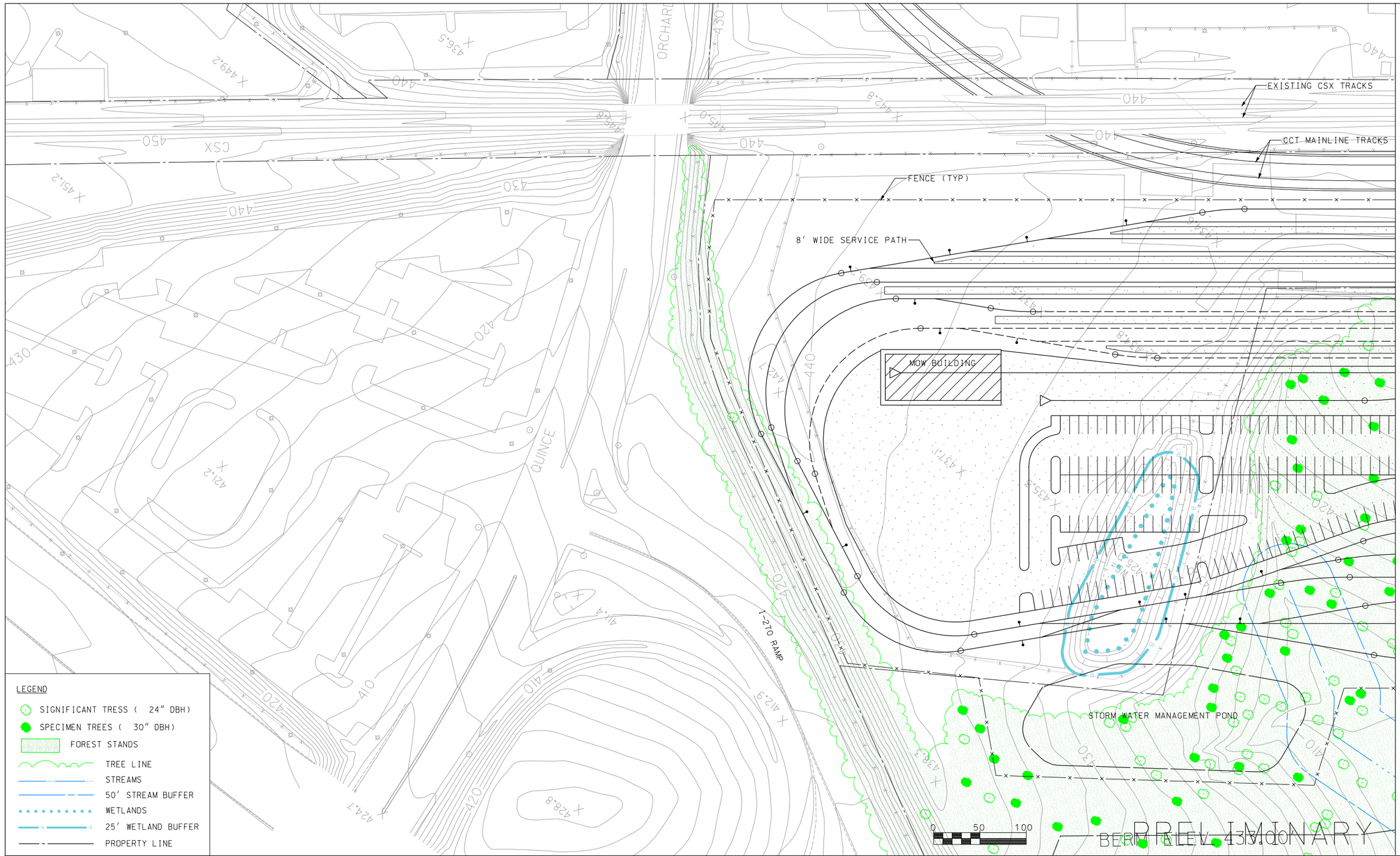
CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

COMSAT OBSERVATION DRIVE SITE
BRT LAYOUT - ENVIRONMENTAL RESOURCES

DATE: JANUARY 15, 2007 SCALE: 1"=200'

FIGURE 15



PRELIMINARY

MARYLAND DEPARTMENT OF TRANSPORTATION
MTA Maryland

JE JACOBS

Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

METROPOLITAN GROVE OPTION 6
LRT MINIMIZATION OPTIONS

DATE: JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 16A

MATCHLINE - SEE FIGURE 16A

EXISTING CSX TRACKS

METROPOLITAN GROVE ROAD

CCT MAINLINE TRACKS

YARD LEAD TRACKS

TPSS BUILDING

ACCESS ROAD

STORM WATER MANAGEMENT POND

OPERATIONS & MAINTENANCE BUILDING

LOADING DOCK

45' CONCRETE APPROACH SLAB (TYP.)

CAR WASH

CENTER LINE OF TRACK

LEGEND

- SIGNIFICANT TRESS (24" DBH)
- SPECIMEN TREES (30" DBH)
- FOREST STANDS
- TREE LINE
- STREAMS
- 50' STREAM BUFFER
- WETLANDS
- 25' WETLAND BUFFER
- PROPERTY LINE

0 50 100

PRELIMINARY

MARYLAND DEPARTMENT OF TRANSPORTATION

MTA Maryland

JE JACOBS

CCT Corridor Cities Transitway

CORRIDOR CITIES TRANSITWAY
OPERATIONS, MAINTENANCE
& STORAGE FACILITY

METROPOLITAN GROVE OPTION 6
LRT MINIMIZATION OPTIONS

DATE: JANUARY 15, 2007 SCALE: 1"=100'

FIGURE 16B

APPENDIX A

NW BUS MAINTENANCE FACILITY TOUR NOTES

Corridor Cities Transitway Site Visit
NW Bus Maintenance Facility

On Wednesday, May 11, 2005 the project team was given a tour by Dennis Crotts, Superintendent, of the MTA's NW Bus Maintenance Facility. In attendance were:

Diane Ratcliff, MTA
Ernie Baisden, MTA
MaryAnne Polkiewicz, MTA
Rick Kiegel, McCormick Taylor
Deirdre Smith, Jacobs

Mr. Crotts explained how this facility is arranged as well as the daily operation.
The following are items that came up during our tour:

- The maintenance facility operates with four shifts:
  - 8 am to 4:30 pm
  - 4 pm to 12:30 am
  - 12 am to 8:30 am
  - 6:30 pm to 3 am
- This facility was design for 300 vehicles but it was found to be more efficient with the 209 that they currently have. When they had the 300 vehicles, they didn't have room for fire lanes within the indoor storage area.
- They currently have 15 articulated buses, six 30' buses, and the remainder is 40' buses.
- The indoor storage has 32 lanes, seven vehicles deep, with fire lanes.
- The fuel is diesel.
- They have one tow truck, one service truck, and need a pick up truck.
- This facility handles preventive maintenance & inspections only – heavy or long term repairs are done off site. They will do minor bodywork.
- The daily routine when a bus goes out of service is as follows:
  1. Pull the fare box
  2. The bus then goes into storage
  3. From storage it then goes into the service lane, where it is:
     a) refueled
     b) the fluids are checked and topped off
     c) daily cleaning is performed
     d) in-depth cleaning (per schedule)
     e) daily exterior wash (drive through @ 3 mph)
        - pre-wash
        - then brushes
  4. Then it goes back to storage or to the maintenance area as needed.
- The fare box is always pulled before going into storage. They currently have one lane and would like to have a second lane since the buses form a long queue while waiting. Once the boxes are pulled, the boxes are then taken off site.
- They have three service lanes and each lane will accommodate four vehicles at a time.
- They have outdoor storage for disabled buses
- The indoor storage has four rows between columns and a three foot wide (about) walkway between the second and third row. The vehicles are set back about 15' from the door. The doors have sensors that will open when the vehicle gets too

close and then will close when it doesn't sense a vehicle there. This helps keep the building warm in winter. The storage area does have sky lights but they were closed.

- They have about 60 mechanics on staff and approximately 83 to 90 staff total in the maintenance facility. The number of Operations & Dispatch employees was not known.
- Operations & Dispatch are kept completely separate from Maintenance. They have their own parking areas, lounges and buildings.
- Misc. rooms & areas include:
  - Battery room
  - Parts store room
  - Pump room
  - Tool storage
  - Individual tool box storage
  - Training rooms
  - Tire room
- The loading dock is located off of the parts store room. The waste oil and antifreeze tanks are located adjacent to it.
- The pump room mixes the antifreeze that is stored outside and then pumps it facility-wide.
- Currently, the floor supervisors' desk is on the maintenance floor. This is much too noisy and makes it very difficult to hear on the telephone. They would prefer to enclose it.
- There are five drive-through maintenance bays that are sized for articulated vehicles. Even though they are sized for articulated vehicles they can be used by all of the different length vehicles. These bays all have pits.
- The other 11 bays are for preventive maintenance and inspections and are not drive through, do have movable lifts, and do not have pits. They did have permanent hydraulic lifts but it was found that the lifts could more. It was possible for one of the hydraulics to fail leaving the bus dangerously tilted. They prefer the portable lifts which are electric.
- They added a separate bay to steam wash the bus engines
- Sign repairs are done by the off-site radio shop

Corridor Cities Transitway
Northwest Bus Maintenance Facility Photos

Photo #1 – Fare Collection

Photo #2 – Indoor Storage

Photo #3 – Indoor Storage

Photo #4 – Indoor Storage

Photo #5 – Fueling

Photo #6 – Bus Wash

Photo #7 – Bus Wash

Photo #8 – Tire Room

Photo #9 – Maintenance Storage

Photo #10 – Pits

Photo #11 – Lifts

Photo #12 – Maintenance Circulation

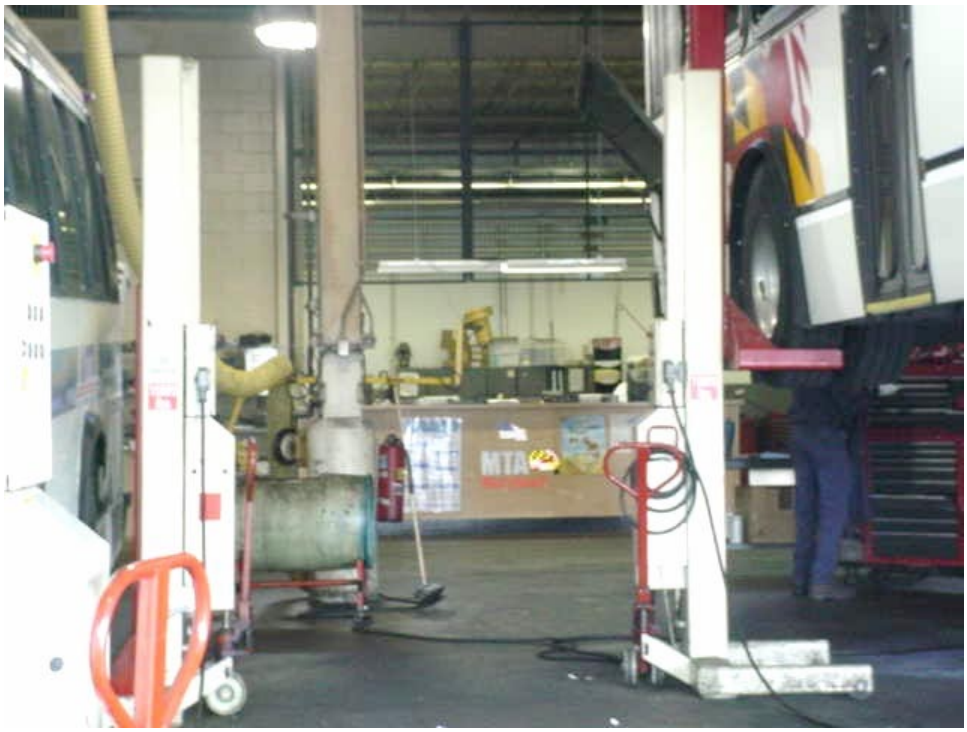


Photo #13 – Supervisor's Desk

Photo #14 – Battery Room

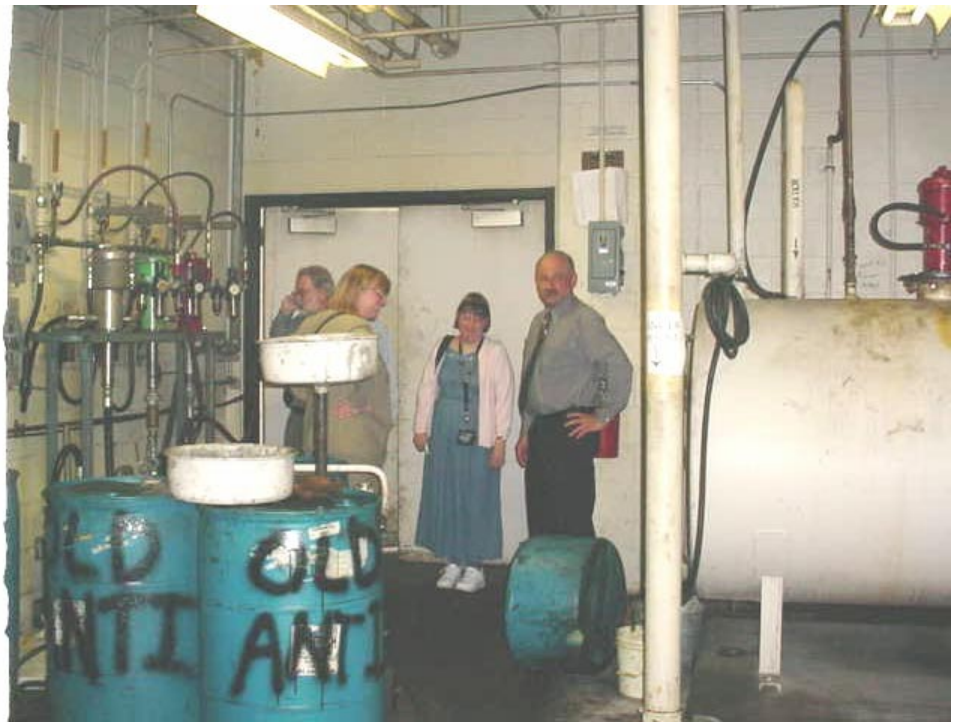


Photo #15 – Pump Room

Photo #16 – Parts Storage

Photo #17 – Loading Dock

Photo #18 – Antifreeze and Waste Oil Storage

Photo #19 – Engine Steam Wash

Photo #20 – Maintenance Lounge

Photo #21 – Maintenance Lounge

Photo #22 – Training Room

Photo #23 – Training Room

Photo #24 – Dispatch

Photo #25 – Operations Lounge

Photo #26 – New Bus

Photo #27 – New Bus

APPENDIX B

BRT – INDOOR VS. OUTDOOR STORAGE MEMORANDUM

Jacobs Civil Inc.
100 South Charles Street
Tower Two, Suite 1000
Baltimore, Maryland 21201
Phone:410.837.5840 Fax: 410.837-3277

Memorandum

Date: **8/18/05**

To: **Ernie Baisden, P.E., MTA**
Rick Kiegel, P.E., MTA

From: **Deirdre Smith, P.E.**

Subject: **CCT Operations, Maintenance, & Storage Facility**
BRT Indoor vs. Outdoor Storage

The following is a summary of the findings for indoor vs. outdoor storage as presented in the documents "Publication No. DOT-T-94-14 Bus Support Facilities: Conditions and Needs" dated January 1993 and "TCRP Synthesis 7 Regulatory Impacts on Design and Retrofit of Bus Maintenance Facilities" dated October 1994. The findings in these reports are based up the results of surveys taken of bus operators within the United States.

The DOT report had responses from 212 operators which require more than 25 vehicles for maximum scheduled service and used a total of 426 facilities. The data within this study did not specify which operators had indoor storage, but Site Visits were conducted of nine medium to large facilities geographically dispersed throughout the country. The data obtained from the site visits was available and the attached table indicates which facilities had indoor storage and their location. Of the nine sites visited, three had indoor storage, four had outdoor and uncovered, one had outdoor and covered, and one facility had two indoor and one outdoor parking areas.

Pertinent comments, findings & recommendations from the DOT report are as follows:

- "The industry lacks consensus on such areas as indoor versus outdoor parking…."
- "Outdoor bus parking creates problems because the buses are cold on the winter and hot in the summer, thus increasing the engine run time required to stabilize the interior temperatures. This creates passenger acceptance problems and operating inefficiencies. In addition to eliminating these problems, inside parking is also reported to reduce the need for some air conditioning repairs because some problems with the air conditioning systems were a function of the air conditioning system's inability to cool down the bus. The problems and costs of these conditions can be greatly reduced with indoor bus parking. …In some climates, covered but not enclosed bus parking represents a compromise. The capital costs are not as great, and it still provides some cover so that the buses are not as hot when they start, and the air conditioning system is better equipped to meet the lesser demand."

The TCRP report surveyed 13 operators with a total of 20 garages. Six operators with a total of 13 bus garages stored their fleets indoors. Of the operators that stored their fleets outdoors, only two of these were located in relatively cold climates - York , PA and Mississauga, Canada. The York, PA facility had been a trucking maintenance facility that had been retrofitted for bus use. Even though the buses were stored outside they used block heaters to keep the engines warm. The Mississauga, Canada facility used a system that passes hot water through the

heating system of the bus to heat both the bus interior and the engine. A number of facility and bus modifications were necessary to use this system. The survey data did not indicated which operators stored their fleet indoors. Limited data was available on the sites surveyed and the attached table indicates the facilities surveyed and their location.

The TCRP report references an earlier study, “Transit Garage Planning Guidelines, A Review”, dated August, 1987, of which, I have been unable to obtain a copy. This study indicates that indoor storage will be provided for buses located in northern climates where the temperature drops below freezing more than 100 nights per year.

