



# final master plan report

FINAL / May 12, 2008

## The Baltimore County Center for Maryland Agriculture at the Baltimore County Farm Park

1114 Shawan Road, Hunt Valley, MD 21030

Prepared for  
Baltimore County

Prepared by



In association with



# acknowledgements

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Fresh Eggs at Springfield Farm, Baltimore County



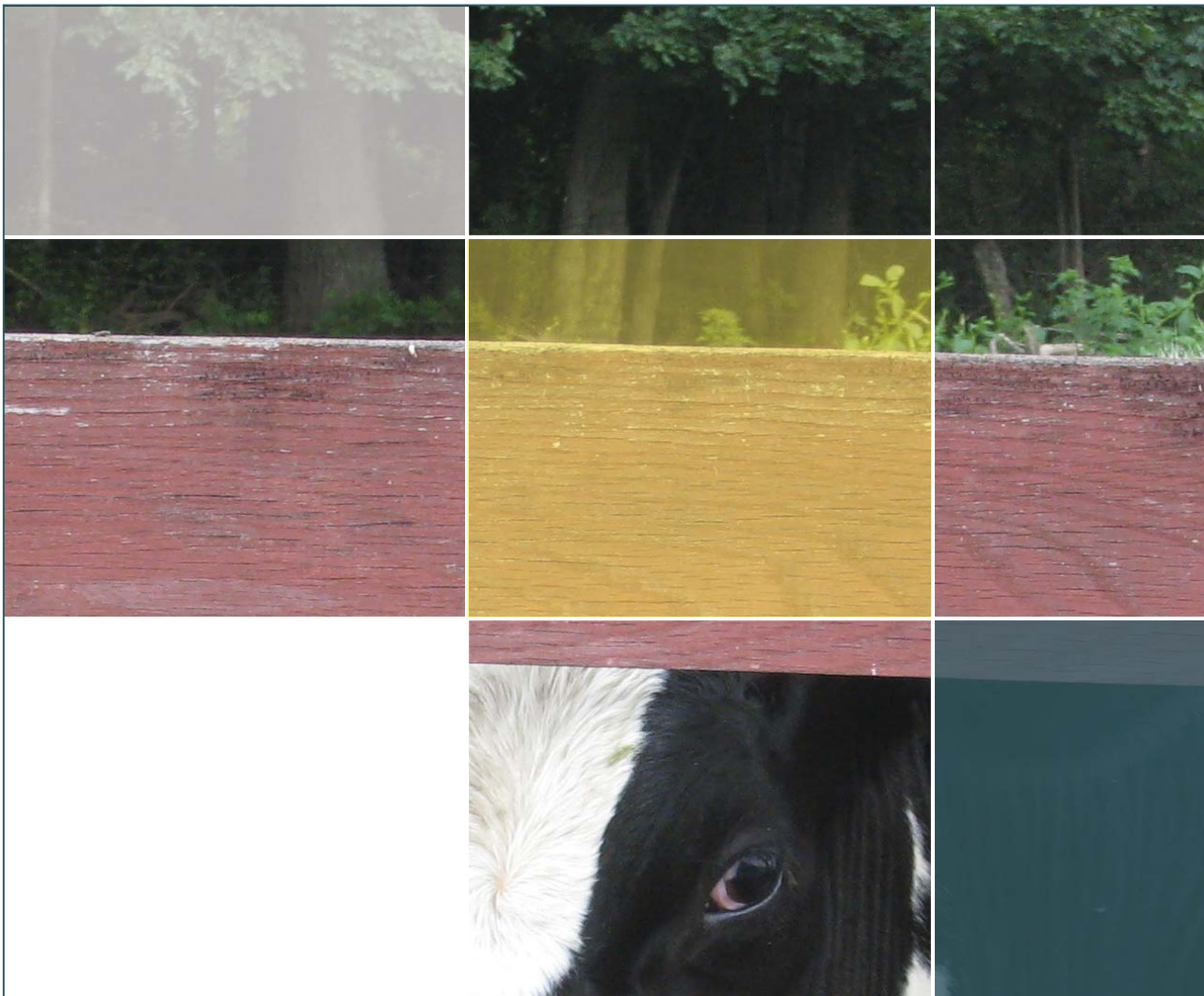
Sheep Penned at Greene Sheep Farm, Baltimore County



Equipment Demonstrations at the Montgomery County Agriculture Fair



Roosters on Exhibit at the Carroll County Farm Museum



# 1-executive summary

Agriculture plays a significant role in the economy, history, cultural heritage, and landscape of Baltimore County. Baltimore County is home to 784 farms with more than 70,000 acres devoted to commercial agriculture and another 30,000 devoted to noncommercial agriculture. Encompassing a land area of slightly more than one-fourth of the County, agriculture is a vibrant and highly visual feature of the landscape of the County. The agricultural industry in the County is surprisingly diverse – from free range poultry to large scale grain operations, to value added beef production, to wineries and the highest concentration of horse farms in a State that ranks in the top nationally for equine operations. Yet agricultural operations are feeling the pressure from urban growth and rapidly changing agricultural markets. Productive land has been developed and consumers are becoming more and more disconnected from where their food is grown and raised. Many factors contribute to this situation. The need to foster the agricultural economy and enhance awareness of the value and variety of local food production provided the initiative for The Baltimore County Center for Maryland Agriculture (BCCMA). Beginning in 2003, Baltimore County and the Baltimore County Agricultural Resource Center, Inc. (BCARC), an organization comprised of advocates of the agricultural industry, embarked on establishing The Baltimore County Center for Maryland Agriculture. The central premise has been to provide a center to house federal, state, and local agricultural agencies and

to develop a progressive educational outreach programming for adults and children. Most importantly, the farm will demonstrate the variety of agricultural operations that are located in the County and showcase opportunities to increase the viability of agriculture. The BCCMA will also demonstrate the importance of farm land preservation. The location of the BCCMA preserves additional open land along Shawan Road thereby providing a scenic gateway to the prestigious Worthington Valley Agricultural Area. The BCCMA will also be linked to existing open space and recreational spaces in the area to provide a unique combination of experiences for the residents of the region and State of Maryland. It is anticipated that The Baltimore County Center for Maryland Agriculture will be a model agricultural center and a source of enduring pride to Baltimore County.

### Vision Statement

The Baltimore County Center for Maryland Agriculture will be recognized by urban, suburban, and rural residents as an important resource for providing educational opportunities to all residents, for providing economic development and business support services to the agricultural sector and for promoting practices to enhance our natural resources. The center will provide educational activities for students and adults on a site that looks and feels like a farm and that is capable of crop



production and livestock field demonstrations. These educational activities and support services will assist in sustaining the County's significant agricultural industry and will enhance the quality of the rural environment.

Mission Statement

In the spirit of both agricultural preservation and future growth, The Baltimore County Center for Maryland Agriculture is organized for the benefit of the citizens of Baltimore County, the region and state to enhance the rural economy, to foster conservation of agricultural and natural resources through educational and technical services, and to provide a unique open space experience.

Goals and Objectives

- The goals of The Baltimore County Center for Maryland Agriculture are:
- To bring together county, state, and federal agricultural service agencies in a single location to better serve the agricultural community.
  - To educate current and future farmers on the changing face of agriculture in the nation, and in our region to enable them to continue to farm successfully and responsibly.
  - To promote environmentally sound and sustainable farming practices.
  - To educate the public of all ages about the benefits of agriculture to our community.
  - To provide a unique open space setting.
  - To enhance agriculture as a catalyst for rural economic development.
  - To further the goal of the County to preserve 80,000 acres in Baltimore County.

The goal of this Master Plan Report is to provide both a long-term vision for The Baltimore County Center for Maryland Agriculture as well as a near-term vision for the Core Facility to be built as part of Phase I Initial Construction. The vision has emerged from an inclusive process of discussion with the County, the agricultural community, with the wider public, and many “stakeholders” concerned with the establishment of the agricultural center and the future of the farmland on which it will be situated. The Master Plan Report responds to and reconciles the various and sometimes conflicting dreams, goals and concerns of these groups, reflecting the complex nature of the site, the program, and its diverse constituency.

Achieving the Vision

The Master Plan Report articulates how the vision and mission are to be achieved. The Report documents ideas and needs from the local perspective and incorporates relevant ideas from similar facilities elsewhere. It blends the goals and heartfelt knowledge of all the stakeholders and balances these against both the on-site and off-site constraints. The Master Plan Report is ambitious. It creates two phases to allow for the gradual development of the BCCMA site. Phase I Initial Construction is centered on any necessary work to provide for the construction of the Core Facility; the Maryland Horse Breeders Association facility, which will be privately funded, will also come in Phase I. Phase II Future Construction represents the completion of additional structures and uses to meet the vision of the BCCMA.

Governance, Capital and Operational Funding

The governance of The Baltimore County Center for Maryland Agriculture is under review by Baltimore County. While Baltimore County will operate the facility and be responsible for ongoing oversight, it is anticipated that there is a unique opportunity to form partnerships with private sector and non-profit agricultural interests. When finalized, Baltimore County will provide a statement about the governance, capital and operational funding of The Baltimore County Center for Maryland Agriculture.



Figure 1.01: Organic Produce at One Straw Farm



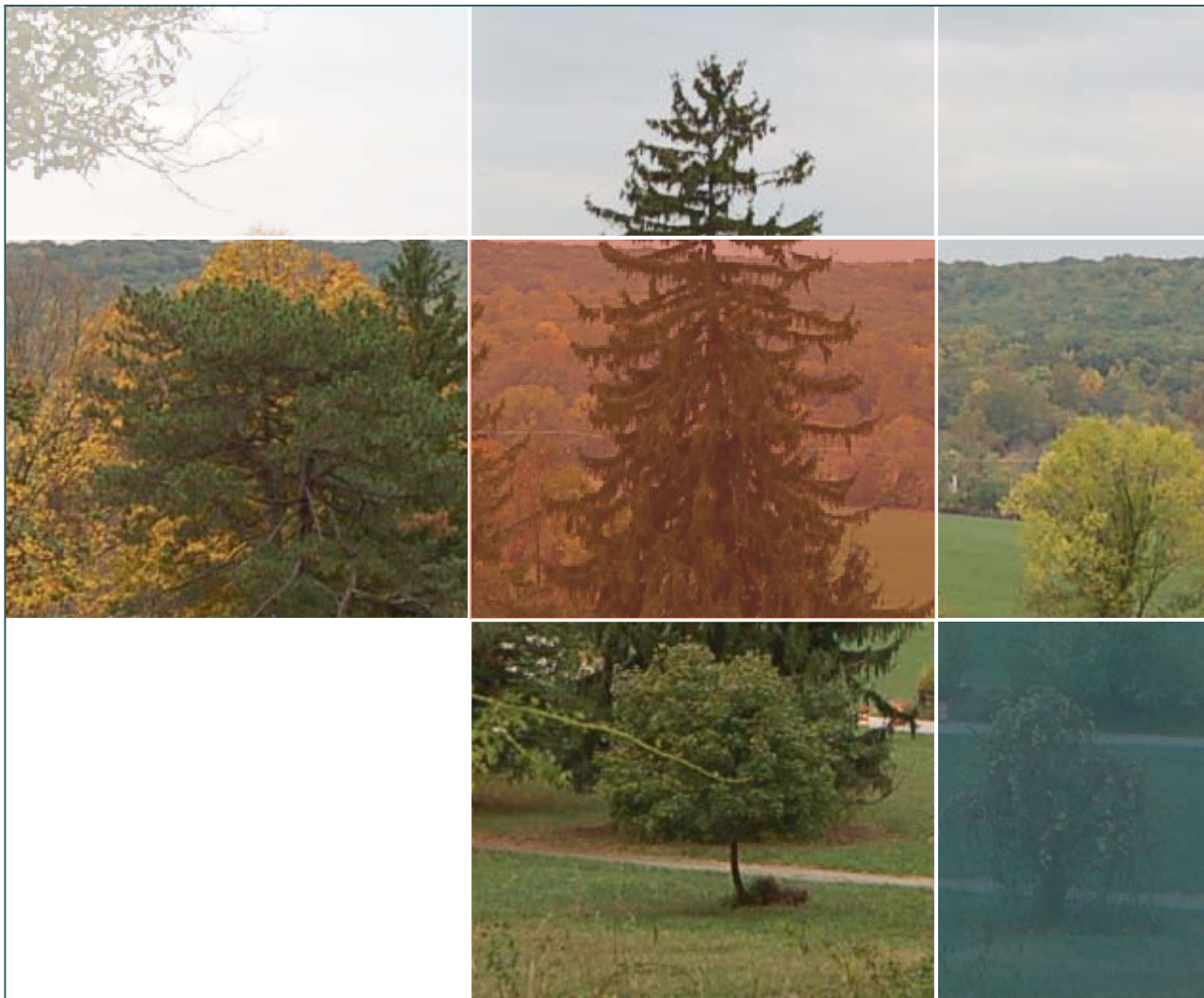
Figure 1.02: Baltimore County 4-H Dairy Goats



Figure 1.03: Equestrian Riding Ring at Patapsco Horse Center



Figure 1.04: Hay Bales on Site



# 2-program study

Beyer Blinder Belle Architects and Planners LLP (BBB) in association with Mahan Rykiel Associates, Inc. (MRA) and a comprehensive consultant team respectfully submitted a Draft Program Study Report on the summation and analysis of the potential uses for The Baltimore County Center for Maryland Agriculture to Baltimore County Department of Environmental Protection and Resource Management (DEPRM) and Baltimore County Agricultural Resource Center, Inc. (BCARC) for review and comment on September 5, 2007. The Draft Program Study Report represents part of Phase I (Site Programming and Analysis) of the scope of work that was outlined in BBB's response to Baltimore County's Request for Proposal Number 205989.

## The Draft Program Study Report

Beyer Blinder Belle conducted numerous program confirmation interviews and site visits during the process of confirming the program as originally introduced in the Request for Proposal (RFP). Interviews were documented with notes, sketches, and literature given to BBB by the interviewees. Site visits were documented with photographs and site maps and diagrams, when available.

BBB interviewed over fifty individuals who represented three types of organizations: organizations that were committed to or had an interest in relocating to the BCCMA site; similar regional agricultural resource centers and farm parks; and local examples of typical Baltimore County farms. Brief profiles of organizations with facilities in the Master Plan Report are described here; detailed sum-

maries and documentation of all of the interviews can be found within the Draft Program Study Report dated September 5, 2007.

## Program Confirmation Interviews

Over thirty-five key individuals representing agricultural organizations in Baltimore County were identified by members of DEPRM and BCARC as interview candidates for specific facilities or educational programs at the BCCMA.

For the Core Facility, program confirmation contacts for the following organizations and agencies were identified and interviewed as key tenants: USDA – Farm Service Agency – Baltimore County Service Center; Baltimore County Soil Conservation District; Natural Resources Conservation Service; Maryland Department of Agriculture; Maryland Cooperative Extension Baltimore County Office; Baltimore County; and, Baltimore County Agriculture Resource Center, Inc.

For the Future Expansion to the Core Facility, program confirmation contacts for the following organizations and agencies were identified and interviewed as potential future tenants: Baltimore County Farm Bureau; Land Preservation Trust Alliance; Maryland Wineries Association; Baltimore County Forest Resource Network; Central Maryland Beekeeper Association; as well as, Other Potential User Groups.



For other on-site facilities, program confirmation contacts were identified and interviewed as key tenants for other facilities to be developed at the BCCMA: Maryland Horse Breeders Association (MHBA); DEPRM Community Reforestation Nursery; DEPRM Central Crew; and, Equine Vet Clinic.

In addition, BBB conducted other supporting interviews to round-out the summation and analysis of the potential uses for The Baltimore County Center for Maryland Agriculture: Baltimore County Department of Recreation and Parks; Hereford Junior Farm Fair; The Valleys Planning Council; Maryland Council for Special Equestrians; and, BCARC Education and Programs Committee.

For each group, BBB gathered and assessed information about the existing as well as future needs of the staff, governing bodies, management, operations, mission and programs of the organization or agency. Complete findings and recommendations can be found within the Draft Program Study Report dated September 5, 2007. Brief descriptions of the user groups to be located within the Core Facility are provided here. An introduction to the MHBA is also provided.

CORE FACILITY PROGRAM	SPACE ALLOCATION
FSA-SCD-NRCS-MDA Suite	3,460 SF
MCE Suite	3,460 SF
Balto. Co. Suite	300 SF
BCARC Suite	150 SF
ADP/ IT/ Storage	250 SF
Staff Break Room/ Kitchenette	300 SF
Multi-Purpose Room	2,400 SF
Kitchen	400 SF
Lobby	600 SF
Core Facility Subtotal NET	11,320 SF net
Building Services Multiplier (1.25)	2,830 SF
Core Facility Total GROSS	14,150 SF gross

USDA – Farm Service Agency – Baltimore County Service Center

The mission of the Farm Service Agency (FSA) is to equitably serve all farmers, ranchers, and agricultural partners through the delivery of effective, efficient agricultural programs for all Americans. Towards that end, the Farm Service Agency administers multiple reporting functions and benefit programs for local farmers, including Annual Acreage Reporting; Direct and Counter-Cyclical Program; Marketing Assistance Loans; Loan Deficiency Payments; Conservation Reserve Program; and, Non-Insured Crop Disaster Assistance Program. Acreage Reporting is the most important annual reporting requirement in the FSA office (Figure 2.04). An Acreage Report covers all crops and land use, including failed acreage. Filing an accurate and timely report is important to receiving benefits from FSA programs such as the ones listed above. To accomplish this work, the FSA Baltimore County Service Center has four employees and is overseen by a three member elected County Committee plus one appointed advisor.

The FSA is currently co-located with the Baltimore County Soil Conservation District in a stand-alone building (Figures 2.01 and 2.02) on the grounds of the Historical Society of Baltimore County at 9831 Van Buren Lane in Cockeysville, Maryland. Within the building, the FSA has 1,045 SF (net) of existing non-shared office space of a total 4,300 SF (net) for the FSA-SCD facility. After interviewing the program confirmation contacts, comparing existing square footage to federal guidelines and standards, and undergoing multiple committee reviews, BBB recommends that 1,000 SF (net) be available as non-shared office space for the FSA in the Core Facility. The nominal



Figure 2.01: Existing FSA-SCD Building in Cockeysville

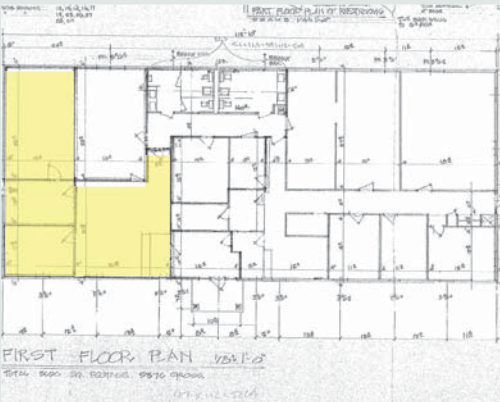


Figure 2.02: Existing Floor Plan of FSA-SCD Building with Non-Shared FSA Suite Spaces Highlighted



Figure 2.03: Existing FSA Archival and GIS File storage



Figure 2.04: FSA Acreage Report Headline



Figure 2.05: Envirothon Brochure

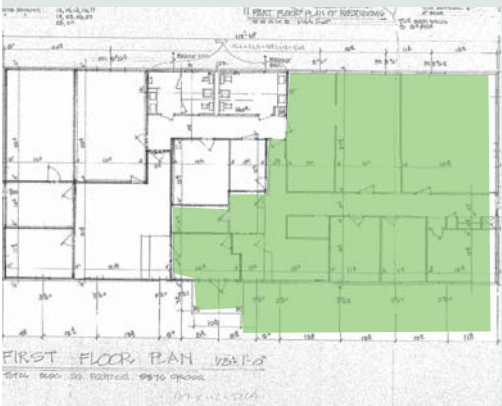


Figure 2.06: Existing Floor Plan of FSA-SCD Building with Non-Shared SCD Suite Spaces Highlighted



Figure 2.07: Existing Typical SCD Workstation



Figure 2.08: Existing SCD Map Room

decrease from the existing square footage is attributed to a slightly larger existing Mail/Storage area than recommended by the federal government.

The non-shared office space includes office space for four employees and storage areas, particularly for GIS mapping equipment and files (Figure 2.03). Other common office spaces such as an automatic data processing (ADP) room, break room, copy room and conference room will be shared with the Soil Conservation District and other user groups within the Core Facility.

FARM SERVICE AGENCY PROGRAM	SPACE ALLOCATION
Private Directors Office (1)	150 SF
Staff Workstations (federal positions) (3)	450 SF
Files Storage	350 SF
Reception Area	50 SF
FSA Subtotal NET	1,000 SF net

Baltimore County Soil Conservation District

The mission of the Baltimore County Soil Conservation District (SCD) is to promote practical and effective soil, water, and related natural resources programs to all citizens in a timely fashion on a voluntary basis through leadership, education and cooperation made possible through technical, financial, and educational resources. Much of the work performed by soil conservation districts, in general, involves helping farmers protect soil, water and other natural resources on their property. To do this, soil conservation planners develop individual farm plans that address site-specific natural resource and environmental issues for each farming operation. To help educate future farmers as well as present-day farmers, the SCD is also dedicated to teaching the school children of Baltimore County about farming, farm plans, natural resources, and environmental issues. The most significant educational program led by multiple local organizations and sponsors, including the Baltimore County Soil Conservation District and the Maryland Department of Agriculture, is Envirothon (Figure 2.05). Approximately 100 Baltimore County high school students participate in the Envirothon each year, combining classroom study with field experience in five related disciplines: Wildlife; Forestry; Soils; Aquatics; and, Environmental Issues.

The SCD office is comprised of positions funded by different federal, state and local agencies: Natural Resources Conservation Service (NRCS); Maryland Department of Agriculture (MDA); and, Baltimore County Soil Conservation District (SCD). The SCD-NCRS-MDA suite has twelve employees and a five-member appointed Board of Supervisors.

The SCD is currently co-located with the Farm Service Agency - Baltimore County Service Center in a stand-alone building (Figure 2.06) on the grounds of the Historical Society of Baltimore County at 9831 Van Buren Lane in Cockeysville, Maryland. Within the building, the SCD has 2,255 SF (net) of existing non-shared office space of a total 4,300 SF (net) for the FSA-SCD facility. After interviewing the program confirmation contacts, comparing existing square footage to federal guidelines and standards, and undergoing multiple committee reviews, BBB recommends that 1,960 SF (net) be available as non-shared office space for the SCD in the Core Facility. The decrease from the existing square footage is attributed to existing storage facilities that are slightly larger than similar areas as recommended by the federal government. Because not all positions at the SCD are federal position, the higher federal standard recommended square footages per employee was decreased to be in line with Baltimore County standards. All modifications were reviewed and approved by committee.

The non-shared office space includes office space for twelve employees (Figure 2.07) and storage areas, particularly for oversized maps and files (Figure 2.08). Other common office spaces such as an automatic data processing (ADP) room, break room, copy room and conference room will be shared with the Farm Service Agency and other user groups within the Core Facility.



SCD-NRCS-MDA PROGRAM	SPACE ALLOCATION
Private Manager Offices (2)	300 SF
Technical Staff Workstations (federal positions) (2)	300 SF
Technical Staff Workstations (federal positions) (7)	840 SF
Personnel Staff Semi-Private Workstation (1)	120 SF
Office Storage	175 SF
Files Storage	175 SF
Reception Area	50 SF
SCD Subtotal NET	1,960 SF net

FSA-SCD-NRCS-MDA SHARED SPACES PROGRAM	SPACE ALLOCATION
Conference Room (1)	400 SF
Copy Room (3)	100 SF
SCD-FSA Shared Spaces Subtotal NET (1)	500 SF net
SCD-FSA Office Suite Subtotal NET	3,460 SF net

Maryland Cooperative Extension Baltimore County Office

The Maryland Cooperative Extension is a statewide education system sponsored by County government, the University of Maryland College Park and Eastern Shore campuses and the U.S. Department of Agriculture. Faculty and staff in the Baltimore County Office of Maryland Cooperative Extension (MCE) provide research-based educational programs and services in the following areas: Agriculture, Nutrient Management and Natural Resources; 4-H Youth Development; Urban Agriculture and Master Gardeners; and, Family and Consumer Sciences.

Each division has its own set of diverse programs that drive the work of the Extension Office. From the major annual event Field Days to horticultural seminars to numerous fact sheets and printed literature, the MCE strives to provide the tools for many healthy and sustainable initiatives. To accomplish this work, the MCE has eighteen employees and several volunteer committees.

The MCE is currently located in an office park at 1840 York Road in Timonium, Maryland. Within the 30' x 100' typical suite bay, the MCE has 2,620 SF (net) of existing office space (Figure 2.09). After interviewing the program confirmation contacts, BBB recommends that 3,460 SF (net) be available as office space for the MCE in the Core Facility. The increase from the existing square footage is attributed to existing staff spaces that are smaller than recommended as set forth in guidelines for the University of Maryland and similar agencies for such an organization with technical staff and/or faculty (Figure 2.10). Such guidelines were taken into account when assessing the standard amount of square footage that should be available for each type of employee in the Core Facility. Therefore the proposed square footage per employee was raised in all cases for the MCE. All modifications and standards were reviewed by committee.

The non-shared office space includes office space for eighteen employees, flexible workstations for volunteers and interns, a lab room, a workroom, and storage areas, particularly for educational programs storage (Figures 2.11 and 2.12). Other common office spaces such an automatic data processing (ADP) room, break room, and conference room will be shared with other user groups within the Core Facility.

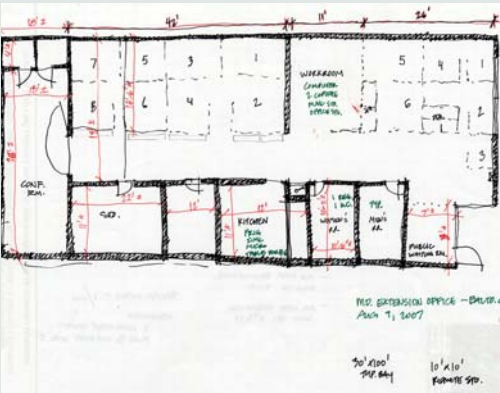


Figure 2.09: Existing Floor Plan of MCE Office Suite



Figure 2.10: Existing Typical MCE Workstation



Figure 2.11: Existing MCE Programs Storage



Figure 2.12: Existing MCE Copy Area



Figure 2.13: McGinnis Farm, Baltimore County



Figure 2.14: Fresh Fields Farm, Baltimore County



Figure 2.15: Greene Sheep Farm, Baltimore County



Figure 2.16: Roseda Black Angus Farm, Baltimore County

MCE OFFICE SUITE PROGRAM	SPACE ALLOCATION
Private Executive Director Office (1)	150 SF
Private Faculty Offices (10)	1,200 SF
Staff & Program Asst. Workstations (7)	700 SF
Volunteer & Intern Workstations (2)	160 SF
Lab Room	100 SF
Conference Room	400 SF
Workroom	200 SF
Office and File Storage	200 SF
Program Storage	400 SF
Reception Area	100 SF
MCE Subtotal NET	3,460 SF net

Baltimore County

Baltimore County identified three user groups to be located within the Core Facility as part of a BCCMA Office Suite: Baltimore County Department of Economic Development; Baltimore County Department of Recreation and Parks; and, DEPRM Land Preservation program. Each organization was interviewed by Beyer Blinder Belle about existing and proposed space needs. A brief profile covering the purpose and programs as well as existing and proposed space needs for each of these organizations in the Core Facility follows.

Baltimore County Department of Economic Development

The mission of the Department of Economic Development is twofold: to create employment opportunities that provide family supporting income for the citizens of Baltimore County by retaining and expanding the existing business base and attracting new businesses to Baltimore County and the Region; and, to secure the long-term well being of Baltimore County citizens and communities by ensuring the County’s ability to grow its economy well into the future.

Baltimore County is home to 784 farms (Figures 2.13 to 2.16) with more than 70,000 acres devoted to diverse agricultural uses. It is proposed that the Baltimore County Department of Economic Development have staff at the BCCMA site. No existing office space was reviewed for space needs and assessment. BBB recommends one open, semi-private workstation be available as office space for the Department of Economic Development within the proposed 300 SF (net) office suite for Baltimore County employees in the Core Facility.

Baltimore County Department of Recreation and Parks

The mission of Baltimore County Department of Recreation and Parks is multifaceted, with seven action items: 1.) to afford recreation direction only where wanted, and where people indicate a desire and a willingness to help themselves; 2.) to seek cooperation among all interested municipal agencies in financing, site selection, facility planning, and other aspects of public recreation development; 3.) to establish the Community Recreation Council as the local cooperating agency essential in determining local needs and suggesting joint efforts to meet them; 4.) to establish the school-recreation center with its idea of the school, its facilities, and



properties, as a dual-function unit combining educational and recreation opportunities for the people of its neighborhood; 5.) to acquire and preserve open spaces for public recreation purposes, with specific reference to stream valleys, reservoirs, and the County’s shoreline on the Bay; 6.) to develop programs, activities and experiences, using recreation councils when possible, that meet the recreation needs and demands of County residents; and, 7.) to develop and operate land and facilities only when such sites can be adequately maintained.

The 149 acres of the BCCMA adds to the approximately 6,600 acres of Baltimore County park land (Figures 2.17 and 2.18). It is proposed that the Baltimore County Department of Recreation and Parks have space for staff at the site. Typically, educational programming, operations, management, and other positions share a park office (Figures 2.19 and 2.20). At the BCCMA however these positions will be housed throughout the site and shared between multiple partner organizations; therefore, only one office space is required for the Core Facility. No existing office space was reviewed for space needs and assessment. BBB recommends one open, semi-private office workstation be available as office space for the Department of Recreation and Parks within the proposed 300 SF (net) office suite for Baltimore County employees in the Core Facility.

DEPRM - Land Preservation Program

The mission of the Baltimore County Department of Environmental Protection and Resource Management (DEPRM) is to manage, protect, and enhance the natural resources of Baltimore County and the health of its citizens through the application of environmental and public health laws, principles, and practices.

With advanced planning and zoning practices, identification of growth centers in the 1970's, innovative environmental programs, and proactive land and resource protection efforts, Baltimore County has a nationally recognized land preservation strategy. The County’s agricultural preservation efforts have been ranked by the Farmland Preservation Report in the top ten nationally since 1993. Through state and local programs, Baltimore County has preserved over 53,000 acres since 1974; the goal is to preserve a total of 80,000 acres. In furtherance of the goal to consolidate agriculture-related functions at the BCCMA, it is proposed that DEPRM be allocated space at the site to promote and coordinate land preservation efforts and outreach. No existing office space was reviewed for space needs and assessment. BBB recommends one open, semi-private workstation be available as office space for the Land Preservation Program within the proposed 300 SF (net) office suite for Baltimore County employees in the Core Facility.

BCCMA Director

Space for the Director of the BCCMA will also be provided within the proposed 300 SF (net) office suite. This individual will be a County employee and will be responsible for logistical management, scheduling of facilities, and maintenance.