CORRIDOR CITIES TRANSITWAY
BUR RAPID TRANSIT STORAGE TABULATION

DOT-T-94-14 Bus Support Facilities: Conditions and Needs

AGENCY	LOCATION	GARAGE NAME	YEAR BUILT	NUMBER OF BUSES	INDOOR/ OUTDOOR STORAGE
SCRTD	Los Angeles, CA	Division 10 Garage	1984	260	Outdoor - uncovered
MCTS (Milwaukee Co. Transit System)	Milwaukee, WI	Fond du Lac	1963	254	indoor
COTA (Central Ohio Transit Authority)	Columbus, OH	McKinley Facility	1980	342	indoor
MTA (Maryland Transit Administration)	Baltimore, MD	Bush Garage	1910	261	Outdoor - uncovered
VIA Metropolitan Transit	San Antonio, TX	-	1948	529	Outdoor - uncovered
MARTA	Atlanta, GA	Hamilton Garage	1976	209	Outdoor - uncovered
Seattle METRO	Seattle, WA	North Base Garage	1993	195	outdoor - covered bus parking area w/ grass playfield on top
MTC (Metropolitan Transit Commission)	Minneapolis, MN	Snelling Garage	1905	239	2 indoor and 1 outdoor parking area
NYCTA (New York Transit Authority)	New York, NY	Gun Hill Garage	1990	214	indoor

TCRP Synthesis 7 - Regulatory Impacts on Design and Retrofit of Bus Maintenance Facilities

AGENCY	LOCATION	GARAGE NAME	YEAR BUILT	NUMBER OF BUSES	INDOOR/ OUTDOOR STORAGE
Municipality of Anchorage	Anchorage, Alaska	-	1991	60	-
Central Arkansas Transit Authority	North Little Rock, Arkansas	-	1991	60	-
Mississauga Transit	Mississauga, Canada	-	1991	60	outdoor
Lakeland Area Mass Transit District	Lakeland, Florida	-	1991	28	-
Honolulu Public Transit Authority	Honolulu, Hawaii	-	1990	280	-
Metropolitan Transit Commission	Minneapolis, Minnesota	-	1990	250	-
New Jersey Transit Corporation	Maplewood, NJ	Hilton	1989	164	-
	Howell, NJ	Howell	1986	159	-
	North Bergen, NJ	Meadowlands	1993	129	-
	Camden, NJ	Newton Avenue	1989	108	-
	Orange, NJ	Orange	1987	159	-
	Washington Township, NJ	Washington Township	1987	160	-
MTA New York Transit	Queens, NY	Casey Stengel	1990	175	-
	Bronx, NY	Kingsbridge	1993	219	-
	Manhattan, NY	Manhattanville	1992	216	-
York County Transportation Authority	York, PA	-	1993	54	outdoor
Capital Metropolitan Transportation Authority	Austin, TX	-	1988	297	-
Virginia - Peninsula Transportation District Commission	Hampton, VA	-	1988	110	-
Virginia - Blacksburg	Blacksburg, VA	-	1992	30	-
Municipality of Metropolitan Seattle *	Seattle, WA	-	1991	195	-
Milwaukee County Transit System	Milwaukee, WI	-	1987	(Central Maintenance Facility)	-

*The Seattle METRO from DOT-T-94-14 report is possibly the same as Municipality of Metropolitan Seattle from the TCRP Synthesis 7 report

APPENDIX C

NORTH AVENUE LRT YARD & SHOP FACILITY TOUR NOTES

Corridor Cities Transitway Site Visit
North Avenue LRT Yard & Shop

On Wednesday, April 20, 2005 the project team was given a tour by David Gunther, Director of Light Rail Operations, of the MTA's North Avenue LRT Yard and Shop facility. In attendance were:

Ernie Baisden, MTA
MaryAnne Polkiewicz, MTA
Rick Kiegel, McCormick Taylor
Harriet Levine, Jacobs
Deirdre Smith, Jacobs

Mr. Gunther explained how this facility is arranged as well as how it works with the Cromwell facility. The following are items that came up during our discussion:

- Cromwell was built after the North Ave. Facility and performs light maintenance as well as special projects.
- North Avenue is lacking a MOW truck shop and pit for rolling stock. It has 7-8 pieces of large equipment.
- Need at least two lifts per vehicle.
- Shop should be double ended.
- They are currently using the paint booth as a body repair shop.
- They do not have a blow down pit.
- CCT would definitely need their own wheel truing machine.
- North Ave Shop has two small electronic shops.
    - One for train control
    - One for ticket vending
- Fare collection is not done out of this facility.
- There are a total of 253 employees between the two facilities.
    - 121 in maintenance
    - 72 in operations
    - 60 managers
- They work a seven day, three shift operation.
- Remember to leave space for MOW vehicles and catenary vehicles.
- They added classrooms for a total of four
    - Three are for meetings and training
    - The fourth is set up for operators training
- They perform the maintenance of the fare machines.
- The initial system had 35 vehicles and increased to 53.
- North Ave was sufficient for the initial system but ran out of room when they received the additional 18 vehicles – then Cromwell was built.
- North Ave. building has 100,000 square feet
    - 1st floor has operations & small electronics repair
    - 2nd floor has component repair

- 3rd floor has dispatch
- Vehicles are stored at Cromwell. Vehicles are dead headed from North Avenue to Cromwell every morning to hookup with a stored vehicle to make a full consist.
- The car wash accommodates one vehicle at a time and is attached to the maintenance facility. Each vehicle averages a wash once a week. They are washed before storage.
- The interiors are cleaned daily in the storage yard.
- The first 35 vehicles had a steel roof, which rusted. They had to spray the roofs with hot zinc to coat. The following 18 vehicles were stainless steel.
- They had one large pit that was underneath two parallel tracks and one pit underneath two additional spots.
- They have two locomotives for towing and one track geometry car (for both catenary and track).
- The yard has dead end storage tracks.

APPENDIX D

LRT YARD CRITERIA COMPARISON

Corridor Cities Transitway - LRT Maintenance Facilities

LRT Yard Design Criteria Comparisons

Criteria			Red Line/ Green Line Criteria	Purple Line Criteria	Existing Balt. LRT Criteria	Proposed CCT Yard Criteria
Horizontal alignment	Absolute min. Horizontal Tangent		30'	40'	30'	30'
	Min. horizontal tangent past Station Platform		TBD	75'	45'	45'
	Min. distance from end of platform to PS		None Given	100'	45'	45'
	Absolute Min. distance from PC/PT to PS	If curve is in same direction as curve in turnout	None Given	None Given	10' (doesn't specify direction of curve)	10'
		If curve is in opposite direction as curve in turnout	None Given	None Given	10' (doesn't specify direction of curve)	45'
	Desired Min. radius - yard		None Given	120'	100'	100'
	Absolute min. radius - yard		60'	82'	82'	82'
	Absolute min. curve length		None Given	45'	3 times design speed	45'
Vertical alignment	Absolute min. Vertical Tangent		None Given	50' between successive vertical curves	35'	45' between successive vertical curves
	Min. Vertical tangent past Station Platform		None Given	50'	None Given	45'
	Min. tangent from PVT/PVC to PS		None Given	50'	10' from PS	10' from PS
	Absolute min. vertical curve length		None Given	50'	65'	50'
	Max. grade for yard lead tracks		None Given	3%	None Given	TBD
	Max. grade for storage tracks		None Given	0.20%	0.00%	0.20%
	Absolute grade for shop tracks		None Given	0.00%	None Given	0.00%
Vehicle info	Vehicle length over couplers		TBD	90'	95'	95'
	Vehicle width		8'-8" (max)	8'-9 1/2" (w/out mirrors) - 9'-5 1/2" (w/mirrors)	9'-6" (w/out mirrors)	9'-6"
	Vehicle height at centerline (to top of pantograph)		12'-2"	12'-3 1/4"	12'-6"	12'-6"

*Existing Balt. LRT data was taken from Chapter 4 Track Alignment & Vehicle Clearance and Chapter 5 Trackwork. (dated 2/94)

APPENDIX E

PRELIMINARY AND DETAILED SCREENING CRITERIA MATRICES FOR BRT and LRT

BRT PRELIMINARY SCREENING MATRICES

Corridor Cities Transitway
Bus Rapid Transit Operations, Maintenance, and Storage Facility
Preliminary Screening Matrix

Category	Measure	Crabbs Branch Way Site	Shady Grove Site 1D	Shady Grove Site 1D / Phase 1	Metropolitan Grove Site 6	Metropolitan Grove North Site (North of Police Lot)	Observation Drive Site
Environmental							
Natural							
Wetlands	area of impact (acres)	Low	None	None	None	None	Moderate
Streams	# stream crossings	None	None	None	4 stream crossings	None	None
	extent of impact	None	None	None	Moderate	None	None
Floodplains	area of impact (acres)	None	None	None	None	None	Possible
Forests / Habitat	potential for habitat	None	None	None	Yes	Yes	Yes
	extent of impact	None	None	None	loss of habitat, significant loss of forest resources	Loss of habitat and trees	Moderate
Hazwaste	potential for haz/waste	Low	Low	Low	Low	Low	Low, no hazardous waste onsite; one site identified as having a high contaminant value is located within a 0.5 mile radius of the site. Further investigation required.
RTE Species	potential for RTE	Low	Low	Low	Low	Low	Low
Steep slopes	yes/no	No	no	No	No	Yes	Yes
Soils	Prime Farmland	Yes	Yes	Yes	Yes	No	Yes
	Statewide Important	Yes	No	No	Yes	No	Yes
	Hydric	Yes	No	No	No	No	no
Noise / Air	# of sensitive receptors	Air quality and noise impacts are part of the larger project and will not be quantified at this time.	Air quality and noise impacts are part of the larger project and will not be quantified at this time.	Air quality and noise impacts are part of the larger project and will not be quantified at this time.	Air quality and noise impacts are part of the larger project and will not be quantified at this time.	Air quality and noise impacts are part of the larger project and will not be quantified at this time.	Air quality and noise impacts are part of the larger project and will not be quantified at this time.
Socioeconomic							
Properties affected	# homes	None	None	None	None	4 homes	1
	# businesses	None	Businesses	Businesses	Police Impound Lot	None	None
EJ Communities	presence of community	Yes	Yes	Yes	Yes	Yes	No
	potential impact	High	Moderate	None	Moderate	Moderate	Low
Parks	# parks	None	None	None	Adjacent to Browns Station Park	None	None
	area of impact (acres)	None	N/A	N/A	N/A	N/A	None
Land use	description	Undeveloped	Industrial	Industrial	Commercial/ industrial	Rural	Undeveloped
Community cohesion	qualitative assessment	None	Local businesses	Local businesses	None	Residences	None
Community facilities	site resources	None	None	None	None	None	None
	potential impact	None	None	None	None	None	None
Cultural							
Historic		No identified resources	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources
Archeological Resources		Nil	nil	nil	med	High	Med
Engineering / Design							
Cost							
Grading	substantial amounts of site grading and/or large retaining walls required	Minimal amounts of grading and no retaining walls	Moderate amounts of fill required and no retaining walls	Moderate amounts of fill required and no retaining walls	Moderate amounts of fill required and no retaining walls	Significant lengths of retaining walls (± 30'H)	Substantial amounts of cut & fill are required and a retaining wall is required (1000' long, 35' high).
Utilities	Availability of site utilities & any major relocations	Site utilities are available nearby.	Site utilities are available nearby.	Site utilities are available nearby.	Water and Sanitary will be available in 2006	Site utilities are not located nearby, would need to be extended to	Some utilities available near the site
SWM	available land for SWM	Below ground storage	Above ground storage	Above ground storage	above ground storage	Both above and below	Above ground storage
ROW	high cost due to business displacements	0	0	0	Montgomery Co. Police Dept. will construct a new Forensics lab on the property in 2006	Vacant land	Undeveloped
Site Acreage	Acres	12	16	12.9	18.7	22.7	+40
Other	additional costs for vehicular and utility access due to distance (over 1 mile) from existing facilities	Will need to share access with the proposed ICC Maintenance Facility.	None	None	Need to bridge CSX & extend Metropolitan Rd. to access site	Access is through proposed subdivision - would need to build access if yard built before subdivision.	None
Facility							
Yard Operations	Land restrictions result in less than desirable operations and movement of vehicles through yard	No	no	no	No	no	No
Operations & Maintenance Bldg., Service Lanes, & Fare Collection Buildings	Provides minumum square footage for a full vehicle facility (Operations & Maintenance Bldg., Service Lanes, & Fare Collection)	Yes	Yes (82,800 sq ft w/2 floors)	Yes (82,800 sq ft w/2 floors)	Yes (82,800 sq ft w/2 floors)	Yes (82,800 sq ft w/2 floors)	Yes (82,800 sq ft w/2 floors)
	Provides minimum number of maintenance bays for 150 -200 vehicles (15 bays)	Yes	yes	yes	Yes	Yes	Yes
	Provides drive through maintenance bays	11 drive through and 4 non-drive through	yes	yes	Yes	Yes	Yes
	Provides indoor storage for a minimum of 150 60'/40' long vehicles	No, provides for 39-60' long vehicles and 40-40' long vehicles.	Yes, provides for 78 -60' long vehicles and 96 -40' long vehicles.	No, provides for 39 -60' long vehicles and 48 -40' long vehicles.	Yes, provides for 78 -60' long vehicles and 96 -40' long vehicles.	Yes, provides for 78 -60' long vehicles and 96 -40' long vehicles.	Yes
	Number of automobile parking spaces/potential for additional spaces	155/no	265/no	143/no	311/yes	311/yes	356/yes
Configuration	Separate bus and staff/visitor vehicular entrances	No	yes	yes	Yes	Yes	Yes
	Accommodates left hand turns & provides counterclockwise site circulation	Yes	yes	yes	Yes	Yes	Yes
	able to provide all shop functions at one site	Yes	yes	yes	Yes	Yes	Yes
	safety of layout for operators to go from parking to check-in to storage (minimizes distance crossed in maintenance areas)	Yes	Adequate - can walk to half of the storage lanes, all of the service lanes, and the fare collection lane without passing in front of the maintenance bays	Less than ideal - can walk to the service lanes and the fare collection lane without passing in front of the maintenance bays	Less than ideal - can walk to some of the storage lanes, all of the service lanes, and the fare collection lane without passing in front of the maintenance bays	Less than ideal - can walt to some of the storage lanes, all of the service lanes, and the fare collection lane without passing in front of the maintenance bays.	Yes
	yard indoor storage capacity - initial/ultimate	79/79	87/174	87	87/174	87/174	87/174
Distance from beginning of system (Shady Grove	Distance in miles	0.7	0.1	0.1	6.9	6.9	13
Distance from Phase 1 terminus (Metropolitan	Distance in miles	7.7	7.1	7.1	0.1	0.1	N/A
Distance from Phase 2 terminus (Comsat Station)	Distance in miles	14.1	13.5	13.5	6.5	6.5	0.4
Roadway Accessibility	Availablility of access to site	Adequate - access off of Crabbs Branch Way	Adequate - access off of Paramount Dr. & Redland Rd	Adequate - access off of Paramount Dr. & Redland Rd	No adequate existing access - need to bridge CSX & extend Metropolitan Rd.	No existing access - access off of a proposed residential development	Adequate - access off of Old Baltimore Road.
Other		Parcel immediately to the west is a potential ICC Maintenance Facility location. It is assumed that the access to the ICC site would be through the CCT Site	Somerville Drive would be closed	Somerville Drive would be closed	Located on public property	Located on public property	Located on private property.
Disposition		Carry Forward	Carry Forward	Drop	Carry Forward	Drop	Carry Forward

LRT PRELIMINARY SCREENING MATRICES

Corridor Cities Transitway
Light Rail Operations, Maintenance, and Storage Facility
Preliminary Screening Matrix

Category	Measure	Shady Grove								
		Site 1	Site 1A	Site 1A (revised)	Site 1B	Site 1C	Site 1 B/C	Site 1D	Site 3	Site 5
Environmental										
Natural										
Wetlands	area of impact (acres)	None	None	None	None	None	None	None	None	None
Streams	# stream crossings	None	None	None	None	None	None	None	None	None
	extent of impact	None	None	None	None	None	None	None	None	None
Floodplains	area of impact (acres)	None	None	None	None	None	None	None	None	None
Forests / Habitat	potential for habitat	None	None	None	None	None	None	None	None	None
	extent of impact	None	None	None	None	None	None	None	None	None
Hazwaste	potential for haz/waste	Low	Low	Low	Low	Low	Low	Low	Low	Low
RTE Species	potential for RTE	Low, developed	Low, developed	Low, developed	Low, developed	Low, developed	Low, developed	Low, developed	Low, developed	Low, developed
Steep slopes	yes/no	No	No	No	No	No	No	No	No	No
Soils	Prime Farmland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Statewide Important	No	No	No	No	No	No	No	No	No
	Hydric	No	No	No	No	No	No	No	No	No
Noise / Air	# of sensitive receptors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Socioeconomic										
Properties affected	# homes	None	None	None	None	None	None	None	None	None
	# businesses	Businesses	Businesses	Businesses	Businesses (including car dealership)	Businesses (including car dealership)	Businesses (including car dealership)	Businesses	Businesses	Businesses
EJ Communities	presence of community	No	No	No	No	No	No	Yes	No	No
	potential impact	N/A	N/A	N/A	N/A	N/A	N/A	Medium	N/A	N/A
Parks	# parks	None	None	None	None	None	None	None	None	None
	area of impact (acres)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Land use	description	Commercial/ industrial	Commercial/ industrial	Commercial/ industrial	Commercial/ industrial	Commercial/ industrial	Commercial/ industrial	Commercial/ industrial	Commercial/ industrial	Commercial/ industrial
Community cohesion	qualitative assessment	Local businesses	Local businesses	Local businesses	Local businesses	Local businesses	Local businesses	Local businesses	Local businesses	Local businesses
Community facilities	site resources	None	None	None	None	None	None	None	None	None
	potential impact	None	None	None	None	None	None	None	None	None
Cultural										
Historic	# historic properties	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources
Archeological Resources	Archaeological sites	nil	nil	nil	nil	nil	nil	nil	nil	nil
Engineering / Design										
Cost										
Grading	substantial amounts of site grading and/or large retaining walls required	1.retaining wall (<10'H) needed along crest of Paramount Dr. 2.need to raise site elevation approx. 7' higher than concept design to tie into Indianola Dr.	1. retaining wall (<10'H) needed along crest of Paramount Dr. 2.need to raise site elevation approx. 7' higher than concept design to tie into Indianola Dr.	retaining wall (<8'H) @ intersection of Somerville Dr. & Paramount Dr.	1. retaining wall (<10'H) needed along crest of Paramount Dr. 2.need to raise site elevation approx. 7' higher than concept design to tie into Indianola Dr.	1. retaining wall (<10'H) needed along crest of Paramount Dr. 2.need to raise site elevation approx. 7' higher than concept design to tie into Indianola Dr.	retaining wall (<8'H) @ intersection of Somerville Dr. & Paramount Dr.	retaining wall (approx 20'H) needed along Frederick & Redland Dr.	north end of site needs additional property or retaining wall for 20' vert. cut	retaining wall (>25'H) needed along Frederick Rd., Redland Rd., and along proposed access road
Utilities	Availability of site utilities & any major relocations	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.	Site utilities are available nearby.	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.
SWM	available land for SWM	Probable below ground storage	Probable below ground storage	Probable below ground storage	Probable below ground storage	Probable below ground storage	Probable below ground storage	Probable below ground storage	Possible above ground storage	Possible above ground storage
ROW	high cost due to business displacements	Developed property	Developed property	Developed property	Developed property	Developed property	Developed property	Developed property	Developed property	Developed property
Site Acreage	Acres	12.1	12.3	12.4	15.6	15.6	15.6	17.7	17.0	13.9
Other	additional costs for vehicular and utility access due to distance (over 1 mile) from existing facilities	Modifications/ replacement of Redland Rd bridge	Modifications/ replacement of Redland Rd bridge	Modifications/ replacement of Redland Rd bridge	Modifications/ replacement of Redland Rd bridge	Modifications/ replacement of Redland Rd bridge	Modifications/ replacement of Redland Rd bridge	Modifications/ replacement of Redland Rd bridge	Will need to cross over CSX & WMATA	None
Facility										
Yard Operations	Land restrictions result in less than desirable operations and movement of vehicles through yard	--	--	--	--	--	--	--	--	Reverse moves required to access MOW tracks. Dual ended access is not available for S&I and light repair bays
Operations, Maintenance, & Car Wash Building(s)	Provides minumum square footage for a full 50 vehicle facility (100,000 up to 120,000 sq ft optimum)	w/2 floors - no (66,400 sq ft) w/3 floors - no (81,500 sq ft)	w/2 floors - no (78,250 sq ft) w/3 floors - no (99,700 sq ft)	w/2 floors - no (97,353 sq ft) w/3 floors - yes (126,080 sq ft)	w/2 floors - no (70,750 sq ft) w/3 floors - no (87,500 sq ft)	w/2 floors - no (94,125 sq ft) w/3 floors - yes (122,749 sq ft)	yes (100,599 sq ft w/2 floors)	yes (107,200 sq ft w/2 floors)	w/2 floors - no (65,500 sq ft) w/3 floors - no (81,500 sq ft)	w/2 floors - no (84,960 sq ft) w/3 floors - yes (108,459 sq ft)
	Provides minimum number of maintenance bays for 50 vehicles (10)	yes (11)	yes (11)	yes (11)	yes (11)	yes (11)	yes (11)	yes (11)	yes (11)	yes (11)
	Provides a car wash	yes	yes	yes	yes	yes	yes	yes	yes	yes
	Number of automobile parking spaces/potential for additional spaces	90/no	69/no	109/no	106/no	84/yes	161/no	209/no	88/yes	67/yes
Configuration	Provides a loop track	yes	yes	yes	yes	yes	yes	yes	yes	yes
	Through storage (not dead ended)	no	no	no	yes	yes	yes	no	no	no
	A reverse move is not required to go from car wash into storage	no	no	no	yes	yes	yes	yes	no for initial capacity only	no
	Car wash is on a separate track from the S&I track	no	yes	yes	yes	yes	yes	yes	yes	yes
	Crossover before entering yard	yes	yes	yes	yes	yes	yes	yes	yes	no
	Yard is not located at the terminal station - can extend system without revisions to plan as shown	no	no	no	no	no	no	no	no	no
	Bypass track	yes	yes	yes	yes	yes	yes	yes	yes	yes
	able to provide all shop functions at one site	no	no	yes	no	yes	yes	yes	no	yes
	does not require mainline and/or lead modifications to improve functionality	yes	yes	yes	yes	yes	yes	yes	yes	no - mainline & lead
	safety of layout for operators to go from parking to check-in to storage tracks (does not have to cross tracks)	Good layout - do not have to cross any other active tracks	Good layout - do not have to cross any other active tracks	Good layout - do not have to cross any other active tracks	Good layout - do not have to cross any other active tracks	Less than ideal layout - must cross at least the bypass track	Less than ideal layout - must cross at least the bypass track	Less than ideal layout - must cross bypass track, car wash track, & MOW track	Less than ideal layout - must cross car wash track, & shop track	Less than ideal layout - must cross shop tracks
	ease of which to provide covered storage given track configuration (assuming minor track center adjustments)	Very difficult due to stagger of tracks, also bypass track passes through side of structure	Difficult - the bypass track is covered, also MOW track passes through side of structure	--	Relatively easy - w/out alignment mods would need to cover a through track - construct both initial and future at the same time	Relatively easy - construct both initial & future at same time	--	--	Relatively easy with alignment mods - can construct initial only	Very difficult due to orientation of storage lead tracks, also car wash/shop lead & through track passes through side of structure
	yard storage capacity - initial/ultimate	30/52	32/50	30/54	34/50	31/47	37/52	30/51	30/52	36/54
Distance from beginning of system (Shady Grove Station)	Distance in miles	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.1
Distance from Phase 1 terminus (Metropolitan Grove Station)	Distance in miles	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.5	7.1
Distance from Phase 2 terminus (Comsat Station)	Distance in miles	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.9	13.5
Roadway Accessibility	Availablility of access to site	Adequate - main access off of Indianola Dr. - MOW access off of private property	Adequate - main access off of Indianola Dr. - MOW access off of private property	Adequate - main access off of Indianola Dr. - MOW access off of Paramount Dr.	Adequate - main access off of Indianola Dr. - MOW access off of Paramount Dr.	Adequate - access off of Indianola Dr.	Adequate - access off of Indianola Dr.	Adequate - access off of Paramount Dr.	Adequate - access through driveway of Bus Maintenance off of Crabbs Branch Way	Adequate - access off of Frederick Rd.
Other		1.would need to move the site entrance approx.. 220' south along Indianola Drive to accommodate site elevation. 2.would need to reconfigure lead tracks to accommodate vertical curvature	1.would need to move site entrance approx. 180' south along Indianola Dr. to accommodate site elevation. 2.would need to significantly reconfigure lead tracks to accommodate vertical curvature	--	1.would need to move the site entrance approx.. 60' south along Indianola Drive to accommodate site elevation. 2.would need to significantly reconfigure lead tracks and storage ladder to accommodate vertical curvature	Would need to reconfigure lead tracks to accommodate vertical curvature	--	Somerville Drive would be closed	--	Reverse moves are required by LRT vehicle to access MOW tracks. Dual ended access is not available for S&I and light repair bays
Disposition		Drop	Drop	Drop	Drop	Drop	Drop	Carry Forward	Drop	Drop

Corridor Cities Transitway
Light Rail Operations, Maintenance, and Storage Facility
Preliminary Screening Matrix

Category	Measure	Metropolitan Grove						West Old Baltimore Road Site
		Site 2A	Site 4/5	Site 4/5 (revised)	Site 6	Site 6 (revised)	Site 6 (Minimization)	
Wetlands	area of impact (acres)	None	None	None	None	None	None	Moderate
Streams	# stream crossings	None	4 stream crossings	None	None	None	4 stream crossings	None
	extent of impact	None	High	None	None	None	High	High
Floodplains	area of impact (acres)	None	None	None	None	None	None	Possible
Forests / Habitat	potential for habitat	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	extent of impact	Loss of habitat and	Loss of habitat and	Loss of habitat and	Loss of habitat and	Loss of habitat and	Loss of habitat and	Loss of habitat
Hazwaste	potential for haz/waste	low	low	low	low	low	low	Moderate
RTE Species	potential for RTE	low	low	low	low	low	low	Low
Steep slopes	yes/no	Yes	Yes	Yes	No	No	No	Yes
Soils	Prime Farmland	Yes	Yes	No	No	Yes	Yes	Yes
	Statewide Important	No	Yes	No	No	No	Yes	Yes
	Hydric	No	Yes	No	No	No	No	No
Noise / Air	# of sensitive receptors	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Properties affected	# homes	None	4 homes	4 homes	None	None	None	None
	# businesses	None	None	None	Police Impound Lot/ Future Forensics Lab	Police Impound Lot/ Future Forensics Lab	Police Impound Lot/ Future Forensics Lab	None
EJ Communities	presence of community	Yes	Yes	Yes	Yes	Yes	Yes	No
	potential impact	medium	medium	medium	medium	medium	medium	None
Parks	# parks	None	None	None	None	None	None	None
	area of impact (acres)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Land use	description	Rural	Rural	Rural	Commercial/ industrial	Commercial/ industrial	Commercial/ industrial	Undeveloped
Community cohesion	qualitative assessment	None	residences	residences	None	None	None	None
Community facilities	site resources	None	None	None	None	None	None	None
	potential impact	None	None	None	None	None	None	None
Historic	# historic properties	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources	No identified resources
Archeological Resources	Archaeological sites	high	high	high	med	med	med	None
Engineering / Design								
Grading	substantial amounts of site grading and/or large retaining walls required	Significant amounts of grading required - appears available area to grade out	Significant lengths of retaining walls (± 30'H)	Significant lengths of retaining walls (± 30'H)	Retaining wall needed along mainline (mainline in cut)	Retaining wall needed along mainline (mainline in cut)	Retaining wall needed along mainline (mainline in cut)	Substantial amounts of grading required - will vary with the final profile of Observation Drive
Utilities	Availability of site utilities & any major relocations	Site utilities are not available nearby, would need to be extended to site	Site utilities are not available nearby, would need to be extended to site	Site utilities are not located nearby, would need to be extended to site	Water and Sanitary will be available in 2006	Water and Sanitary will be available in 2006	Water and Sanitary will be available in 2006	Fiber optic along Old Baltimore Rd - cell phone tower on property near I-270
SWM	available land for SWM	Probable above ground storage	Probable above ground storage	Both above and below ground storage	Probable above ground storage	Probable above ground storage	Probable above ground storage	Probable above ground storage
ROW	high cost due to business displacements	Vacant land	Vacant land	Vacant land	Montgomery Co. Police Dept. will construct a new Forensics lab on the property in 2006	Montgomery Co. Police Dept. will construct a new Forensics lab on the property in 2006	Montgomery Co. Police Dept. will construct a new Forensics lab on the property in 2006	Farmland
Site Acreage	Acres	7.9	22.0	22.7	15.2	17.0	18.7	±40
Other	additional costs for vehicular and utility access due to distance (over 1 mile) from existing facilities	Watkins Mill Rd needs to be extended and bridge over CSX & LRT and extend to site entrance	Access is through proposed subdivision - would need to build access if yard built before subdivision	Access is through proposed subdivision - would need to build access if yard built before subdivision.	Need to bridge CSX & extend Metropolitan Rd. to access site	Need to bridge CSX & extend Metropolitan Rd. to access site	Need to bridge CSX & extend Metropolitan Rd. to access site	None
Yard Operations	Land restrictions result in less than desirable operations and movement of vehicles through yard	reverse moves required to access MOW & shops. Dual ended access is not available for shops	--	--	--	--	--	--
Operations, Maintenance, & Car Wash Building(s)	Provides minumum square footage for a full 50 vehicle facility (100,000 up to 120,000 sq ft optimum)	no (29,450 sq ft)	w/2 floors - no (73,500 sq ft) w/3 floors - no (91,000 sq ft)	yes (103,450 sq ft w/2 floors)	yes (101,400 sq ft w/2 floors)	yes (124,614 sq ft w/2 floors)	yes (122,474 sq ft w/2 floors)	Yes (122,474 sq ft w/2 floors)
	Provides minimum number of maintenance bays for 50 vehicles (10)	no (9)	yes (11)	yes (11)	yes (11)	yes (11)	yes (11)	yes (11)
	Provides a car wash	no	yes	yes	yes	yes	yes	yes
	Number of automobile parking spaces/potential for additional spaces	44/yes	65/yes	237/no	64/yes	211/yes	313/yes	349/yes
Configuration	Provides a loop track	no	yes	yes	yes	yes	yes	yes
	Through storage (not dead ended)	no	no	no	no	no	yes	yes
	A reverse move is not required to go from car wash into storage	no	no	yes	no	yes - initial no - ultimate	yes	yes
	Car wash is on a separate track from the S&I track	yes	yes	yes	yes	yes	yes	yes
	Crossover before entering yard	yes	yes	yes	yes	yes	yes	yes
	Yard is not located at the terminal station - can extend system without revisions to plan as shown	yes	yes	yes	yes	yes	yes	yes
	Bypass track	no	yes	yes	yes	yes	yes	yes
	able to provide all shop functions at one site	no	no	yes	yes	yes	yes	yes
	does not require mainline and/or lead modifications to improve functionality	no - mainline & lead	no - mainline & significant lead	yes	no - mainline & lead	yes	yes	yes
	safety of layout for operators to go from parking to check-in to storage tracks (does not have to cross tracks)	Less than ideal layout - must cross mainline & yard lead	Less than ideal layout - must cross bypass track, car wash track, & shop track	Less than ideal layout - must cross bypass track, S&I track, & car wash track	Less than ideal layout - must cross bypass track, MOW tracks, & shop track	Less than ideal layout - must cross bypass track, MOW tracks, & shop track	Less than ideal layout - must cross MOW tracks	Less than ideal layout - must cross bypass track, car wash track, & shop tracks
	ease of which to provide covered storage given track configuration (assuming minor track center adjustments)	Very difficult due to orientation of storage lead tracks, also MOW & shop lead passes through side of structure	Easy - construct both initial and future at the same time	Easy - construct both initial and future at the same time	Relatively easy - can construct initial only	Relatively easy - can construct initial only	Relatively easy - can construct initial only	--
	yard storage capacity - initial/ultimate	31/46	33/51	36/60	35/51	30/51	30/51	30/52
Distance from beginning of system (Shady Grove Station)	Distance in miles	7.4	7.8	7.8	6.9	6.9	6.9	13.0
Distance from Phase 1 terminus (Metropolitan Grove Station)	Distance in miles	0.4	0.7	0.7	0.1	0.1	0.1	N/A
Distance from Phase 2 terminus (Comsat Station)	Distance in miles	6.0	5.6	5.6	6.5	6.5	6.5	0.4
Roadway Accessibility	Availablility of access to site	Connection off of proposed Watkins Mill Rd	No existing access - access off of a proposed residential development	No existing access - access off of a proposed residential development	No adequate existing access - need to bridge CSX & extend Metropolitan Rd.	No adequate existing access - need to bridge CSX & extend Metropolitan Rd.	No adequate existing access - need to bridge CSX & extend Metropolitan Rd.	Adequate - access off of proposed Observation Dr.
Other		1.staff parking is on far side of mainline tracks. 2. Appears that the office space will be only on the second level, this prevents using skylights to facilitate lighting in the shop area. 3. The car wash is not a "drive through" car wash - you must pull in and then reverse out. 4.reverse moves required by LRT vehicle to access MOW	--	--	--	--	--	Additional acreage provides room for future expansion.
Disposition		Drop	Carry Forward	Drop	Drop	Drop	Carry Forward	Drop

BRT DETAILED SCREENING MATRIX

Corridor Cities Transitway
Bus Rapid Transit Operations, Maintenance, and Storage Facility
Detailed Screening Matrix

Category	Measure	Data Sources	Shady Grove	
			Site 1D	Site 1D / Phase 1
Environmental				
Natural				
Wetlands	area of impact (acres)	*"Waters of the U.S." Identification and Delineation Report*, MTA-CCT LRT/BRT Maintenance Facility Alternative Analysis, A.D. Marble and Company, October 2006	None	None
Streams	# stream crossings	*"Waters of the U.S." Identification and Delineation Report*, MTA-CCT LRT/BRT Maintenance Facility Alternative Analysis, A.D. Marble and Company, October 2006	None	None
	extent of impact	*"Waters of the U.S." Identification and Delineation Report*, MTA-CCT LRT/BRT Maintenance Facility Alternative Analysis, A.D. Marble and Company, October 2006	None	None
Floodplains	area of impact (acres)	FEMA Community Panel Number 24031 C 0331D (September 29, 2006)	None	None
Forests / Habitat	potential for habitat	*Maryland Transit Administration - Corridor Cities Transitway (MTA-CCT) Light Rail Transit/Bus Rapid Transit (LRT/BRT) Maintenance Facility Alternative Analysis, Forest Stand Delineation*, A.D. Marble and Company, September 2006	None	None
	extent of impact	Aerial Photos, Professional Judgment	None	None
Hazwaste	potential for haz/waste	*Draft Hazardous Waste Report for Corridor Cities Transitway LRT/BRT Maintenance Facilities*, A.D. Marble and Company, October 2006	Low; no hazardous wastes onsite; four high contaminate value sites located within 0.10 miles	Low; no hazardous waste sites onsite; four high contaminate value sites located within 0.10 miles
RTE Species	potential for RTE	Letter from Maryland DNR, field survey	Low	Low
Steep slopes	yes/no	USGS, contour maps, windshield survey	No	No
Soils	Prime Farmland	*Soil Survey of Montgomery County, Maryland*, USDA, 2002	yes; 5.89 acres	Yes
	Statewide Important	*Soil Survey of Montgomery County, Maryland*, USDA, 2002	No	No
	Hydric	*Soil Survey of Montgomery County, Maryland*, USDA, 2002	No	No
Noise / Air	# of sensitive receptors	Windshield Survey / Aerial Photos	Air quality and noise impacts are part of the larger project and will not be quantified at this time.	Air quality and noise impacts are part of the larger project and will not be quantified at this time.
Socioeconomic				
Properties affected	# homes	MD Property View / Windshield Survey	None	None
	# businesses	MD Property View / Windshield Survey	Businesses	Businesses
EJ Communities	presence of community	US Census Bureau's American FactFinder website, November 21, 2006	33% minority population	33% minority population
	potential impact		None	None
Parks	# parks	ADC Maps, DNR / MNCPPC website	None	None
	area of impact (acres)		N/A	N/A
Land use	description	MDP Land Use files, Windshield Survey	Industrial	Industrial
Community cohesion	qualitative assessment	Windshield Survey	Local businesses	Local businesses
Community facilities	site resources	ADC Maps, Windshield Survey	None	None
	potential impact	MD Property View / Windshield Survey	None	None
Cultural				
Historic		MIHP, NRHP databases; windshield survey	No identified resources	No identified resources
Archeological Resources		Phase IA survey required	nil	nil
Engineering / Design				
Cost				
Grading	substantial amounts of site grading and/or large retaining walls required	Existing contour files and GeoPak Tins provided by PB; windshield survey	Moderate amounts of fill required and no retaining walls	Moderate amounts of fill required and no retaining walls
Utilities	Availability of site utilities & any major relocations	Some utility information available	Site utilities are available nearby.	Site utilities are available nearby.
SWM	available land for SWM	Existing topo information and contours provided by PB; windshield survey	Above ground storage	Above ground storage
ROW	high cost due to business displacements	Existing ROW lines provided by PR, Detailed property information will be provided in the future by MTA.		
Site Acreage	Acres	Preliminary site layout	16.0	12.9
Other	additional costs for vehicular and utility access due to distance (over 1 mile) from existing facilities		None	None