BALTIMORE COUNTY OFFICE SUITE PROGRAM	SPACE ALLOCATION
Department of Economic Development Workstation (1)	
Department of Recreation & Parks Workstation (1)	
DEPRM - Land Preservation Workstation (1)	
BCCMA Director Workstation (1)	
Baltimore County Subtotal NET	300 SF net



Figure 2.17: Baltimore County Recreation and Parks Existing Program at Therapeutic Riding Facility



Figure 2.18: Cromwell Valley Park Picnic Area



Figure 2.19: Classroom at Oregon Ridge Nature Center



Figure 2.20: Historic Buildings at Oregon Ridge Park



Figure 2.21: Baltimore County Farm



Figure 2.22: Crops at Boordy Vineyards



Figure 2.23: Goat Exhibit at Carroll County Farm Museum

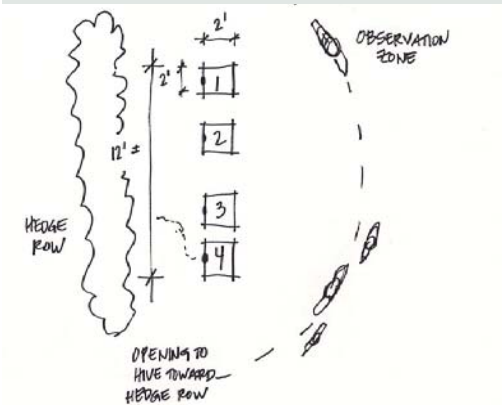


Figure 2.24: Outdoor Demonstration Beehive Plan

BCARC

The mission of the Baltimore County Agricultural Resource Center, Inc. (BCARC) parallels that of the BCCMA itself. Both are organized for the benefit of the citizens of Baltimore County and the regional community in order to enhance the rural economy and to foster conservation of agricultural and natural resources through educational and technical services. The vision for the Baltimore County Center for Maryland Agriculture is to become an important source for providing agricultural and land use education, to provide economic development and business support services to the agricultural sector, and to promote practices to enhance our natural resources. The BCCMA will provide educational activities for students and adults on a site that looks and feels like a farm (Figure 2.21) and that is capable of crop production and livestock field demonstrations (Figures 2.22 and 2.23). These educational activities and support services will assist in sustaining the County's significant agricultural industry and will enhance the quality of the rural environment.

To help accomplish these goals, six action items have been outlined by BCARC: 1.) to bring together county, state, and federal agricultural service agencies in a single location to better serve the agricultural community; 2.) to educate current and future farmers on the changing face of agriculture in the nation, and in our region to enable them to continue to farm successfully and responsibly; 3.) to promote environmentally sound and sustainable farming practices; 4.) to educate the public of all ages about the benefits of agriculture to our community; 5.) to enhance agriculture as a catalyst for rural economic development; and, 6.) to further the goal to preserve 80,000 acres in Baltimore County.

BCARC is currently a fifteen member board. Because of the integral role the Board will likely play in the BCCMA, it is proposed that an executive director hired by the Board to coordinate with the BCCMA Director will have an office at the site. No existing office space was reviewed for space needs and assessment. BBB recommends one 150 SF (net) private office be available as office space with modest storage for BCARC, Inc. within the Core Facility.

BCARC OFFICE PROGRAM	SPACE ALLOCATION
Executive Director (1)	150 SF
BCARC Subtotal NET (1)	150 SF

Future Expansion to Core Facility

One of the goals of Baltimore County and the BCCMA is to be a hub for local and regional agriculture organizations. The proposed Core Facility will house a variety of Baltimore County organizations, as previously described. The two conference rooms and multi-purpose room within the Core Facility as well as other on-site meeting spaces and site amenities will be utilized by many more agricultural and local community organizations. A goal of the master plan is to locate a 5,000 SF area for Future Expansion of the Core Facility so that some of these organizations that utilize the meeting space and land areas on site can move into permanent office space and fully participate in the mission and programs of the BCCMA. Five potential future user groups were identified by Baltimore County and interviewed by Beyer Blinder Belle about existing and proposed space needs: Baltimore County Farm Bureau; Baltimore County Land Preservation Trust Alliance; Maryland Wineries Association; Baltimore County Forest Resource Network; and, Central Maryland Beekeeper Association (Figure 2.24).

While the aforementioned organizations had preliminary programming interviews in anticipation of the Future Expansion to the Core Facility, other organizations have also been identified as appropriate partners for The Baltimore County Center for Maryland Agriculture. Baltimore County is currently reviewing a list of potential ad-



ditional site users including: Alliance for Chesapeake Bay; Department of Economic Development Office for Rural Development; Department of Natural Resources - Forest Service - Baltimore County Project (Cub Hill); Gunpowder Valley Conservancy; Historical Society of Baltimore County (Dickinson Gorsuch Farm Museum); Maryland Agricultural Education Foundation; Maryland Arborists Association; Maryland Department of Agriculture - Forest Pest Management; Maryland Environmental Trust; Maryland Farm Bureau; Maryland Nurseryman's Association; and Maryland Veterinary Medicine Association.

FUTURE EXPANSION TO CORE FACILITY PROGRAM	SPACE ALLOCATION
Various Office Suites	4,000
Future Expansion NET	4,000 net
Building Services Multiplier (1.25)	1,000 SF
Future Expansion GROSS	5,000 SF

Maryland Horse Breeders Association Facility

Baltimore County has been home to the Maryland Horse Breeders Association (MHBA) for over seventy-five years, and Baltimore County is pleased by the prospect of the leading thoroughbred horse industry advocate in Maryland locating its headquarters at The Baltimore County Center for Maryland Agriculture. The MHBA has held the position as a leading horse industry advocate within the state since 1929. The MHBA provides industry information, educational opportunities and legislative representation to its nearly 1,000 breeder-owner members, which include thoroughbred breeders, owners of race horses, steeplechase and hunt enthusiasts, and others with horse involvement. This includes the media, community and governmental organizations, as well as the general public. The mission of the MHBA has always been to encourage, promote, protect and improve the horse breeding industry in Maryland. While emphasis traditionally has been placed on the production of thoroughbred race horses, the MHBA encourages all sports relating to the use of horses. MHBA programs include the Maryland Fund and the Maryland Million programs as well as various publications. To accomplish this work, the MHBA has fourteen employees and a fifteen-member Association Board.

The MHBA facility is currently located in a mid-rise office building at 30 East Padonia Road in Timonium, Maryland (Figure 2.25). Within the building, the MHBA has 4,000 SF (net) of existing non-shared office space plus access to restrooms and other shared building services. After interviewing the program confirmation contacts, BBB recommends that 8,000 SF (net) be available as non-shared office space for the MHBA in their stand-alone facility on the BOCMA site. The increase from the existing square footage is largely attributed to the much larger library and museum areas proposed for the building. To support in-house publications staff as well as outside researchers, the MHBA maintains an extensive equine library at its offices (Figure 2.27). One of the main goals of the MHBA chartered Maryland Horse Industry Foundation is to maintain and expand the library collections of books, periodicals and videos as well as case exhibits and memorabilia (Figure 2.28).

MHBA FACILITY PROGRAM	SPACE ALLOCATION
Office Suite	4,300
Library and Museum	3,700
MHBA Facility NET	8,000 net
Building Services Multiplier (1.25)	2,000 SF
MHBA Facility GROSS	10,000 SF

The non-shared office space includes office space for fourteen employees, a publications workroom, and storage areas, particularly for publications archives (Figure 2.26). Other common office spaces such an automatic data processing (ADP)



Figure 2.25: Existing MHBA Floor Plan



Figure 2.26: Existing MHBA Publications Workroom and Archives



Figure 2.27: Existing MHBA Conference Room and Library



Figure 2.28: Existing MHBA Display Area



Figure 2.29: Horses Currently Boarded at BCCMA Site



Figure 2.30: Sagamore Farm



Figure 2.31: Existing Forest at Site



Figure 2.32: Reforestation Demonstration Area at Cromwell Valley Park

room, break room, copy room and conference room will be not be shared with the Core Facility; the MHBA will have its own facilities. In addition, the MHBA will have its own library and museum, as described earlier.

MHBA OFFICE SUITE PROGRAM	SPACE ALLOCATION
Executive Director Office (1)	300 SF
Private Staff Offices (13)	1,950 SF
Conference Room (1)	500 SF
Workroom (1)	250 SF
Copy Room (1)	100 SF
Office Storage (1)	250 SF
File Storage (1)	300 SF
ADP/ IT/ Storage (1)	300 SF
Staff Break Room/ Kitchenette (1)	175 SF
Reception Area (1)	175 SF
Office Suite Subtotal NET	4,300 net SF
Building Services Multiplier (1.25)	1,075 SF
Office Suite Subtotal GROSS	5,375 gross SF

MHBA LIBRARY AND MUSEUM PROGRAM	SPACE ALLOCATION
Library Stacks	1,300 SF
Reading Room	1,200 SF
Exhibit Gallery	1,200 SF
Library and Museum Subtotal NET	3,700 net SF
Building Services Multiplier (1.25)	925 SF
Library and Museum Subtotal GROSS	4,625 gross SF

## Other Facilities in Master Plan

Baltimore County and BCARC are committed to the diversity of future facilities at The Baltimore County Center for Maryland Agriculture. This includes the proposed Future Expansion to the Core Facility as well as other stand-alone facilities proposed for the site. Three user groups were identified by Baltimore County and interviewed by Beyer Blinder Belle about existing and proposed space needs: DEPRM Community Reforestation Nursery; DEPRM Central Crew; and, Equine Vet Clinic.

## DEPRM Community Reforestation Program

The mission of the Baltimore County Department of Environmental Protection and Resource Management (DEPRM) is to manage, protect, and enhance the natural resources of Baltimore County and the health of its citizens through the application of environmental and public health laws, principles, and practices. Towards that end, DEPRM would like to locate two of its divisions at the BCCMA: DEPRM Community Reforestation Nursery; and, DEPRM Central Crew Workshop and Garage.

The four-person DEPRM Community Reforestation Program crew works year-round in Baltimore County to plant, monitor, and maintain reforestation projects and to manage a small tree nursery that helps provide a variety of tree species and sizes. More than 125 acres have been planted since inception of the program in both urban and rural areas of Baltimore County (Figure 2.32).



Baltimore County requested a 1.5 acre site for the tree nursery be located at the BCCMA site. The reforestation crew currently operates a 1.0 acre nursery in Baltimore County. Nursery facilities consist of an office trailer, garage, barn, and various outdoor storage, staging, and growing areas. After interviewing the program confirmation contacts, BBB recommends that 1.5 acres be made available for the Community Reforestation Nursery facilities. The increase in acreage is attributed to the growth of the program in Baltimore County.

DEPRM Central Crew

The DEPRM Central Crew (DEPRM Central Area Field Operation) maintains stormwater management facilities and stream restoration projects, removes invasive vegetation, removes debris from streams and Chesapeake Bay shoreline, and participates in snow removal activities. The Central Crew and its equipment are currently located in the Reistertown area along with the Western Area Field Operation.

The BCCMA site offers an opportunity to relocate the Central Crew closer to its area of responsibility. The required facilities are approximately 1,750 SF, including office space, a workshop, a garage, and storage. It is anticipated that the crew will be available for special projects, on-site maintenance of the required stormwater management facilities, and demonstrations for private sector contractors.

Equine Vet Clinic

The Equine Vet Clinic proposed for the BCCMA will be a model surgical clinic, hospital, and education facility for Baltimore County and the surrounding region. The Clinic will pioneer educational programs and seminars about equine care for the local community.

Currently, no on-call surgical equine vet clinic facilities are located in Baltimore County. The closest facilities are in Pennsylvania or Virginia. Existing equine vet care facilities follow the business model practiced by the program confirmation contact: a modest business office without examination or surgical rooms with veterinary examinations conducted on-site. BBB, therefore, recommends that the BCCMA plan for approximately 1.0 acre of land for a model Equine Vet Clinic campus, including veterinary offices, a laboratory, a pharmacy, examination and surgery rooms, and a horse barn, with paddock area and a round pen available for examination, rehabilitation, and demonstration.

Resources

BBB documented the user groups’ facilities through site visits, interviews, photographs, and printed literature. BBB also explored the precedents’ websites for additional information.



Figure 2.33: Typical Farm Equipment



Figure 2.34: Farm Equipment Storage at Colhoun Farm



Figure 2.35: Horse Barn At Stallion Station



Figure 2.36: Horse Stall at Stallion Station

Final Master Plan Program

FACILITIES WITHIN BUILDING DEVELOPMENT ENVELOPE	SPACE ALLOCATIONS
Core Facility	14,150 SF
Future Expansion to Core Facility	5,000 SF
MHBA Facility	10,000 SF
Equine Vet Clinic	11,600 SF
DEPRM Central Crew Workshop and Garage Building	2,160 SF

PARKING	
Weekday Facility Parking Spaces	194 required spaces
On-Site Special Events Parking Area	On-Site Area for 275 required spaces
Off-Site Special Events Parking Area	Off-Site Area for 550 required spaces

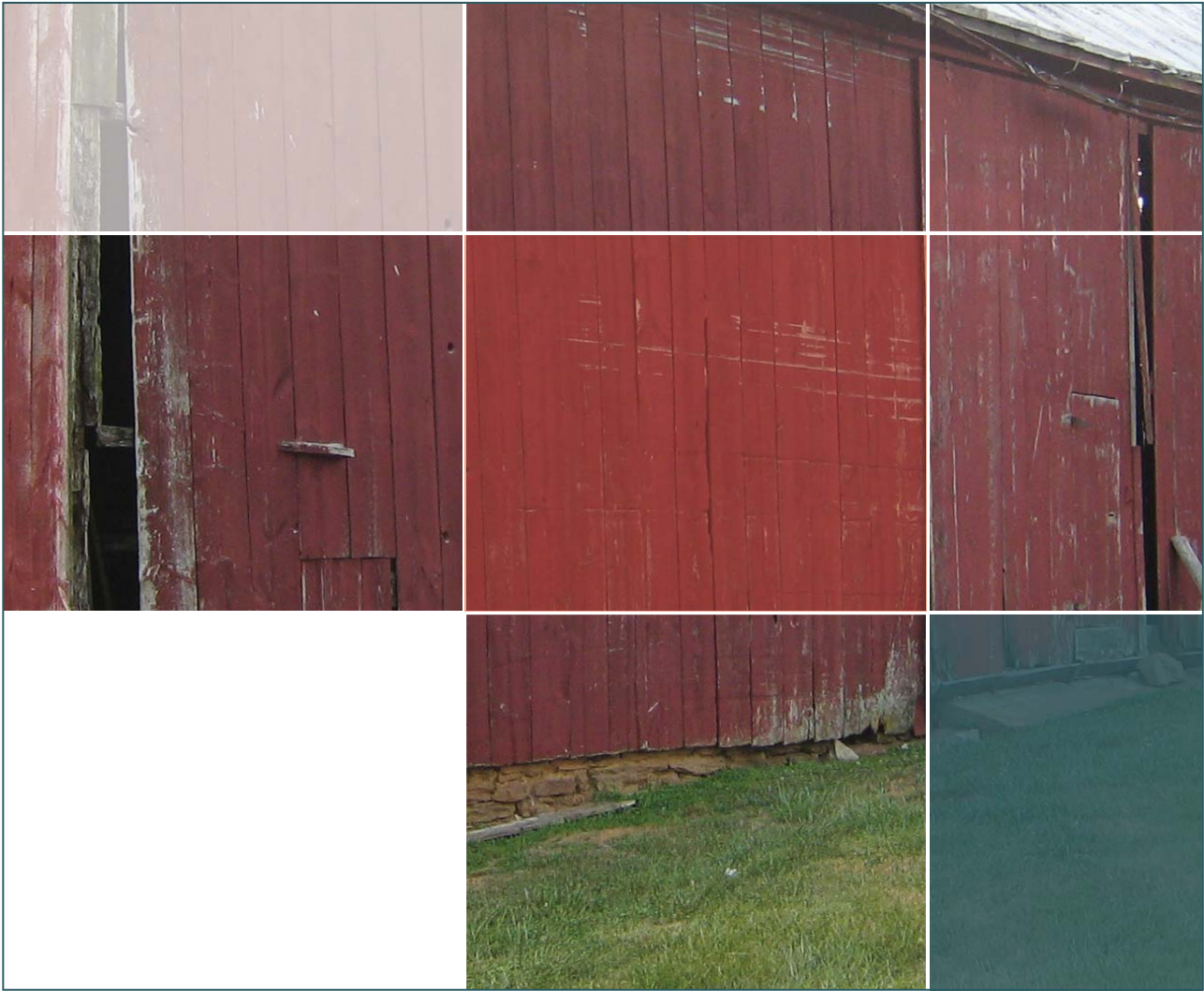
EDUCATIONAL FACILITIES	
INDOOR	
Educational Classrooms Building / Comfort Station	2,938 SF
Farm Museum	5,000 SF
Greenhouses (2)	1,440 SF each
Demonstration Theater (50-seat)	1,125 SF
Cottage/ Garden Shed	400 SF
OUTDOOR	
Outdoor Demonstration Beehives	200 SF
Discovery Gardens	1.25 acres
Garden Plots for Master Gardeners	2.0 acres
Open Land Use for Educational Programs	2.0 acres

EQUINE & LIVESTOCK FACILITIES	
INDOOR	
Indoor Arena	31,250 SF
Horse Barn (2)	3,750 SF each
Livestock Barn	3,750 SF
Hen House	120 SF
OUTDOOR	
Hay Demonstration	20.0 acres
Organic Produce Demonstration	2.0 acres
Nursery Crop Demonstration	5.0 acres
Experimental Crop Demonstration	2.0 acres
Landscaping Techniques Demonstration	Across the site
Demonstration Forest	7.0 acres min.
Demonstration Forest Edge/ Reforestation	3.0 acres min.
Demonstration Vineyard	5.0 acres
Water Hydrant	200 SF



Final Master Plan Program

RECREATIONAL FACILITIES	SPACE ALLOCATIONS
OUTDOOR	
Recreational Pavilion	2,400 SF
Interpretive Kiosks and Signage (12 min.)	9 SF/each
Recreational Pedestrian Trails	Across the site
Open Play Area	5.0 acres
Farmer's Market	Near Core Facility
Fairs and Festivals	Across the site
BEST MANAGEMENT PRACTICES	
OUTDOOR	
Forest Delineation	22.8 acres
Wetlands Delineation	1.98 acres
Stormwater Management	As specified
Animal Waste Management	600 SF
Plant Waste Management	700 SF
Septic Reserve Areas	As specified
FARM MANAGER & SITE SERVICE	
INDOOR	
Resident Farmer Housing	1,750 SF
Intern Farmer Housing	1,438 SF
Grounds Maintenance Building(s)	5,000 SF
DEPRM Community Reforestation Nursery Structure	1,929 SF
OUTDOOR	
DEPRM Community Reforestation Nursery	1.5 acres



# 3-precedents

Beyer Blinder Belle interviewed over fifty (50) individuals in the programming process. These were people who represented three types of organizations: organizations that were committed to or had an interest in relocating to the BCCMA site; similar regional agricultural resource centers and farm parks; and local examples of typical Baltimore County farms. Of these, ten (10) were regional agricultural resource centers and farm parks and nine (9) were local farms all identified by members of DEPRM and BCARC as interview candidates with similarities to the uses planned for the project site as a basis of comparison for space utilization, programming, and/or aesthetics.

Representative regional agricultural resource centers and farm parks that BBB toured were as follows: Montgomery County Agricultural Resources Center and Agricultural History Farm Park; Adams County Agriculture and Natural Resources Center; Carroll County Agricultural Center; Carroll County Farm Museum and Agricultural Center; Montgomery County Agriculture Center and Fairgrounds; Maryland State Fairgrounds - 4-H Fair; Cromwell Valley Farm Park; Oxon Hill Farm and Oxon Cove Park; Temple Hill Farm Park; and, Oregon Ridge Park and Nature Center.

Representative Baltimore County farms that BBB and MRA toured were as follows: Boordy Vineyards; Greene Sheep Farm;

McGinnis Farms; Manor View Farm; Maryland Stallion Station; One Straw Farm; Roseda Black Angus Farm; Springfield Farm; Caves Valley Farm; Colhoun Farm; and a vacant 19th-century Baltimore County bank barn.

Brief profiles of a few precedents most applicable to the master planning effort for The Baltimore County Center for Maryland Agriculture summary are described within this Master Plan Report. Detailed summaries and documentation of all of the site visits and farm tours can be found within the Draft Program Study Report, dated September 5, 2007.

## Featured Precedents

- Representative Agricultural Resource Centers:
- Montgomery County Agricultural Resources Center
  - Adams County Agriculture and Natural Resources Center

- Representative Farm Parks:
- Carroll County Farm Museum
  - Oxon Hill Farm and Oxon Cove Park

- Representative Baltimore County Farms:
- Boordy Vineyards
  - Caves Farm



Each of the featured properties was a valuable precedent for The Baltimore County Center for Maryland Agriculture. They had differing approaches to site strategies, architectural massing, detail features, user groups, and pioneer programs; therefore, together they provided a great range for assessing similarities and differences between the existing facilities and the new facilities proposed for Baltimore County.

## Adams County Agricultural and Natural Resources Center Gettysburg, Pennsylvania

### Smaller Site

The Adams County Agricultural and Natural Resources Center (“Adams County Ag Center”) is located on 10.2 acres at 670 Old Harrisburg Road in Gettysburg, Pennsylvania. The property, as with other agricultural resource centers and farm parks in the region, formerly supported the county almshouse. Today the property hosts the Adams County Ag Center, a progressive center for agriculture in Pennsylvania that remains true to the agricultural roots of Adams County while promoting and exhibiting modern best management practices. The 10.2 acre site is much smaller than the planned 149 acre BCCMA site.

### Larger Facility

The Adams County Ag Center is a two-story, 32,000 SF facility that houses multiple agencies—similar to the ones proposed for the BCCMA Core Facility. The agencies included in the Adams County building are as follows: Adams County Archives, Adams County Conservation District, Adams County Department of Agricultural Land Preservation, Adams County Department of Solid Waste & Recycling, Adams County Land Conservancy, Farm Service Agency, Penn State Cooperative Extension of Adams County, and USDA - Natural Resources Conservation District. All agencies are housed within one building (Figures 3.01 and 3.02). The planned BCCMA Core Facility is smaller at 14,100 SF total (with a planned 5,000 SF expansion).

### Similar Layout

The Adams County Ag Center is a roughly T-shaped facility designed to resemble local barn structures in massing and materiality. The main entrance and lobby are at the junction between the two bars of the “T”; there are, however, multiple secondary access points to corridors, individual agencies, and multiple meeting rooms. The main entrance opens onto a generous lobby, which are both given a high-level of detail in order to heighten the visitor’s arrival experience and strengthen the image of the center. The entrance and lobby have exposed heavy timber truss-framing that was inspired by barn framing, and the lobby contains a wooden cylindrical elevator bay that was inspired by a barn silo (Figure 3.03). Providing a higher level of detail in one of the most high-trafficked areas within the facilities allows the materials to have the most impact. A similar strategy is recommended for the Baltimore County facility, which is proposed to be a roughly H-shaped facility with the main entrance and lobby joining two of the bars. The lobby is envisioned as a double-height space with exposed heavy timber rafters and naturally lighted by a cupola.

### Comparable Meeting Spaces

Beyond the lobby, one can proceed to one of the agency offices listed above or to one of the many common meeting rooms. There is a large multi-purpose room (2,450 SF) that can be divided into three independent bays with a fourth fixed garage bay (725 SF) that can be used for heavy-use animal and equipment demonstrations that require heavy commercial materials and maintenance. There are also county classrooms and conference rooms available. A similar amount and layout of common meeting space is recommended for the Baltimore County facility, with a similar-sized multi-purpose room (2,400 SF) proposed to contain three flexible bays plus two flexible meeting rooms of 400 SF each. Baltimore County does not need a garage room because the master plan accounts for other facilities that can accommodate such heavy-use activities.

### Similar Approach to Architectural Materials

The exterior of the Adams County Ag Center uses a series of farm-like materials that reference Adams County farms. The building foundation is concrete block

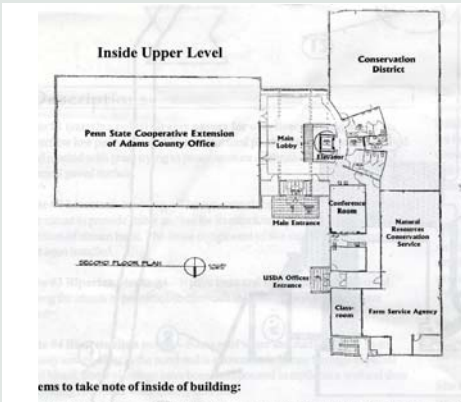


Figure 3.01: Upper Level of Adams County Agricultural and Natural Resources Center

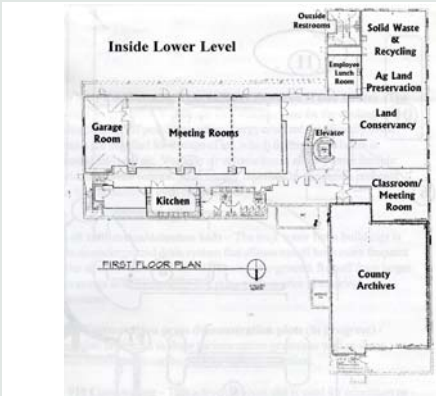


Figure 3.02: Lower Level of Adams County Agricultural and Natural Resources Center



Figure 3.03: Silo-inspired Elevator Bay and Wood Truss Framing at Adams County Agricultural and Natural Resources Center



Figure 3.04: Pennsylvania-style Masonry Detail at Adams County Agricultural and Natural Resource Center

# 3-precedents

agricultural resource centers

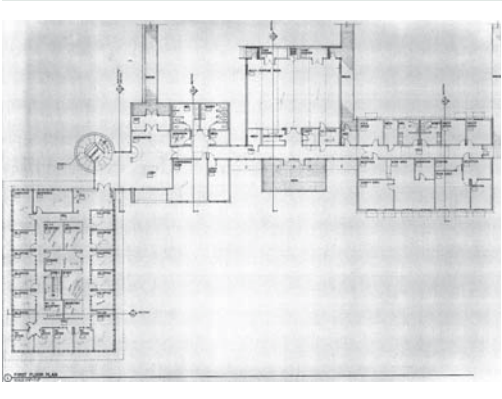


Figure 3.05: Floor Plan of Montgomery County Agricultural Resources Center



Figure 3.06: Multi-Purpose Room at Montgomery County Agricultural Resources Center



Figure 3.07: Montgomery County Agricultural Resources Center



Figure 3.08: Entrance and Elevator Silo to Montgomery County Agricultural Resources Center

referencing local stone foundations, and the end walls are red brick referencing Pennsylvania-style masonry and decorative details (Figure 3.04). Other cladding includes vertical siding as used on farm structures. This is a material strategy that Baltimore County would like to employ; therefore, the material palette recommended for the master plan references the farm structures of Baltimore County.

### Use of Best Management Practices

Just as the Adams County Ag Center is proud of its building, it is likewise proud of its planning and programmatic demonstration of fourteen best management practice areas. Demonstration sites include livestock crossing areas, riparian plantings, bio-retention ponds, grass swales, a solar-powered water heater, infiltration/detention beds, and compost areas. The Baltimore County site will similarly employ and exhibit best management practices, such as riparian plantings, grass swales, and compost areas.

## Montgomery County Agricultural Resources Center Derwood, Maryland

### Larger Site

The Montgomery County Agricultural Resources Center (“Montgomery County Ag Center”) is a progressive center for agriculture in Maryland located within the 410 acres of the Montgomery County Agricultural History Farm Park at 18400 Muncaster Road in Derwood, Maryland. The site is much larger than the planned 149 acre BCCMA site.

### Same Size Facility

The Montgomery County Ag Center is approximately 14,300 SF, housing fewer agencies than proposed for the Baltimore County facility. The Montgomery County Ag Center houses the following agencies: Farm Service Agency, Maryland Cooperative Extension of Montgomery County, and Soil Conservation District (Figure 3.05).

### Similar Layout

The Montgomery County Ag Center is a roughly L-shaped facility, composed of one single-story wing and another two-story wing. As with the Adams County building, the main entrance and lobby are located at the junction between the two bars of the “L.” Also as with the Adams County building, the lobby and vertical circulation of the Montgomery County Ag Center are marked with an elevator silo, with differences in materiality (here red-tiled and not wooden) and expression (here interior and exterior and not just interior). The Montgmomery County facility has a dramatic, sweeping view of the landscape from the lobby and information desk. It is, therefore, proposed that the Baltimore County main entrance and lobby be sited in order to relate to one of the most outstanding features of the property: the allée of sugar maples between the two rolling agriculture fields.

### Smaller Meeting Spaces

After arrival, one can proceed to one of the agency offices listed above or to one of the many common meeting rooms. There is a medium-sized multi-purpose room (1,745 SF) that can be divided into two independent bays (Figure 3.06), which the center staff and programs have outgrown. The Montgomery County Ag Center is currently exploring ways to expand their facilities and/or gain additional square footage for meeting space. In addition to the multi-purpose room there is only one additional common meeting room. It is, therefore, recommended that the Baltimore County facility master plan account for adequate meeting space both within the Core Facility and elsewhere on site.

### Differing Approach to Architectural Materials

As with the Adams County facility, the architecture of the Montgomery County Ag Center references local farm structures. The main building is well-sited taking advantage of the open rolling fields and landscapes leading up to the facility, with parking and terraced garden plots hidden behind. The main building is composed as a series of smaller barn-like structures connected with modern glass “bridges” and a tiled elevator silo (Figure 3.08). Thus, the Montgomery County Ag Center is a modern facility in contrast to the nearby Agricultural History Farm Park structures,



which include an original farmhouse, barn, and other assorted farm buildings. The strategy at the Baltimore County facility will be different, with the goal that each of the buildings should have similar massing and materiality for a seamless composition.

### Carroll County Farm Museum Westminster, Maryland

#### Similar Site

The Carroll County Farm Museum, which opened in 1966, is the oldest farm museum in Maryland. It is located at 500 South Center Street in Westminster, Maryland, about 45 minutes from Baltimore, Maryland. The Farm Museum sits on 125 acres of land adjacent to the Carroll County Agricultural Center. The mission of the Carroll County Farm Museum is to provide the public with the opportunity to experience mid-nineteenth century rural life. In order to fulfill the mission, the museum staff has available to them a site filled with original Carroll County farm structures (Figure 3.09), including the original farmhouse, bank barns (Figure 3.10), and other farm structures. Other buildings brought to or built on the site include a smokehouse, saddlery, spring house, Living History Center, wagon shed, general store, and a one-room schoolhouse. The Museum also has farm animals (Figure 3.11) as well as heirloom and other garden plots. The Museum hosts multiple annual special events, such as The Maryland Wine Festival, an Old Fashioned July 4th Celebration, Blacksmith Days and Fall Harvest Days. Living history demonstrations and exhibits of period artifacts and antiques complete the rural experience for visitors.

#### Different Scope and Mission

The Carroll County Farm Museum is solely a museum serving the visiting public, with an overall look and feel that is focused on a particular time-period and farm village experience. Buildings, animals, and crops are exhibited as collections and interpretive programs are varied. The density and programmed nature of the museum as a series of vignettes or experiences with small livestock and crop areas does not evoke the overall feel of a working farm. This model is very successful for the Carroll County Farm Museum. The Baltimore County site will have not only this recreational component but also agricultural offices and research center components. It is hoped that the research-based programs of The Baltimore County Center for Maryland Agriculture with its larger-scaled crop and animal demonstrations will reach the feel of a working farm.

### Oxon Hill Farm and Oxon Cove Park Oxon Hill, Maryland

#### Larger Site

Oxon Hill Farm is located at 6411 Oxon Hill Road in Oxon Hill, Maryland, near Washington, DC, on the eastern portion of the 512 acres of Oxon Cove Park, whose western portion fronts the Potomoc River. Oxon Hill Farm evolved from a private plantation, to a government hospital therapeutic farm, to a National Park Service resource. Today the Park Service preserves Oxon Hill Farm as a 19th-century small working farm (Figure 3.12). The mission of the Farm is to promote an understanding of agriculture and animals, a love of independence, and a willingness to work hard. Special events such as “Meet the Dairy Cow”, “Chicken and Egg”, and “Wagon Rides” help reinforce this mission. The 512 acre site is much larger than the 149 acre BCCMA site.