Category	Measure	Data Sources	Shady Grove	
			Site 1D	Site 1D / Phase 1
Facility				
Yard Operations	Land restrictions result in less than desirable operations and movement of vehicles through yard	Existing yard concepts (LRT only) provided by PB; windshield survey	no	no
Operations & Maintenance Bldg., Service Lanes, & Fare Collection Buildings	Provides minumum square footage for a full vehicle facility (Operations & Maintenance Bldg., Service Lanes, & Fare Collection)	Preliminary site layout	Yes (82,800 sq ft w/2 floors)	Yes (82,800 sq ft w/2 floors)
	Provides minimum number of maintenance bays for 150 -200 vehicles (15 bays)	Preliminary site layout	yes	yes
	Provides drive through maintenance bays	Preliminary site layout	yes	yes
	Provides indoor storage for a minimum of 150 60'/40' long vehicles	Preliminary site layout	Yes, provides for 78 - 60' long vehicles and 96 -40' long vehicles.	No, provides for 39 - 60' long vehicles and 48 -40' long vehicles.
	Number of automobile parking spaces/potential for additional spaces	Preliminary site layout	265/no	143/no
Configuration	Separate bus and staff/visitor vehicular entrances	Existing yard concepts (LRT only) provided by PB; windshield survey	yes	yes
	Accommodates left hand turns & provides counterclockwise site circulation	Existing yard concepts (LRT only) provided by PB	yes	yes
	able to provide all shop functions at one site	Existing yard concepts (LRT only) provided by PB	yes	yes
	safety of layout for operators to go from parking to check-in to storage (minimizes distance crossed in maintenance areas)	Existing yard concepts (LRT only) provided by PB	Adequate - can walk to half of the storage lanes, all of the service lanes, and the fare collection lane without passing in front of the maintenance bays	Less than ideal - can walk to the service lanes and the fare collection lane without passing in front of the maintenance bays
	yard indoor storage capacity - initial/ultimate	Existing yard concepts (LRT only) provided by PB	87/174	87
Distance from beginning of system (Shady Grove Station)	Distance in miles	Preliminary site layout	0.1	0.1
Distance from Phase 1 terminus (Metropolitan Grove Station)	Distance in miles	Preliminary site layout	7.1	7.1
Distance from Phase 2 terminus (Comsat Station)	Distance in miles	Preliminary site layout	13.5	13.5
Roadway Accessibility	Availablility of access to site	Existing topo information provided by PB	Adequate - access off of Paramount Dr. & Redland Rd	Adequate - access off of Paramount Dr. & Redland Rd
Other		Existing yard concepts (LRT only) provided by PB	Somerville Drive would be closed	Somerville Drive would be closed

LRT DETAILED SCREENING MATRIX

Corridor Cities Transitway
Light Rail Operations, Maintenance, and Storage Facility
Detailed Evaluation Matrix

Category	Measure	Shady Grove	Metropolitan Grove	
		Site 1D	Site 4/5	Site 6 (Minimization)
Environmental				
Natural				
Wetlands	area of impact (acres)	None	None	None
Streams	# stream crossings	None	4 stream crossings	4 stream crossings
	extent of impact	None	660' linear impact	486' linear impact
Floodplains	area of impact (acres)	None	None	None
Forests / Habitat	potential for habitat	None	Yes; 18.72 acres; 111 significant and 87 specimen trees	Yes, 8.87 acres, 51 significant and 79 specimen trees
	extent of impact	None	Loss of habitat and trees	Loss of habitat and trees
Hazwaste	potential for haz/waste	Low; no hazardous wastes onsite; four high contaminate value sites located offsite within 0.10 miles	low	low
RTE Species	potential for RTE	Low, developed	low	low
Steep slopes	yes/no	No	>15%	No
Soils	Prime Farmland	Yes; 7.40 acres	yes; 2.68 acres	yes; 15.05 acres
	Statewide Important	No	yes; 12.033 acres	yes; 1.92 acres
	Hydric	No	Yes; less than 0.01 acres	No
Noise / Air	# of sensitive receptors	Yes	Yes	Yes
Socioeconomic				
Properties affected	# homes	None	4 homes	None
	# businesses	Businesses	None	Police Impound Lot/ Future Forensics Lab
EJ Communities	presence of community	33% minority	49% minority	49% minority
	potential impact	medium	medium	medium
Parks	# parks	None	None	None
	area of impact (acres)	N/A	N/A	N/A
Land use	description	Commercial/ industrial	Rural	Commercial/ industrial
Community cohesion	qualitative assessment	Local businesses	residences	None
Community facilities	site resources	None	None	None
	potential impact	None	None	None
Cultural				
Historic		No identified resources	No identified resources	No identified resources
Archeological Resources		nil	high	med
Engineering / Design				
Cost				
Grading	substantial amounts of site grading and/or large retaining walls required	retaining wall (approx 20'H) needed along Frederick & Redland Dr.	Significant lengths of retaining walls (± 30'H)	Retaining wall needed along mainline (mainline in cut)
Utilities	Availability of site utilities & any major relocations	Need to relocate WMATA traction power sub-station. Site utilities are available nearby.	Site utilities are not located nearby, would need to be extended to site	Water and Sanitary will be available in 2006
SWM	available land for SWM	Probable below ground storage	Both above and below ground storage	Probable above ground storage
ROW	high cost due to business displacements	Developed property	Vacant land	Montgomery Co. Police Dept. will construct a new Forensics lab on the property in 2006
Site Acreage	Acres	17.7	22.7	18.7
Other	additional costs for vehicular and utility access due to distance (over 1 mile) from existing facilities	Modifications/ replacement of Redland Rd bridge	Access is through proposed subdivision - would need to build access if yard built before subdivision.	Need to bridge CSX & extend Metropolitan Rd. to access site
Facility				
Operations, Maintenance, & Car Wash Building(s)	Provides minumum square footage for a full 50 vehicle facility (100,000 up to 120,000 sq ft optimum)	yes (107,200 sq ft w/2 floors)	yes (103,450 sq ft w/2 floors)	yes (122,474 sq ft w/2 floors)
	Provides minimum number of maintenance bays for 50 vehicles (10)	yes (11)	yes (11)	yes (11)
	Provides a car wash	yes	yes	yes
Operations, Maintenance, & Car Wash Building(s) (con't)	Number of automobile parking spaces/potential for additional spaces	209/no	237/no	313/yes
Configuration	Provides a loop track	yes	yes	yes
	Through storage (not dead ended)	no	no	yes
	A reverse move is not required to go from car wash into storage	yes	yes	yes
	Car wash is on a separate track from the S&I track	yes	yes	yes
	Crossover before entering yard	yes	yes	yes
	Yard is not located at the terminal station - can extend system without revisions to plan as shown	no	yes	yes
	Bypass track	yes	yes	yes
	able to provide all shop functions at one site	yes	yes	yes
	does not require mainline and/or lead modifications to improve functionality	yes	yes	yes
	safety of layout for operators to go from parking to check-in to storage tracks	Less than ideal layout - must cross bypass track, car wash track, & MOW track	Less than ideal layout - must cross bypass track, S&I track, & car wash track	Less than ideal layout - must cross MOW tracks
	yard storage capacity - initial/ultimate	30/51	36/60	30/51
Distance from beginning of system (Shady Grove Station)	Distance in miles	0.1	7.8	6.9
Distance from Phase 1 terminus (Metropolitan Grove Station)	Distance in miles	7.1	0.7	0.1
Distance from Phase 2 terminus (Comsat Station)	Distance in miles	13.5	5.6	6.5
Roadway Accessibility	Availablility of access to site	Adequate - access off of Paramount Dr.	No existing access - access off of a proposed residential development	No adequate existing access - need to bridge CSX & extend Metropolitan Rd.
Other		Somerville Drive would be closed	--	--

APPENDIX F

COST ESTIMATES

Shady Grove Site 1D - BRT
O & M FACILITY COST ESTIMATE
3/22/2007

CATEGORY	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
CATEGORY A - PRELIMINARY					
	PRELIMINARY - 25% OF CAT. B, E &	1	LS	$ 1,858,950.00	$ 1,859,000.00
				SUBTOTAL CATERGORY A	$ 1,859,000.00
CATEGORY B - GRADING					
	CLASS 1 EXCAVATION	0	CY	$ 8.25	$ -
	COMMON BORROW	189,677	CY	$ 10.00	$ 1,896,800.00
				SUBTOTAL CATERGORY B	$ 1,896,800.00
CATEGORY C - DRAINAGE					
	DRAINAGE	1	LS	$ 30,024.00	$ 30,000.00
				SUBTOTAL CATERGORY C	$ 30,000.00
CATEGORY D - STRUCTURES					
	Retaining Walls	0	SF	$ 75.00	$ -
				SUBTOTAL CATERGORY D	$ -
CATEGORY E - PAVING					
	1.5" SURFACE (CAR)	72196	TONS	$ 65.00	$ 4,692,700.00
	6" SURFACE (BUS)	2842	TONS	$ 65.00	$ 184,700.00
	5.5" BASE	6386	TONS	$ 65.00	$ 415,100.00
	6" SUBBASE	19739	SY	$ 10.00	$ 197,400.00
				SUBTOTAL CATERGORY E	$ 5,489,900.00
CATEGORY F - MISC					
	6' High Chain Link Fence	3,272	LF	$ 15.00	$ 49,100.00
				SUBTOTAL CATERGORY F	$ 49,100.00
CATEGORY G - LANDSCAPE					
	LANDSCAPING - 7% OF CAT. B, E, & F	1	LS	$ 520,506.00	$ 520,500.00
				SUBTOTAL CATERGORY G	$ 520,500.00
CATEGORY H - UTILITIES					
	UTILITIES - 12% OF CAT. B, E & I	1	LS	$ 4,157,270.40	$ 4,157,300.00
				SUBTOTAL CATERGORY H	$ 4,157,300.00
CATEGORY I - MAINTENANCE BUILDING RELATED ITEMS					
	Indoor Storage	1	EA	$ 13,213,200.00	$ 13,213,200.00
	Maintenance Facility	1	EA	$ 14,000,000.00	$ 14,000,000.00
	Entrance Guard Shack	1	LS	$ 44,000.00	$ 44,000.00
				SUBTOTAL CATEGORY I	$ 27,257,200.00
				SUBTOTAL FOR ALL CATEGORIES	$ 41,259,800.00
				40% CONTINGENCY	$16,503,900.00
				SUBTOTAL	$ 57,763,700.00
				12.3% OVERHEAD	$7,104,900.00
				TOTAL	**$64,868,600.00**

Shady Grove Site 1D - LRT
O & M FACILITY COST ESTIMATE
3/22/2007

CATEGORY	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
CATEGORY A - PRELIMINARY					
	PRELIMINARY - 25% OF CAT. B, E & I	1	LS	$ 813,159.13	$ 813,200.00
				SUBTOTAL CATERGORY A	$ 813,200.00
CATEGORY B - GRADING					
	CLASS 1 EXCAVATION	306,962	CY	$ 8.25	$ 2,532,400.00
	COMMON BORROW	0	CY	$ 10.00	$ -
				SUBTOTAL CATERGORY B	$ 2,532,400.00
CATEGORY C - DRAINAGE					
	DRAINAGE	1	LS	$ 753,189.00	$ 753,200.00
				SUBTOTAL CATERGORY C	$ 753,200.00
CATEGORY D - STRUCTURES					
	Retaining Walls	32000	SF	$ 75.00	$ 2,400,000.00
				SUBTOTAL CATERGORY D	$ 2,400,000.00
CATEGORY E - PAVING					
	1.5" SURFACE	1607	TONS	$ 65.00	$ 104,500.00
	5.5" BASE	5893	TONS	$ 65.00	$ 383,000.00
	6" SUBBASE	18215	SY	$ 10.00	$ 182,200.00
				SUBTOTAL CATERGORY E	$ 669,700.00
CATEGORY F - MISC					
	6' High Chain Link Fence	3,370	LF	$ 15.00	$ 50,600.00
				SUBTOTAL CATERGORY F	$ 50,600.00
CATEGORY G - LANDSCAPE					
	LANDSCAPING - 7% OF CAT. B, E & F	1	LS	$ 227,684.56	$ 227,700.00
				SUBTOTAL CATERGORY G	$ 227,700.00
CATEGORY H - UTILITIES					
	UTILITIES - 12% OF CAT. B, E & J	1	LA	$ 4,618,432.98	$ 4,618,400.00
				SUBTOTAL CATERGORY H	$ 4,618,400.00
CATERGORY I - TRACK RELATED ITEMS					
	Ballasted track	11760	TF	$ 140.00	$ 1,646,400.00
	Embedded track	315	TF	$ 320.00	$ 100,800.00
	No. 6 Turnout	30	EA	$ 80,000.00	$ 2,400,000.00
	No. 6 crossover	2	EA	$ 120,000.00	$ 240,000.00
	No. 8 double crossover	0	EA	$ -	$ -
	Overhead Catenary System	2.29	Mi	$ 1,000,000.00	$ 2,290,000.00
	grade crossings	90	TF	$ 400.00	$ 36,000.00
				SUBTOTAL CATERGORY I	$ 6,713,200.00
CATERGORY J - MAINTENANCE BUILDING RELATED ITEMS					
	car wash	1	EA	$ 1,500,000.00	$ 1,500,000.00
	8' wide service path	2167	TONS	$ 65.00	$ 140,900.00
	TPSS	1	EA	$ 1,000,000.00	$ 1,000,000.00
	MOW building	1	EA	$ 500,000.00	$ 500,000.00
	Maintenance Facility	1	EA	$ 17,000,000.00	$ 17,000,000.00
	Shop Equipment	1	LS	$ 8,600,000.00	$ 8,600,000.00
	Entrance Guard Shack	1	LS	$ 44,000.00	$ 44,000.00
	WMATA TPSS	1	LS	$ 6,500,000.00	$ 6,500,000.00
				SUBTOTAL CATERGORY J	$ 35,284,900.00
				SUBTOTAL FOR ALL CATEGORIES	$ 54,063,300.00
				40% CONTINGENCY	$21,625,300.00
				SUBTOTAL	$ 75,688,600.00
				12.3% OVERHEAD	$9,309,700.00
				TOTAL	**$84,998,300.00**

Shady Grove - Crabbs Branch Way Site - BRT
O & M FACILITY COST ESTIMATE
3/22/2007

CATEGORY	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
CATEGORY A - PRELIMINARY					
	PRELIMINARY - 25% OF CAT. B, E & F	1	LS	$ 407,307.63	$ 407,300.00
				SUBTOTAL CATERGORY A	$ 407,300.00
CATEGORY B - GRADING					
	CLASS 1 EXCAVATION	45,594	CY	$ 8.25	$ 376,200.00
	COMMON BORROW	0	CY	$ 10.00	$ -
				SUBTOTAL CATERGORY B	$ 376,200.00
CATEGORY C - DRAINAGE					
	DRAINAGE	1	LS	$ 470,116.00	$ 470,100.00
				SUBTOTAL CATERGORY C	$ 470,100.00
CATEGORY D - STRUCTURES					
	Retaining Walls	0	SF	$ 75.00	$ -
				SUBTOTAL CATERGORY D	$ -
CATEGORY E - PAVING					
	1.5" SURFACE (CAR)	666	TONS	$ 65.00	$ 43,300.00
	6" SURFACE (BUS)	6036	TONS	$ 65.00	$ 392,300.00
	5.5" BASE	7975	TONS	$ 65.00	$ 518,400.00
	6" SUBBASE	24650	SY	$ 10.00	$ 246,500.00
				SUBTOTAL CATERGORY E	$ 1,200,500.00
CATEGORY F - MISC					
	6' High Chain Link Fence	3,505	LF	$ 15.00	$ 52,600.00
				SUBTOTAL CATERGORY F	$ 52,600.00
CATEGORY G - LANDSCAPE					
	LANDSCAPING - 7% OF CAT. B,E & F	1	LS	$ 114,046.14	$ 114,000.00
				SUBTOTAL CATERGORY G	$ 114,000.00
CATEGORY H - UTILITIES					
	UTILITIES - 10% OF CAT. B,E & I	1	LS	$ 2,198,525.55	$ 2,198,500.00
				SUBTOTAL CATERGORY H	$ 2,198,500.00
CATEGORY I - MAINTENANCE BUILDING RELATED ITEMS					
	Indoor Storage	1	EA	$ 6,364,600.00	$ 6,364,600.00
	Maintenance Facility	1	EA	$ 14,000,000.00	$ 14,000,000.00
	Entrance Guard Shack	1	LS	$ 44,000.00	$ 44,000.00
				SUBTOTAL CATEGORY I	$ 20,408,600.00
				SUBTOTAL FOR ALL CATEGORIES	$ 25,227,800.00
				40% CONTINGENCY	$ 10,090,000.00
				SUBTOTAL	$ 35,320,000.00
				12.3% OVERHEAD	$4,344,200.00
				TOTAL	**$39,664,200.00**

Metropolitan Grove Site 4/5 - LRT
O & M FACILITY COST ESTIMATE
3/22/2007

CATEGORY	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
CATEGORY A - PRELIMINARY					
	PRELIMINARY - 25% OF CAT. B, E & F	1	LS	$ 2,230,728.56	$ 2,230,700.00
				SUBTOTAL CATERGORY A	$ 2,230,700.00
CATEGORY B - GRADING					
	CLASS 1 EXCAVATION	962,169	CY	$ 8.25	$ 7,937,900.00
	COMMON BORROW	0	CY	$ 10.00	$ -
				SUBTOTAL CATERGORY B	$ 7,937,900.00
CATEGORY C - DRAINAGE					
	DRAINAGE	1	LS	$ 1,178,867.00	$ 1,178,900.00
				SUBTOTAL CATERGORY C	$ 1,178,900.00
CATEGORY D - STRUCTURES					
	Retaining Walls	76700	SF	$ 75.00	$ 5,752,500.00
				SUBTOTAL CATERGORY D	$ 5,752,500.00
CATEGORY E - PAVING					
	1.5" SURFACE	2187	TONS	$ 65.00	$ 142,200.00
	5.5" BASE	8021	TONS	$ 65.00	$ 521,400.00
	6" SUBBASE	24791	SY	$ 10.00	$ 247,900.00
				SUBTOTAL CATERGORY E	$ 911,500.00
CATEGORY F - MISC					
	6' High Chain Link Fence	4,906	LF	$ 15.00	$ 73,600.00
				SUBTOTAL CATERGORY F	$ 73,600.00
CATEGORY G - LANDSCAPE					
	LANDSCAPING - 7% OF CAT. B, E & F	1	LS	$ 624,604.00	$ 624,600.00
				SUBTOTAL CATERGORY G	$ 624,600.00
CATEGORY H - UTILITIES					
	UTILITIES - 15% OF CAT. B, E & J	1	LS	$ 5,643,986.14	$ 5,644,000.00
				SUBTOTAL CATERGORY H	$ 5,644,000.00
CATERGORY I - TRACK RELATED ITEMS					
	Ballasted track	13166	TF	$ 140.00	$ 1,843,200.00
	Embedded track	315	TF	$ 320.00	$ 100,800.00
	No. 6 Turnout	16	EA	$ 80,000.00	$ 1,280,000.00
	No. 6 crossover	1	EA	$ 180,000.00	$ 180,000.00
	No. 8 double crossover	0	EA	$ -	$ -
	Overhead Catenary System	2.55	Mi	$ 1,000,000.00	$ 2,550,000.00
	grade crossings	350	TF	$ 400.00	$ 140,000.00
				SUBTOTAL CATERGORY I	$ 6,094,000.00
CATERGORY J - MAINTENANCE BUILDING RELATED ITEMS					
	car wash	1	EA	$ 1,500,000.00	$ 1,500,000.00
	8' wide service path	2050	TONS	$ 65.00	$ 133,300.00
	TPSS	1	EA	$ 1,000,000.00	$ 1,000,000.00
	MOW building	1	EA	$ 500,000.00	$ 500,000.00
	Maintenance Facility	1	EA	$ 17,000,000.00	$ 17,000,000.00
	Shop Equipment	1	LS	$ 8,600,000.00	$ 8,600,000.00
	Entrance Guard Shack	1	LS	$ 44,000.00	$ 44,000.00
				SUBTOTAL CATERGORY J	$ 28,777,300.00
CATEGORY K - ENVIRONMENTAL MITIGATION					
	Stream Impacts	660	LF	$ 375.00	$ 247,500.00
	Forest Impacts	19.73	AC	$ 8,701.00	$ 171,700.00
				SUBTOTAL CATERGORY K	$ 419,200.00
				SUBTOTAL FOR ALL CATEGORIES	$ 59,644,200.00
				40% CONTINGENCY	$23,857,600.00
				SUBTOTAL	$ 83,501,800.00
				12.3% OVERHEAD	$10,270,700.00
				TOTAL	**$93,772,500.00**

Metropolitan Grove Site 6 - BRT
O & M FACILITY COST ESTIMATE
3/22/2007

CATEGORY	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
CATEGORY A - PRELIMINARY					
	PRELIMINARY - 25% OF CAT. B, E & I	1	LS	$ 694,674.38	$ 694,700.00
				SUBTOTAL CATERGORY A	$ 694,700.00
CATEGORY B - GRADING					
	CLASS 1 EXCAVATION	4,690	CY	$ 8.25	$ 38,700.00
	COMMON BORROW	132,630	CY	$ 10.00	$ 1,326,300.00
				SUBTOTAL CATERGORY B	$ 1,365,000.00
CATEGORY C - DRAINAGE					
	DRAINAGE	1	LS	$ 25,590.00	$ 25,600.00
				SUBTOTAL CATERGORY C	$ 25,600.00
CATEGORY D - STRUCTURES					
	Retaining Walls	0	SF	$ 75.00	$ -
				SUBTOTAL CATERGORY D	$ -
CATEGORY E - PAVING					
	1.5" SURFACE (CAR)	1289	TONS	$ 65.00	$ 83,800.00
	6" SURFACE (BUS)	873	TONS	$ 65.00	$ 56,700.00
	5.5" BASE	12725	TONS	$ 65.00	$ 827,100.00
	6" SUBBASE	39331	SY	$ 10.00	$ 393,300.00
				SUBTOTAL CATERGORY E	$ 1,360,900.00
CATEGORY F - MISC					
	6' High Chain Link Fence	3,516	LF	$ 15.00	$ 52,700.00
				SUBTOTAL CATERGORY F	$ 52,700.00
CATEGORY G - LANDSCAPE					
	LANDSCAPING - 7% OF CAT. B, E, & F	1	LS	$ 194,508.83	$ 194,500.00
				SUBTOTAL CATERGORY G	$ 194,500.00
CATEGORY H - UTILITIES					
	UTILITIES - 10% OF CAT. B,E, & I	1	LS	$ 2,998,315.75	$ 2,998,300.00
				SUBTOTAL CATERGORY H	$ 2,998,300.00
CATEGORY I - MAINTENANCE BUILDING RELATED ITEMS					
	Indoor Storage	1	EA	$ 13,213,200.00	$ 13,213,200.00
	Maintenance Facility	1	EA	$ 14,000,000.00	$ 14,000,000.00
	Entrance Guard Shack	1	LS	$ 44,000.00	$ 44,000.00
				SUBTOTAL CATEGORY I	$ 27,257,200.00
CATEGORY J - ENVIRONMENTAL MITIGATION					
	Wetland Impacts	0.15	AC	$ 168,750.00	$ 25,300.00
	Stream Impacts	329	EA	$ 375.00	$ 123,400.00
	Forest Impacts	7.81	AC	$ 8,701.00	$ 68,000.00
				SUBTOTAL CATEGORY J	$ 216,700.00
				SUBTOTAL FOR ALL CATEGORIES	$ 34,165,600.00
				40% CONTINGENCY	$13,666,300.00
				SUBTOTAL	$ 47,831,900.00
				12.3% OVERHEAD	$5,883,300.00
				TOTAL	**$53,715,200.00**

Metropolitan Grove Site 6 - LRT
O & M FACILITY COST ESTIMATE
3/22/2007

CATEGORY	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
CATEGORY A - PRELIMINARY					
	PRELIMINARY - 25% OF CAT. B, E &	1	LS	$ 580,871.50	$ 580,900.00
				SUBTOTAL CATERGORY A	$ 580,900.00
CATEGORY B - GRADING					
	CLASS 1 EXCAVATION	41,108	CY	$ 8.25	$ 339,100.00
	COMMON BORROW	94,327	CY	$ 10.00	$ 943,300.00
				SUBTOTAL CATERGORY B	$ 1,282,400.00
CATEGORY C - DRAINAGE					
	DRAINAGE	1	LS	$ 30,849.00	$ 30,800.00
				SUBTOTAL CATERGORY C	$ 30,800.00
CATEGORY D - STRUCTURES					
	Retaining Walls	0	SF	$ 75.00	$ -
				SUBTOTAL CATERGORY D	$ -
CATEGORY E - PAVING					
	1.5" SURFACE	2356	TONS	$ 65.00	$ 153,100.00
	5.5" BASE	8638	TONS	$ 65.00	$ 561,500.00
	6" SUBBASE	26699	SY	$ 10.00	$ 267,000.00
				SUBTOTAL CATERGORY E	$ 981,600.00
CATEGORY F - MISC					
	6' High Chain Link Fence	3,965	LF	$ 15.00	$ 59,500.00
				SUBTOTAL CATERGORY F	$ 59,500.00
CATEGORY G - LANDSCAPE					
	LANDSCAPING - 7% OF CAT. B, E & F	1	LS	$ 162,644.02	$ 162,600.00
				SUBTOTAL CATERGORY G	$ 162,600.00
CATEGORY H - UTILITIES					
	UTILITIES - 10% OF CAT. B, E & J	1	LS	$ 3,102,982.10	$ 3,103,000.00
				SUBTOTAL CATERGORY H	$ 3,103,000.00
CATERGORY I - TRACK RELATED ITEMS					
	Ballasted track	14334	TF	$ 140.00	$ 2,006,800.00
	Embedded track	315	TF	$ 320.00	$ 100,800.00
	No. 6 Turnout	27	EA	$ 80,000.00	$ 2,160,000.00
	No. 6 crossover	0	EA	$ 120,000.00	$ -
	No. 6 double crossover	1	EA	$ 180,000.00	$ 180,000.00
	No. 8 double crossover	1	EA	$ 180,000.00	$ 180,000.00
	Overhead Catenary System	2.77	Mi	$ 1,000,000.00	$ 2,770,000.00
	grade crossings	250	TF	$ 400.00	$ 100,000.00
				SUBTOTAL CATERGORY I	$ 7,497,600.00
CATERGORY J - MAINTENANCE BUILDING RELATED ITEMS					
	car wash	1	EA	$ 1,500,000.00	$ 1,500,000.00
	8' wide service path	1874	TONS	$ 65.00	$ 121,800.00
	TPSS	1	EA	$ 1,000,000.00	$ 1,000,000.00
	MOW building	1	EA	$ 500,000.00	$ 500,000.00
	Maintenance Facility	1	EA	$ 17,000,000.00	$ 17,000,000.00
	Shop Equipment	1	LS	$ 8,600,000.00	$ 8,600,000.00
	Entrance Guard Shack	1	LS	$ 44,000.00	$ 44,000.00
				SUBTOTAL CATERGORY J	$ 28,765,800.00
CATEGORY K - ENVIRONMENTAL MITIGATION					
	Wetland Impacts	0.15	AC	$ 168,750.00	$ 25,300.00
	Stream Impacts	486	LF	$ 375.00	$ 182,300.00
	Forest Impacts	10.21	AC	$ 8,701.00	$ 88,800.00
				SUBTOTAL CATERGORY K	$ 296,400.00
				SUBTOTAL FOR ALL CATEGORIES	$ 42,760,600.00
				40% CONTINGENCY	$17,104,200.00
				SUBTOTAL	$ 59,864,800.00
				12.3% OVERHEAD	$7,363,400.00
				TOTAL	**$67,228,200.00**

Observation Drive Site - BRT
O & M FACILITY COST ESTIMATE
3/22/2007

CATEGORY	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
CATEGORY A - PRELIMINARY					
	PRELIMINARY - 25% OF CAT. B, E &	1	LS	$ 2,310,822.50	$ 2,310,800.00
				SUBTOTAL CATERGORY A	$ 2,310,800.00
CATEGORY B - GRADING					
	CLASS 1 EXCAVATION	0	CY	$ 8.25	$ -
	COMMON BORROW	709,555	CY	$ 10.00	$ 7,095,600.00
				SUBTOTAL CATERGORY B	$ 7,095,600.00
CATEGORY C - DRAINAGE					
	DRAINAGE	1	LS	$ 25,714.00	$ 25,700.00
				SUBTOTAL CATERGORY C	$ 25,700.00
CATEGORY D - STRUCTURES					
	Retaining Walls	24000	SF	$ 75.00	$ 1,800,000.00
				SUBTOTAL CATERGORY D	$ 1,800,000.00
CATEGORY E - PAVING					
	1.5" SURFACE (CAR)	1542	TONS	$ 65.00	$ 100,200.00
	6" SURFACE (BUS)	9490	TONS	$ 65.00	$ 616,900.00
	5.5" BASE	14354	TONS	$ 65.00	$ 933,000.00
	6" SUBBASE	44368	SY	$ 10.00	$ 443,700.00
				SUBTOTAL CATERGORY E	$ 2,093,800.00
CATEGORY F - MISC					
	6' High Chain Link Fence	3,598	LF	$ 15.00	$ 54,000.00
				SUBTOTAL CATERGORY F	$ 54,000.00
CATEGORY G - LANDSCAPE					
	LANDSCAPING - 7% OF CAT. B, E, & F	1	LS	$ 647,030.30	$ 647,000.00
				SUBTOTAL CATERGORY G	$ 647,000.00
CATEGORY H - UTILITIES					
	UTILITIES - 10% OF CAT. B, E & I	1	LS	$ 3,644,652.00	$ 3,644,700.00
				SUBTOTAL CATERGORY H	$ 3,644,700.00
CATEGORY I - MAINTENANCE BUILDING RELATED ITEMS					
	Indoor Storage	1	EA	$ 13,213,200.00	$ 13,213,200.00
	Maintenance Facility	1	EA	$ 14,000,000.00	$ 14,000,000.00
	Entrance Guard Shack	1	LS	$ 44,000.00	$ 44,000.00
				SUBTOTAL CATEGORY I	$ 27,257,200.00
CATEGORY J - ENVIRONMENTAL MITIGATION					
	Forest Impacts	0.84	AC	$ 8,701.00	$ 7,300.00
				SUBTOTAL CATEGORY J	$ 7,300.00
				SUBTOTAL FOR ALL CATEGORIES	$ 44,936,100.00
				40% CONTINGENCY	$17,974,400.00
				SUBTOTAL	$ 62,910,500.00
				12.3% OVERHEAD	$7,738,000.00
				TOTAL	**$70,648,500.00**

APPENDIX G

CORRESPONDENCE

Meeting Minutes

Local Government Coordination Meeting
Corridor Cities Transitway

Montgomery County
M-NCPPC
City of Rockville
City of Gaithersburg

Gilchrist Center for Cultural Diversity
11319 Elkin Street
Wheaton, MD 20902

November 28, 2005
2:00 PM – 4:30 PM

Meeting Attendees List - See Attachment

Opening Remarks – Ernie Baisden
Mr. Baisden opened the meeting by asking all in attendance to introduce themselves, with their name and their affiliation, to the group. He began by discussing the purpose of the meeting and the Maryland Transit Administration's (MTA) desire to establish lines of communication between members of the project team and the local jurisdictions. He then presented an overview of the MTA Project Development Process and the Federal Transit Administration New Starts Process.

Project Update – Diane Ratcliff
Ms. Ratcliff presented an update on the status of the travel demand modeling efforts. She then discussed MTA's environmental planning process, the status of the I-270/US 15 Environmental Assessment, and the ultimate goal of reaching consensus on the locally preferred alternate. She concluded her remarks with a brief discussion on the project schedule and major milestone dates.

> ***Q:*** *Maryland – National Capital Park and Planning Commission (M-NCPPC) asked "What amount of project funding was noted in the federal jurisdiction process?"*
>
> **A:** The project needs to be authorized by law before any amount of funding can be placed towards the project. Federal jurisdiction needs to be notified 60 days in advance before Federal funding can be considered towards a project.

Q: *M-NCPPC asked, "Under SAFETEA-LU, wasn't there $10 million set aside for federally funded jobs? Wasn't the Corridor Cities Transitway identified in these projects?"*

A: MTA commented that they are working towards tapping into federal funding in a reasonable time frame so that the project can continue to move forward. MTA is looking to preliminary engineering beginning in the summer of 2007. Formal funding will not be requested until FY 2008.

Q: *Montgomery County Department of Public Works and Transportation (MCDPW&T) asked, "Are we going to jointly determine the model alternates? The County sent a letter at least a year ago concerning the model assumptions and had no response to date". MCDPW&T also commented "ETL relates to issues of lanes, local traffic, and transit."*

A: MTA commented that the model currently has unconstrained parking at Shady Grove, but after 6:30 AM there are no spaces remaining. MTA is working to resolve issues such as these and is working with SHA to develop joint models that more accurate compute transit ridership as well as highway volumes.

MCDPW Comment: *The County has "design manual sheets" for each segment of the CCT that is within a roadway right-of-way. They are based on the sections and profiles from the Michael Baker report.*

MTA Response: MTA requested a copy of those design manual sheets.

Q: *M-NCPPC asked, "How are we (local government agencies and MTA) going to proceed in the coming months? Is the main purpose of this meeting to be able to work with us?"*

A: MTA indicated that it is looking for feedback on all of the issues discussed at today's meeting so that they can be properly addressed as the project moves forward. Also, MTA needs to know who to contact in your organization when it has a question regarding the study area or project design.

CCT Alignments & Standards – Rick Kiegel

Mr. Kiegel discussed the project history – the early Master Plan references to a proposed transitway, various studies that in some manner addressed the transitway, certain references in local Sector Plans, and the LRT typical sections from the 1998 Michael Baker report. He followed with an overview of the project – the alignment, the stations, and the operations and maintenance facility. He said that MTA intends to get approval for the entire route, but it may be necessary to build the project in phases if full funding is not available.