#### Similar Approach to Layout and Architectural Materials

Upon arrival to the site, which is just off of DC’s major arterial beltway (I-495), one encounters a large asphalt parking lot and the simple fenced edge of the Farm and Park. Just beyond the entrance gate, however, the visitor experience transforms. One walks down a typical farm lane that leads to the main farmyard, passing by the historic dairy barn and silo with dairy cows in the surrounding paddocks along the way. The effect is pastoral and reminiscent of an actual working 19th-century farm. The Farm includes a typical array of main structures, supporting structures, and pasture land. Notable buildings include a farmhouse, an historic brick stable,

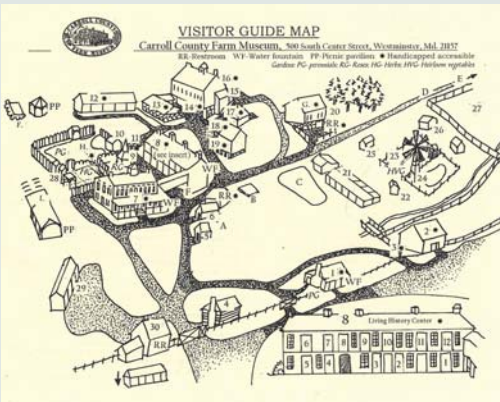


Figure 3.9: Carroll County Farm Museum Visitor Guide



Figure 3.10: Bank Barn (Exhibits and Gift Shop) at Carroll County Farm Museum



Figure 3.11: Farm Animal Pens at Carroll County Farm Museum



Figure 3.12: Oxon Hill Farm at Oxon Cove Park

# 3-precedents

baltimore county farms



Figure 3.13: Boordy Vineyards



Figure 3.14: Winery at Boordy Vineyards



Figure 3.15: Horse Barn at Caves Farm



Figure 3.16: Caves Farm

a hay barn, a large feed shed, support barns and sheds, and multiple animal paddocks and garden plots. The visitor barn and bookstore as well as the restroom building fit into the site just as generational development would have occurred on a continuously active farm. Because the development of the site includes reused farm structures as well as new buildings that reference the existing farm structures, the Farm has a cohesive identity. It is this mix of adaptive reuse of the old and traditional materiality in the new that Baltimore County would like to emulate.

## Boordy Vineyards Hydes, Maryland

Just as visiting and assessing the featured agricultural centers and farm parks provided insight as to what an agricultural center with a demonstration farm component should look and feel like, so too did visits to a series of actual working Baltimore County farms. The farm tours highlighted the breadth and diversity of farms in Baltimore County, but also revealed commonalities, informing what the premier agricultural site in Baltimore County should look and feel like.

### Similar Site Approach

Boordy Vineyards is situated on 230 acres in Baltimore County, only fifteen minutes north of the Baltimore beltway, yet sited to feel worlds apart. Boordy Vineyards is located at 12820 Long Green Pike in Hydes, Maryland. To reach the vineyards one drives through the hilly countryside of Long Green Valley. Approaching the farm, neat rows of vines reveal themselves upon the landscape. One enters the site through a simple entry, travels a short distance down a farm lane, and reaches a cluster of 19th-century farm buildings (Figure 3.13). The cluster of buildings provide great convenience for the visitor, but also for the farmer. From this cluster, the farmer is able to consolidate resources, have easy access to transportation, and leave the land open for crops. A similar site approach is recommended for The Baltimore County Center for Maryland Agriculture. Clustering the buildings near the center of the site – as was traditionally done – leaves the front and rear fields open for crops and livestock.

### Precedent Farm Architecture

The winery and main structure within Boordy Vineyard is a 19th-century barn with massive stone walls appropriate and ideal for the production and aging of wine (Figure 3.14). Support structures are varied, but most have stone foundations with vertical wood siding and metal standing seam roofing. This is the vocabulary of materials that is repeated again and again on many Baltimore County farms, especially ones with buildings that date to the nineteenth century, or earlier. It is this aesthetic that the BCCMA will strive to continue.

## Caves Farm Owings Mills, Maryland

Because The Baltimore County Center for Maryland Agriculture will have areas that demonstrate crops as well as equine and other livestock, Caves Farm, an equestrian facility, was also visited.

### Similar Facilities

Caves Farm is located at 2716 Caves Road in Owings Mills, Maryland, on 600 acres of farm land devoted to the breeding and training of horses. Just as with Boordy Vineyards, the farm structures are clustered to take advantage of an economy of means. With Caves Farm, however, the number and type of structures are quite different. Caves Farm’s facilities include five horse barns, an indoor arena, three outdoor riding rings, a cross-country course, open pasture, land for horse turn-out, hay crop, and a clubhouse (Figure 3.15). The number of similar structures at the BCCMA is striking: three barns (two for horses and one for livestock), an indoor arena, an outdoor show ring, open pasture, land for horse and livestock turn-out, and crops. With Caves Farm as an example it is easy to see that having a number of barns and large structures clustered together does not have to feel overdeveloped, especially if the structures are designed with similar architectural



details. At Caves Farm those details include cupolas, Dutch-style gambrel shingled roofs, board and batten siding, concrete foundations, field stone retaining walls, and wooden fencing.

**Precedent Farm Architecture**

Of all of the facilities at Caves Farm, its barns and indoor arena are direct examples of the types of buildings that are planned for the BCCMA. The barns are Amish post-and-peg construction with board and batten siding and other fine details (Figures 3.17 and 3.18). Above the stalls, the barn loft is open and not filled with overhead bales of hay; this (along with a fan system) increases circulation in the barn and also reveals the fine architecture and construction of the building. Such a finely detailed space is proposed for the main lobby of the Core Facility: exposed heavy timber framing, air circulation, with natural light from either end of the space as well as from above.

The Caves Farm indoor arena is also similar to the one proposed for this project. The indoor arena is 120’ x 300’ with a clear-span steel frame, board and batten cladding, and a sand floor treatment appropriate for horses (Figures 3.19). The arena proposed for the BCCMA will be slightly smaller at 125’ x 250’, but it will also likely be composed of a clear-space metal frame with board and batten siding. The indoor arena proposed for this project, however, will have a concrete floor that is flexible enough to have a horse-riding ring built upon it but also withstand farm equipment demonstrations (Figures 3.20).

**Resources**

BBB documented the precedents’ facilities through site visits, interviews, photographs, and printed literature. BBB also explored the precedents’ web sites for additional information.



Figure 3.21: Caves Farm



Figure 3.17: Board and Batten Siding Detail at Caves Farm



Figure 3.18: Amish Timber Contruction in Horse Barn at Caves Farm

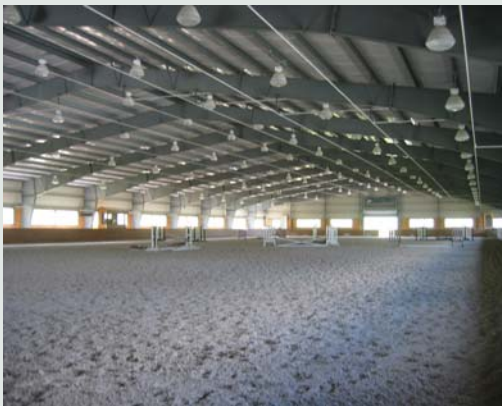
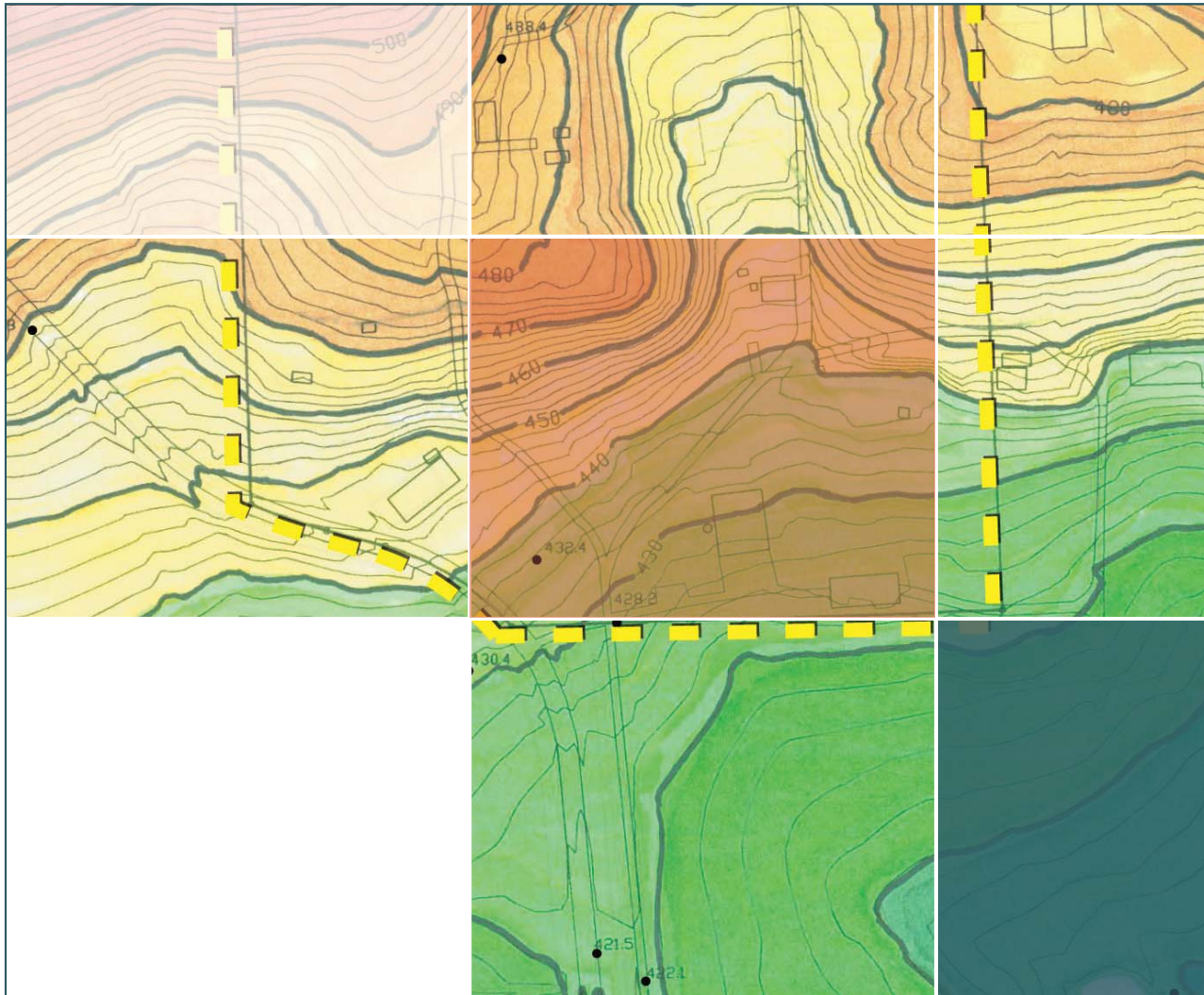


Figure 3.19: Indoor Arena at Caves Farm



Figure 3.20: Indoor Area with Concrete Floor at Carroll County Ag Center



# 4-site analysis

## Site Summary – Process

After the program and space needs for the site users had been established and the precedent site visits were completed, the next step in the master planning process was the collection of information on the features and attributes of the designated project site. Beyer Blinder Belle and the planning team spent several days at the site, conducting analyses, taking notes and photographing the site. The team reviewed and assessed existing structures, the topography, and the existing landscape features, including wetland and forestry areas and specimen trees. In addition to on-site analysis, the planning team also sought out existing documentation about the site, including maps, photographs and written descriptions on the following: site history, topography, soils, wetlands and forestry delineation, zoning and land use, and soils type designations.

All of the site information gathered was analyzed by the design team members to establish design guidelines for how to progress the master plan. The different observations and physical realities of the site provided cues for how to locate various program elements in the landscape. These design guidelines were used as the starting point for the master planning design charrettes that eventually led to draft options for the master plan.

The following pages represent several of the specific site history and analysis diagrams used to summarize site observations and design parameters.



### Historic Resources

As a prerequisite to requesting Land & Water Conservation Fund (LWCF) funding for acquisition of the property at 1114 Shawan Road that was/is to become The Baltimore County Center for Maryland Agriculture, the Baltimore County Office of Planning preservation staff conducted a historic preservation compliance analysis and recommendation summary for use and review by the State Historic Preservation Officer.

The following represents the historic resources summary, conclusion and recommendation as conducted by Baltimore County taken directly from the Baltimore County Office of Planning memorandum dated June 21, 2006, which was also an exhibit in the Request for Proposal No. 205989. Referenced images are not original to the memorandum.

### Baltimore County Office of Planning Memorandum

The property now known as the Rolling Mills, LLC Farm lies in the northeast quadrant of the intersection of Shawan and Cuba Roads, immediately west of the former Hayfields farm. Probably because the 19th-century farmhouse on the property was destroyed by fire before the Maryland Historical Trust (MHT) began compiling the Maryland Inventory of Historic Properties, this property was never included in the Inventory (Figure 4.01). There are, however, two remaining buildings (not visible except via the on-site examination just completed) within its 149 acres that have evident historic significance.

The Rolling Mill farm is accessed via an impressively long (ca. ½ mile) private lane, through an allée of stately trees, extending northward from Shawan Road just east of the Cuba Road intersection. The cluster of current farm buildings is sited within or adjoining the loop road at the north end on the lane, mainly at the foot of the ridge crossing the farm’s north end.

The 1850 Sidney & Browne map of the City and County shows a John Matthews house at this location, easily defined by its proximity to “Hayfields.” The District 8 map in the 1877 Hopkins atlas identifies this location as the Jno. D. Matthews farm. By the time of the 1915 Bromley atlas it was shown as the Anna Matthews property. Even the County’s 1961 topographic, 200-scale base map shows a footprint for what reportedly was the distinctive “old” farmstead. The modest replacement farmhouse built after the fire has a decidedly 1960s-70s appearance, without any redeeming architectural qualities. Likewise, an additional dwelling and the barn and other structures associated with the current maintenance of horses on the farm appear to be of mid- to late-twentieth century vintage, lacking any evident historic character or significance.

What the base map does *not* show, undoubtedly because of the density of foliage in the canopy of the adjoining trees, is two additional accessory buildings beneath the trees [emphasis original]. These are located about 40’ east of the equipment shed and 40’ north of the farmhouse site. The northernmost of the two buildings (a garage), of indeterminate age, is of wood frame construction and covered with asphalt shingles. Its preservation is not deemed essential.

More significant, however, is the adjoining one-story, 14’ x 28.5’ frame building sited a few feet south of the garage (the “Cottage”), towards the former farmhouse site (Figure 4.04). It has a simple, east-west gable roof but the pattern of doors and windows in its south façade – two 6-over-6 sash windows and one paneled door extant, with the symmetrical “ghost” image of a second doorway – suggests that it has or had two separate interior rooms. Stylistically, it appears to be more likely later 19th century than to date from the era of slavery, but functionally it could conceivably have earlier been used as a slave “quarters” if not simply for servant or tenant housing later in the century. The County’s inventory of the structures throughout the property identifies it simply as the “Cottage.” Documentary research and closer physical scrutiny would be necessary to try to establish its likely construction period and usage. It would be helpful if it were preserved, and rehabilitated to serve some small but useful purpose for the [BCCMA].



Figure 4.01: Archival Photo of Mount Pleasant Manor House, Now Demolished



Figure 4.02: Archival Photo of Old Garage That Still Exists as Clubhouse, Modified



Figure 4.03: Clubhouse as It Exists Today



Figure 4.04: Cottage as It Exists Today



# 4-site analysis

## site history



Figure 4.05: Old House as It Exists Today



Figure 4.06: Cottage as It Exists Today



Figure 4.07: Corn Crib as It Exists Today



Figure 4.08: Archival Photo of the View of the Allée and Oregon Ridge, From Mount Pleasant Farm House Terrace, Now Demolished

The second building worthy of preservation (the “Old House”) for restoration is a two-story, gable-roofed farmhouse perched prominently at the edge of a knoll overlooking the broad valley below (to the south) (Figure 4.05). It is located about in the center of the polygonal parcel attached to the upper east side of the property’s main block (about 1100’ NE from the fork in the access lane). The view of the house from everywhere outside its site currently obscured by dense vegetation.

Despite the rectangular shape plotted on the County base map, the house actually has an L-shaped footprint. The main, 26’ x 16’ portion faces due south. The 36’ x 16’ rear wing, with an intersecting gable roof, is offset to the west (forming a continuous 44’ west elevation). A one-story, 27’ x 5’ shed-roofed addition is fitted into the right angles of the main building.

### Conclusion and Recommendation

The Office of Planning’s preservation staff concludes that the acquisition of the Rolling Mill, LLC farm and its use as a Baltimore County agricultural center *would not* have an adverse effect on any known historic resource [emphasis original]. The County should explore ways to possibly rehabilitate the “Cottage” and to restore or rehabilitate the 19th-century “Old House” for continued productive use in conjunction with the [BCCMA]. The possible, albeit uncertain, prospect of encountering archeological remains along Shawan Road can be addressed through a reserve strip subject to the standard requirement that no excavation could be conducted without professional archeological investigation.

### BBB Comments and Assessment

Beyer Blinder Belle assessed all buildings on the site in conjunction with the structural assessment. These findings can be found under the structural assessment portion of the Master Plan Report beginning on page 42.

#### Cottage

Having reviewed the memorandum from the Baltimore County Office of Planning, Beyer Blinder Belle agrees that the “Cottage” (Figure 4.06) has some historic merit and should be potentially reused in its current location or moved to be reused in another location.

#### Corn Crib

One structure that the Office of Planning memorandum does not mention is the existing corn crib (Figure 4.07). There is no documentation of its date of construction, but Beyer Blinder Belle feels that it should be moved, repaired and reused in some way as part of the master plan.

#### Old House

Beyer Blinder Belle agrees with the Office of Planning assessment that the Old House (Figure 4.05) could be reused. Although the house is in poor condition, there were many character defining historic details of the house, including the front paneled door, the stair newel posts and railing, the stone foundation, and the old wood flooring that could be restored. The historic wood siding could be seen underneath the overlaid aluminum siding.

#### Historic Photos

The planning team noted that the historic photos date the allée of trees. BBB acquired the archival photographs from Baltimore County; the photographs date to the 1920’s. The range of early photographs show that the allée of trees had just been planted (Figure 4.08). These photos also show that the Manor House (now demolished) had formal landscaping with paths to access the house. The historic photographs are useful to see what the character of the original buildings were on the site and how they were situated in the landscape. These structures give clues as to how to locate and design new structures for the site.



### Zoning and Land Use

Civil engineering consultant BL Companies reviewed zoning and land use classifications for the BCCMA site. The property is located within the Baltimore County Rural Conservation – 2 (RC-2) zoning land use classification. All land within Baltimore County is mapped and zoned on County zoning maps maintained and updated by Baltimore County. The RC-2 zoning category is the most restrictive agricultural land conservation zoning district in Baltimore County. The purpose of the RC-2 zoning class is to foster conditions favorable to a continued agricultural use of the productive agricultural areas of Baltimore County by preventing incompatible forms and urban uses. The property is also subject to additional land use restrictions through binding third-party Land Preservation Trust (LPT) conservation easements.

#### Permitted RC-2 Uses

- The following are examples of relevant permitted uses within County RC-2 zoned areas:
- Farm, farmette, farmers roadside stand and produce stand.
  - Single-family detached dwelling, tenant house, (1 d.u. per lot/50 acres).
  - Equestrian Center, provided that center has access to two roads (one road must be within 2 miles of an interstate expressway interchange), contain no permanent grandstand, no lights other than those consistent with farm use.
  - Temporary structures, such as removable tents, viewing stands and seating.
  - Parking space, including residential-garage space.
  - The following are some of the uses permitted within RC-2 by Special Exception: animal boarding, veterinarian office, farm market, offices for agriculture related use, riding stables, winery, including retail and temporary event.

#### Lot, Building, and Setback Restrictions

The RC-2 zoning classification also establishes lot, building and setback restrictions. The minimum lot size within RC-2 zoning is 1 acre. The maximum density is two lots per 100 acres or one lot per 50 acres gross area. No more than 1 dwelling per lot is allowed. Within RC-2 areas no structure shall exceed a height of 35 feet. No structures are permitted within 75 feet of a street centerline or within 35 feet of lot lines.

#### Land Preservation Trust Conservation Easement

- The Land Preservation Trust (LPT) conservation easement at the BCCMA property applies to approximately 130 acres of identified land area of the approximately 149 acre total area. Within the Land Preservation Trust conservation easement area industrial or commercial activities are prohibited. Certain active recreational facilities such as basketball courts, skating rinks, backstops, and permanent grandstands are also prohibited. The Land Preservation Trust conservation easement also includes entrance signage specifications and other signage prohibitions. The following are allowed activities within the Land Preservation Trust easement area:
- Agricultural and natural resource educational research, farming, silviculture and horticulture.
  - Agricultural promotional activities, including sale of goods and fund raising. Public festivals and exhibits associated with agricultural promotional events are allowed and temporary parking for on- and off-site special events is allowed.
  - Infrastructure to support all buildings, including utilities, septic systems, wells, and stormwater management, are allowed. In addition the following activities are specifically allowed: viewing platforms, fencing, picnic pavilions, interpretive kiosks,

- playgrounds, comfort stations, amateur equine event facilities; including riding rings, bleachers and fields.
- Replacement of any improvements with similar size and purpose. Improvement, repair, restoration, alteration, remodeling and maintenance of all structures are allowed.

### Building Development Envelope

Per the Land Preservation Trust Conservation Easement, there will be a 20-acre area, or Building Development Envelope, that will not be under the easement, which can be used for the office buildings serving agricultural support agencies and organizations and is excluded from the Deed of Conservation Easement. The diagram below illustrates two Building Development Envelopes: one (yellow) as identified in the RFP and a second (red) as modified in the master planning process. As the master plan was under development it became clear that the Building Development Envelope should address both the conservation easement, the site topography, and the location of various buildings in the master plan. The 20 acre size has been maintained, but the shape of the envelope now includes the events green in front of the planned Core Facility and includes more level ground where proposed buildings can be situated.

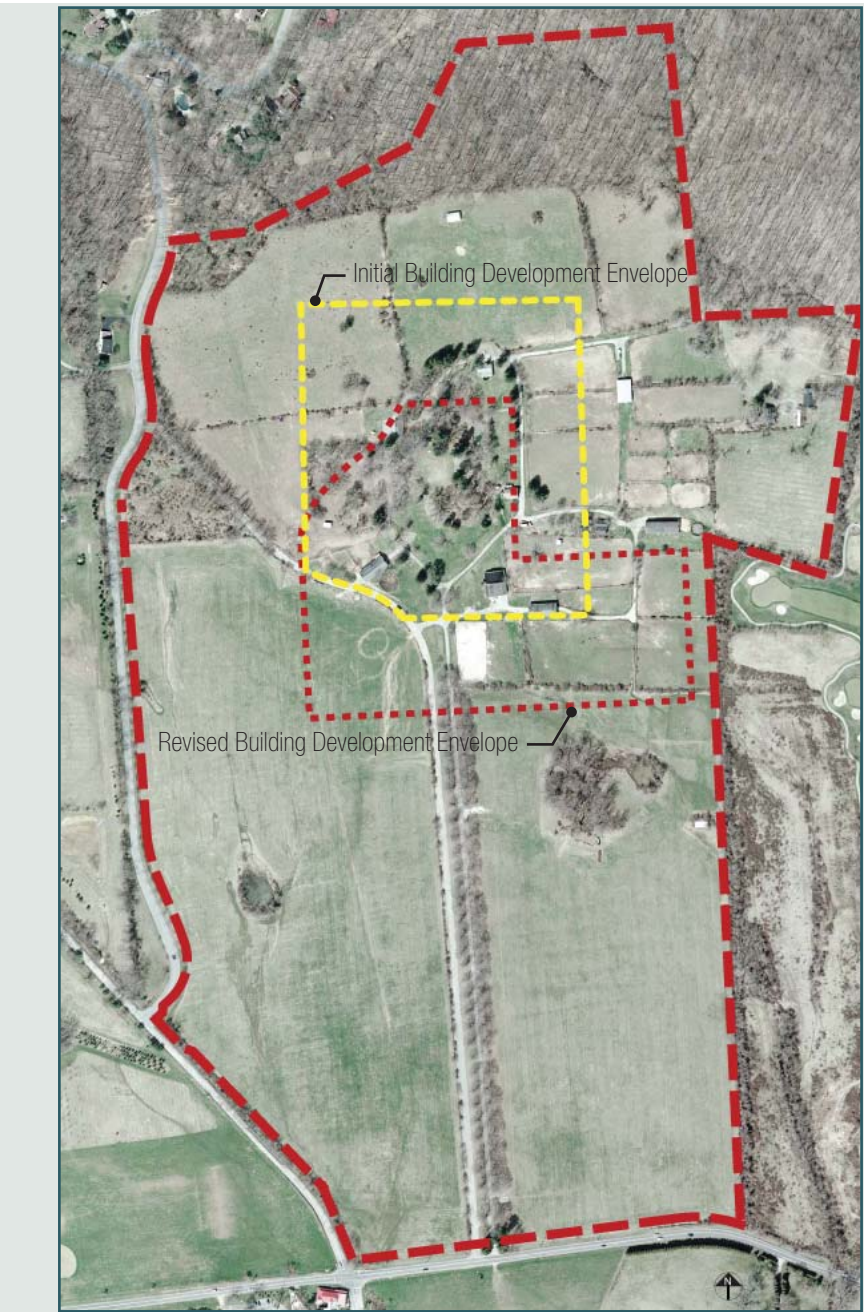


Figure 4.09: Building Development Envelope Diagram Showing Initial and Revised Envelopes



## Site Context

The property identified for The Baltimore County Center for Maryland Agriculture contains two contiguous pieces with combined acreage of approximately 149 acres (149.27858 acres). The property address is 1114 Shawan Road in Hunt Valley, Maryland.

### Rural Protection Zone

The project site is in Baltimore County just over 7 miles north of the Baltimore beltway and 1.5 miles west of I-83 within an Agricultural Conservation/ Rural Protection Zone. This Zone, as described in the Request for Proposal No.205989 prepared for this project, was ratified under the Master Plan 2010 adopted by the Baltimore County Council in response to what the Council found was an “excessive spreading of residential development [leading] to the removal or undesirable transformation of natural vegetation and other features more properly left in their natural or previous states.” In this Master Plan, “the County reaffirmed its public policy to support the retention of a viable agricultural industry, and the protection of resource conservation areas.” Baltimore County has one of the most progressive land preservation programs in the nation with the goal of preserving 80,000 acres by 2010.

Interstate-83 is the clear dividing line of rural demarcation in Baltimore County. The east side of I-83 is developed with neighborhoods, shopping districts, business parks, public buildings, and associated open parking lots, as seen in the aerial image of the area (Figure 4.13). The existing office spaces for the Maryland Cooperative Extension, Farm Service Agency, Soil Conservation District, and Maryland Horse Breeders Association all occur within this developed area not far from the proposed site. The west side of I-83, however, contains properties under a different zoning class and/or under land easements that seek to address the excessive sprawl identified by the Baltimore County Council. The proposed BCCMA will be located to the west of I-83. Following is a brief look into the sites adjacent to the BCCMA property.

### Hayfields Country Club

Hayfields Country Club is located to the east of the BCCMA site; the two properties share a property line. Hayfields is an 18-hole golf course with a clubhouse, swimming pool, tennis courts, dining facilities, and other amenities. In addition, a residential development of private homes is located on the northern edge of Hayfields overlooking the golf course. The Hayfields Country Club is located at 700 Hayfields Road in Hunt Valley, Maryland. The facilities at Hayfields include the adaptively reused Hay-

fields mansion and five additional historic buildings as well as an historic stone wall (Figure 4.10). The overall plan of the country club maintains the consolidation of historic farm facilities, and the open greens of the golf course maintains what were historically open fields of Timothy Hay. The combined effect continues to maximize the scenic views of Oregon Ridge. Connecting these two properties or their programs is not proposed.

### Oregon Ridge Park and Nature Center

Oregon Ridge Park and Nature Center is located to the south of the BCCMA site across Shawan Road at 13555 Beaver Dam Road in Cockeysville, Maryland. Oregon Ridge Park at 1,100 acres is the largest park in Baltimore County. In the mid-nineteenth century, Oregon Ridge was an active industrial village, mining iron ore and marble. Oregon Ridge Nature Center is sited near the location of the site of the historic industrial village, which today is part of the interpretive facilities and programs of the Park. Other popular programs include trail hiking, canoeing, honey harvesting, maple sugaring, music in the woods, and special events with the Baltimore Symphony Orchestra. Oregon Ridge Park has nine different hiking paths that total almost six miles of trails (Figure 4.11). It is proposed that these trails be connected to the recreational pedestrian trails at the BCCMA site to extend the trail offerings and experiences of Baltimore County.

### Catholic Community of St. Francis Xavier

The Catholic Community of St. Francis Xavier is located to the west of the BCCMA site across Greencroft Lane at 13717 Cuba Road in Hunt Valley, Maryland. From early beginnings, St. Francis Xavier parish has grown to over 1,200 families and primarily serves the northern Baltimore County area. Connecting these two properties or their programs is not proposed. Instead the tree line and forest stands along Greencroft Lane will be maintained and potentially partially reforested in good faith efforts to respect the boundary between the two properties.