MCDPW&T Comment: *The issue of future station sites and future building years needs to be revisited. Development has taken place and the locations may no longer appropriate. Also, some stations sites may not be located where they prefer and MTA should reconsider these while re-evaluating ridership.*

M-NCPPC Comment: *The location of some of the proposed operations and maintenance sites are in conflict with recent development. Also, the slopes should generally be taken as temporary easements instead of in-fee. MTA needs to identify where the grade issues are."*

MTA Response: This is the type of input that MTA is looking for from the local jurisdictions. Your knowledge of the area will help us plan a facility in keeping with its surroundings.

M-NCPPC Comment: *Each portion of the corridor is somewhat unique. You need to customize the fit. If Montgomery County would like trees in the medians, then that needs to be addressed.*

Rights-of-Way – Charlie Utermohle

Mr. Utermohle began by describing the research that has been done throughout the corridor. For each adjacent parcel, MTA has documented the parcel number, the owner's name, the premise address, the liber and folio, the current assessment, and the acreage. At four station sites (Shady Grove, Crown Farm, Quince Orchard, and Metropolitan Grove), MTA collected the same information on all parcels within one-half mile walking distance. For all of the parcels, MTA documented the current land use and zoning. Mr. Utermohle then provided the results of research into parcels that have in some fashion been protected for the CCT either by dedication, reservation or easement. He also pointed out numerous locations where clarification or assistance from the local jurisdiction is requested.

MCDPW&T Comment: *The County would like to be involved in the consideration of future stations so that the right-of-way needs can be properly addressed.*

M-NCPPC Comment: *Alignments where we already know development is going to take place need to be identified. What is going to be done for possible realignments in areas such as the Crown Farm?*

MTA Response: Final alignments will be noted in a certain way on the study maps for easy identification. MTA will work closely with the local jurisdictions to set the best alignment on the Crown Farm and other areas where alignment adjustments may be appropriate.

Q: *City of Gaithersburg asked, "Can the alignments be changed? Some of these alignments are going right through recently built condominium areas."*

MTA Response: MTA will work closely with the local jurisdictions to resolve any such conflicts.

City of Gaithersburg Comment: *The reason that certain property has not been signed over to the public is because maintenance of this property becomes the responsibility of the City. Is there a way this property can be signed over to the public without the maintenance going onto the city's plate?"*

MCDPW&T Comment: *The County needs to see the station concepts as part of their Smart Growth review. In order for the County to be highly rated, they need to show plans with and without the CCT, and how the communities would benefit.*

Q: *M-NCPPC asked, "Will the existing transitway right-of-way on the north side of I-270 be used for the Dorsey Mill Road Loop? Also, how can Park & Planning update the Master Plan when the DEIS and FEIS is being or already been done?"*

MTA Response: *The I-270/US 15 DEIS does not include the Dorsey Mill Road Loop. However, it is recommended that the right-of-way should be maintained. It could be utilized as a construction staging area for the CCT and, at some point in the future, could become part of a transitway on the north side of I-270.*

Hiker-Biker Trail – Jennifer Weeks and Mike Flood

Ms. Weeks provided an overview of the proposed trail, how it fits into the regional vision for hiker-biker facilities, and the various challenges of construction. Mr. Flood briefly went over the hiker-biker map boards that displayed in matrix form by segment the total trail length, the linear feet of dedicated trail right-of-way (50' versus 70'), the linear feet of trail within public right-of-way, and the linear feet of trail within wetland/parklands.

Q: *M-NCPPC asked, "Can 11"x17" copies of these maps be obtained so that we can see where the proposed alignments are being placed?"*

Q: *M-NCPPC asked, "Would it be possible to coordinate the hiker-biker trail with development of the corridor so the trail would not be too far from the CCT alignment?"*

MTA Response: We are looking on a case-by-case basis. In some instances the trail will follow the CCT alignment and in others the trail will go through adjacent development.

Q: *M-NCPPC asked, "Are bike trails outside of the right-of-way (i.e. – through adjacent development) included in the overall cost of the project?"*

MTA Response: It is the goal of MTA to reduce the overall cost of the project in order to make it more cost effective. One way to do this is to have adjacent developments construct the trail where it makes more sense.

Station Locations – Rick Kiegel

Mr. Kiegel briefly spoke on a variety of station related topics including vehicular, bicycle, and pedestrian access; space requirements; sizing of parking lots; shared use; and transit oriented development.

Operation and Maintenance Facilities – Harriet Levine

Ms. Levine discussed the pros and cons of the remaining four operations and maintenance (O&M) sites – Shady Grove, I-370, Metropolitan Grove and the police impound lot.

Q: *M-NCPPC asked, "Was the station proposed for the Toyota site eliminated due to the mixed-uses that we told MTA about in the first meeting? Why did MTA pick another site at Shady Grove? If MTA intends on keeping a maintenance facility in this vicinity, it would be better to place it at the other end of town away from the subway stations and away from the potential mixed-use development areas (high value property)."*

MCDPW&T Comment: *"You do not need a huge facility located at Shady Grove to serve the whole corridor. You can have two shops for the LRT – one for normal service and storage and the other for vehicle storage. Major repairs would be contracted out; so heavy maintenance facilities would not be needed. That approach would minimize the size of a site needed at Shady Grove.*

MTA Response: MTA has not made a decision on who would perform the heavy maintenance. Therefore, it remains part of the site plan requirement.

M-NCPPC Comment: *"The area around the Shady Grove Metro Station is in the process of being up-zoned for housing/office/park development. The price of land is projected to nearly triple."*

City of Gaithersburg Comment: *"When we were looking at locations, we found the police impound lot was a great site."*

MTA Response: This is MTA's preferred site for the O&M Facility. Depending on the amount of room being used, there may still be room on the backside of the facility for the police impound lot. This facility also allows for the track layouts to be designed so that you do not have to back the cars in and out of the garage and storage lanes. They can be brought in one side and taken out the other.

Q: *City of Gaithersburg asked, "Was any consideration given to the State Highway Yard & Salt Dome on Metropolitan Grove Road?"*

A: Yes, but the size of the site was not sufficient.

City of Gaithersburg Comment: *"The Council would support an LRT facility at the police impound lot, but would oppose the location for a BRT facility."*

Stormwater Management – Chris Brooks

Mr. Brooks discussed the basic stormwater requirements for the project (22 acre feet or approximately 1 million cubic feet). There may be some opportunities to combine with measures slated for adjacent development. It is the objective of the project team to maximize use of adjacent and nearby facilities (existing and proposed) as a means to minimize construction of new CCT exclusive facilities and right-of-way impacts.

City of Gaithersburg Comment: *"The western portion of the Crown Farm site is proposed for a high school. This is a very promising potential site for a stormwater management facility. MTA should coordinate with Montgomery County School planners."*

LIST OF ATTENDEES
LOCAL GOVERNMENT COORDINATION MEETING
Gilchrist Center for Cultural Diversity
Wheaton, Maryland
November 28, 2005

Maryland - National Capital Park and Planning Commission
8787 Georgia Avenue
Silver Spring, Maryland 20910

Rick Hawthorne	rick.hawthorne@mncppc-mc.org	(301) 495-4537
Dan Hardy	dan.hardy@mncppc-mc.org	(301) 495-4530
Ki Kim	ki.kim@mncppc-mc.org	(301) 495-4538
Charles Kines	charles.kines@mncppc-mc.org	(301) 495-2184
Karen Morris	karen.kumm@mncppc-mc.org	(301) 495-4518
Michael Zamore	michael.zamore@mncppc-mc.org	(301) 495-2106
Richard Weaver	richard.weaver@mncppc-mc.org	(301) 495-4544
Tom Autrey	thomas.autrey@mncppc-mc.org	(301) 495 4533
Gwen Wright	gwen.wright@mncppc-mc.org	(301) 563-3413

City of Gaithersburg
31 South Summit Street
Gaithersburg, Maryland 20877

Frederick Felton	ffelton@gaithersburgmd.gov	(301) 258-6310
Jim Arnoult	jarnoult@gaithersburgmd.gov	(301) 258-6370
Ollie Mumpower	omumpower@gaithersburgmd.gov	(301) 258-6370
Kirk Eby	keby@gaithersburgmd.gov	(301) 258-6330

City of Rockville
111 Maryland Avenue
Rockville, Maryland 20850

Susan Straus	sstraus@rockvillemd.gov	(240) 314-8512
Katherine Kelly	kkelly@rockvillemd.gov	(240) 314-8527
Jim Wasilak	jwasilak@rockvillemd.gov	(240) 314-8211
Rebecca Torma	rtorma@rockvillemd.gov	(240) 314-8228

Montgomery County DPW&T
101 Monroe Street
Rockville, Maryland 20850

Gary Erenrich	gary.erenrich@montgomerycountymd.gov	(240) 777-7156
Bob Simpson	bob.simpson@montgomerycountymd.gov	(240) 777-7193

Maryland Transit Administration
6 St. Paul Street
Baltimore, Maryland 21202

Ernie Baisden	ebaisden@mtamaryland.com	(410) 767-3752
Diane Ratcliff	dratcliff@mtamaryland.com	(410) 767-3771
Maryanne Polkiewicz	mpolkiewicz@mtamaryland.com	(410) 767-3426
Rick Kiegel	rjkiegel@mtmail.biz	(410) 767-1380

McCormick Taylor, Inc.
509 South Exeter Street, 4th Floor
Baltimore, Maryland 21202

Charlie Utermohle	ceutermohle@mtmail.biz	(410) 662-7400
Chris Brooks	cjbrooks@mtmail.biz	(410) 662-7400
Katie Wells	kewells@mtmail.biz	(410) 662-7400

Fitzgerald & Halliday
617 Overbrook Road
Baltimore, Maryland 21212

Jennifer Weeks	jweeks@fhiplan.com	(410) 377-6041
Mike Flood	mflood@fhiplan.com	(301) 585-2880

Jacobs Civil
100 South Charles Street, Tower Two, Suite 1000
Baltimore, Maryland 21201

Harriet Levine	harriet.levine@jacobs.com	(410) 837-5840
Deidre Smith	deidre.smith@jacobs.com	(571) 218-1509

Corridor Cities Transitway
Police Impound Lot/
Operations & Maintenance Facility

Montgomery County DPW&T
101 Monroe Street
Rockville, Maryland
9:00 am – 11:00 am

AGENDA

- Introductions
- Purpose of Meeting/CCT Project Briefing
- Police Impound Lot Background and Description
- CCT O&M Facility Background and Description
- Potential Facility Design Options
  - Facility Locations
  - Site Access
  - Property Ownership
  - Other
- Next Steps
  - City of Gaithersburg Coordination
  - Casey West Development Opportunities
  - Shared Use Concept Meeting (Week of January 16th)

Meeting Minutes

Police Impound Lot / Operations & Maintenance
Facility Coordination Meeting
Corridor Cities Transitway

Montgomery County Department of Public Works & Transportation
101 Monroe Street
Rockville, Maryland

December 20, 2005
9:00 AM – 11:00 AM

A meeting was held December 20, 2005 between the Montgomery County Department of Public Works and Transportation (DPWT), the Montgomery County Police Department (MCPD), and the Maryland Transit Administration (MTA) to coordinate issues relating to the Police Impound Lot and the potential Corridor Cities Transitway (CCT) operations and maintenance facility in the Metropolitan Grove area.

Meeting Attendees –

Edgar Gonzalez	DPWT	240-777-7185	edgar.gonzalez@montgomerycountymd.gov
Bruce Johnston	DPWT	240-777-7236	bruce.johnston@montgomerycountymd.gov
Hamid Omidvar	DPWT	240-777-6126	hamid.omidvar@montgomerycountymd.gov
Gary Erenrich	DPWT	240-777-7156	gary.erenrich@montgomerycountymd.gov
David Heltemes	DPWT	240-777-6064	dave.heltemes@montgomerycountymd.gov
Nick Tucci	MCPD	240-773-5237	nicholas.tucci@montgomerycountymd.gov
Diane Ratcliff	MTA	410-767-3771	dratcliff@mtamaryland.com
MaryAnne Polkiewicz	MTA	410-767-3426	mpolkiewicz@mtamaryland.com
Rick Kiegel	MTA	410-767-1380	rkiegel@mtamaryland.com
Harriet Levine	Jacobs	410-230-6630	harriet.levine@jacobs.com
Deirdre Smith	Jacobs	571-218-1509	deirdre.smith@jacobs.com

Opening Remarks – Edgar Gonzalez

Mr. Gonzalez opened the meeting by thanking everyone for their attendance. He gave an overview of the new building at the police impound lot. The County has now gained most of the needed permits and is getting ready to bid the project. He understands the many uncertainties associated with the Corridor Cities Transistway (CCT) and associated improvements on I-270 and underscored the need for coordination. Mr. Gonzalez wants to ensure that the County's actions won't preclude future options for the CCT. Mr. Johnston added that although the full funding is not in place for the impound lot project, the County is pursuing additional funding and has the authority to proceed due to the high priority of the project.

Purpose of Meeting / CCT Project Briefing – Diane Ratcliff

Following introductions, Ms. Ratcliff presented an overview of the CCT study. The CCT is part of the overall I-270 improvement study and the two have been studied together. Subsequent to the earlier Draft Environmental Impact Statement (DEIS) covering both highway and transit improvements, the Maryland State Highway Administration has decided to consider express toll lanes (ETLs) on I-270. This option was not studied or presented in the DEIS and could have an effect on overall transit ridership. The DEIS also did not fully consider several ancillary facilities associated with either Bus Rapid Transit (BRT) or Light Rail Transit (LRT) including stations, operations and maintenance facilities, stormwater management, etc. Current study efforts are focused on these new areas. As part of this new effort, an Environmental Assessment (EA) will be prepared. It is anticipated that the draft environmental document will be prepared in November '06 with public meetings in the Spring of '07. A Locally Preferred Alternative (LPA) for transit would be identified by the Spring/Summer of '07.

Mr. Gonzalez asked for a best case scenario estimate for the timing of funding and construction and the group agreed that it would be approximately 2012.

Police Impound Lot Background and Description – David Heltemes

Mr. Heltemes explained that an architect is under contract and that the design of the new facility is 100% complete. The building was sited to maximize the use of the property. The current estimate for the project is approximately $4-5 Million. The County now has most of the required permits including the CSXT permit. There are no problems anticipated in obtaining the remaining permits. The County is ready to proceed with the bids.

Mr. Tucci explained some of the issues leading to the high priority for this project. The current facility lacks water and sewer service (the current well has been condemned). The trailer is not ideal and heat and air conditioning are a problem as well. The new facility will not only provide for new office and administrative space but it will house a state-of-the-art forensics facility, something the County has been needing and planning for some time.

CCT Operations & Maintenance Facility Background and Description – Deirdre Smith

The discussions focused on two main issues associated with the police impound lot. The first issue relates to a possible re-alignment of the CSXT tracks adjacent to the property and the second deals with the preliminary designs of the operations and maintenance facility.

Mr. Kiegel explained that as part of a Maryland State Highway project to widen the structure at I-270 and CSTX a temporary rail re-alignment has been proposed. This relocation of the CSXT tracks would extend to the County-owned police impound lot. If the mainline CCT alignment is then shifted due to the temporary re-alignment it would impact the new police building. Ms. Levine asked if the CCT could remain in its "original" location since the rail re-alignment is only

temporary. Mr. Kiegel explained that it is a matter of phasing but the MTA will pursue this issue further to reduce potential impacts to the site.

The Metropolitan Grove site is one of several sites being considered for an operations and maintenance facility. In presenting the preliminary design of the operations and maintenance facility Ms. Levine explained that the discussion would focus on the LRT alternative since it has slightly greater land requirements and more restrictive design elements. Ms. Smith then reviewed the design criteria used in developing the design. She also outlined why this site is preferable compared to the other sites under consideration.

Potential Facility Design Options – Group Discussion

Ms. Smith presented an option that accommodated both the police impound facility and the CCT operations and maintenance facility using both the County and City owned parcels. The concept presented showed the operations and maintenance facility on the current impound lot location. A new impound lot and building were shown along I-270 on City-owned parcels. While the group didn't mind the plan in concept, the major concerns included project delays, increased costs, property acquisition, and utilities.

In the short time since discussions started the previous week, it was not possible to develop a concept that left the new building as planned with the CCT facility on the City-owned parcels due to geometric requirements. Jacobs will re-visit this issue as well as look into options that avoid the new building by taking some privately owned parcels.

The group discussed four general implementation options:

- The County proceeds with their project and constructs the new building. At a future time, when/if the CCT requires the land for an operations and maintenance facility the MTA would relocate the entire police facility behind the operations and maintenance yard on the City-owned parcels. This would allow the County to move forward on a high-priority project. Mr. Gonzalez expressed the view that the incremental additional cost would be a small percentage of the overall project cost.

- MTA and the County work together to relocate the planned police facility and impound lot at this time. This would require land from the City of Gaithersburg, re-design of the site and building, new permits, additional costs (design, reforestation/environmental mitigation, additional utility and roadway improvements, security fencing, stormwater management, inflation, etc.). The MTA has no funds for right-of-way or other CCT improvements at this time and even if funding were available this would likely result in a delay of at least 1-year.

- MTA and the County work together to relocate the planned police building, leaving the impound lot in place until the CCT were constructed. While this would result in a lower initial cost than the option outlined above, the schedule delays would be the same.

- The County proceeds with their project and constructs the new police building. At a future time, when/if the CCT requires the land for an operations and maintenance facility the MTA would relocate the entire police facility/impound lot to a new location elsewhere in the County. This would allow the County to move forward on a high-priority project. Mr. Gonzalez expressed the view that the incremental additional cost would be a small percentage of the overall project cost. However, it may be difficult to find another location in the future as development continues throughout the County.

Other – Group Discussion

Mr. Kiegel outlined the need to continue coordination with the City of Gaithersburg. They are supportive of this location for an operations and maintenance facility for LRT.
Mr. Keigel also described the opportunities for improved access through the adjacent Casey West development. This would allow improved access to the site and the ultimate closure of the at-grade crossing of Metropolitan Grove Road and the CSXT tracks.

Action Items

✓ MTA will assess the potential additional costs to the CCT project associated with displacing/relocating the entire impound lot and new building facility if the County project goes forward as planned. The MTA will also consider the time and cost associated with changing the current building plan.

✓ MTA will consider the effect that the additional cost would have on the overall cost-effectiveness of the CCT project. ** *Note – this may not be available at this time or may have to be based on previous data because new ridership estimates are not available at this time due to the ongoing modeling effort associated with the proposed Express Tolls Lanes on I-270.*

✓ MTA will outline the possible effects that construction of the new building would have on the implementation of the CCT.

✓ The action items will be shared with Montgomery County the week of January 9, 2006.

FITZGERALD & HALLIDAY, INC.
112 Normandy Drive, Silver Spring, Maryland 20901
Tel. (301) 585-2880
Fax (301) 585-2885

MEMORANDUM

To:	Rick Kiegel, MT&A, MTA Ernie Baisden, MTA	**Project:**	Corridor Cities Transitway
From:	Mike Flood	**Date:**	January 27, 2006
Subject:	Montgomery County Council Presentation Notes		

This memorandum has been prepared to provide summary observations and notes from the presentation before the Transportation and Environment Committee of the Montgomery County Council on January 26, 2006. Council members present at the meeting included Tom Perez, Nancy Floreen, George Levental, and Michael Knapp.

Ernie and Rick opened the presentation by providing an outline of the project progress to date. Council members had a few questions on the timing of the process and planning effort which were addressed by Ernie. Part of Ernie's response was to point out that the EA was on-going to provide an update to the DEIS originally issued in 2002. Ernie also noted that the I-270 study and the CCT project were proceeding jointly and would do so until the submittal of the FEIS in July 2007.

Rick presented the locations under study for station and maintenance yards. He noted that there lacks the land dedications required for station infrastructure or maintenance yards. Nancy Floreen responded that the locations identified by the MTA for consideration as a maintenance yard and shop in the Shady Grove vicinity were no longer available, based on the Shady Grove sector plan recently approved by the council.

Rick noted that the preferred site identified to date was the police impound lot located near the Metropolitan Grove train station. Gary Frenrich of the Montgomery County DPWT noted that the county police department had received the necessary permits to improve the impound lot and construct a forensics facility at that location. Nancy Floreen mentioned that the County also has plans to locate the School buses to this property. After some discussion it was agreed that the county would express its support for a *light-rail* option in the corridor by agreeing to move the impound lot and forensics facility if the Corridor Cities project were to move forward.

Nancy Floreen noted that there was no plan in place to preserve the right-of-way needed to protect the location of an Operations and Maintenance facility. She stated that the State needs to work out the location of the Operations and Maintenance since there were very few potential locations remaining.

A summary of the Q&A by County Councilmember which followed the presentation is included below:

Nancy Floreen questioned whether the state study was following the master plan alignment identified by county planning efforts and what the response was to the request that the transit line be routed through the Kentlands community. Rick noted that the corridor under study is consistent with the original master plan alignment. He noted that the Kentlands alignment shift was not carried forward as it was not consistent with the planning on the project to date . Ms. Floreen also noted that the county needs both the I-270 improvements and the CCT transit improvements and that she would hope that both projects move forward.

George Leventhal noted that the DEIS has been prepared over three years ago and expressed displeasure over the fact that the study had been effectively put on hold for the past three years when the transit needs in the county were very real. Mr. Leventhal further noted that the priorities of the current Secretary of Transportation were inconsistent with the needs of Montgomery County residents. Ernie noted that he could not comment on the views held by the Secretary of Transportation as it would be inappropriate.

Mr. Knapp expressed his general support for the project and asked for clarification of the planning process required to carry the project forward. Ernie responded that current project funding was in place to fund the study through June of 2007. Mr. Knapp asked for information on what the County Council could do to begin the process of insuring that the project be funded to the point of preliminary engineering. Mr. Knapp approached MTA representatives after the presentation to state that he felt that the CCT project was farther ahead than the Bi-County project in that the support for the project was stronger locally and that the obstacles were easier to overcome.

Mr. Perez introduced his comments by commenting that he had learned in past experiences that Ernie and Rick were not responsible for establishing State policy with regards to supporting transit. He proceeded to point out that the county was in desperate need of transit improvements in both the CCT and Purple Line corridors. He also noted that both the Secretary and Governor did not share the concerns of Montgomery County residents that transit infrastructure is as critical an element as roadway infrastructure.

Mr. Knapp requested that the MTA provide an estimate of funds needed for PE phase of the project. He expressed his willingness to provide support to acquire the necessary funding by working towards a legislative appropriation if needed.

The committee also expressed that they desire both the highway portion and transit portion of the project move forward at the same time and not be split out.

T&E COMMITTEE # 2
January 26, 2006

MEMORANDUM

January 24, 2006

TO: Transportation and Environment Committee

FROM: Glenn Orlin, Deputy Council Staff Director

SUBJECT: Briefing—Corridor Cities Transitway Study

The Committee has asked for the Maryland Transit Administration (MTA) to provide a status report on the Corridor Cities Transitway (CCT) Study. MTA has prepared the following materials as background for the briefing:

- A summary of the status of the study, and next steps (©1-3)
- A map of the CCT alignment (©4)
- Four standard cross-sections (©5-8)
- A diagram of the Federal Transit Administration's New Starts process (©9)

On hand to present the briefing and answer questions will be:

- Ernie Baisden, Manager, Project Development Division, MTA;
- MaryAnne Polkiewicz, CCT Project Manager, Project Development Division, MTA;
- Rick Kiegel, CCT Consultant Project Manager, McCormick Taylor, Inc.;
- Mike Flood, Trail Study Project Coordinator, Fitzgerald & Halliday, Inc.; and
- Russell Walto, I-270/US 15 Project Manager, Office of Planning and Preliminary Engineering, State Highway Administration.

f:\orlin\fy06\fy06tec\mma\060126te - cct rwy.doc

Montgomery County Council
Transportation and Environment
Committee
January 26, 2006

PROJECT:
Corridor Cities Transitway (CCT)
Part of the I-270/US 15 Multi-Modal Corridor Study
Montgomery County, Maryland

1. **Project Description and Purpose:**

The 14-mile CCT alignment was established in Montgomery County master plans in the early 1970s, and much of the right-of-way has been reserved through the development process. The transit corridor runs generally northwest from the Shady Grove Metro Station in Rockville through Gaithersburg and Germantown where it terminates at the COMSAT facility just south of Clarksburg. The CCT is being studied jointly with roadway improvements on I-270 and US 15. The combined study, known as the I-270/US 15 Multi-Modal Corridor Study, is investigating mobility throughout this corridor in Montgomery and Frederick Counties.

The CCT is proposed to be built as either light rail transit (LRT) or bus rapid transit (BRT) on the reserved alignment. Another option under study is "premium bus" service using the HOV lanes and Express Toll Lanes (ETLs) on I-270. As proposed, the CCT includes 18 stations and provides direct transfers to the MARC Brunswick line at Metropolitan Grove and the Metrorail Red Line at Shady Grove.

2. **Current Status**

- The Draft Environmental Impact Statement (DEIS) was completed and a public hearing held in May 2002. Since that time, the Express Toll Lanes (ETL's) concept has been added as an option to the HOV lanes. Based on the addition of the ETL option, time lapse since the DEIS and other factors, an Environmental Assessment (EA) is being prepared on these changes for public review.
- In addition to working on the EA, MTA is also advancing the project toward Preliminary Engineering. These activities include:
    - Modeling highway and transit alternatives to establish baseline conditions and assess ridership projections for the proposed alternatives. The model is being developed to meet the rigors of FTA's SUMMIT module and incorporate the project changes since the completion of the DEIS, including ETLs, parking constraints at the Shady Grove Metro station, proposed fee parking at CCT stations, and phased construction.

- Researching right-of-way to determine the property that is currently protected and what property is still needed. There has and will continue to be coordination with the local jurisdictions, especially with regard to new development approvals.
- Advancing the station locations and design, including parking layout, pedestrian and vehicular access, and access to major employers, activities centers, etc.
- Advancing Operations and Maintenance Facility site selection and preliminary layout design at the promising sites. Based on this evaluation, sites will be prioritized. This work is being coordinated with the jurisdictions.
- Analyzing the Hiker/Biker Trail component of the project, determining where the trail currently exist (through development), where it would be difficult to build (look at alternatives), and how to provide connections to existing trails, activity centers, etc. This work is also being coordinated with the local jurisdictions.
- Advancing Stormwater Management design and possible locations. This work is also being coordinated with the local jurisdictions.
- Coordinating the project with the local jurisdictions, especially with regard to new development approvals. We are encouraging the developers to design the proposed development to take full advantage of the public investment of the transit project.

3. Next Steps

- CCT is currently in the Alternative Analysis phase of the FTA New Starts Project Development Process. FTA's New Starts funding is discretionary as opposed to formula funding for highway projects. Therefore, transit project are in competition for limited funds with other project across the country. Key factors in the evaluation are cost effectiveness (cost versus ridership) and funding commitment.
- At the end of the Alternative Analysis phase, a preferred alternative will be selected to move into the Preliminary Engineering phase. After the selection of the alternative, the project has to be rated by FTA and will need to meet a minimum threshold to proceed into the Preliminary Engineering phase.
- As part of the Preliminary Engineering phase, the preferred alternative will be refined, determination of how all impacts will be addressed, a more accurate cost estimate will be developed, and the environmental NEPA process will be completed.
- At the end of the Preliminary Engineering phase, FTA will rate the project using the updated information. At this point, FTA will determine if this project is a fundable project and is able to move into Final Design.

4. **Project Schedule**

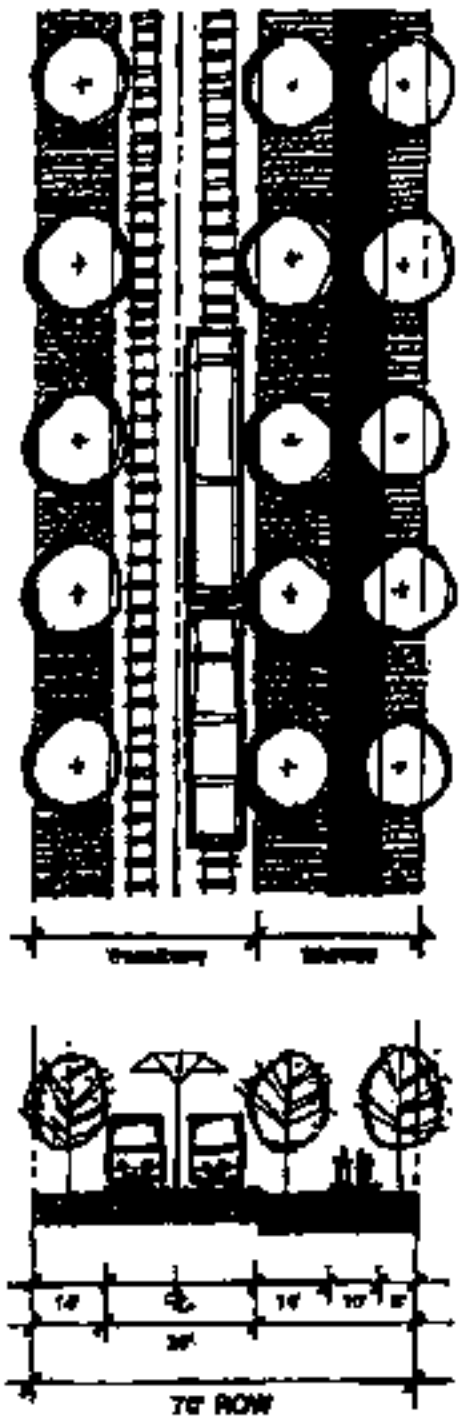
DEIS (Combined Hwy-Transit) Hearings	Summer 2002	Completed
DEIS Follow-Up Activities and Eng'g Refinmts	Summer 2002	Ongoing
Managed Lanes/CCT Update "Open Houses"	Summer 2004	Completed
Modeling - SUMMIT/Alternatives Comparison	Spring 2006	
Draft EA Completed/Public Meeting	Spring 2007	
Select Preferred Alternative	Spring 2007	
Preliminary Engineering/FEIS	Spring 2007 – Spring 2008	
FTA Record of Decision (ROD)	Summer 2008	
Initiate FFGA Process	Summer 2008	
Contingent on Funding:		
Final Design	Summer 2008 – Winter 2010/2011	
Construction	Spring 2010 – Fall 2013	

Montgomery County Council
Transportation & Environment Committee

Corridor Cities Transitway

January 26, 2006

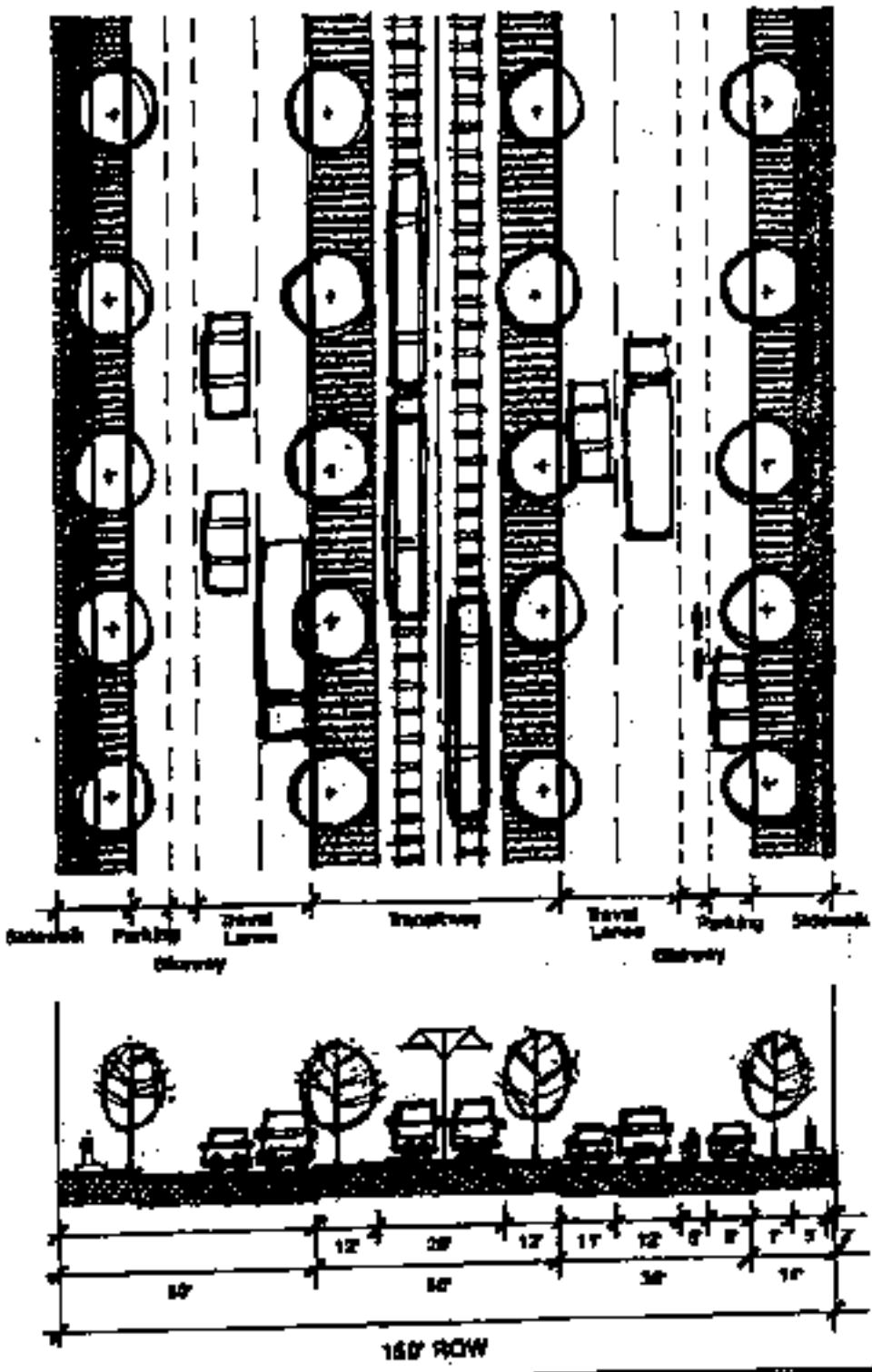
FIGURE-1
EXCLUSIVE RIGHT-OF-WAY TRANSITWAY AND HIKER/BIKER TRAIL



Note: The Bikeway may run along either side of the Transitway depending upon the location.