### Greencroft Community

The Greencroft neighborhood is located to the north of the BCCMA site buffered in most part by a nearly 12 acre forest stand. Greencroft is a small community of private single-family homes on large forested lots. The Neighborhood Association owns and maintains Greencroft Lane at the western edge of the site as a private road. Neither connecting to Greencroft Lane nor connecting the site to the physical neighborhood is proposed; however, it is likely that the neighbors will benefit from some of the programs at the site, including forest and land management programs and



Figure 4.10: Historic Barn and Silo at Hayfields Country Club



Figure 4.11: Oregon Ridge Park Nature Trail



Figure 4.12: Catholic Community of St Francis Xavier Church in the Distance



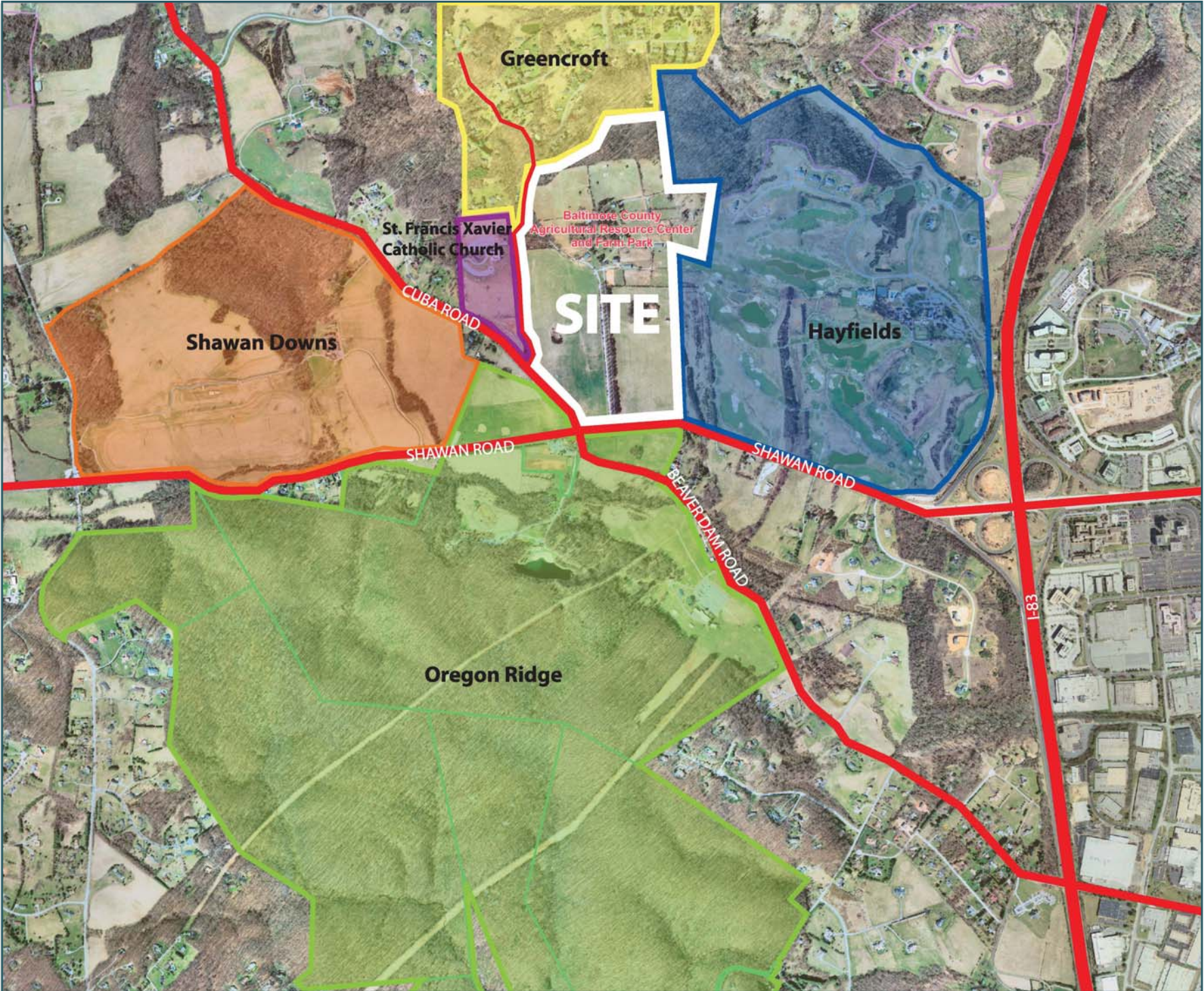


Figure 4.13: Context Diagram

farmers markets. The community will also benefit from the forested buffer along Greencroft Lane. It is proposed that the buffer include a combination of trees and shrubs to screen some of the elements of the site while also framing pastoral views of the Core Facility, barns, and crops. In phases beyond the scope of this Master Plan Report, Baltimore County will continue to engage Greencroft, other community organizations, and neighbors in the planning process.

Shawan Downs

Directly west of the site across Greencroft Lane is St. Francis Xavier Catholic Church. To the west of that is Shawan Downs at 1401 Shawan Road in Cockeysville, Maryland. Shawan Downs is 300 acres of former farm land that is today a premier equestrian center featuring a state of the art steeplechase course. The Land Preservation Trust established Shawan Downs “to preserve the landscape’s agricultural legacy while building a new tradition

of equestrian events that benefit local charities” and to prevent residential development on the property. Connecting the site with the BCCMA is not proposed; specifically, connecting the equestrian trails is not proposed.

Resources

BBB documented the neighboring properties through site visits, interviews, photographs, and printed literature. BBB also explored the precedents’ web sites for additional information.



### Topography

One of the many reasons Baltimore County selected the property at 1114 Shawan Road as the site for The Baltimore County Center for Maryland Agriculture is because of its key location as a gateway to Maryland’s Horses and Hounds Scenic By-Way and the prestigious Worthington Valley. The Valley is characterized by its hilly topography, rural atmosphere, and numerous large farms. The sloping site divides into four different areas: lower open fields, a rise of south-facing slope, an upper ridge line, and a drop of north-facing slope at the northernmost part of the property.

#### Lower Open Fields

The lower area of the property slopes gently at a 4% to 8% incline to the north away from Shawan Road. In total, the site rises approximately 70 feet in elevation from Shawan Road to the mid-point of the property near the end of the existing allée of trees. The gentle-sloping topography and open agricultural use of the land offers long, sweeping views across the lower fields.

#### Rise of South-Facing Slope

Continuing on from the mid-point of the site, the grades climb more steeply to a ridge line toward the back of the property. The grades on this slope range from 10% to 16% with a small relatively level area halfway up the slope that was the location of the former Mount Pleasant Farm manor house and associated

support facilities, including the historically notable Cottage. This section of the site affords the opportunity to cluster structures along the south-facing slope, just as it was historically built.

#### Upper Ridge Line

The high point of the site is located along the ridge line at an elevation approximately 165 feet above Shawan Road. Having a ridge line located within the property boundaries provides sweeping views up and down the Valley and across to Oregon Ridge and also allows for differing agricultural uses requiring a significant difference in slope, such as growing grapes. This increases the ways that a diverse agriculture center can be planned and programmed.

#### Drop of North-Facing Slope

From the ridge the topography drops dramatically toward the northern property line adjacent to the Greencroft Community. Much of this north-facing slope falls away at grades greater than 25%. Because agricultural plots and farm structures are less successful on such steep, north-facing slopes a forested area has developed. This combination of steep slopes and forest offers a nice buffer at the end of the site.



Figure 4.14: View Looking North From Shawn Road Onto Site



Figure 4.15: View Looking East From the Ridge Line Showing the Site's Hilly Topography



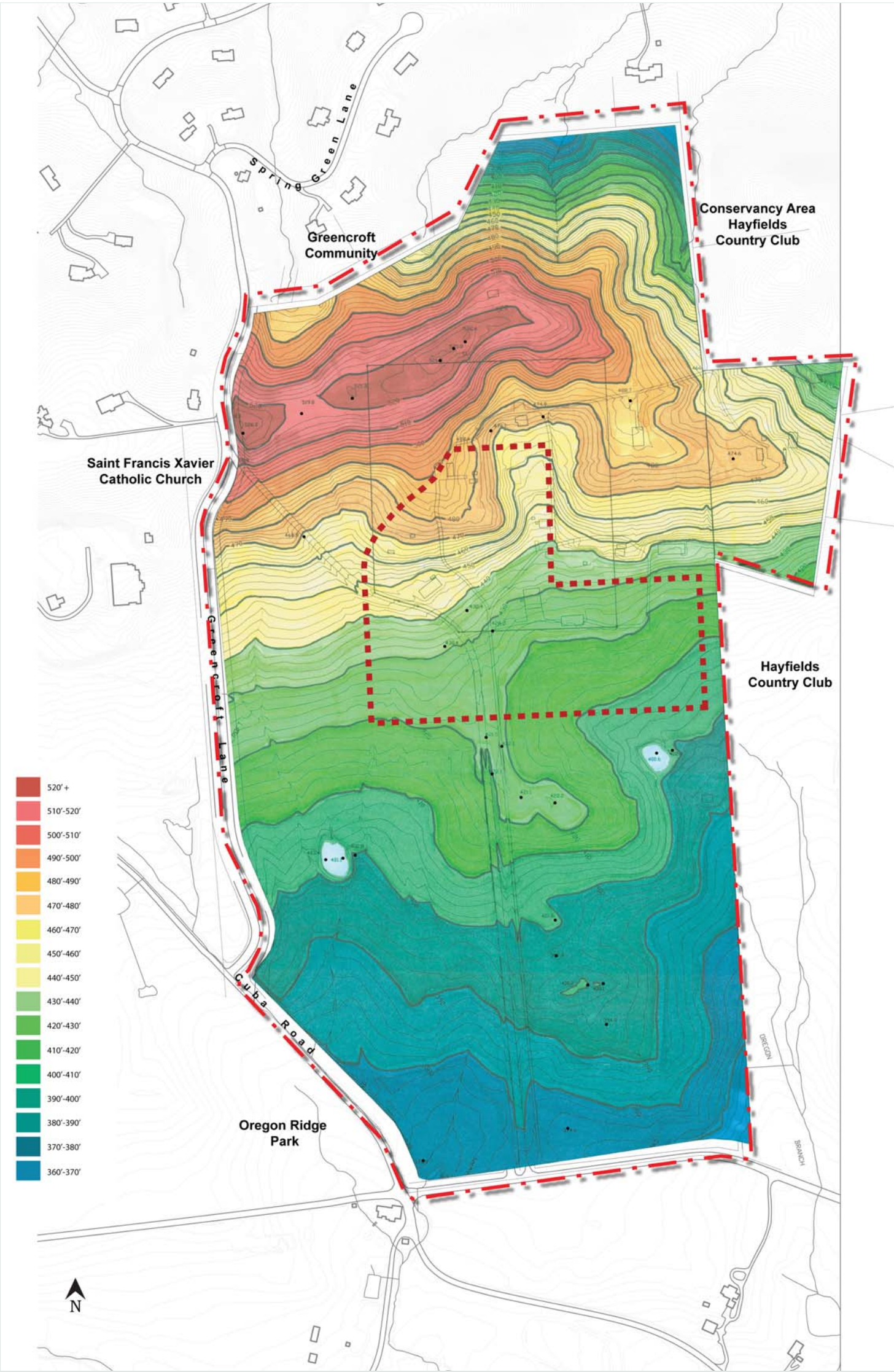


Figure 4.16: Topography Diagram



## Existing Landscape Features

The landscape character of the site is reflective of the agricultural and equestrian activities that have been the predominant uses on the property over the past 100 years.

### Lower Open Fields

The majority of the site is comprised of open fields framed by mature trees. The “front” fields, adjacent to Shawan Road, are bordered by hedgerows at the property edges. The entry drive bisects the fields and is defined by a double row of sugar maples. This tree-lined drive provides a strong sense of arrival and is an iconic element worthy of preservation. Two small farm ponds exist, one on each of the two front fields. Both exist as a result of the drainage characteristics of the land form.

### Rise of South-Facing Slope

The center portion of the site is characterized by moderately sloping land that was the location of the original Mount Pleasant manor home and associated out-buildings. This area reflects a stronger man-made character. A number of small buildings, drives, walks and the old manor home site create an environment reflective of a more human scale. Trees were planted to frame buildings and spaces and are ornamental in nature, not because of the varieties of trees used but because of the way they were used: planted as individual specimens. A ground-plane layer of

shrubs and ground covers is evident and adds to the texture of the space and the heightened sense of scale.

### Upper Ridge Line and Drop of North-Facing Slope

The ridge of the site has been maintained as pasture land in recent years and is defined on the north side by mature existing hardwoods located on the steep slopes that fall toward the Greencroft Community. To the south, pasture lands wrap around on the east and west sides of the property.

The various structures located around the site enhance the agricultural and equestrian character of the property. Largely utilitarian, many of the structures served as stables, barns and turn-out shelters. In keeping with a farm facility, the structures are sited to take advantage of proximity to their need, topography and orientation relative to other uses, resulting in the creation of a landscape in which the structures feel like an organic outgrowth of the land itself.



Figure 4.17: View at Mid-Point of Site Looking North



Figure 4.18: View of Site from Greencroft Lane



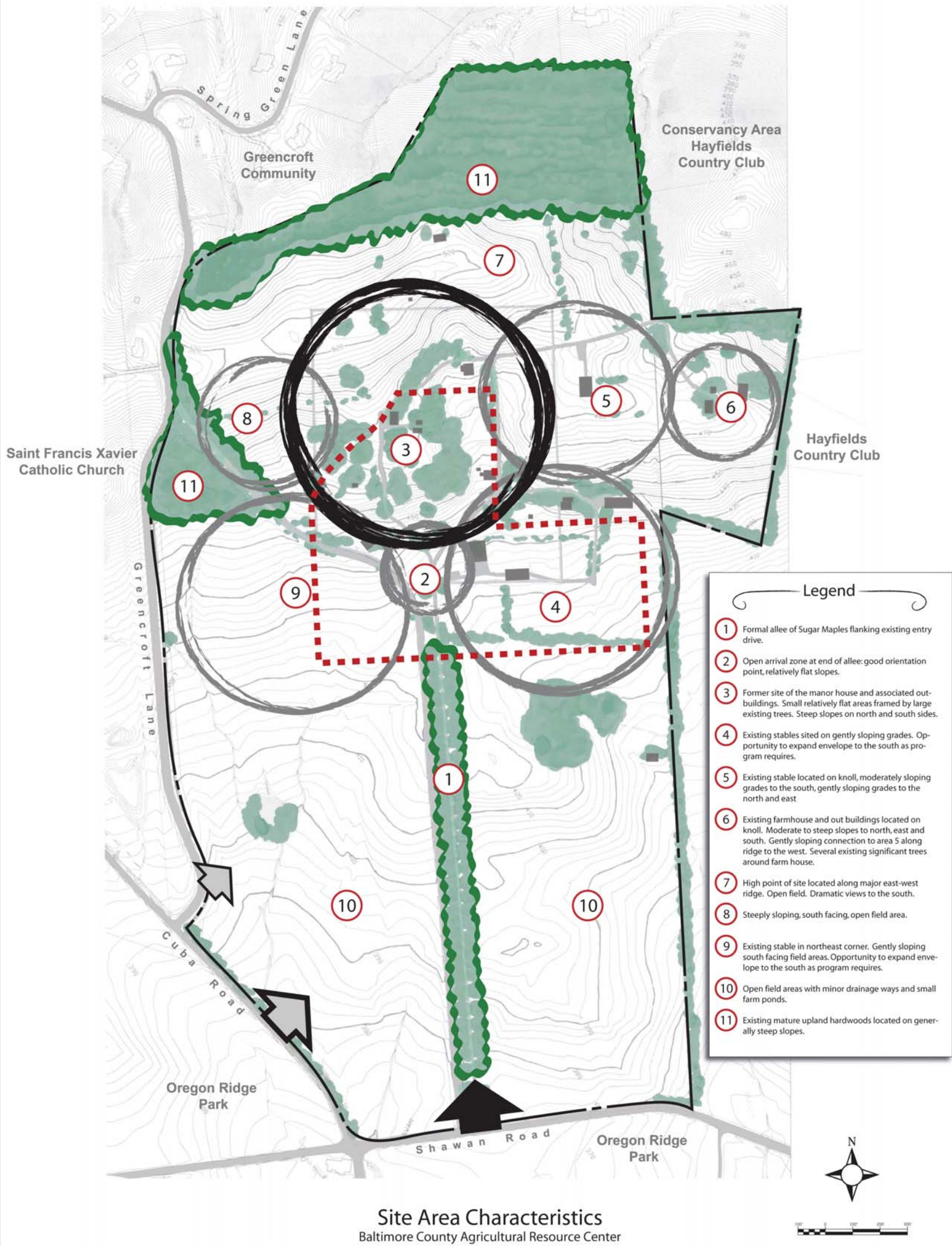


Figure 4.19: Site Area Characteristics Diagram



Soils Analysis

The Soil Survey, Baltimore County, Maryland, March, 1976, identifies the soil types that occur on the BCCMA property. The property occurs mostly within the Manor Glenelg Soil Association, of gently sloping to very steep, deep, well-drained to excessively-well-drain soils that have a subsoil of loam and silty clay loam, underlain by acidic crystalline rocks on uplands. The Baltimore-Conestoga-Hagerstown soil association also occurs in the lower elevations of the site. The table below summarizes the on-site soils.

SOIL SERIES	SYMBOL	HYDRAULIC GROUP	SOIL CONDITION NOTE
Manor Soils, 25%–50% slopes	MdE	B	Wooded
Manor Channery Loam, 15%–25% slopes	McD3	B	Cleared and cultivated, exposed subsoils
Glenelg loam, 3 - 8 % moderately eroded	GcB2	B	Farmed areas
Glenelg loam, 8 –15 % moderately eroded	GcC2	B	Farmed areas
Glenelg loam, 15 - 25 % moderately eroded	GcD2	B	Farmed areas
Glenelg loam, 15 - 25 % severely eroded	GcD3	B	Farmed areas
Hagerstown silt loam, 3 – 8 % slopes, moderately eroded	HaB2	B/C	Limestone valleys of Piedmont
Hagerstown silt loam, 8 - 15 % slopes, moderately eroded	HaC2	B/C	Limestone valleys of Piedmont



Figure 4.20: View Looking South to Entry Road



Figure 4.21: Farmed Areas of Hagerstown Silt Loam, HaB2



Figure 4.22: Farm Areas of Glenelg Loam, GcB2



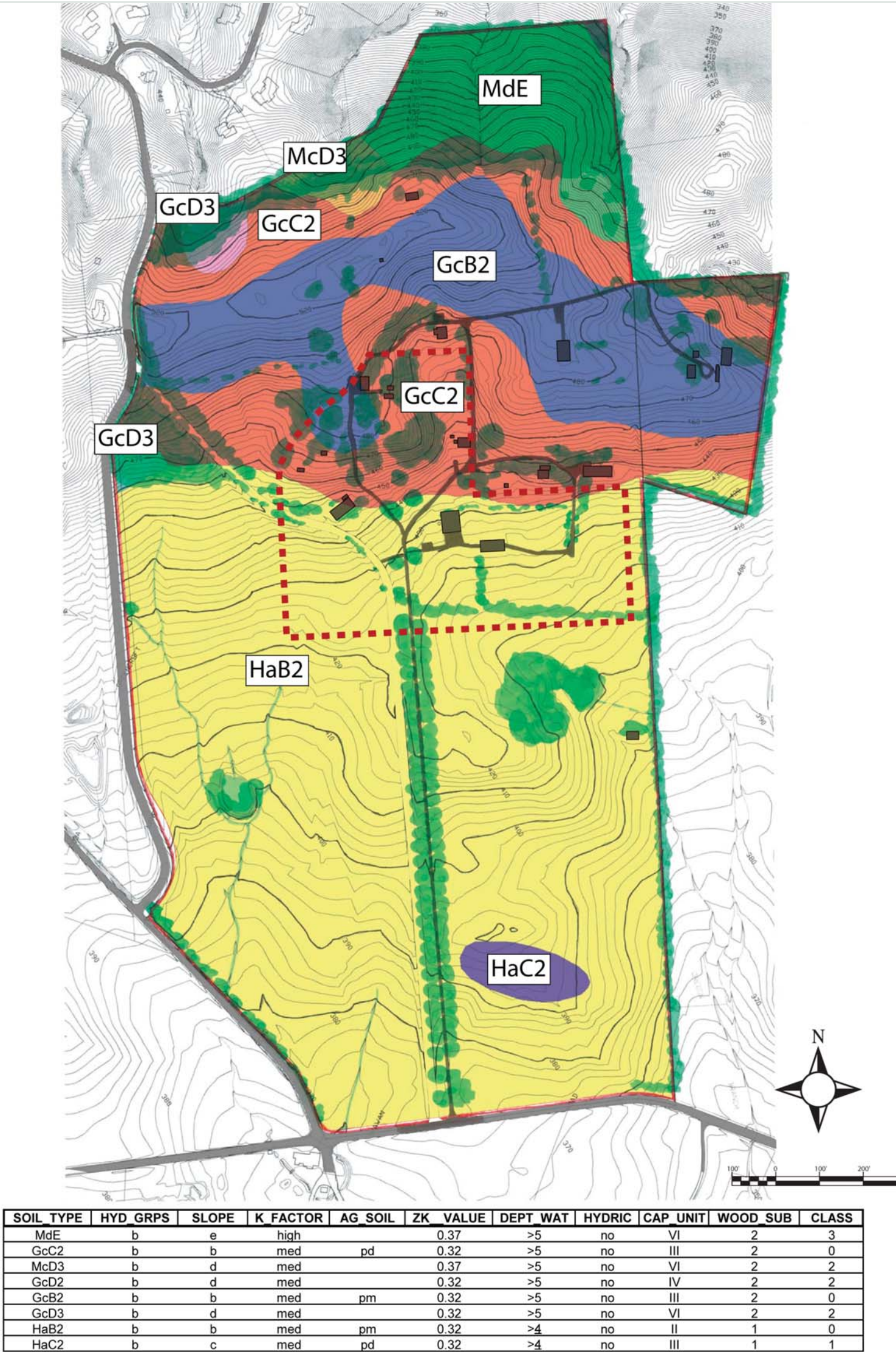


Figure 4.23: Soils Identification Diagram



## Forests and Wetlands

On July & August 2007, BL Companies participated in two environmental field screening inspections for the BCCMA property to identify potential environmental constraints and confirm the environmental features identified in the Baltimore County GIS data.

### Forests and Significant Trees

On-site forests are identified based on interpretation of aerial photographs and confirmed by field observations. The overall acreage of the BCCMA property is 149.3 acres. Seven (7) stands of trees are identified on the property. The on-site tree stands are:

- Forest Stand 1A – This is the large forested area located in the north of the property extending beyond the property boundaries. The on-site area is approximately 11.75 acres.
- Forest Stand 1B – This smaller forested area is located on the northern edge of the “flag lot” area. This stand is contiguous to the same larger off-site riparian forest complex and Forest Stand 1A. Forest Stand 1B is approximately 0.7 acre.
- Forest Stand 2 – This is the triangular forested area defined by Greencroft Lane and the abandoned secondary farm road. This area is scrubby and less mature than Forest Stand 1. Forest Stand 2 is approximately 2.0 acres.
- Forest Stand 3 – This is the small, forested area located within the eastern lower cropped area, near a small formerly ponded wetland. This is a mature stand of large trees. This stand has evidence of old tree protective fencing, which has in some cases grown into the trees and may be harming some trees by girdling. Forest Stand 3 is approximately 1.0 acre.
- Tree Stand 4 – This is a linear stand of mature Sugar Maples located along the entrance drive. Tree Stand 4 consists of approximately 73 trees, of which approximately 38 are greater than 30” dbh (+50%). Tree Stand 4 is approximately 3.8 acres, but averages less than 40 feet wide, and has no understory.
- Tree Stands 5A and 5B – These stands are located within the 20-acre Building Development Envelope and are primarily on steep slopes. Stand 5A is approximately 0.5 acre, located in the center of the existing farm ring road. Stand 5B is approximately 0.4 acre located near the former manor house adjacent to the farm ring road.

Of the site's approximately 149 acre total area, 121.4 acres are subject to additional levels of preservation/conservation easement. Per Baltimore County Forest Conservation code, no additional afforestation/reforestation would be required if the Master Plan for the site were advanced.

The BCCMA property is rich with mature significant trees. Trees over 30” diameter breast height (dbh) were inspected/measured in Areas Of Concern (AOC) to proposed development of the property. There are three AOCs on-site: the 20-acre Building Development Envelope (excluded from the Conservation Easement); the wooded entrance allée; and the immediate vicinity of the deteriorated “Old House”. Individual trees were not assessed in other areas. Within the Building Development Envelope AOC there are 17 trees greater than 30” dbh. Within the wooded entrance allée AOC there are approximately 73 trees, approximately 38 of which are greater than 30” dbh. Fifty-percent of trees within the entrance allée qualify as significant. At the deteriorated “Old House” AOC a +30” dbh Siberian Elm tree is in the immediate vicinity of the structure. If renovation of the dilapidated farmhouse were undertaken, the significant Siberian Elm should be removed or trimmed. Although the Siberian Elm could be protected during construction, the costs of renovating the structure to a usable condition are significant. The inevitable death and collapse of this large past-prime tree could significantly damage the post-renovation structure. Therefore, preserving this tree, in its current state, as a post-renovation feature is not recommended.

Forest Stand Delineation Study, Forest Conservation Plan, and Significant Tree Study were not included in this study. Detailed Forest and Tree Studies will be required in the future as proposed conceptual designs are developed.

### Wetlands and Waters of the United States

The north end of the site drains to the headwaters of several intermittent and ephemeral tributaries that drain to the Western Run watershed and tributaries of Oregon Branch. The forested areas of the northern portion of site contain several tributaries with “bed and bank” and ordinary water lines that would qualify as Waters of the U.S. Those tributaries are subject to the Baltimore County Forest Buffer. No perennial water bodies occur on the BCCMA property.

Two isolated farm pond wetlands occur on the lower central (formerly cropped) portion of the site. Pond 1 is located to the west side of the entrance road. Pond 1 is an isolated emergent shrub/scrub wetland, approximately 0.3 acre in size. This area experiences seasonal saturation and inundation, but does not appear capable of year-round ponding. The pond is a bermed detention structure; the berm is intact and in fair condition, but is subject to rodent burrowing and tree fall damage. Pond 1 contains a vertical outfall overflow pipe in good condition. It is unknown where this pond outlets. However, the inlet of the vertical



Figure 2.24: Tree Stand 4 (Allée of Trees)



Figure 4.25: Tree Stands 5A and 5B



Figure 4.26: Tree Stands 5A and 5B



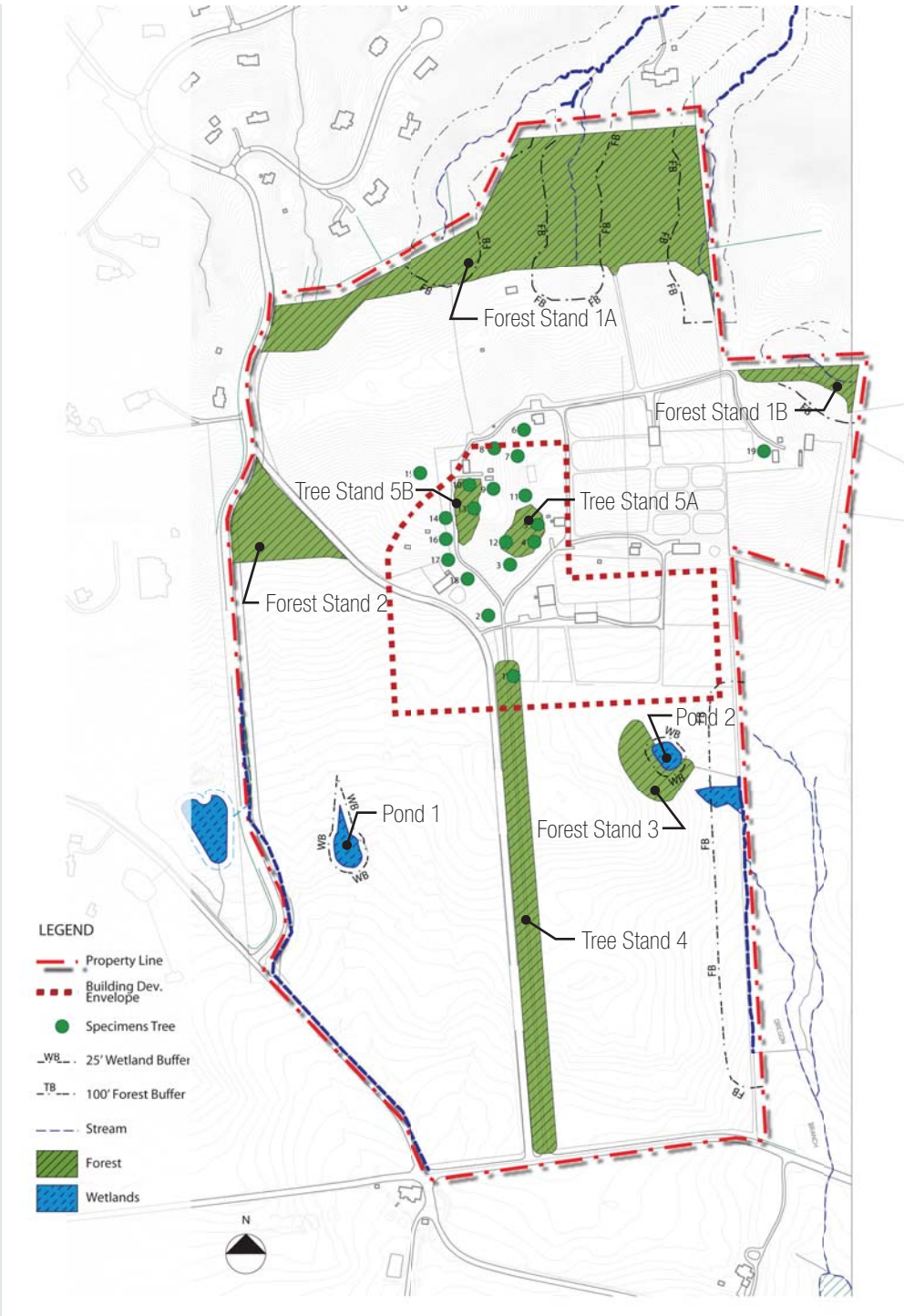


Figure 4.27: Forests and Wetlands Diagram

pipe extends above the berm, so it is unlikely that this outfall has ever functioned properly. Pond 2 is located on the east side of the entrance road. Pond 2 is an isolated emergent/shrub/scrub wetland, less than approximately 0.2 acre in size. Pond 2 is dominated by phragmites. This area also experiences seasonal saturation and inundation. Pond 2 is also a bermed detention structure; however, the berm has breached and overflows when water exceeds 2-foot depth. Pond 2 also contains a vertical outfall overflow pipe in fair condition. The inlet of the vertical pipe also extends above the historic top of berm; it is unlikely that this outfall ever functioned properly.

Both Pond 1 and 2 are isolated with no clear connection to Waters of the U.S. and are subject to the State of Maryland 25-foot non-tidal wetland buffer. In early 2007, a strong groundwater flow was observed extending from the base of the hill (the spring located within the Building Development Envelope) to Pond 2. However, field observations were unable to define a bed-and-bank or other evidence of a seasonal ordinary high water line sufficient to qualify as Waters of the U.S.

The lower portion of the BCCMA property is bounded by intermittent stream channels on the east and west sides. On the west side a small wooded wetland (less than 0.2 acre) is at the headwaters of an intermittent tributary that drains Greencroft Lane, flowing to Cuba Road, under Shawan Road and into perennial Oregon Branch stream. Baltimore County Department of Environmental Protection and Resource Management confirmed that this stream is ephemeral and is not subject to the Baltimore County Forest Buffer.

On the east side of the BCCMA site, drainage flows into an intermittent tributary just beyond the property fence line on the adjacent golf course property. This channel flows southeast, braiding with other intermittent channels to outflow under Shawan Road into a pond on private property then into Oregon Branch stream.

This study did not include a detailed Wetland Delineation Study. Wetland and stream findings are based on Baltimore County GIS data and field verification using principles of the 1987 U.S. Army Corps of Engineers Manual for Wetland Delineation.

## Architectural Attributes

Early in the master planning process, the team identified several key resources on the site that were cultivated and highlighted as part of the BCCMA Master Plan.

### High Point and Ridge Line

The high point of the site is located along the ridge line at an elevation approximately 165 feet above Shawan Road. Having a ridge line located within the property boundaries not only provides sweeping views up and down the Valley and across to Oregon Ridge but also allows for differing agricultural uses requiring a significant difference in slope. This provides opportunities for planning and programming a diverse agriculture center. In the Master Plan, the demonstration vineyard and reforestation area are set back from the high point on the ridge line so that the broad sweeping views across the Valley can be preserved. At the highest point, where the Concrete Cistern exists, a recreation area, overlook, and interpretive water element are suggested.

### Old House

The Old House is a two-story, gable-roofed farmhouse perched prominently at the edge of a knoll overlooking the broad Valley below to the south. It has been identified by preservation staff at the Baltimore County Office of Planning as having historical merit, although this should not be confused with an official local, state, or national historic structure designation. Notwithstanding, the preservation and restoration of the Old House is recommended by both the Office of Planning and the planning team. The Old House contains several notable details, such as mail-order mill-work consistent with detailing popular in the late-nineteenth and early-twentieth centuries (Figure 4.28). It has been an early goal to try to incorporate the Old House into the BCCMA Master Plan.

### Cottage

The Cottage is a one-story, wood-frame building sited north of the site of the former manor house. As advised by the preservation staff of the Office of Planning, further evaluation would be necessary to try to establish its construction period and usage, but its style and location on the site seem to indicate that it dates

to the late-nineteenth century and was possibly used as servant housing. The preservation and restoration of the Cottage is recommended by both the Office of Planning and the planning team. The Cottage contains several notable details, such as a simple east-west gable roof with a small cupola, two 6-over-6 sash windows, and a paneled door. It has been an early goal to try to incorporate the Cottage into the BCCMA Master Plan.

### Site of Mount Pleasant Manor House

The Mount Pleasant Farm manor house was located on a prime portion of the site characterized by moderately sloping land and was sited to take advantage of the south-facing slope and views across the Valley to Oregon Ridge. Over time, the buildings of the manor house, its outbuildings, and maturing landscape created an intimate, human-scaled environment that contrasts with the wide open agriculture fields at the lower portion of the site. The Mount Pleasant Farm manor house itself, unfortunately, burned down in the 1970s, but what remains of the surrounding structures and landscape is still highly walkable and corporeal. For this reason, it has been an early goal to incorporate the manor house site into the BCCMA Master Plan.

### Stone Fencing

Near the Corn Crib and Small Barn stands the remainder of a stone fence that straddled the farm road that connects the larger barn to the east with the aforementioned support structures to the west. There is similar fieldstone work near the Cottage. Low fieldstone walls are common on farms in Baltimore County where small amounts of soil need to be retained or where significant landscapes or structures on a farm are given special detail and importance. This particular stone fence might be restored and maintained, but fieldstone should be used as a landscape and building material at the BCCMA site.

### Corn Crib

The Corn Crib is a one-story, wood-frame structure that is designed to store and dry-out harvested corn stalks that will be used for animal feed. The proportions, access doors, hatches, materiality, and overall authentic design of the structure are recognized as a valuable resource for the BCCMA. While the Corn



Figure 4.28: Detail of Stair in Old House



Figure 4.29: Allée of Sugar Maples





Figure 4.30: Architectural Attributes Diagram

Crib is not mentioned in the historic resources memorandum issued by the Baltimore County Office of Planning, the planning team recommends incorporating it into the BCCMA Master Plan.

**Rolling Fields**

The lower area of the BCCMA property slopes gently at a 4% to 8% incline to the north away from Shawan Road. In total, the site rises approximately 70 feet in elevation from Shawan Road to the midpoint of the property near the end of the existing allée of trees. The gentle-sloping topography and open agricultural use of the land offers long, sweeping views across the lower fields. The front fields of the site have most recently been used for growing hay and turning-out horses. The effect of the rolling agricultural fields is dramatic; therefore, retaining the openness of the rolling fields is a goal of the BCCMA Master Plan.

**Allée of Sugar Maples**

The allée is a double row of large mature Sugar Maples located along the entry drive to the site (Figure 4.29). Technically, this tree stand consists of approximately 73 trees, covering approximately 3.8 acres, averaging less than 40 feet wide, and having no understory. The entry drive and allée bisect the rolling fields. This tree-lined drive provides a strong sense of arrival and is an iconic element worthy of preservation. Therefore, incorporating the Sugar Maple allée has been a goal of the master planning effort of the BCCMA from the beginning.

More information on the featured Architectural Attributes of The Baltimore County Center for Maryland Agriculture site can be found throughout this document, particularly in the Site Analysis and Master Plan sections.

## Architectural Challenges

Early in the master planning process, the team identified several key contextual challenges on the site that were considered in the BCCMA Master Plan.

### Slopes Greater Than 15%

The front fields of the site gently roll at a 4% to 8% incline away from Shawan Road. From the mid-point of the site, however, the grades climb more steeply to a ridge line toward the back of the property. The grades on this slope range from 10% to 16% with a small relatively level area half way up the slope that was the location of the former Mount Pleasant Farm manor house and associated support facilities. These steep slopes are challenging for road construction and large footprint structures; therefore, it was decided early-on in the schematic design phase of the Master Plan to avoid placing buildings or agricultural plots on the steepest slopes of the site. This has the combined effect of maintaining the mature landscape that is established on these steeper slopes. This early decision-making also led to the reconfiguration of the Building Development Envelope, as described on page 27 of this Report.

### Allée of Sugar Maples

An allée is a feature of the French formal garden consisting of pairs of often spectacular specimen trees planted along a promenade. Views extend in both directions. In the United States, the allée feature is often used on agricultural properties such as farms—particularly gentlemen's farms and Southern plantations—for dramatic effect. The BCCMA allée is primarily comprised of large mature Sugar Maples located along the entry drive to the site. This drive provides a strong sense of arrival and is an iconic element worthy of preservation; however, the trees have suffered from deferred maintenance, and they bisect the front fields. Because of these reasons the allée is considered both an attribute and a challenge. Because the preservation of the trees takes priority, a tree management program should be established for maintaining the health and longevity of the Sugar Maples.

### Single Access Point

As Mount Pleasant Farm, the site had at least two primary access points: at Shawan Road and at Greencroft Lane. Over time,

Greencroft Lane became a private road, and the access point was fenced off and became overgrown. Restoring this connection is not an option. There is, therefore, only a single access point to the BCCMA site. Currently it consists of the original, narrow farm lane between the allée of trees and a parallel curb-and-gutter road. It is the latter road that has been considered for reuse since the beginning of the project. The farm lane will be decommissioned as a measure to preserve the Sugar Maples. It was assumed that an additional access point would be needed to serve the site, as reflected in the traffic analysis section of this Report. The single access point remains a challenge of the project.

Other, non-paved types of connections to adjacent properties are a high-priority goal of The Baltimore County Center for Maryland Agriculture. The most viable and logical connection is with Oregon Ridge Park and Nature Center.

### Boundaries

Oregon Ridge Park and Nature Center hosts a variety of exciting programs, a few of which might overlap with the BCCMA. Both the honey harvesting and maple sugaring programs, for example, could host sessions at the BCCMA, but pedestrian trail hiking has the most direct and physical connection. Oregon Ridge Park has nine different hiking paths that total almost six miles of trails. It is proposed that these trails be connected to the recreational pedestrian trails at the site to extend the trail offerings and experiences in Baltimore County.

The other adjacent property lines, however, are considered hard boundaries. The BCCMA site plan will not connect to Greencroft Community, Hayfields Country Club, or St. Francis Xavier Catholic Church.

More information on the featured Architectural Challenges of The Baltimore County Center for Maryland Agriculture site can be found throughout this document, particularly in the Site Analysis and Master Plan sections.



Figure 4.31: Shawan Road Access Point to Site



Figure 4.32: Sloped Topography in Building Development Envelope



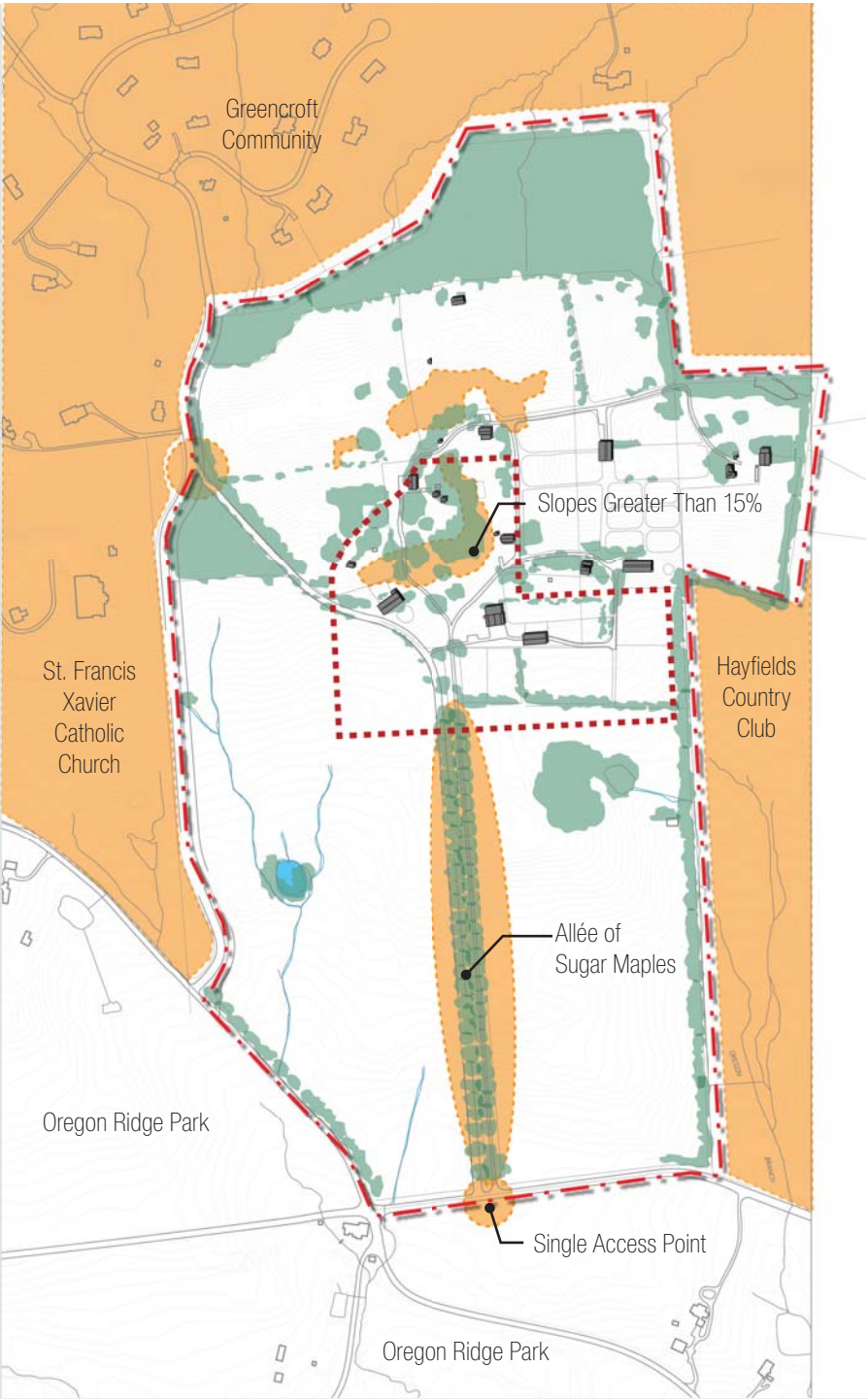


Figure 4.33: Architectural Challenges Diagram



# 4-site analysis

## structural assessment of existing buildings

### Structural Assessment

On August 2, 2007, structural engineering consultant BL Companies and Beyer Blinder Belle performed a structural assessment site visit to the site of the proposed Baltimore

County Center for Maryland Agriculture. The purpose of the visit was to review the condition of the existing structures on site. The following is the assessment of the existing structures. All structures were designated a building letter and name (Figure 4.37). Twenty-one (21) existing structures were assessed.



#### A. Spring House

The Spring House is a one-story, one-room, wood-framed structure with a full basement comprised of CMU walls. The wood sheathing of both the roof and floor are severely deteriorated (Figure 4.34) and several of the 2x8 floor joists and 2x6 roof joists are also rotted. The CMU basement walls are most likely un-reinforced and have experienced significant movement and cracking (Figure 4.35). The structure is in poor condition and not recommended for re-use.

**Structural Status:** Poor

**Candidate to Reuse:** No

**Potential to Reuse:** No

**Original Use:** Spring House

**Current Use:** Vacant

**Proposed Use:** None

**Number of Floors:** 1

**Total Area:** 311 SF

**Footprint Dimensions:**  
16.9' x 18.4'



#### B. Barn

The Barn was likely built in multiple stages. There is a full basement that is open and at grade on two sides of the building with foundation retaining walls on the other two sides. One of the foundation walls is comprised of stone and the other appears to be un-reinforced masonry that has experienced some lateral displacement near the top of the wall (Figure 4.36). The floor above the basement is at grade on one side and framed with a combination of rough sawn timbers and dimensioned lumber supporting a plywood deck. The roof above is framed with 2x trusses supporting plywood sheathing. One end of the building appears to be an addition framed entirely out of dimensioned lumber. The floor in this area has a significant pitch, as it appears the footings of the 4x4 posts supporting the floor have settled relative to the remainder of the building. The structure is in fair condition and could be re-used with extensive renovations.

**Structural Status:** Fair

**Candidate to Reuse:**  
Yes, with extensive renovations

**Potential to Reuse:** No

**Original Use:** Barn

**Current Use:** Vacant

**Proposed Use:** None

**Number of Floors:** 1.5

**Total Area:** 2,754 SF

**Footprint Dimensions:**  
31.6' x 58.1'



Figure 4.34: Spring House (A)



Figure 4.35: Spring House (A)



Figure 4.36: Barn (B)



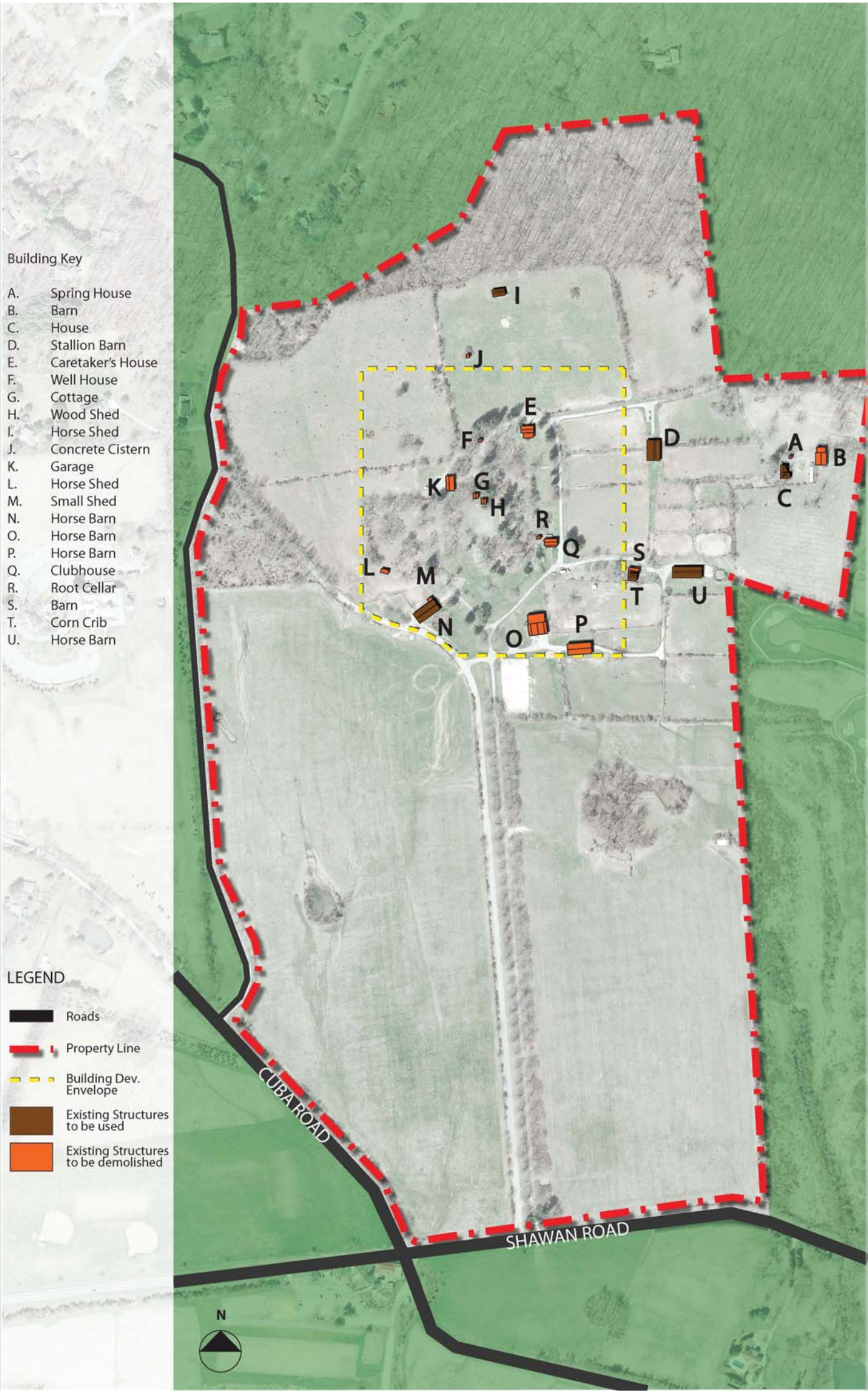


Figure 4.37: Existing Structures Map





C. House

The House is a two-story, wood-frame structure with a small partial basement that sits on a stone foundation. The front and side porches of the house have collapsed and should be dismantled and removed. There are several holes in the roof and many of the roof members have deteriorated beyond repair and need to be replaced (Figure 4.38). As a result of the compromised roof there is evidence of water damage throughout the framing of the second floor (Figure 4.39). In one area of the second floor framing there is evidence of fire damage adjacent to what appears to be an abandoned chimney. Lastly, there is evidence of animal dens in the partial basement and the stair from the ground floor to the second floor was littered with animal feces. Although the structure is in poor condition, there are no major sags in the floors or main roof structure. In order for the structure to be re-used it would have to be stripped down to the wall studs and floor joists with each element examined and repaired as required. The floor framing is acceptable for residential use but would not be appropriate for public gatherings without introducing new framing elements.

Structural Status: Poor

Candidate to Reuse:  
Yes, with extensive renovations;  
Residential use only

Potential to Reuse: Yes

Original Use: Farmhouse

Current Use: Vacant

Proposed Use:  
Farm Manager's Residence

Number of Floors: 2

Total Area: 2,052 SF

Footprint Dimensions:  
23.1' x 44.4



D. Stallion Barn

The Stallion Barn is a two-story, wood-frame barn. The roof of the barn is framed with 2x trusses that span the width of the barn and bear on (2)-2x8 beams (Figure 4.40). The 2x8 beams span 8 ft. between 6x6 posts that bear on concrete footings. Although the exterior wood siding is rotted and requires repair in some locations, the structure's framing elements are in good condition and may be re-used.

Structural Status: Good

Candidate to Reuse:  
Yes, with minor repairs

Potential to Reuse: Yes

Original Use: Stallion Barn

Current Use: Vacant

Proposed Use:  
DEPRM Community  
Reforestation Nursery

Number of Floors: 1

Total Area: 2,838 SF

Footprint Dimensions:  
40.2' x 70.6'



Figure 4.38: House (C)



Figure 4.39: House (C)



Figure 4.40: Stallion Barn (D)





### E. Caretaker's House

The Caretaker's House is a one-and-one-half story, vinyl-sided structure. It has a partial basement accessible from an exterior bulkhead with foundation walls comprised of both stone and CMU. The CMU foundation wall has diagonal settlement cracks adjacent to the bulkhead access. The first floor framing, visible from the partial basement below, consists of wood decking on 2x floor joists that bear on the exterior foundation walls and one interior wood beam. Although the roof framing was not visible, it likely consists of 2x rafters and ceiling joists. The structure is in fair condition and may be re-used; however, there is evidence of termite damage at the front door frame and a rear window frame.

<b>Structural Status:</b> Fair	<b>Original Use:</b> Caretaker's House	<b>Number of Floors:</b> 1.5
<b>Candidate to Reuse:</b> Yes, with minor repairs	<b>Current Use:</b> Vacant	<b>Total Area:</b> 1,440 SF
<b>Potential to Reuse:</b> Yes	<b>Proposed Use:</b> Intern Farmer Housing	<b>Footprint Dimensions:</b> 32.6'/35.7' x 37.1' + 10.9'/8.8' x 20.0'



### F. Well House

The Well House consists of a concrete pit below grade with un-reinforced CMU walls above grade and 2x roof rafters with plastic decking. The structure is in fair condition and may be re-used if the roof is replaced and the significant cracks in the CMU walls are repaired.

<b>Structural Status:</b> Fair	<b>Original Use:</b> Well House	<b>Number of Floors:</b> 1
<b>Candidate to Reuse:</b> Yes, with repairs	<b>Current Use:</b> Vacant	<b>Total Area:</b> 16 SF
<b>Potential to Reuse:</b> No	<b>Proposed Use:</b> None	<b>Footprint Dimensions:</b> 4.0' x 4.0'



### G. Cottage

The Cottage is a one-story, wood-frame structure with some historic significance as determined by the Baltimore County Office of Planning. The east-west gable roof consists of newer oriented strand board laid over the original planks on 2x rafters supported by 2x stud walls. The original foundation appears to be stone that was in-filled with concrete at a later date when a concrete slab-on-grade was poured. The structure is in fair condition and may be re-used with minor renovations.

<b>Structural Status:</b> Fair	<b>Original Use:</b> Servant or Tenant Housing	<b>Number of Floors:</b> 1
<b>Candidate to Reuse:</b> Yes, with minor repairs	<b>Current Use:</b> Vacant	<b>Total Area:</b> 399 SF
<b>Potential to Reuse:</b> Yes	<b>Proposed Use:</b> Master Gardeners' Shed	<b>Footprint Dimensions:</b> 28.5' x 14.0'



H. Wood Shed

The Wood Shed is a one-story, wood-frame structure. The shed roof consists of planks on wood rafters supported by 2x stud walls. The stud walls bear on a concrete curb and at the perimeter of a dirt floor. There are three tie struts that resist the lateral thrust of the roof framing and load-bearing stud walls, one at each end wall and one in the center. The center tie strut has failed; likely from supporting a vertical load it was not intended to carry. The shed is in fair condition and may be re-used with minor repairs; however, the failed tie strut should be repaired as soon as possible.

**Structural Status:** Fair

**Candidate to Reuse:** Yes, with minor repairs

**Potential to Reuse:** No

**Original Use:** Farm Shed

**Current Use:** Vacant

**Proposed Use:** None

**Number of Floors:** 1

**Total Area:** 216 SF

**Footprint Dimensions:** 18.0' x 12.0'



I. Horse Shed

The Horse Shed is a wooden shed with metal siding. It is open on one side and has a metal roof supported by 2x trusses at 4 ft. on center. The roof trusses span between 2x beams supported by wood poles. The shed is in fair condition and may be re-used.

**Structural Status:** Fair

**Candidate to Reuse:** Yes

**Potential to Reuse:** No

**Original Use:** Run-In Shed

**Current Use:** Vacant

**Proposed Use:** None

**Number of Floors:** 1

**Total Area:** 977 SF

**Footprint Dimensions:** 40.2' x 24.3'



J. Concrete Cistern

The Concrete Cistern is a tank structure primarily below grade with two access hatches. The concrete is in fair condition with some localized cracking and spalling (Figure 4.41). If the tank is watertight it may be re-used with minor repairs.

**Structural Status:** Fair

**Candidate to Reuse:** Yes, with minor repairs

**Potential to Reuse:** Yes

**Original Use:** Cistern

**Current Use:** Inactive

**Proposed Use:** Reactivate the Cistern and/or Create a Scenic Overlook

**Number of Floors:** 1

**Total Area:** Unknown

**Footprint Dimensions:** Unknown





K. Garage

The Garage is a 1.5 story, 4-car garage. Its roof consists of wood planks on 2x6 rafters at 2 ft. on center supported by a CMU wall at the back and 2x beams spanning between 6x6 posts at the front overhead doors (Figure 4.42). There is a noticeable sag in the roof that coincides with a damaged post between two of the overhead doors (Figure 4.43). The post was likely struck by a vehicle, and should be repaired. The floor of the garage is a concrete slab on grade with some settlement cracks. The structure of the garage is in fair condition and may be re-used with minor repairs.

Structural Status: Fair

Candidate to Reuse: Yes, with minor repairs

Potential to Reuse: No

Original Use: Garage

Current Use: Vacant

Proposed Use: None

Number of Floors: 1.5

Total Area: 1,808 SF

Footprint Dimensions: 24.7' x 48.6'



L. Horse Shed

The Horse Shed is a wood structure with metal siding. It is framed with 2x members supported by 6x6 posts. The roof and siding of the shed consists of corrugated metal panels. One side of the shed is open and there is a dirt floor. The shed is in fair condition and may be re-used.

Structural Status: Fair

Candidate to Reuse: Yes

Potential to Reuse: No

Original Use: Horse Run-In Shed

Current Use: Vacant

Proposed Use: None

Number of Floors: 1

Total Area: 276 SF

Footprint Dimensions: 23.0' x 12.0'



Figure 4.41: Concrete Cistern (J)



Figure 4.42: Garage (K)



Figure 4.43: Garage (K)



### M. Small Shed

The Small Shed is a prefabricated structure in fair condition and may be re-used.

**Structural Status:** Fair  
**Candidate to Reuse:** Yes  
**Potential to Reuse:** No

**Original Use:** Shed  
**Current Use:** Vacant  
**Proposed Use:** None

**Number of Floors:** 1  
**Total Area:** 180 SF  
**Footprint Dimensions:** 18.0' x 10.0'



### N. Horse Barn

The Horse Barn is a two-story, wood-framed barn. The roof, loft floor, and siding of the barn consist of plywood sheathing on wood framing. Four lines of 6x6 posts, one line along each of the exterior walls and two interior lines, support the barn structure. The roof is framed with 2x6 rafters at 2 ft. on center that span between (2)-2x10 beams along each of the four lines of posts. The loft floor is framed with 2x8 joists at 2 ft. on center that span between (3)-2x8 beams along each of the four lines of posts (Figure 4.44). The outer bays of the barn have a dirt floor while the center bay is paved asphalt. The structure of the barn is in good condition and may be re-used.

**Structural Status:** Good  
**Candidate to Reuse:** Yes  
**Potential to Reuse:** Yes

**Original Use:** Horse Barn  
**Current Use:** Hay and Equipment Storage  
**Proposed Use:** None

**Number of Floors:** 2  
**Total Area:** 5,951 SF  
**Footprint Dimensions:** 82.2' x 36.2'



### O. Horse Barn

The Horse Barn is a two-story, block-and-frame structure. It was built in two stages, with the front and back of the barn consisting of the newer and older construction, respectively. The perimeter walls in the front section consist of CMU while they are 2x stud walls at the rear. There are interior, partial height CMU walls creating horse stalls throughout the barn. The front section of the barn has a storage loft consisting of plywood on 2x joists spanning between the exterior CMU walls and four lines of W-shape steel beams. The steel beams span between 3 rows of steel pipe columns. The roof of the newer, front section of the barn consists of 2x trusses spanning between 2x4 cripple walls that bear on the first interior line of steel beams below (Figure 4.45). The roof of the older, rear section of the barn consists of a barrel-arch section supported by glue-laminated timbers (Figure 4.46). There is a lattice of tie struts and tension struts to resist the lateral thrust of the arched roof. Throughout both section of the barn there is evidence of water damage. This structure is in fair condition and may be re-used with minor repairs and renovations.

**Structural Status:** Fair  
**Candidate to Reuse:** Yes, with minor repairs and renovations  
**Potential to Reuse:** No

**Original Use:** Horse Barn  
**Current Use:** Horse Barn  
**Proposed Use:** None

**Number of Floors:** 2  
**Total Area:** 9,141 SF  
**Footprint Dimensions:** 60.3' x 75.8'





P. Horse Barn

The Horse Barn is a two-story, wood-frame structure. The framing of this structure is identical to the barn described above in Section N. Similar to the previous barn, this structure is in good condition and may be re-used.

Structural Status: Good

Candidate to Reuse: Yes

Potential to Reuse: No

Original Use: Horse Barn

Current Use: Horse Barn

Proposed Use: None

Number of Floors: 2

Total Area: 5,951 SF

Footprint Dimensions: 82.2' x 36.2'



Q. Clubhouse

The Clubhouse is a two-story, block-and-vinyl sided house. Very little of the structure is visible as it is covered with paneling and drywall. The wood framed house is likely constructed of 2x elements with plywood floors, roof, and siding. There is evidence of water damage along the basement wall below the wood-framed, exterior deck, which may require either a modification in the exterior grade or the installation of a drainage system. The house framing that is visible appears to be in fair condition and may be re-used with minor repairs. Adjacent to the house are two prefabricated sheds that also appear to be in fair condition.

Structural Status: Fair

Candidate to Reuse: Yes, with minor repairs

Potential to Reuse: No

Original Use: Garage

Current Use: Vacant

Proposed Use: None

Number of Floors: 2

Total Area: 2,468 SF

Footprint Dimensions: 40.6' x 30.4'



Figure 4.44: Horse Barn (N)



Figure 4.45: Horse Barn (O)



Figure 4.46: Horse Barn (O)





R. Root Cellar

The Root Cellar structure consists of stone foundation walls with a cast-in-place stair providing access to the below grade space (Figure 4.47). The ceiling of the cellar consists of a concrete slab and beams. The structure is in fair condition with some spalled concrete and exposed steel reinforcement in the slab above (Figure 4.48) that should be repaired if the structure is to be re-used.

**Structural Status:** Fair

**Candidate to Reuse:**  
Yes, with minor repairs

**Potential to Reuse:** No

**Original Use:** Root Cellar

**Current Use:** Vacant

**Proposed Use:** None

**Number of Floors:** 1

**Total Area:** Unknown

**Footprint Dimensions:**  
Unknown



S. Barn

The Barn was a wood-frame structure that had partially collapsed. The 2x stud wall of the barn had failed and leaned or lunched against the adjacent corncrib (Figure 4.49). The partially collapsed barn presented a life-safety issue and the collapsed structure was dismantled and removed.

**Structural Status:** Failed

**Candidate to Reuse:** No

**Potential to Reuse:** No

**Original Use:** Barn

**Current Use:** Demolished

**Proposed Use:** None

**Number of Floors:** 1

**Total Area:** 503 SF

**Footprint Dimensions:**  
34.2' x 14.7'



Figure 4.47: Root Cellar (R)



Figure 4.48: Root Cellar (R)



Figure 4.49: Barn (S)





T. Corn Crib

The Corn Crib is a wood-frame structure. The corncrib structure has sustained localized, cosmetic damage to its roof and siding where the partially collapsed barn (described in Section S) was resting but appears to be structurally sound and may be re-used.

<b>Structural Status:</b> Fair	<b>Original Use:</b> Corn Crib	<b>Number of Floors:</b> 1
<b>Candidate to Reuse:</b> Yes	<b>Current Use:</b> Vacant	<b>Total Area:</b> 935 SF
<b>Potential to Reuse:</b> Yes	<b>Proposed Use:</b> Demonstration Corn Crib	<b>Footprint Dimensions:</b> 35.0' x 26.7'



U. Horse Barn

The Horse Barn is a two-story, block with vinyl siding structure. The roof of this barn is framed with 2x trusses spanning between 2x4 cripple walls that bear on the perimeter CMU wall below. In addition to the perimeter CMU walls, there are two interior load-bearing CMU walls along the length of the barn that create a center hall with stalls on each side. The storage loft framing consists of plywood on 2x10 joists spanning between the CMU walls below. The structure of this barn is in fair condition and may be re-used with the following items repaired. There are several holes in the roof that have led to the deterioration of wood framing elements that need to be replaced (Figures 4.50 and 4.51). The plywood of the storage loft has sagged in several locations and may need to be replaced. Lastly, there appears to be some localized termite damage at one of the end storage loft doors (Figure 4.52).