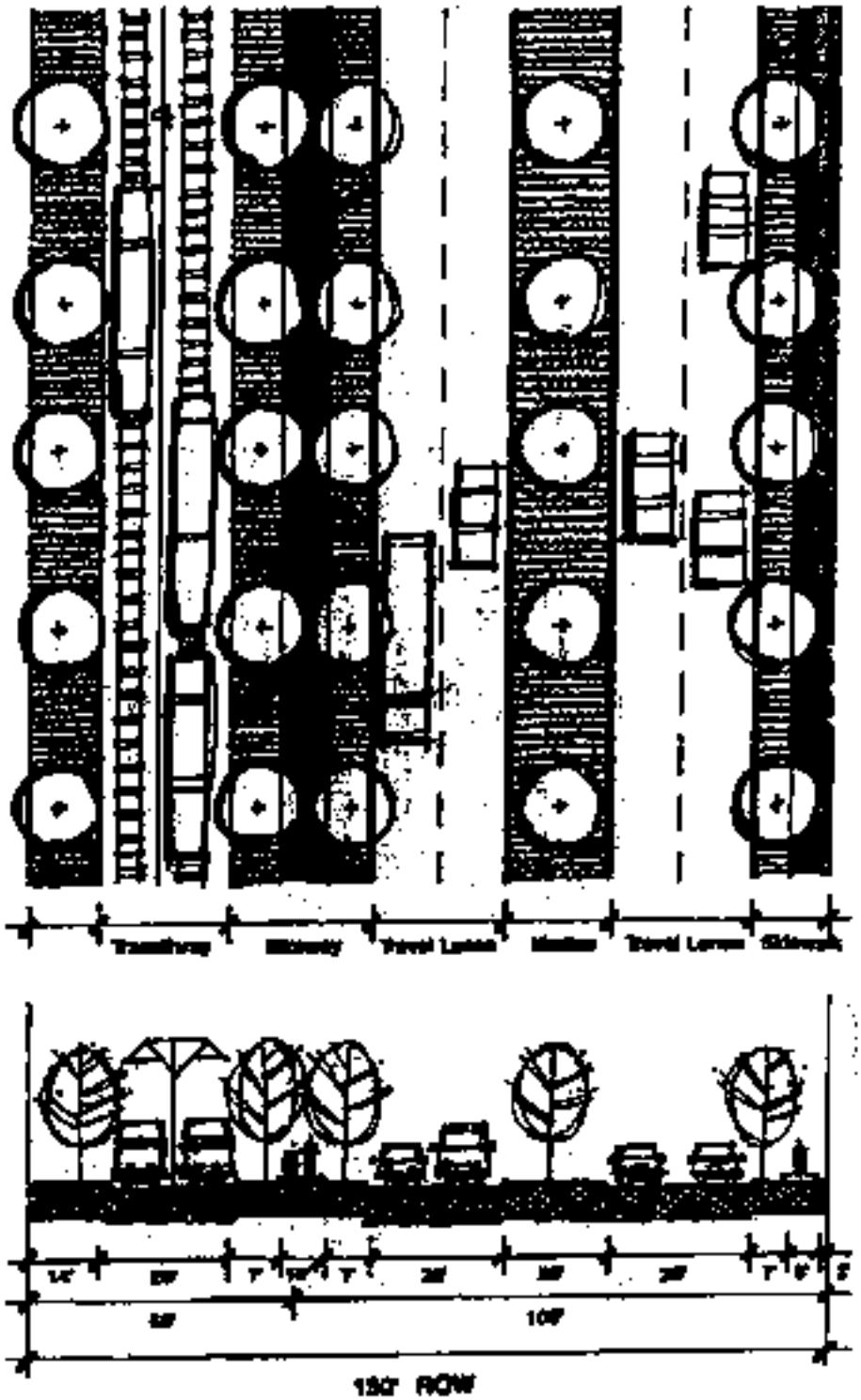
Taken from "Final Report Shady Grove - Clarksburg Transitway Study 2" dated 1988 and prepared for the Department of Public Works and Transportation, Montgomery County Government

FIGURE-1
TRANSITWAY IN CENTER MEDIAN LOCATION



Taken from "Final Report Shady Grove - Clarksburg Transitway Study 1" dated 1988 and prepared for the Department of Public Works and Transportation, Montgomery County Government

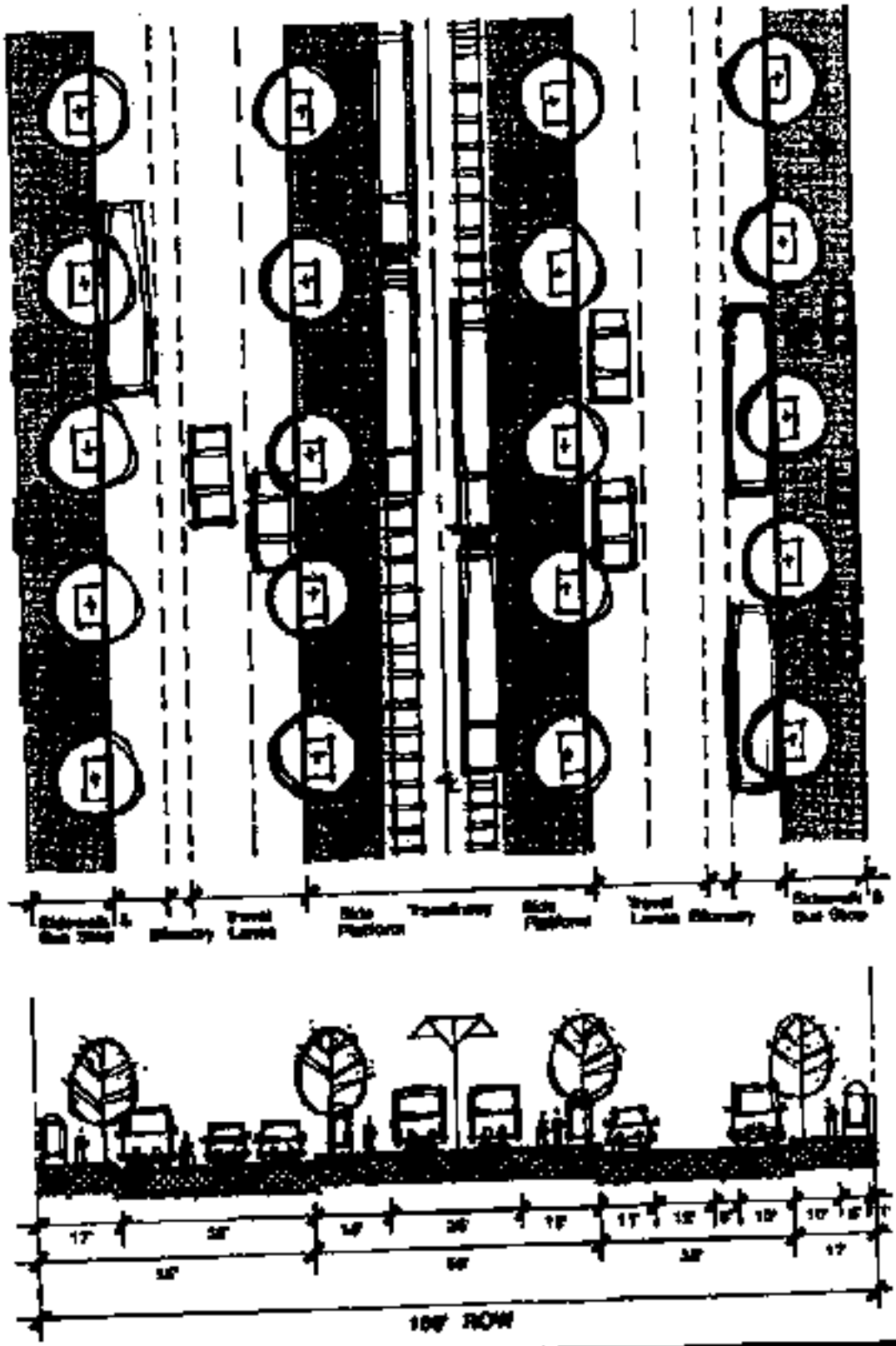
FIGURE-3
TRANSITWAY IN SIDE OF ROAD LOCATION



Taken from "Final Report Shady Grove - Clarksburg Transitway Study 2" dated 1988 and prepared for the Department of Public Works and Transportation, Montgomery County Government

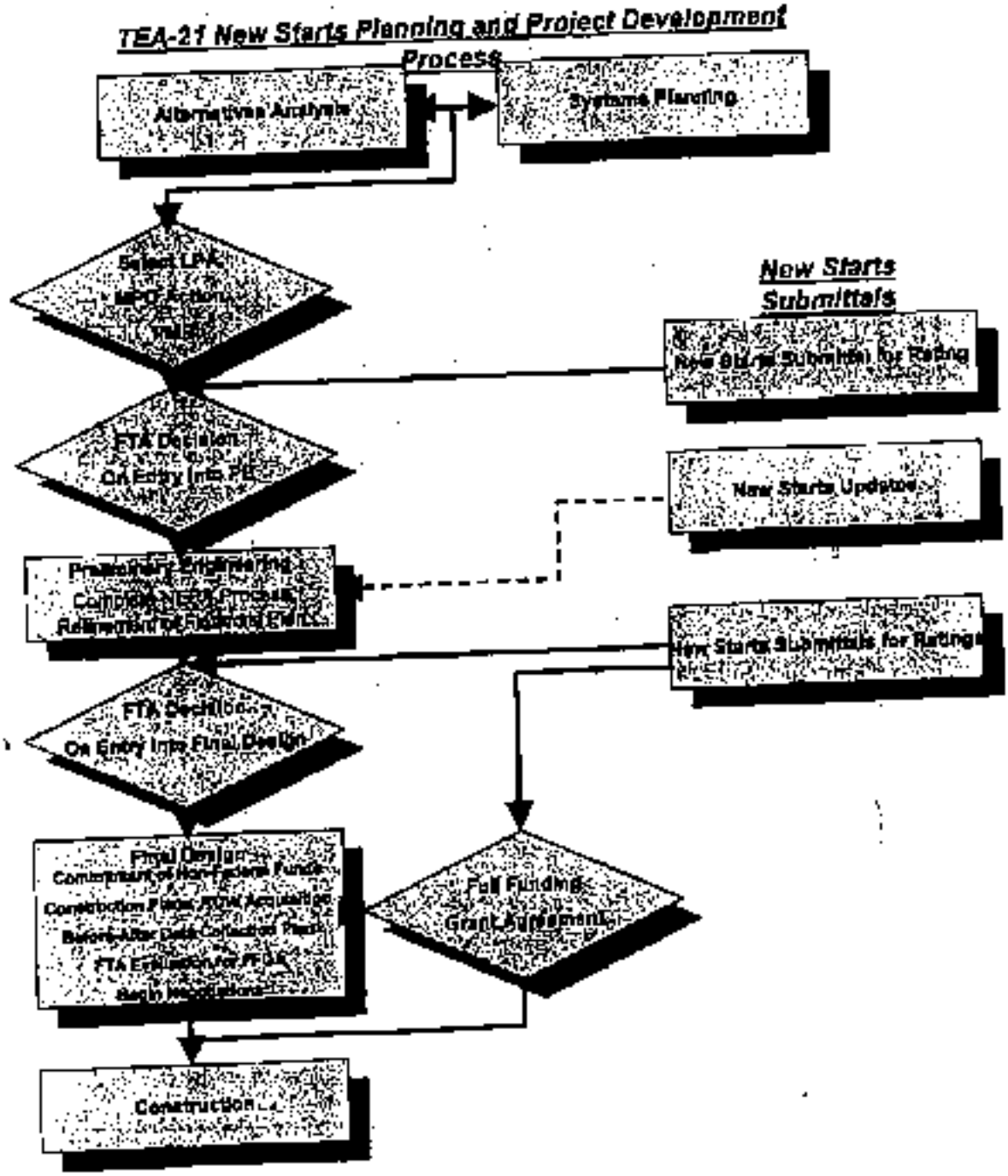
FIGURE-4

TRANSITWAY WITH CENTER MEDIAN STATION LOCATION



Taken from "Final Report Shady Grove - Clarksburg Transitway Study 2" dated 1998 and prepared for the Department of Public Works and Transportation- Montgomery County Government

Diagram of New Starts Process



Meeting Minutes

Operations & Maintenance Facility Study Meeting
Corridor Cities Transitway

City of Gaithersburg
Activity Center
506 S. Frederick Avenue
Gaithersburg, MD 20877

March 20, 2006
2:00 PM – 5:00 PM

A meeting was held on March 20, 2006 with representatives from the City of Gaithersburg, the City of Rockville, Montgomery County, the Maryland-National Capital Park and Planning Commission (M-NCPPC), and the Maryland Transit Administration (MTA) to update the attendees on the status of the Corridor Cities Transitway (CCT) Operations and Maintenance Facility site location study and to facilitate a working session for ongoing site feasibility issues.

Meeting Attendees –

Dan Hardy	M-NCPPC	301.495.4530	Dan.Hardy@mncppc-mc.org
Rob Robinson	Gaithersburg	301.258.6320	rrobinson@gaithersburgmd.gov
Katherine Kelly	Rockville	240.314.8527	KKelly@rockvillemd.gov
Rebecca Torma	Rockville	240.314.8228	rtorma@rockvillemd.gov
Sue Edwards	M-NCPPC	301.495.4518	sue.edwards@mncppc.org
Gary Erenrich	DPWT	240.777.7156	gary.erenrich@montgomerycountymd.gov
Nellie Maskal	M-NCPPC	301.495.4567	nellie.maskal@mncppc-mc.org
Kirk Eby	Gaithersburg	301.258.6330	keby@gaithersburgmd.gov
Tom Autrey	MNCPPC	301.495.4533	thomas.autrey@mncppc-mc.org
Ernie Baisden	MTA	410.767.3752	ebaisden@mtamaryland.com
MaryAnne Polkiewicz	MTA	410.767.3426	mpolkiewicz@mtamaryland.com
Rick Kiegel	MTA	410.767.1380	rkiegel@mtamaryland.com
Harriet Levine	Jacobs	410.230.6630	harriet.levine@jacobs.com
Deirdre Smith	Jacobs	571.218.1509	deirdre.smith@jacobs.com

Opening Remarks – Rick Kiegel

Mr. Kiegel opened the meeting with introductions and the goal of the day's meeting. He explained that this was to be an interactive session and encouraged discussion among all of the participants.

Overview of the Operations & Maintenance Facilities – Harriet Levine

Ms. Levine then presented an overview of the CCT Operations & Maintenance (O & M) Facility study. She explained that the Light Rail (LRT) Maintenance Facility location was not only constrained by geometric design elements but also by proximity to the CCT mainline. LRT vehicles gain access to the mainline from the O & M Facility via a yard lead track. Due to financial concerns the O & M Facility must be adjacent to the mainline. She then went on to explain that the Bus Rapid Transit (BRT) O & M Facility was much more flexible in location in that it did not have to be adjacent to the mainline.

Ms. Levine explained that since BRT had less constraints the sites that were indicated in the DEIS as LRT O & M sites were re-evaluated as potential BRT O & M sites. In addition, the attendees were asked for any suggestions or ideas about other possible sites for the BRT O & M facility that would be suitable based upon land usage or future plans.

LRT O & M Facility Alternatives – Deirdre Smith & Harriet Levine

Ms. Smith and Ms. Levine went through all of the proposed LRT sites. The locations were identified as well as any features or technical issues. The first site reviewed was located at Shady Grove. It was recognized that this site is inconsistent with the current Sector Plan which calls for transit-oriented development adjacent to the Metro Station. Mr. Gary Erenrich would like to see how that site could accommodate development (i.e. car dealerships or other businesses) above the proposed facility. Mr. Erenrich also believes that one large facility is not needed, either two smaller sites or one smaller site that performs some of the maintenance functions. The remaining maintenance functions could be outsourced to another facility. MTA indicated that at this early stage of the study when the ultimate operator of the facility had not been identified it was desirable to take a conservative approach and to design a facility that could accommodate the full range of maintenance activities on-site. Finally a question was raised about the proposed access to the site off of Paramount Drive which will need to be reviewed further.

The next site was located at Metropolitan Grove at the current Police Impound lot. Those assembled were told that this was the favored option for the MTA based upon engineering, proximity to the mainline, operational efficiencies, and the fact that it is not privately owned land which will make it easier to reserve. The City of Gaithersburg reiterated that it would be supportive of the LRT O & M facility located here but not of the BRT. The site currently houses the Police Impound lot and construction is underway for a new police forensics lab. If the site was to be used for an O & M facility, the lab and impound lot would need to be relocated. A sketch was presented by Ms. Smith that illustrated a possible relocation of the impound lot and the forensics lab to the City of Gaithersburg land adjacent to their current location. Even though the land is wooded, it is not designated as parkland. It is believed to be surplus land from I-270. MTA coordinated with Montgomery County and the Police regarding the potential future use of the site for an O & M facility and both indicated that they were not opposed to relocating their facility in the future.

The next site reviewed was the site along the powerline easement. It is a functioning site from the engineering perspective, but access will be through a proposed residential development, it has some residential displacements, and would require extensive retaining walls.

BRT O & M Facility Alternatives – Deirdre Smith & Harriet Levine

Prior to this meeting, Mr. Tom Autrey of M-NCPPC had recommended looking in the Gude Drive area for a possible BRT site. A site was found along Southlawn Lane and shown to those assembled. This site lies partly within Montgomery County and partly within the City of Rockville. While the planned use of the site was not immediately know, there was general consensus from the group that the general area of Gude Drive and Southlawn Lane would be an appropriate area for a BRT O & M facility due to the industrial zoning and adjacent land uses.

The Crabbs Branch Site (Casey Site 7) was also presented. This site is also being proposed as a possible maintenance site for the ICC. This site is not large enough to accommodate both the BRT O & M facility and the ICC facility.

The Shady Grove Site was shown as a full BRT facility at ultimate capacity. This site, it was explained, can also be developed in phases. This first phase would preserve the existing frontage along Frederick Road.

The Metropolitan Grove Site was also presented as a BRT site. This site has the same location as the LRT, the Police Impound lot and forensics lab.

In prior conversations with Ms. Nellie Maskal, the Old Baltimore Road site was suggested. A graphic was presented to the group to show the parcel location. This site is not feasible due to the alignment of the proposed mainline and the environmental concerns. It was then suggested from one of the attendees that the parcel along the mainline, prior to Old Baltimore Road and adjacent to I-270, may be an appropriate site. It is currently zoned industrial.

Graphics to show the locations of two sites included in the DEIS were also presented. These sites were previously considered within the DEIS for potential LRT O & M Sites but were not evaluated further because the minimum operating segment ended at Metropolitan Grove. Since BRT does not have the same constraints as LRT, the sites could serve as a potential BRT O & M facility. Further research had shown DEIS Site 2 currently has a site plan under review for residential development. DEIS Site 4 is currently a Montgomery County Public School Bus Depot and there are plans to redevelop it as a residential use.

Action Items

- ✓ MTA will further investigate the Gude Drive/ Southlawn Lane site.
- ✓ MTA will further investigate the access at Paramount Drive.

- ✓ MTA will look for opportunities for joint development as the options are developed in more detail.
- ✓ Meeting attendees will provide additional input on other feasible BRT sites, as appropriate.
- ✓ As design progresses, MTA will assess possibility of splitting BRT facility between two sites and determine the acreage required for each.
- ✓ MTA will distribute a copy of the New Starts process flow chart for informational purposes.