<b>Structural Status:</b> Fair	<b>Original Use:</b> Horse Barn	<b>Number of Floors:</b> 2
<b>Candidate to Reuse:</b> Yes, with minor renovations	<b>Current Use:</b> Horse Barn	<b>Total Area:</b> 7,500 SF
<b>Potential to Reuse:</b> Yes	<b>Proposed Use:</b> Horse or Livestock Barn	<b>Footprint Dimensions:</b> 100.0' x 37.5'



Figure 4.50: Horse Barn (U)



Figure 4.51: Horse Barn (U)



Figure 4.52: Horse Barn (U)





# 5-traffic

## Introduction

As part of the master planning effort, Baltimore County requested a traffic study to address the circulation and movement of traffic on the proposed site for The Baltimore County Center for Maryland Agriculture as well as the immediate roadways serving the facility that will provide access to the site. The traffic analysis to be performed for the site, located north of Shawan Road between I-83 and Cuba Road, was to evaluate the traffic forecasts, site parking requirements, and site access point intersection improvements. A location map of the study area is below (Figure 5.01).

The proposed site access points are located along Shawan Road, approximately 350' east of Cuba Road, and along Cuba Road, south of Greencroft Lane. Shawan Road is a two-lane two-way arterial roadway with a posted speed limit of 40 miles per hour.

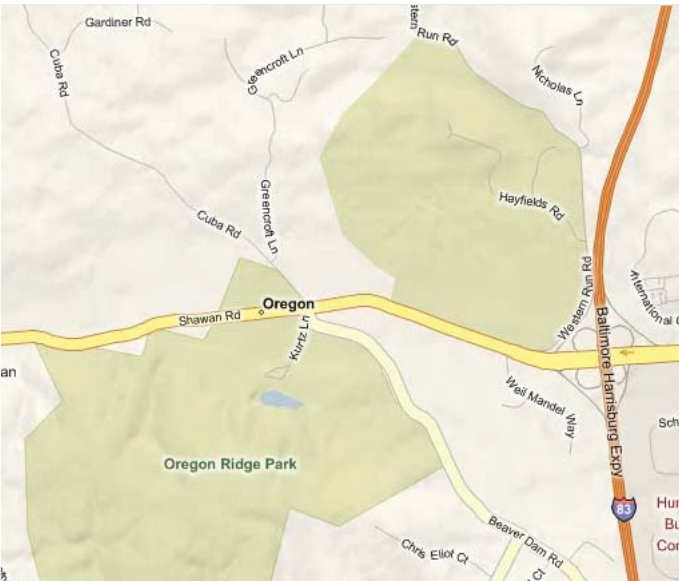


Figure 5.01: Location Map

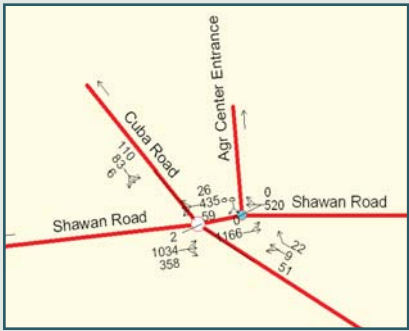


Figure 5.02: AM Existing Peak Hour Traffic Volumes

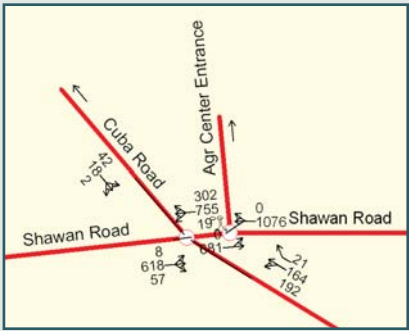


Figure 5.03: PM Existing Peak Hour Traffic Volumes

## Existing Conditions Analysis

Existing peak hour traffic volumes from a May 2007 count at the signalized intersection of Shawan Road and Cuba Road were provided by Baltimore County and are illustrated above (Figures 5.02 and 5.03).

A capacity analysis was performed for the existing conditions using the Highway Capacity Manual (HCM) methodology. Level of service is defined by the HCM as a “qualitative measure describing operational conditions within a traffic stream”. Levels of service range from ‘A’ to ‘F’ where A represents optimal conditions and F represents saturated or failing conditions. The volume-to-capacity ratio (v/c ratio) is the ratio of current flow rate to the capacity of the intersection. This ratio is often used to determine how sufficient capacity is on a given roadway. Generally speaking, a ratio of 1.0 indicates that the roadway is operating at capacity. A ratio of greater than 1.0 indicates that the facility is failing as the number of vehicles exceeds the roadway capacity.



Table 5.01:  
Summary of Existing Intersection Capacity – AM (PM)

Intersection	Level of Service	Volume-to-Capacity Ratio	Average Vehicle Delay (seconds)
Shawan Road and Cuba Road	D (D)	1.05 (0.99)	49.6 (37.7)

1. Source: Baltimore County Zoning Regulations Article 4, Section 409 Off-Street Parking and Loading
2. Offices includes core facility, Maryland Horse Breeders, and future space to be leased
3. Library / Museum includes Maryland Horse Breeders Museum and Farm Life Agricultural Museum
4. Vet Clinic includes offices and clinic space. Does not include horse barn.
5. Amphitheater includes demonstration area (50 seats) and indoor arena (70 seats)

Table 5.02:  
Summary of Parking Generation Analysis

Land Use (Variable)	Development Intensity	Zoning Requirement	ITE Parking 50th (85th) percentile demand	Variable Multiplier	Number of Required Spaces	Peak Parking Period
A - Office (1000 SF)* <sup>1, 2</sup>	24.5	3.3 spaces per 1K SF	2.8 (3.4) spaces per 1K SF	3.3	81	weekday
B - Library/ Museum (1000 SF)* <sup>3</sup>	10	2 spaces per 1K SF	2.6 (4.2) spaces per 1K SF	2	20	weekday
C - Vet Clinic (1000 SF)* <sup>1, 4</sup>	8.6	4.5 spaces per 1K SF	4.5 (4.75) spaces per 1K SF	4.5	39	weekday
D - Demonstration Theater (seats)* <sup>5</sup>	120		0.25 (0.3) spaces per seat	0.25	30	weekday
E - Classrooms (Students)	120		0.3 (0.4) spaces per student	0.2	24	weekday
Subtotal On-Site Parking					194	
Festivals/ Markets (25 vendors, 2X per week up to 500 visitors)	—	1 space per 2 visitors			275	weekday
Subtotal Overflow On-Site Parking					275	
Farm Fairs (100 vendors up to 1,000 visitors)	—	1 space per 2 visitors/ vendors			550	weekend
Subtotal Overflow Off-Site Parking					550	

The existing capacity and level of service for the Shawan Road and Cuba Road intersection is summarized above (Table 5.01). The intersection performs at a level of service D in both AM and PM peak hours.

Future Conditions Analysis – Parking Projections

Parking projections for the Agricultural Center are based on the requirements outlined in Article 4 Section 409 of the Baltimore County Zoning Code, as well as data on parking demand from the Parking Generation Handbook, 3rd Edition, published by the Institute of Transportation Engineers. The core site land use categories including Office (A), Library/ Museum (B), Vet Clinic (C), Demonstration Theater (D), and Classrooms (E) were considered in the analysis, as well as special events such as festivals/ markets and farm fairs. The Baltimore County code was compared to 50th percentile and 85th percentile ITE parking demand rates, as well as peak time period of parking demand.

The results of the parking generation analysis are summarized above (Table 5.02), and indicate that approximately 194 parking spaces would be required for cars, and between 275 to 550 overflow parking spaces would be required for special events. The overflow parking could be on-site on a grass or gravel lot or off-site at the adjacent Oregon Ridge Park. Parking for buses and/ or trailers should be calculated at one bus/ trailer space for every three passenger car spaces.

Future Conditions – Traffic Volumes

Projecting the number of new vehicular trips generated by a proposed development is the most critical aspect of assessing traffic impact. The objective of a trip generation analysis is to forecast the number of new trips that will begin or end at a

proposed land use. A primary source for data on vehicular trip generation is the Trip Generation Handbook published by the Institute of Transportation Engineers. The Handbook compiles data from numerous studies of trip rates at hundreds of specific types of land use categories such as recreational, residential, commercial, office, institutional, and industrial throughout the country. The data is sorted by various time periods such as morning and evening peak hour, and plotted against independent variables for specific land use categories such as square feet of commercial space, number of hotel rooms, number of dwelling units, etc. The data is presented in chart format with mean averages, standard deviations, and fitted curve linear regression equations, where enough data is available.

Using the ITE Trip Generation Manual, 7th Edition (2003) peak hour trip generation rates were determined based on the future land use categories. The average number of vehicle trip ends and percentage of entering and exiting volumes were calculated. Again, the Core Office (A), Library/ Museum (B), Vet Clinic (C), Demonstration Theater (D), and Classrooms (E) were selected. Projected weekday trip generation is summarized on the following page (Table 5.03).

The results of the trip generation analysis forecast approximately 197 total new vehicle trips during the AM peak hour and 297 new vehicle trips during the PM peak hour. It should be qualified that this analysis assumes a full use of the core facility, including concurrent or overlapping meetings, seminars, educational events, office and service staff, etc. on a typical weekday. Traffic volumes for special non-regularly recurring events such as festivals, farm fairs, banquet or award dinners, while recognized to be greater than typical weekday use of the facility, are not forecasted as the site access point design should be based on typical weekday traffic patterns.

1. Offices includes core facility, Maryland Horse Breeders, and future space to be leased  
2. Library Museum includes Maryland Horse Breeders and Museum and Farm Life Agricultural Museum  
3. Vet Clinic includes offices and clinic space. Does not include horse barn.

Table 5.03:  
Summary of Projected Agricultural Center Weekday Trip Generation

Proposed Land Use	ITE Land Use Code	Avg. Veh Trip Ends vs.:	Variable #	RAW AM New Vehicle Trip Ends				RAW PM New Vehicle Trip Ends			
				Entering		Exiting		Entering		Exiting	
A - Office (Core Facility)* <sup>1</sup>	710	1000 Sq. Feet GFA	24.5	61	88% 54	12% 7		106	17% 18	83% 88	
B - Library / Museum* <sup>2</sup>	590	1000 SF	10	8	72% 6	28% 2		72	48% 34	52% 37	
C – Vet Clinic* <sup>3</sup>	630	full-time doctors	8.6	33	59% 19	41% 13		32	41% 13	59% 19	
D - Demonstration Theatre	441	Seats	120	60	75% 45	25% 15		60	25% 15	75% 45	
E - Classrooms	520	students	120	36	55% 20	45% 16		26	45% 12	55% 14	
				197	143	54		297	93	204	

Future Conditions - Auxiliary Lane Analysis

In order to evaluate the need for auxiliary lane improvements at the site access points, the American Association of State Highway and Transportation Officials (AASHTO) and Maryland State Highway Administration warrants and guidelines for auxiliary lanes including left-turn bypass lanes and speed change lanes (acceleration and deceleration lanes) were referenced and reviewed.

Left Turn Bypass Lanes

Left-turn bypass lanes are a special type of left-turn lane appropriate for T-intersections that allow for through traffic to shift to the right when left-turning vehicles are present. According to the Maryland State Highway Administration Access Manual “Left turn movements encounter delays while waiting for gaps in opposing traffic, in addition to other vehicles at the intersection or access point. As the volume of opposing traffic increases, left turn delays become a strong possibility at any intersection. Vehicles stopped in the through lanes while waiting to make left turns present multiple safety hazards, causing other vehicles to rapidly stop or change lanes in order to avoid them.”

A schematic left-turn bypass lane is illustrated below (Figure 5.04). Based on SHA and AASHTO guidelines, several factors should be considered in evaluating the need for a left-turn bypass lane, including the percentage of left-turning traffic, available sight distances, and accident experience.

- Percent Left-Turning Volume – Left-turn volumes at the proposed Site Entrance during the highest peak hour are projected at 29 vehicles, or 2% of all traffic on Shawan Road. Referring to Figure 5.8 from Appendix F of the SHA Access Manual, although the left-turning volume is less than 5% of total traffic, with an advancing volume of 1206 and an opposing volume of 638 a bypass lane would be recommended.
- Sight Distance – Bypass lanes should be considered when AASHTO sight distances for the advancing movement are not satisfied. Based on field review of the proposed park entrance location, sight distance in excess of 700’ is available to the west; however there is a horizontal curve along Shawan Road approximately 600’ east of the proposed access point. A roadway design speed of 50 miles per hour was used to calculate an intersection sight distance of 480’ (Exhibit 9-58). Therefore, a bypass lane would not be required based on available sight distances.
- Accident Experience – The criteria for accident experience is four or more rear-end and left-turn type accidents in a 12-month period or six or more in a 24-month period. As the site access point is a proposed intersection, this criteria is not satisfied.

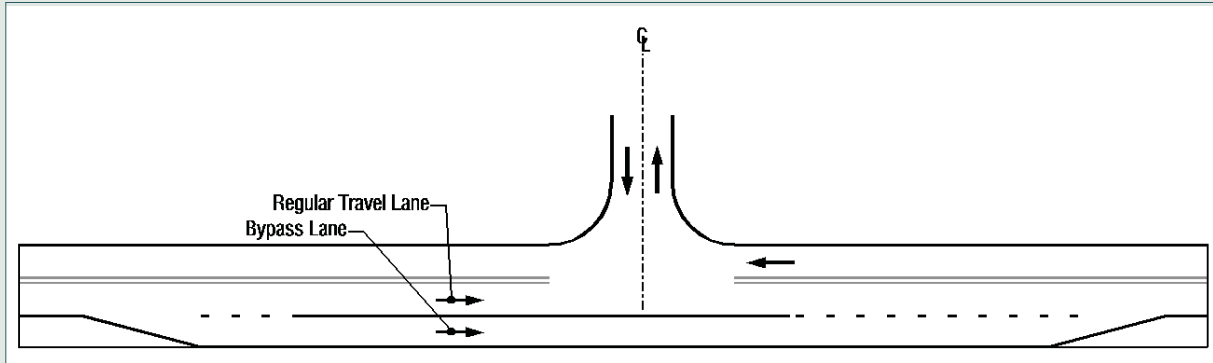


Figure 5.04 Typical Left-Turn Bypass Lane



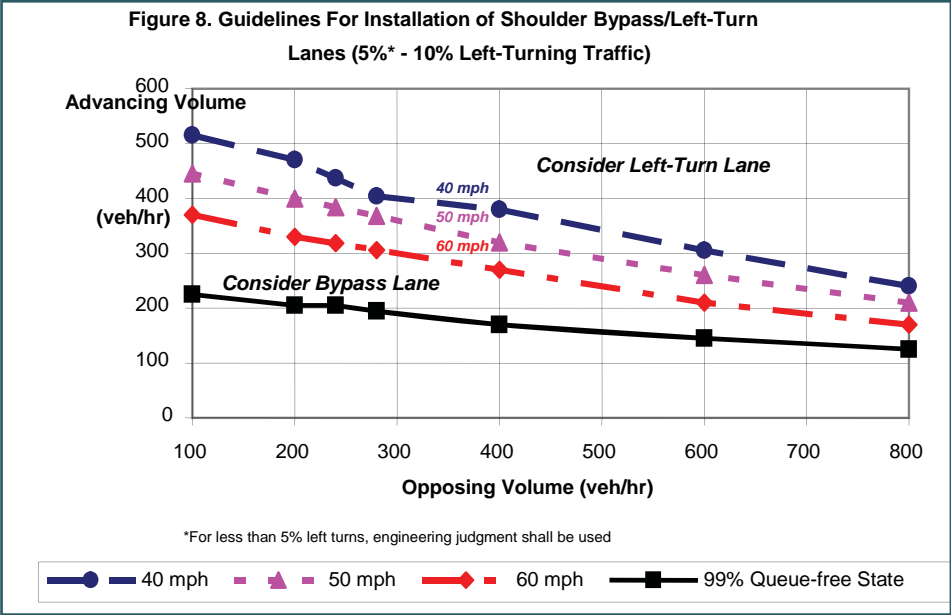


Figure 5.05: Graphical Illustration of Shoulder Bypass Lane Guidelines

Speed Change Lanes

Similar considerations should be used in evaluating the need for acceleration and deceleration lanes. The SHA Access Manual recommends full deceleration and acceleration lanes for commercial (non-residential) entrances on secondary highways with greater than 30 vehicles entering and exiting the site during a peak hour. AASHTO also recommends speed change lanes on high-speed (defined as 40 mph or greater) and high-volume highways where a change in speed is necessary for vehicles entering or leaving the through travel lanes.

In summary, based on the projected intersection operations, posted speed limits, and available sight distances, speed change lanes are recommended at the future Baltimore County Center for Maryland Agriculture site entrance.

Future Conditions - Site Access and Intersection Improvements Alternatives

The following alternatives represent a series of options that the consultant team reviewed with representatives from the Baltimore County Department of Public Works, Baltimore County Department of Environmental Protection and Resource Management, Project Management Working Group, Steering Committee, Board Members of the Baltimore County Center for Maryland Agriculture, The Valleys Planning Council, Greencroft Community and Cuba Road Neighborhood Associations, and other members of the local community. Many additional alternatives were discussed as well, but these alternatives summarize the key issues and potential solutions.

Introduction to Alternatives

In approaching design alternatives for the traffic challenges on the roads surrounding the BCCMA, the design team has had to balance the interests of Baltimore County, BCCMA Board and Committees, and local planning councils, neighborhood associations and citizens to come up with a recommended alternative that addresses most needs with minimal compromises. The goals are as follows:

- 1.) Improve level of service at Shawan Road/Beaver Dam Road/Cuba Road intersection and improve safety of this road.

- 2.) Provide an attractive entrance to the Baltimore County Center for Maryland Agriculture site off of Shawan Road that compliments the historic allée of trees and that does not negatively impact the Shawan Road traffic. Provide a secondary site access point to segregate bus, truck, trailer, and service vehicles.
- 3.) Minimize the potential for widening the road and maintain the character of the valley country road.

The following alternatives are generated from the data analysis and the rating system for the level of service described earlier. All alternatives are described via narrative and diagram; pros and cons are provided for each.

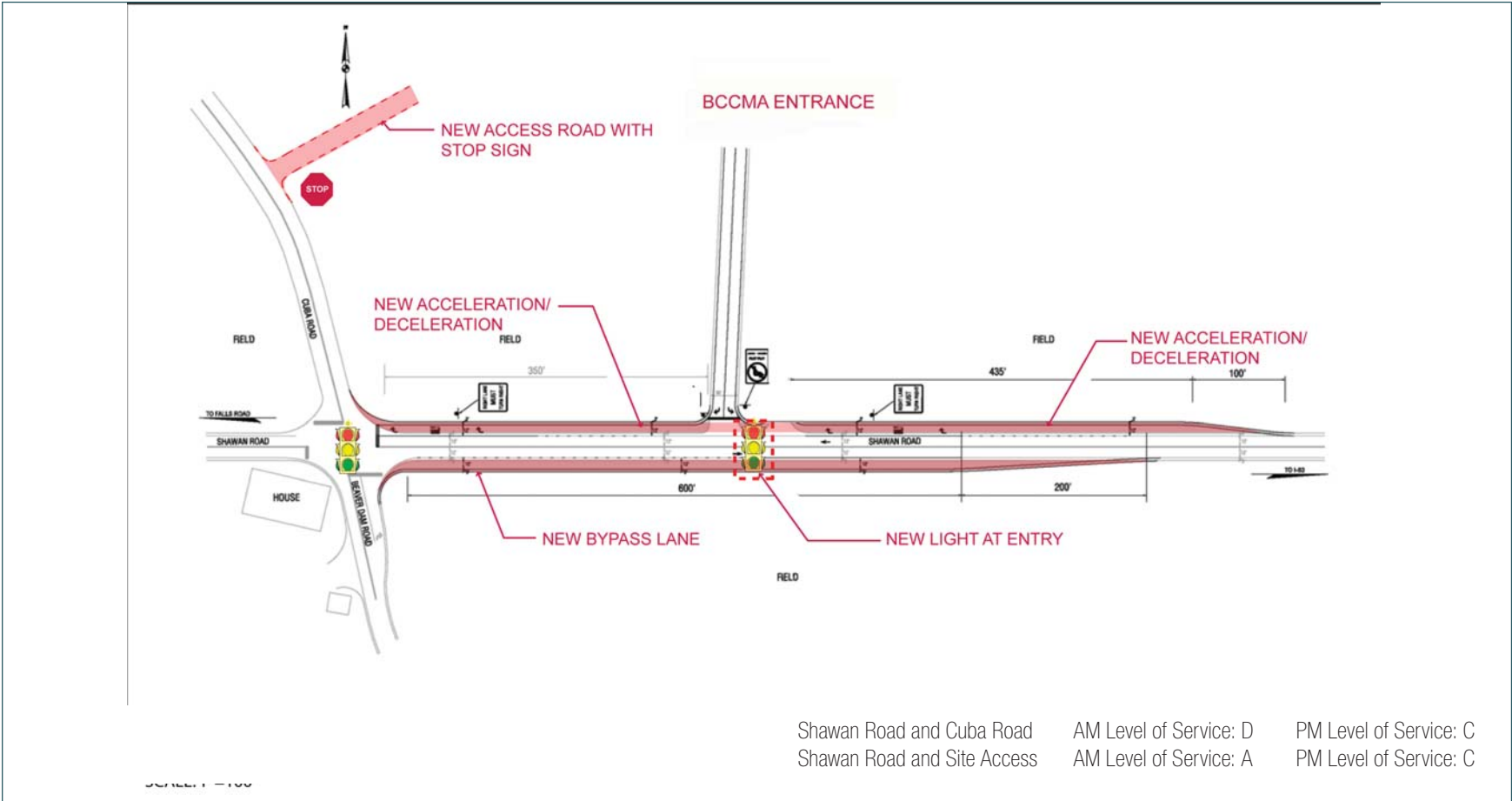


Figure 5.06: Diagram of Alternative A

Alternative A - Signal Control with Auxiliary Lanes

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>A full-movement entrance and exit on Shawan Road, with one right and one left-turn exit lane. The exiting movements would be controlled by a new traffic signal at the entrance to the site while the existing light at the Cuba R. Beaver Dam Rd intersection would remain. Auxiliary lanes (acceleration, deceleration and bypass) would be provided along Shawan Road per Maryland State Highway Administration (SHA) and American Association of State Highway and Transportation Officials (AASHTO) criteria and guidelines.</li><li>A full movement entrance and exit on Cuba Road between Shawan Road and Greencroft Lane would be introduced. The single exiting lane would be controlled by a STOP sign. This access point would allow for secondary access to the site and ingress/egress overflow traffic during special events.</li></ul>	<ul style="list-style-type: none"><li>Auxiliary lanes reduce angle and left-turn conflicts</li><li>Auxiliary lanes improve level of service at Shawan Road and Cuba Road</li><li>Signal control allows for full and direct ingress and egress movements via Shawan Road</li><li>Signal control provides adequate level of service for site access intersection</li></ul>	<ul style="list-style-type: none"><li>Proximity to Shawan Road/ Cuba Road signal will result in queue spillback and increased congestion on Shawan Road during peak hours</li><li>Signals may increase risk for rear-end collisions</li><li>Cost of signal and auxiliary lane construction</li></ul>



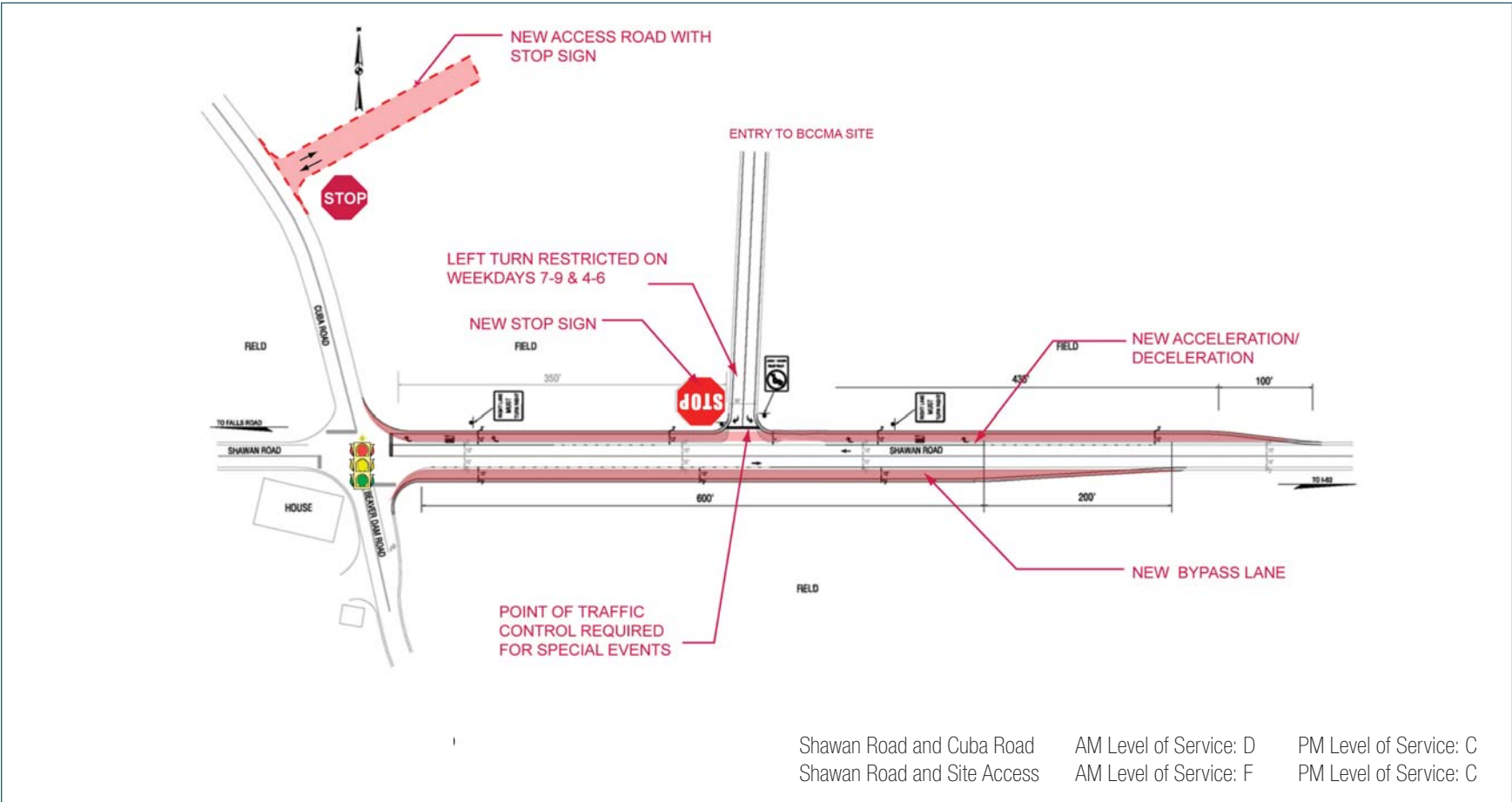


Figure 5.07: Diagram of Alternative B

Alternative B - Stop Control with Auxiliary Lanes

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>Alternative B –<ul style="list-style-type: none"><li>A partial-movement entrance and exit on Shawan Road, with one right and one left-turn lane exiting. The exiting movements would be controlled by a STOP sign, and left-turn movements will be RESTRICTED on weekdays from 7 to 9 AM and 4 to 6 PM. Point traffic control could be provided at this entrance during special events to prioritize full egress movements. Auxiliary lanes (acceleration, deceleration and bypass) would be provided along Shawan Road per Maryland State Highway Administration (SHA) and American Association of State Highway and Transportation Officials (AAS-HTO) criteria and guidelines.</li><li>A new full movement entrance and exit on Cuba Road between Shawan Road and Green-croft Lane. The exiting movements would be controlled by a STOP sign. This access point would allow for the relocation of the restricted movement to eastbound Shawan Road, and allow motorists to use the existing signalized intersection to continue south on Beaver Dam Road or turn left onto eastbound Shawan Road to access I-83.</li></ul></li></ul>	<ul style="list-style-type: none"><li>Auxiliary lanes reduce angle and left-turn con-flicts</li><li>Auxiliary lanes improve level of service at Sha-wan Road and Cuba Road</li><li>Flexibility for full movements and point control during special events</li></ul>	<ul style="list-style-type: none"><li>Cost of auxiliary lane construction</li><li>Stop control may increase risk for angle colli-sions</li><li>Left-turn restriction creates indirect egress movements during peak hours</li></ul>

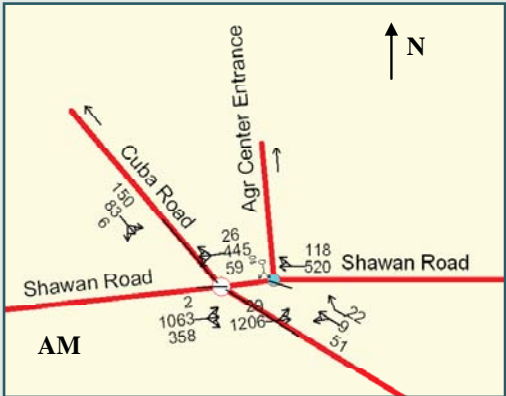


Figure 5.08: Total Future Peak Hour Traffic Volumes (Alternative B)-AM

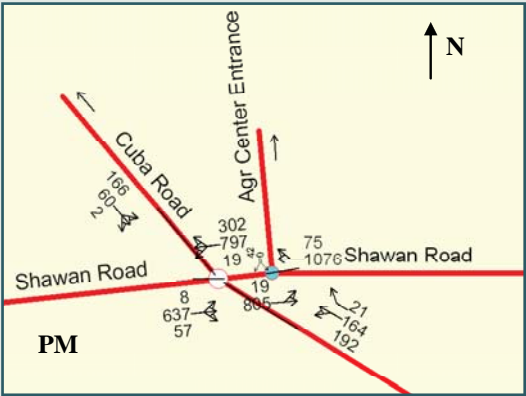


Figure 5.09: Total Future Peak Hour Traffic Volumes (Alternative B)-PM

Total future traffic volumes (existing traffic volumes + site traffic volumes) are illustrated for Alternative B in Figure 5.08 and 5.09. It was assumed that 80% of site trips would be oriented toward the I-83 corridor, and the remaining 20% would be oriented to Shawan Road west of the site.

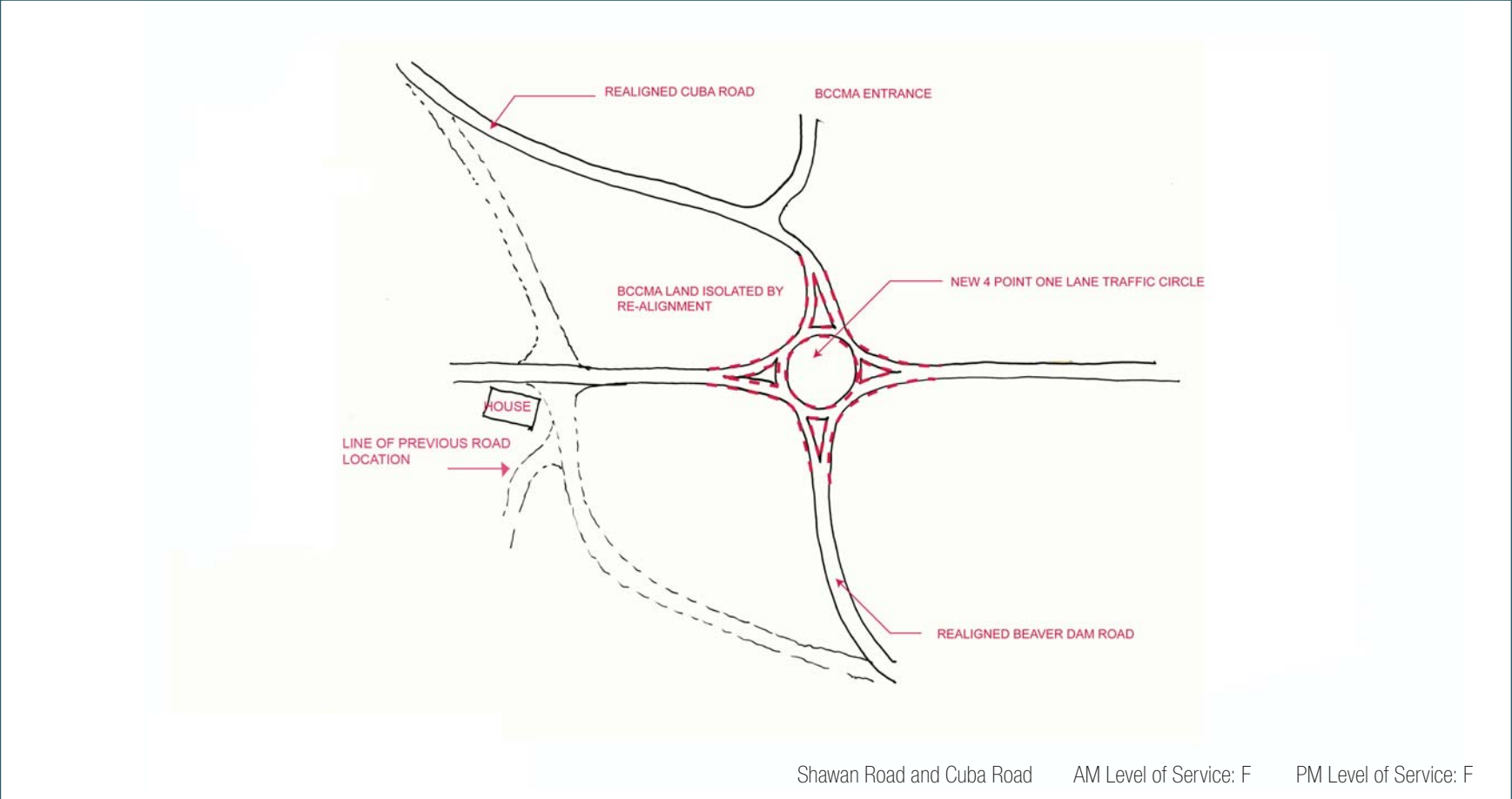


Figure 5.10: Diagram of Alternative C1

Alternative C1 - Realigned 4-Point Intersection with 1 Lane Roundabout Control

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>• Realignment of Beaver Dam Road and Cuba Roads to intersect with the site access point at a new four point two lane roundabout.</li><li>• The relocation of a consolidated single site entrance to the site to the north of the proposed roundabout along Cuba Road.</li><li>• A new full movement entrance and exit on Cuba Road between Shawan Road and Greencroft Lane. The single exiting lane would be controlled by a STOP sign. Would allow for secondary access and overflow traffic during special events.</li><li>• The existing traffic signal at the existing Shawan Road/Cuba Road intersection would be removed.</li></ul>	<ul style="list-style-type: none"><li>• Roundabout control reduces speeds and eliminates most conflict points.</li><li>• Direct and single point site access via Cuba Road.</li></ul>	<ul style="list-style-type: none"><li>• Cost of roundabout and roadway realignments.</li><li>• Access point to the BCCMA is poor for it is not directly on the circle or visible from Shawan Road as is desired.</li><li>• BCCMA site is disrupted by realignment of the road, isolating a large portion of the southwest field of the BCCMA site.</li><li>• The historic allée of Sugar Maples at the entry to the BCCMA site would be disrupted.</li></ul>

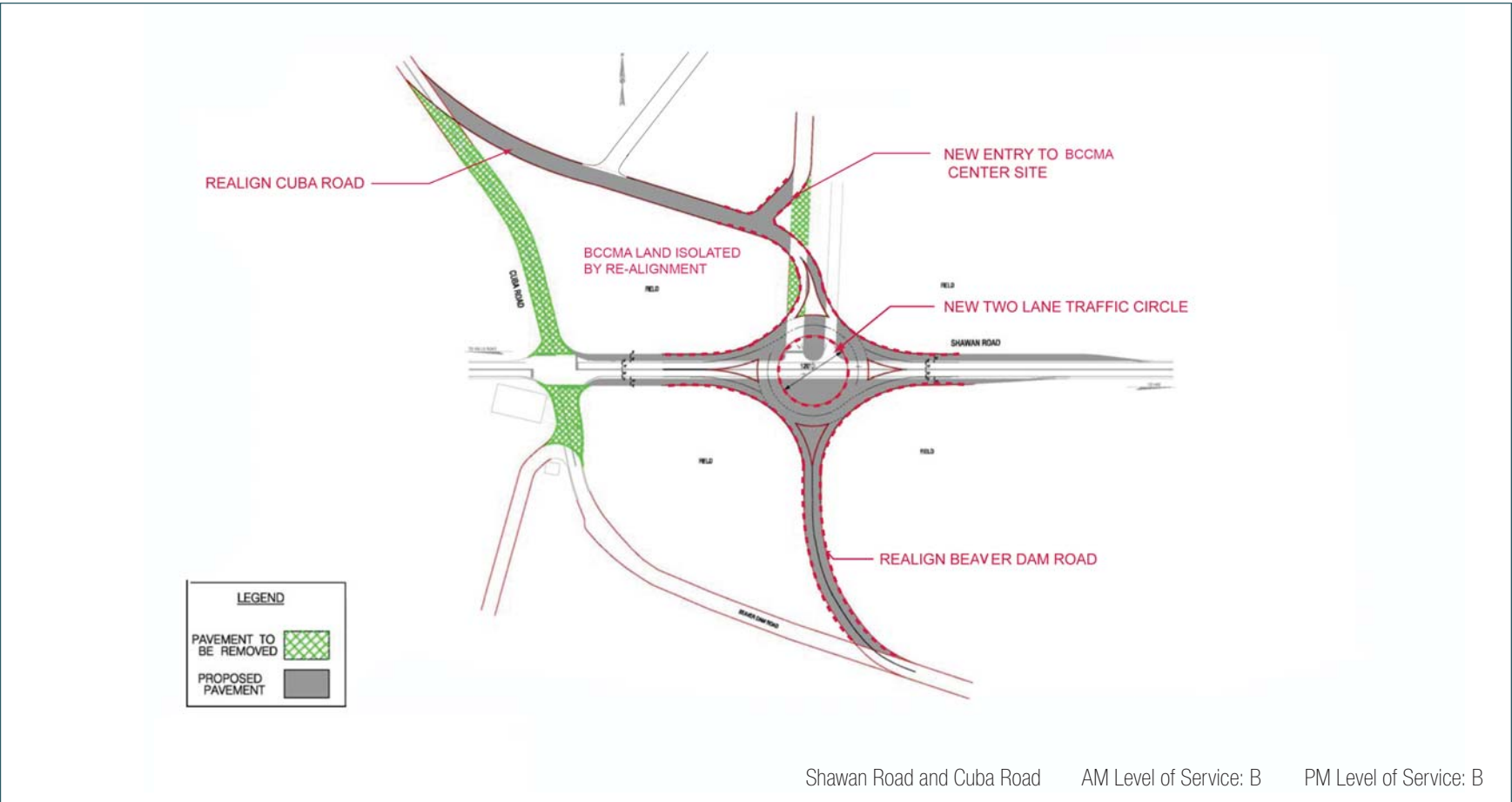


Figure 5.11: Diagram of Alternative C2



Alternative C2 - Realigned 4-Point Intersection with 2 Lane Roundabout Control

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>• Realignment of Beaver Dam Road and Cuba Roads to intersect with the site access point at a new four point two lane roundabout.</li><li>• The relocation of a consolidated single site entrance to the site to the north of the proposed roundabout along Cuba Road.</li><li>• A new full movement entrance and exit on Cuba Road between Shawan Road and Greencroft Lane. The single exiting lane would be controlled by a STOP sign. Would allow for secondary access and overflow traffic during special events.</li><li>• The existing traffic signal at the existing Shawan Road/Cuba Road intersection would be removed.</li></ul>	<ul style="list-style-type: none"><li>• Roundabout control reduces speeds and eliminates most conflict points.</li><li>• Direct and site access via Cuba Road.</li><li>• The Level of Service of Shawan Road improves from AM-F/PM-F to AM-B/PM-B.</li></ul>	<ul style="list-style-type: none"><li>• Cost of roundabout and roadway realignments.</li><li>• Access point to the BCCMA is poor for it is not directly on the circle or visible from Shawan Road as is desired.</li><li>• Second circulating, approach and receiving lanes required on Shawan Road to provide adequate level of service with roundabout control, thus widening the road.</li><li>• BCCMA site is disrupted by realignment of the road, isolating a large portion of the southwest field of the BCCMA site.</li><li>• The historic allée of Sugar Maples at the entry to the BCCMA site would be disrupted.</li><li>• The two lane circle will significantly change the visual character of the road.</li></ul>

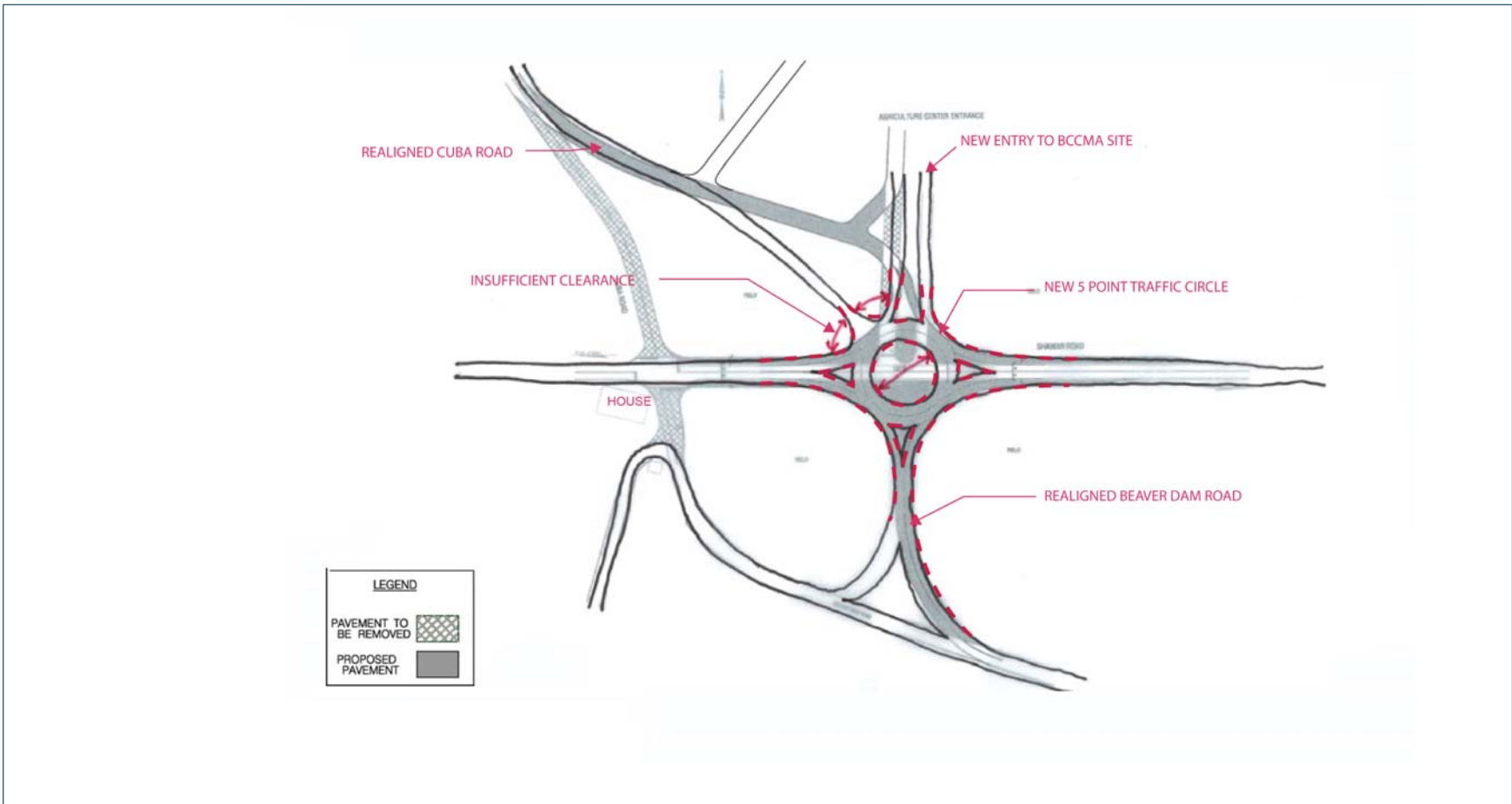


Figure 5.12: Diagram of Alternative C3

Alternative C3 - Realigned 5-Point Intersection with 2 Lane Roundabout Control

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>- As a result of C1 and C2 adequately addressing the entrance to the BCCMA site, Alternative C3 was proposed.</li><li>-This alternative would eliminate the traffic light at Cuba Road and Beaver Dam road.</li><li>- Cuba Road and Beaver Dam Road would be realigned to intersect at a new 5 point two lane circle aligned with the entrance to the BCCMA.</li></ul>	<ul style="list-style-type: none"><li>• Full and direct ingress and egress movements via Shawan Road</li><li>• A more gracious entrance to the BCCMA.</li></ul>	<ul style="list-style-type: none"><li>• In order to accommodate the 5 point two lane circle and have needed clearances, the circle would have be to significantly larger than the C2 scheme, which is already quite large.</li><li>• Shawan Road would have to be widened more significantly than in scheme C2.</li><li>• BCCMA site is disrupted by realignment of the road, isolating a large portion of the southwest field of the BCCMA site.</li><li>• The historic allée of Sugar Maples at the entry to the BCCMA site would be disrupted, but less so than in C2.</li><li>• The two lane circle will significantly change the visual character of the road.</li></ul>

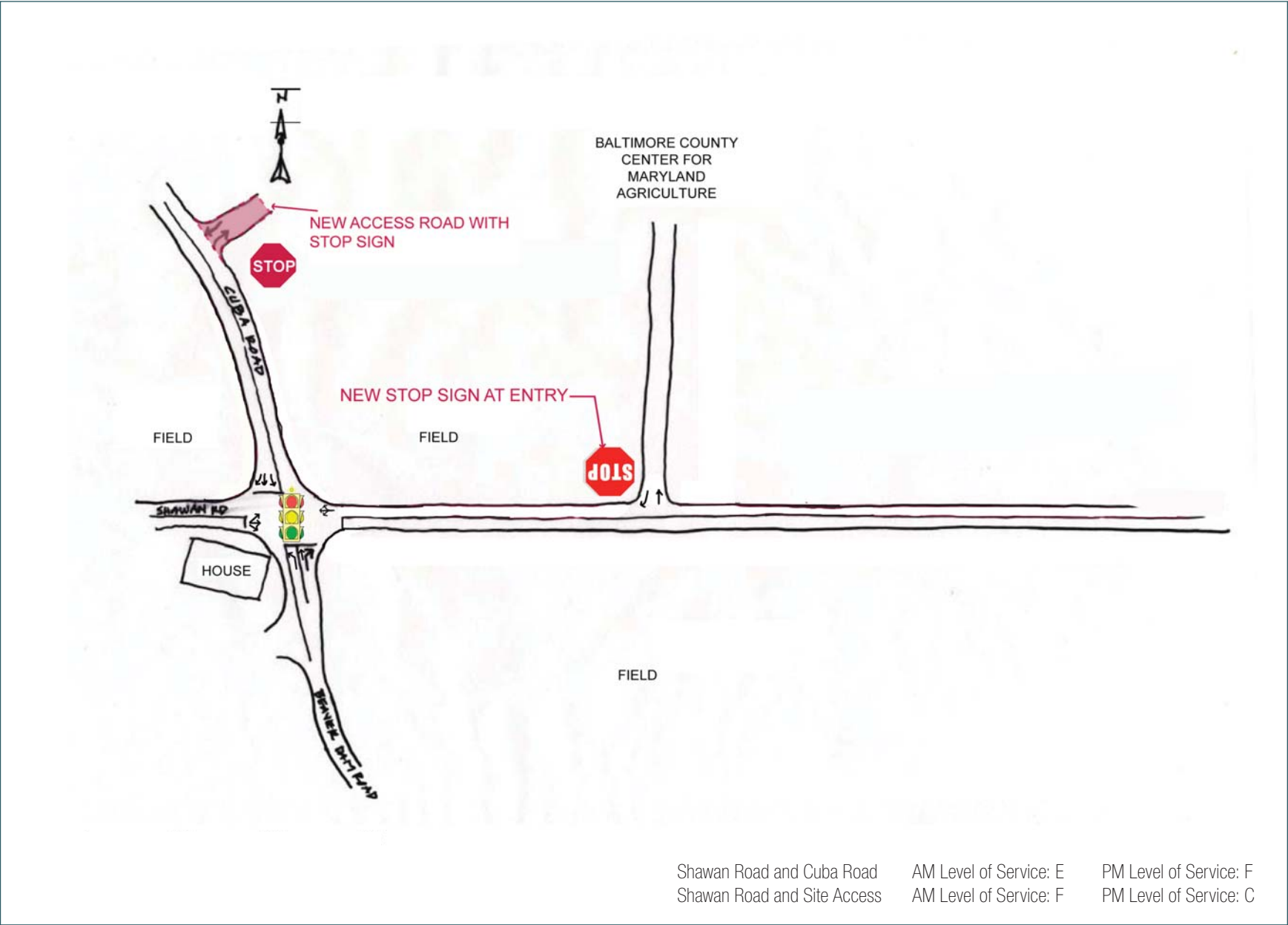


Figure 5.13: Diagram of Alternative D

Alternative D –

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>• A full movement entrance and exit on Shawan Road with no intersection control or auxiliary lane improvements.</li><li>• This scheme represents the “do nothing” scheme.</li></ul>	<ul style="list-style-type: none"><li>• Full and direct ingress and egress movements via Shawan Road.</li></ul>	<ul style="list-style-type: none"><li>• Level of service at Shawan and Cuba Roads deteriorates to E and F in the AM and PM</li><li>• Stop control increases risk for angle collisions</li><li>• Lack of auxiliary lanes increases risk for left-turn and rear-end collisions</li><li>• Level of service for stop controlled egress movements fail.</li></ul>



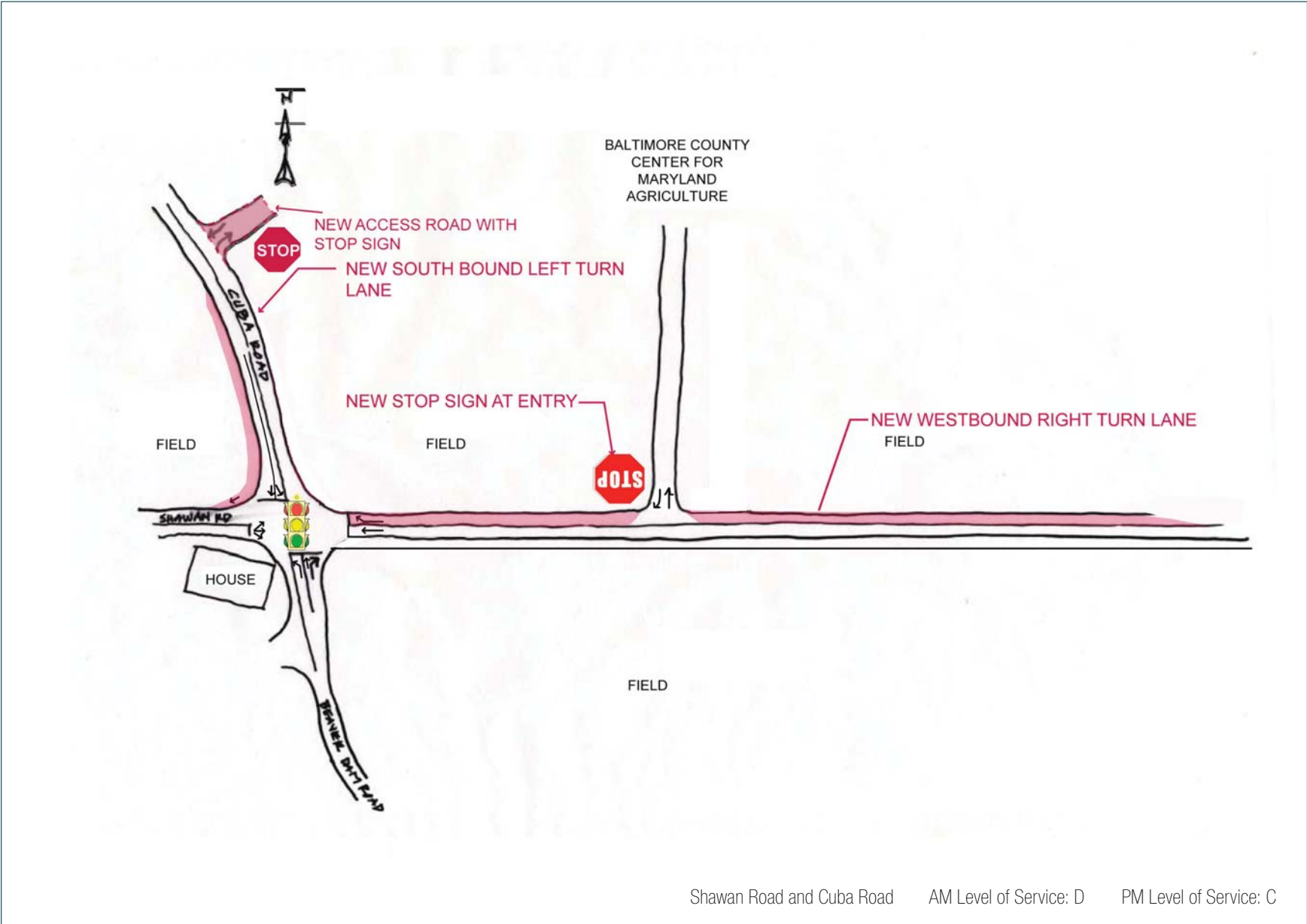


Figure 5.14: Diagram of Alternative E1 - Constrained

Alternative E1 - Intersection Improvements - Constrained

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>• Alternative E -<ul style="list-style-type: none"><li>◆ Improvements to Shawan Road/ Beaver Dam/ Cuba Roads intersection to provide exclusive turn lanes within the existing environmental and historic constraints such as the historic Oregon Ridge Inn.</li><li>◆ This scheme is a minimal approach to widening both Shawan road and Cuba Roads to allow for a turn lane/bypass lane on each.</li><li>◆ In this alternate the existing traffic intersection remains in its current location.</li></ul></li><li>▪ Constrained improvements include adding a westbound right-turn lane, a southbound left-turn lane, and converting the northbound right-turn lane to a right-through lane<ul style="list-style-type: none"><li>◆ Site access would continue to be provided with restricted movements at the Shawan Road access point (right-turns in and out only), as well as a new secondary access point on Cuba Road north of Shawan Road.</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Turn lanes reduce angle and rear-end collisions</li><li>• Level of service improves from AM-D/PM-D to AM-D/PM-C.</li><li>• Flexibility for full movements and point control during special events.</li><li>• Entry to the BCCMA site is improved by the ability for individuals to turn left onto the site from Shawan Road.</li></ul>	<ul style="list-style-type: none"><li>• Cost of intersection improvements.</li><li>• Stop control may increase risk for angle collisions.</li><li>• Left-turn restrictions creates indirect egress movements during peak hours.</li><li>• Level of Service only marginally improves.</li><li>• Shawan Road and Cuba Road will require widening by one lane width for a certain distance back from the BCCMA site entrance and from the lighted intersection.</li></ul>

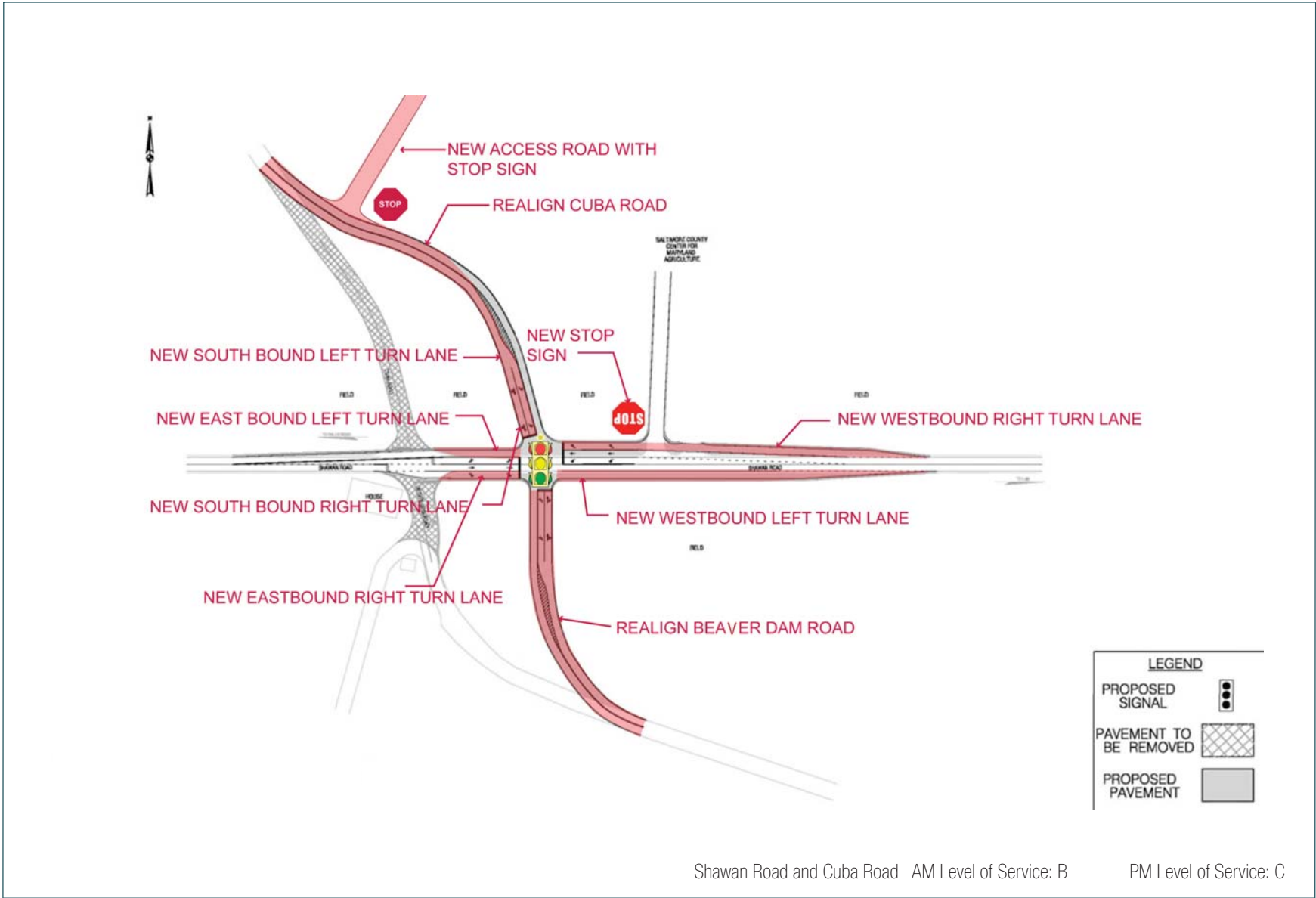


Figure 5.15 Diagram of Alternative E2

Alternative E2 - Intersection Improvements - Realigned

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>• This scheme is a maximized approach that provides maximum additional lanes in every direction to improve service.</li><li>• Includes the realignment of Cuba and Beaver Dam road and the moving of the traffic light to the east to allow for lane expansion.</li><li>• Three lanes have been added to the east of the light on Shawan Road to address a west bound right turn and left turn and an east bound bypass lane.</li><li>• Two lanes have been added to the west of the light on Shawan Road to address an east bound right turn lane and an east bound left turn lane.</li><li>• A lane has been added to both Cuba and Beaver Dam Roads for left turns.</li><li>• Access to the site at Shawan Road would be restricted to right turns in and out only.</li><li>• A full movement entrance and exit on Cuba Road between Shawan Road and Greencroft Lane. The single exiting lane would be controlled by a STOP sign. This access point would allow for secondary access and overflow traffic during special events.</li></ul>	<ul style="list-style-type: none"><li>• Turn lanes reduce angle and rear-end collisions</li><li>• Level of service improved from AM-D/PM-D to AM-B/PM-C.</li><li>• Flexibility for full movements and point control during special events.</li><li>• Right and left turn lanes prevent back up of traffic due to turns at intersection.</li><li>• Provides lighted entry to the BCCMA site from Shawan Road.</li></ul>	<ul style="list-style-type: none"><li>• Cost of intersection improvements.</li><li>• Stop control may increase risk for angle collisions.</li><li>• Left-turn restrictions creates indirect egress movements during peak hours.</li><li>• This scheme requires significant widening of Shawan Road.</li><li>• The BCCMA site is disrupted due to the realignment of the roads and a portion of the southwest field is isolated and rendered useless.</li><li>• The character of the road is disrupted due to the addition of multiple lanes at this intersection.</li></ul>



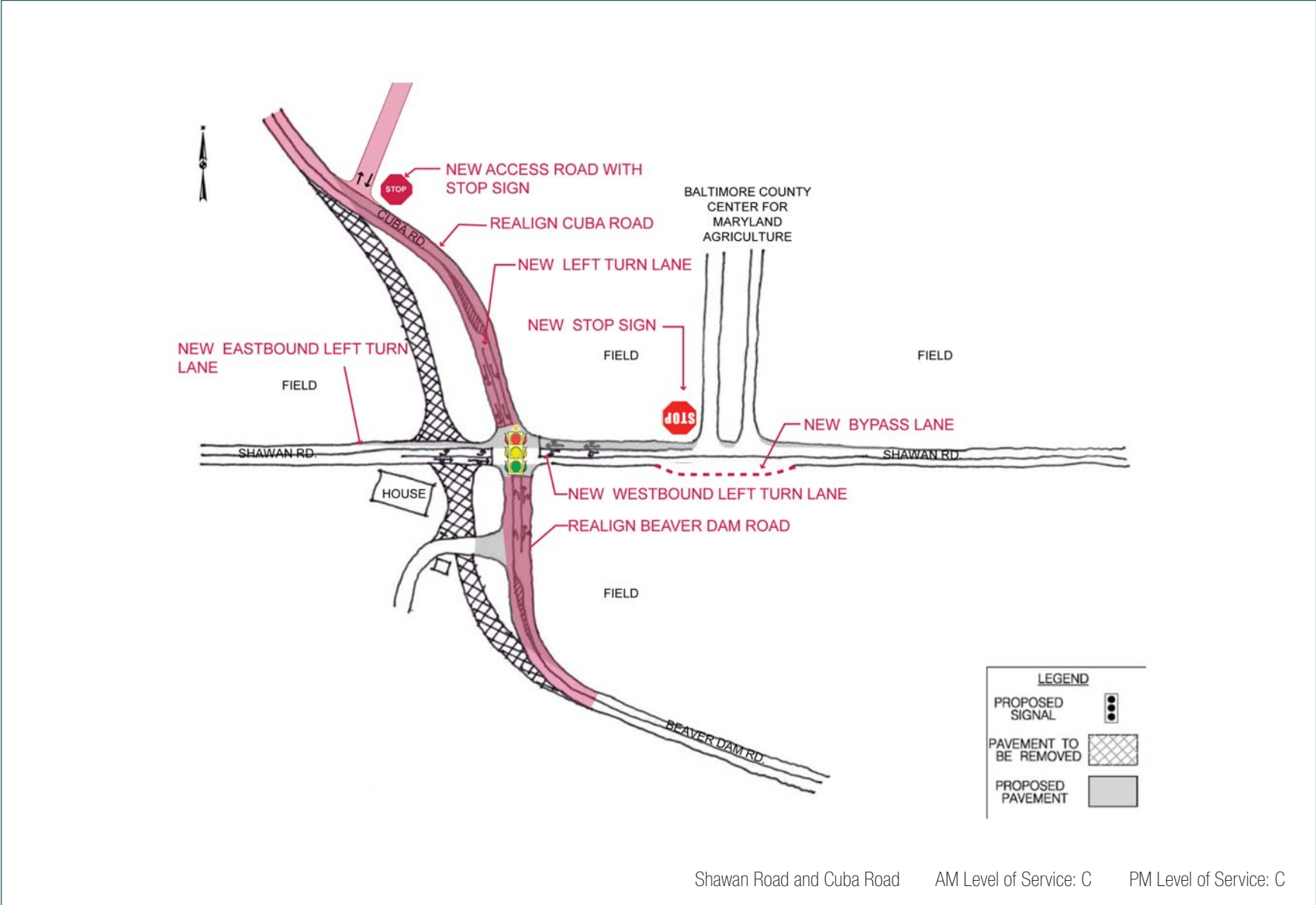


Figure 5.16 Diagram of Alternative E3

Alternative E3 - Intersection Improvements - Realigned

Alternative	Advantages	Disadvantages
<ul style="list-style-type: none"><li>• Cuba Road and Beaver Dam Road are realigned in this alternative and the existing traffic light is shifted to the east but less so than in E2, allowing for less disruption of the BCCMA site and allowing for more distance between the light and the BCCMA entrance.</li><li>• Shawan Road is only widened by one lane in each direction to serve as a turn lane/by pass lane.</li><li>• A left turn lane is provided for both Cuba Road and Beaver Dam Road, requiring the widening of each of these roads by one lane.</li><li>• A full movement entrance and exit on Cuba Road between Shawan Road and Greencroft Lane. The single exiting lane would be controlled by a STOP sign. This access point would allow for secondary access and overflow traffic during special events.</li></ul>	<ul style="list-style-type: none"><li>• Auxiliary lanes reduce angle and left-turn conflicts.</li><li>• Auxiliary lanes improve level of service at Shawan Road and Cuba Road.</li><li>• Signal control provides adequate level of service for site access intersection, improving the service from AM-D/PM-D to AM-C/PM-C.</li><li>• Only the minimum number of lanes are widened, in contrast to E2, resulting an a satisfactory improvement to level of service.</li><li>• The BCCMA entrance is disrupted only minimally.</li></ul>	<ul style="list-style-type: none"><li>• Roads will still need to be widened thus changing the character of the roads.</li></ul>

**Table 5.04:**  
**Summary of Future Intersection Capacity – AM (PM)**

Intersection	Level of Service	Volume-to-Capacity Ratio	Average Vehicle Delay (seconds)
Alternative A – Signal Control with Auxiliary Lanes			
Shawan Road and Cuba Road	D (C)	1.07 (0.82)	53.2 (29.0)
Shawan Road and Site Access	A (C)	0.75 (0.85)	9.3 (21.3)
Alternative B – Stop Control with Auxiliary Lanes			
Shawan Road and Cuba Road	D (C)	1.07 (0.98)	53.2 (34.0)
Shawan Road and Site Access*	F (C)	75.0 (21.8)	0.43 (0.16)
Alternative C1 – Realigned Intersection with Single Lane Roundabout Control			
Shawan Road and Cuba Road	F (F)	1.71 (1.62)	200.0 (146.2)
Alternative C2– Realigned Intersection with Two Lane Roundabout Control			
Shawan Road and Cuba Road	B (B)	0.76 (0.77)	10.2 (10.0)
Alternative D – Stop Control without Auxiliary Lanes			
Shawan Road and Cuba Road	E (F)	1.10 (1.20)	66.1 (84.4)
Shawan Road and Site Access*	F (C)	70.2 (20.8)	0.43 (0.16)
Alternative E1 – Intersection Improvements – Constrained			
Shawan Road and Cuba Road	D (C)	1.00 (0.78)	47.7 (20.4)
Alternative E2 – Intersection Improvements – Realigned			
Shawan Road and Cuba Road	B (C)	0.79 (0.74)	16.9 (22.3)
Alternative E3 – Intersection Improvements – Realigned			
Shawan Road and Cuba Road	C (C)	0.87 (0.77)	27.8 (25.1)

\* Exiting PM left-turns relocated to Cuba Road access point

Conclusion

At this juncture, the various traffic alternatives have been presented to the Baltimore County Department of Public Works, Baltimore County Department of Environmental Protection and Resource Management, Project Management Working Group, Steering Committee, Board Members of the Baltimore County Center for Maryland Agriculture, The Valleys Planning Council, Greencroft Community and Cuba Road Neighborhood Associations, and other members of the local community. With the information collected to date, the design team recommends Alternative E3. The realigned intersection provides adequate controlled access to the BCCMA site, and the minimally widened lanes improve left turn and bypass circumstances while not widening the road beyond necessity. This scheme addresses many of the goals established by the various parties involved with minimal compromises.

Afterword

The scope of work for this traffic study was a first step in analyzing the circulation and movement of traffic on the proposed site for The Baltimore County Center for Maryland Agriculture as well as the immediate roadways that will provide access to the site. This traffic study included the intersection of Shawan/Cuba/Beaver Dam Roads; this study also assumed a site access point along Cuba Road, south of Greencroft Lane. After much discussion and community input, this site access point has been removed from the Master Plan diagram. However, the diagrams in this traffic section still reflect that access point. The series of alternatives presented here are in the conceptual phase and will require further analysis prior to implementation of any intersection improvements. Further analysis of this intersection and the larger I-83/Falls Road corridor is beyond this master planning scope of work.





# 6. master plan

## The Process

The process for developing alternatives for the master plan was an iterative one that required many meetings with the planning team and with the client representatives. After conclusion of each planning team meeting, design concepts and options were refined to be presented to the client representatives at regular meetings for comment and response. Gradually, several concept plans were combined into one plan that addressed the comments and design concerns.

## Draft Program Study

The Draft Program Study Report, which represented most of the programmatic interests for the different user groups for the BCCMA was distributed to all planning team members, user group representatives, and client representatives for review.

The Report clearly outlined both indoor and outdoor space and activity needs and identified adjacency concerns for the different site user groups.

## Brainstorming Sessions

After the planning team had fully reviewed and analyzed the program study, they met several times to discuss the concept objectives, program challenges and site parameters. The planning team, consisting of members representing architecture, historic preservation, master planning, landscape design, traffic engineering, land use, civil engineering, and farm management, brainstormed about how to group and place users on the site. Discussions included analysis and discussion of the points on the following page.

## process



- Locating roads to minimize grading and impact on the “farm” experience.
- Consideration of separating visitor access from trucks, maintenance and farm service traffic.
- Consideration of a second exit that would take advantage of the signaled intersection with Cuba Road.
- Protecting the allée and using it creatively.

- Programmatic uses should have smaller footprints and more flexibility.
- The need for “walkability” between core uses suggests a tighter campus arrangement.
- Smaller parking requirements are more easily dispersed.

- Have large programmatic elements and large footprints.
- Need for event parking.
- Pastures and paddocks should be on the flatter areas of the site.
- Require frequent servicing by trailers and trucks.

- Have large programmatic elements and large footprints.
- Need for event parking.
- Pastures and paddocks should be on flatter areas of site.
- Require frequent servicing by trailers and trucks.

- Should have proximity to Greenhouses, Demonstration Theater, and Farm Museum.
- Need for nearby parking for schoolchildren and seniors.
- Master Gardener plots should be close to Educational Facilities.

- Should be centrally located with good access that does not interfere with day-to-day operations.
- Located within walking distance of support facilities like the Indoor Arena, Demonstration Theater, and Comfort Station.
- Potential synergies with the Master Gardeners and the Demonstration Vineyard.
- Ample and expandable parking opportunities.

- Existing Sugar Maples – They are historic, iconic, and a signature landscape feature.
- High Ridge – Provides amazing overlooks.
- Demonstration Vineyard – Should be located on south-facing hillside, utilizing steeper slopes, but must be segregated from active beehives.

The end result of these brainstorming sessions was a series of concepts that required further investigation (Figure 6.01).

The planning team prepared three concept diagrams (Concepts A, B and C) that addressed site circulation, site user groupings and adjacencies, land use issues and stormwater management issues (Figure 6.02). A focus of these diagrams was how to place the core facilities on the site and within the designated building development envelope. All of these diagrams showed general placement of user groups, croplands, livestock and other uses to allow for feedback from the user groups and client representatives regarding preferences.

After having received input from the client representatives, the planning team developed two concept plans in more detail (Detail Plans A and B) that were a



combination of ideas and feedback from the concept diagrams (Figures 6.03 and 6.04). These plans analyzed the actual size, footprint and location of buildings. Demonstration crop and livestock areas were located and acreage was specified. Site circulation for service and visitor vehicles was identified as well as quantity and location of parking. Stormwater management concepts were incorporated as well. All major programmatic elements were addressed in these plans.

### Project Management Working Group Meetings

The planning team met with the Project Management Working Group on a monthly basis (the second Thursday of every month) to receive input and feedback on the developing concepts. This Project Management Working Group is composed of twelve (12) individuals representing Baltimore County, BCCMA Board, and the site user groups.

### Steering Committee Meetings

Once the planning team had responded to the Project Management Working Group comments, revised plans were presented to the Steering Committee. The Steering Committee is composed of over forty-five (45) individuals – including the members of the Program Working Group – that represent different private and public organizations, local government agencies and residential communities. The Steering Committee meets on the third Tuesday of every month so the planning team was able to present concept to the Project Management Working Group and revised concepts within a few days so that the Steering Committee was always reviewing up-to-date and current concepts.

### Community Group Meetings

The planning team gave progress reports to the Community Group on October 30th, 2007, and January 9th, 2008 (Figure 6.07). The Community Group is composed of representatives from residential communities close to or adjacent to the project site. These meetings were used as opportunities for the community to give input on the design and to voice any concerns they had. All comments were documented in written format and a formal response was given. Many useful ideas came out of these meetings and were incorporated in an updated design plan.

### Preferred Master Plan

After all of the input during the design brainstorming sessions, the Project Management Working Group meetings, the Steering Committee Meetings and the Community Group Meetings, one of the detailed concept plans was chosen as the preferred plan. This plan was modified and refined to reflect the comments from the various meetings and is considered the final recommended master plan.

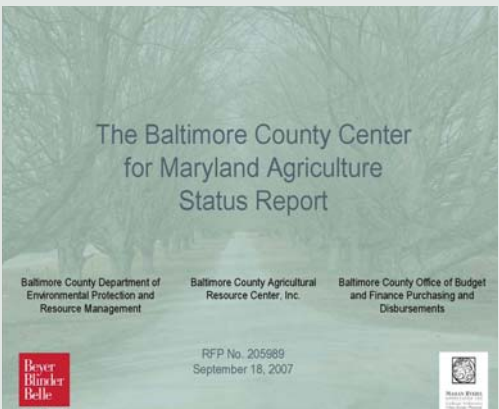


Figure 6.05: Progress Meeting Status Update

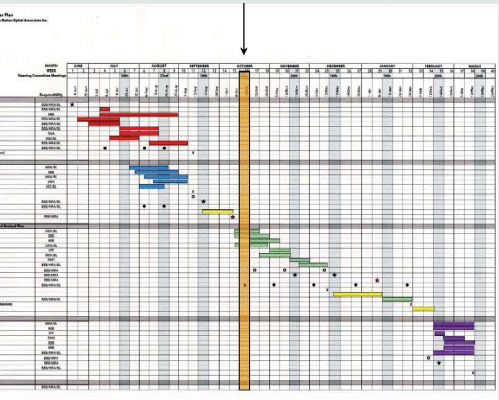


Figure 6.06: Presentation of Project Schedule to Steering Committee



Figure 6.07: Status Reports to the Community Were a Regular Part of the Process

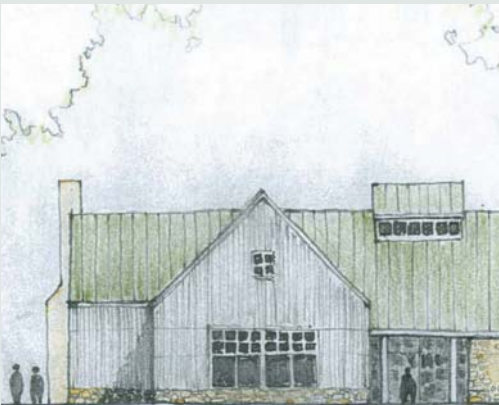


Figure 6.08: Concept Drawing of Core Facility

# 6. master plan

## recommended plan

### Master Plan

As was described in the Site Analysis and Master Plan sections of this document, the final recommended master plan was arrived upon after much detailed analysis, as well as many meetings to gather input from user groups, client groups and the community. The resulting master plan represents the visionary plan for implementing improvements over the next ten years to the existing site to transform it into The Baltimore County Center for Maryland Agriculture.

The recommended comprehensive Master Plan (Figure 6.09) is followed by a variety of graphic diagrams that provide more focused illustrations of certain components of the master plan.

A brief description of each of the planned facilities for the site follows. All facilities have been corresponding numbers on the Master Plan (Figure 6.09).

1. **Core Facility** – The Core Facility is the central focus of the master plan, and its placement on the site is aligned with the entrance drive. The 14,100 SF building will house offices for the Maryland Cooperative Extension, USDA – Farm Service Agency, Soils Conservation District, Natural Resources Conservation District, Maryland Department of Agriculture, Baltimore County, and BCARC. Also included is a Multi-Purpose Room, which will be shared by the building occupants, BCCMA recreation and education programs, a variety of other agriculture-related interest groups, and the community. For a more detailed description of the program, see the Program Study section of this document.

The Core Facility will be as a central gathering space. The Entrance Lobby and Multi-Purpose Room can serve as meeting and exhibit space for a variety of different functions. This building is centrally located and is in close walking distance to all other planned facilities. It will be constructed as part of Phase I Initial Construction. For a further understanding of the Core Facility design, refer to the Concept Design sections later in this document.

2. **Maryland Horse Breeders Association** – The 10,000 SF Maryland Horse Breeders Association (MHBA) building is located on the bluff where the Mount Pleasant Farm Manor House was once located. It will house offices, a library, and a museum for the MHBA. For a further understanding of the design for this building, refer to the Concept Design sections later in this document.
3. **Core Facility – Future Expansion** – Because not all of the interested agencies and organizations could be accommodated in the initial 14,100 SF of the Core Facility, a future 5,000 SF expansion has been planned. This Future Expansion will be linked to the east side of the Core Facility and designed to look contiguous with the Phase I Initial Construction.
4. **Equine Vet Clinic** – This 11,600 SF facility will accommodate veterinarian offices, a clinic, and overnight boarding for horses and is located in close proximity to a round pen and paddock area available for Clinic use. It is also located close to other facilities that may support equine activity such as the Indoor Arena and Outdoor Show Ring.
5. **Demonstration Theater** – This facility is a 50-seat theater designated for educational demonstrations regarding livestock, horses, or farming equipment. It will support the BCCMA education programs.
6. **Educational Classrooms Building / Comfort Station** – This 2,900 SF facility will include two classrooms and bathrooms accessible from both inside and outside. It is located in proximity to the Greenhouses and Master Gardeners plots as well as a Livestock Barn so that items taught in the classroom can be immediately seen outside.
7. **Farm Museum** – This 5,000 SF facility will be housed in a historic bank barn, relocated and reconstructed from another Baltimore County farm. The Museum will include historic farm equipment and

artifacts relating to farm life. It is located close to the Educational Classrooms and Core Facility and is within an area designated for a future Historic Farm Village.

8. **Corn Crib** – The corn crib on the site will be relocated to the Historic Farm Village area from its existing location and restored. It will serve as a functioning farm artifact and will link to the BCCMA educational programs.
9. **Greenhouses** – Two 30'x48' greenhouses built with metal structure and acrylic panel cladding will serve as laboratories to support BCCMA educational programs. They are located close to the Educational Classroom Building as well as various outdoor demonstration garden plots.
10. **Cottage / Garden Storage** – The 400 SF wood cottage on the bluff once supporting the now demolished Mount Pleasant Farm Manor House will be relocated to serve as a storage shed for the Master Gardeners, other agriculture-related organizations (such as the Maryland Beekeepers Association), and BCCMA educational programs.
11. **Indoor Arena** – This facility will be a 125'x250' covered arena to host 4-H events, livestock and equine events, and more. It will have interior temperature and humidity control and concrete flooring. It is in close proximity to the Outdoor Show Ring, events lawn, and the Equine Vet Clinic.
12. **Horse Barn** – An existing concrete block and wood construction horse barn will be reused to provide boarding for up to 14 horses. It is located near the Outdoor Show Ring and a paddock area.
13. **Livestock Barn** – This facility is a new barn located near the Educational Classrooms. It is for housing livestock for educational purposes and has an adjacent paddock area for turn-out. The barn is also situated adjacent to the events lawn.
14. **Outdoor Show Ring** – This area is 100'x300' in size and is enclosed with wood post-and-rail fencing with a sand surface. It will allow for special events, horse riding and livestock demonstrations. It is located directly on the events lawn in order to serve as a visible, interactive feature. It is within close walking distance to the Indoor Arena, Horse Barns, and the Livestock Barn.
15. **Demonstration Vineyard Storage** – This 1,000 SF wood-constructed storage shed with 5 bays will allow for storage of vehicles and equipment used to maintain the demonstration vineyard areas.
16. **Recreation / Education Pavilion** – This structure is a 40'x60' open-air pavilion located on the events lawn across from the Outdoor Show Ring and within walking distance of the Educational Classrooms. It will be used for many types of educational and recreational outdoor gatherings and events.
17. **Resident Farmer Housing** – The existing wood-framed Old House will be renovated and reused as a residence for the Resident Farmer who will provide on-site management of the working farm components of the site. The single-family house should include at least three bedrooms and two bathrooms. It is located with other site service-related structures.
18. **Intern Farmer Housing** – The existing 2,210 SF wood-framed Caretaker's House will be renovated and reused as a residence for Intern Farmers participating in a BCCMA intern farmer education program. The house is central to demonstration crops and easily accessible to the Livestock and Horse Barns.
19. **Grounds Maintenance Building** – This facility is a new 5,000 SF building with multiple bays to accommodate site maintenance vehicles and a repair workshop. It is located on the security-fenced "flag lot," adjacent to the Resident Farmer Housing, and out of view from most locations on site.
20. **DEPRM Central Crew** - This facility is a new 2,160 wood-framed garage and workshop to service the DEPRM Central Crew. The structure will have a small office, a workshop and storage for service vehicles and equipment dedicated to the DEPRM Central Crew.



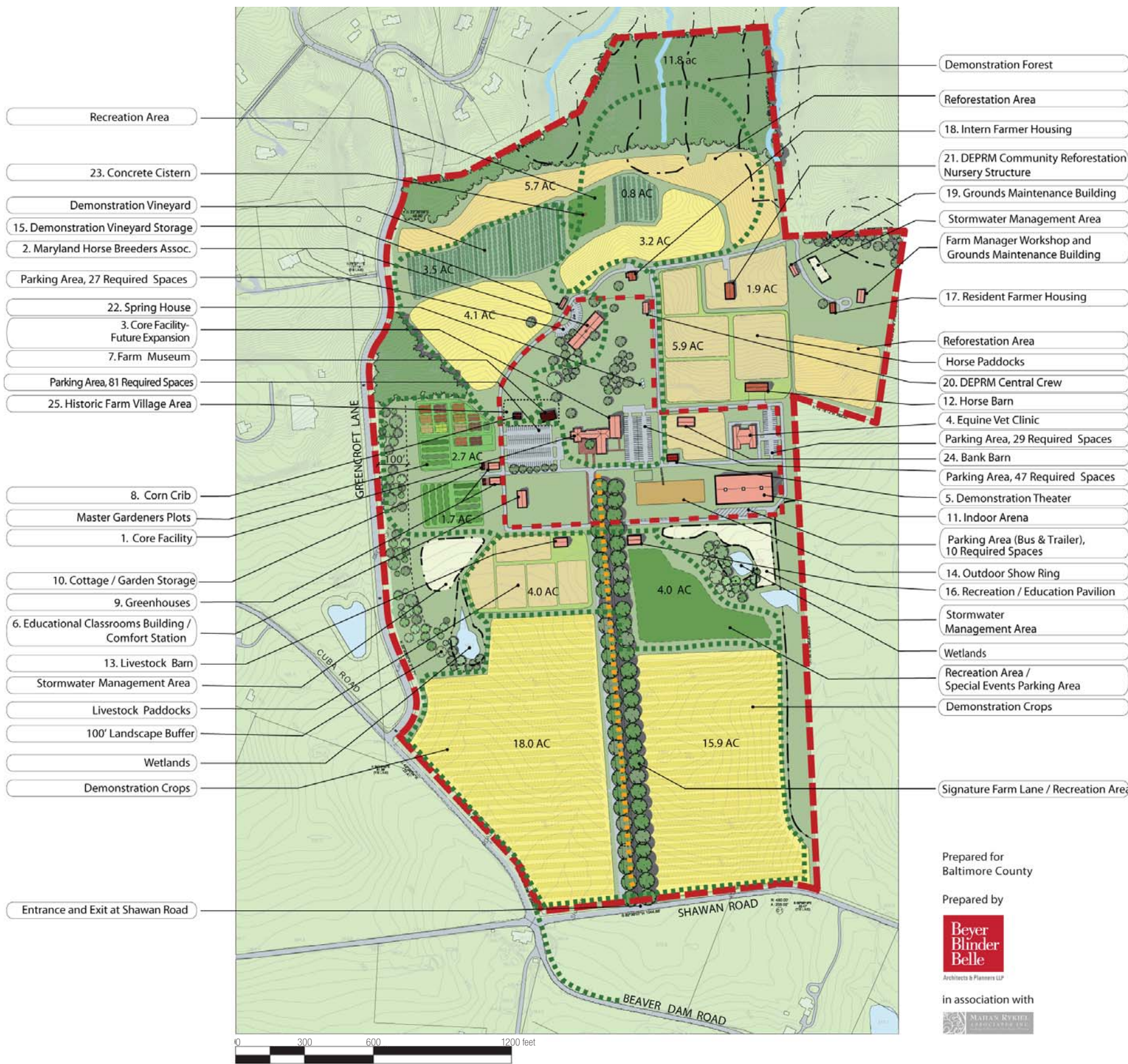


Figure 6.09: The Baltimore County Center for Maryland Agriculture Master Plan

- 21. DEPRM Community Reforestation Nursery Structure** – This facility will be in a existing 2,800 SF Stallion Barn to be renovated and reused for offices, a garage and nursery storage for the DEPRM Community Reforestation Program. It is located strategically in the middle of a flatter landscape towards rear of site that will support the nursery functions of the Program.
- 22. Spring House** – A new Spring House will mark the location of an existing natural spring. Interpretive signage will be posted to educate visitors about on-site irrigation and water systems.
- 23. Concrete Cistern** – The existing concrete cistern will be reused as part of on-site irrigation and water systems education in conjunction with the new Spring House.

- 24. Bank Barn** – This facility will be a new or relocated wood-construction bank barn that will be used for boarding horses. It is located within a paddock area near the Outdoor Show Ring and Indoor Arena.
- 25. Historic Farm Village Area** – A 1-acre area for an Historic Farm Village is located near the Core Facility and Educational Classrooms. The area may potentially support a variety of historic farm structures (such as a blacksmith shop and saddlery) relocated from other properties in Baltimore County.



# 6. master plan

land use



Figure 6.10: Land Use Diagram

## Land Use

As was described in the Program Study section of this document, the planning team grouped the various site uses by similar activity, making sure to encourage synergies through adjacencies. These activity zones are: Education, Office, Equine/Livestock, Recreation, Site Service and Agriculture. The diagram makes it clear that the dominant uses for the site will be for demonstration agriculture, education, and recreation.



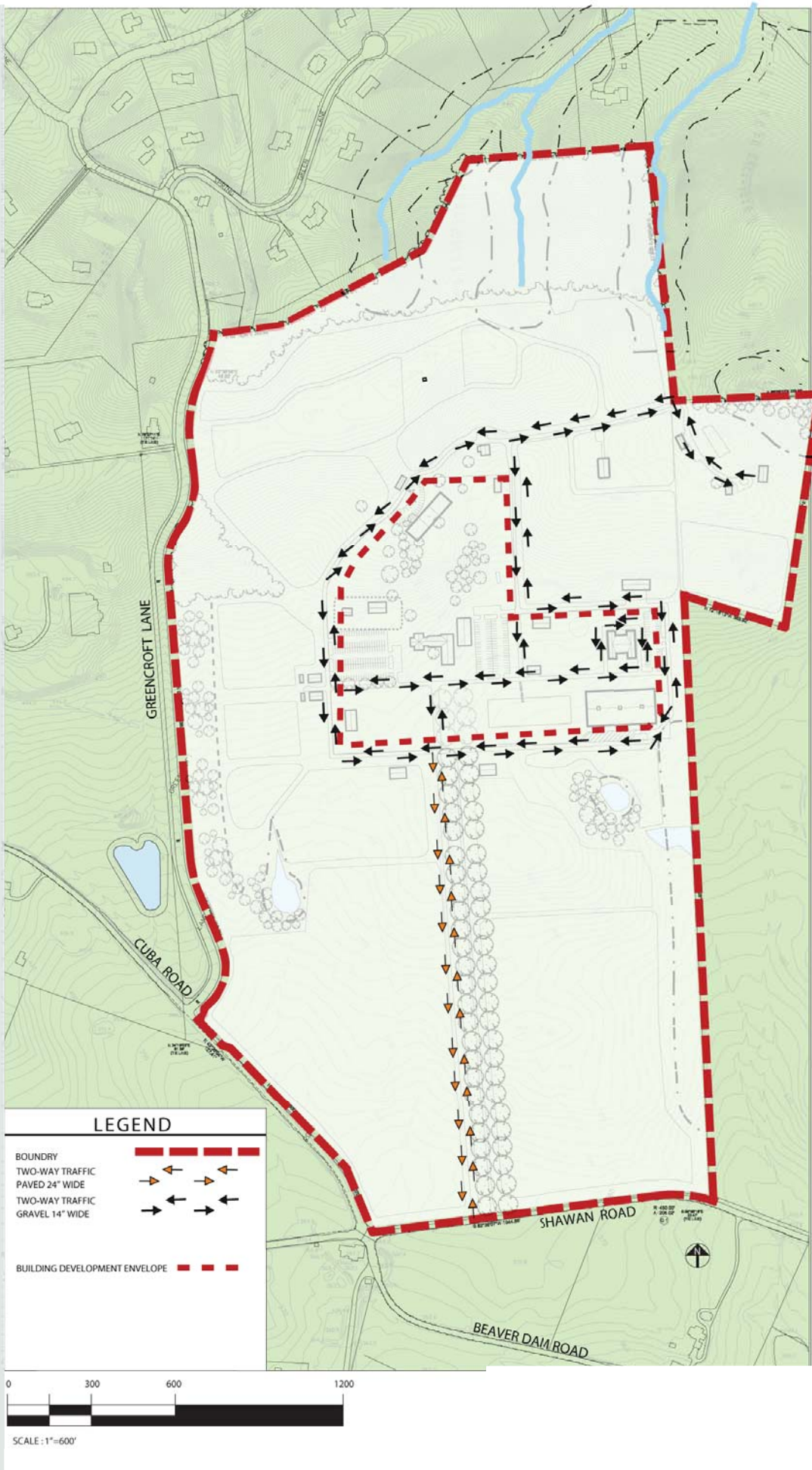


Figure 6.11: Vehicular Circulation Diagram

### Vehicular Circulation

The existing 24'-wide asphalt-paved road to the west of the allée of trees will be reused as the entrance and primary road for the site. The two-way ring road around the events lawn is the primary circulation for vehicles to access parking for the various facilities. This road will be paved with crushed stone. Additional two-way gravel-paved roads will follow the layout of the existing farm roads and will give access to the Maryland Horse Breeders Association facility on the hill and the site service zone on the "flag lot."

# 6. master plan

## landscape and parking areas

### Landscape and Parking Areas

The character of the agrarian landscape is one of simplicity and utility. Hedgerows are planted to define one field from another and to serve as wind breaks. Fields are planted in locations, shapes and sizes that allow for ease of planting and harvesting. Similarly, orchards and vineyards are planted in geometric patterns to make most efficient use of the land, facilitate harvesting, and respond to sun angles. Plantings around structures provide shade and screen winds. Ornamentation is minimal.

Even around the homestead or farmhouse the landscape elements are restrained. While a greater level of detail and ornamentation may be appropriate, plantings are still used to provide a foundation for structures and to define spaces.

These principles of a simple, purposeful approach to the landscape should guide the design and implementation of new plantings proposed as part of the BCCMA master plan.

Native plants and plants that are adapted to the region should be used to the extent practical. These types of plant material are better suited to the local weather conditions and resistant to indigenous pests.

#### Buffer Plantings

Buffer plantings are proposed along Greencroft Lane to reduce the visual impact of uses to be located on the west side of the site (Figure 6.13). The more active uses include the greenhouses, garden plots, and the livestock area. Passive uses include demonstration crop areas, the vineyard, and the reforestation area. Some supplemental plantings to the existing hedgerow along Greencroft Lane may be appropriate and in areas where no buffer exists, new plantings may be installed. Any such plantings should take their queues from the types of plant material that exist. Use of native hardwoods, such as maples and oaks, and evergreen trees, such as pines and hollies, would be appropriate. Massing of shrubs may also be appropriate to screen and soften views at the ground level. It is envisioned that while the view from Greencroft Lane will change somewhat, the views as experienced by the drivers will remain very much in keeping with the agricultural theme that defines the property in its current condition.

Other buffers between uses may also be appropriate. Plantings between the greenhouses and the livestock area may help to screen views while providing a sense of separation between the two areas. Similar plant materials to those mentioned above should be considered.

#### Parking Areas

The proposed number of required parking spaces is based on calculations provided by Sabra, Wang & Associates (SWA), traffic engineering consultants to the project. SWA based their recommendation on established standards for parking quantities

required for the various uses to be developed on site. For more information about the parking counts, see the Traffic Study section of this document.

Parking has been located to conveniently serve the facilities to which they are adjacent (Figure 6.11). Where possible, parking lots have been combined to serve more than one facility. Parking has been located to the sides and behind buildings, where practical, to minimize the impact of large fields of paving on visitors and pedestrians. The landscaping of parking lots should be used to screen views and soften the impact of the parking resources. Hedges should be located between the parking areas and adjacent roads, sidewalks and buildings to minimize the visual impact of parked cars. Additional plantings should be incorporated into the parking fields in islands or infiltration swales to further screen views and break up large expanses of paving. It is important to use plant materials that stay in the 3' maximum height range for most of the plantings. This allows for screening of cars while maintaining visibility across the parking areas which is important for a sense of safety.

Shade trees should be planted around the edges of the parking areas and in islands within the parking fields to provide shade. This is important to minimize the “heat island effect” and for comfort but also to help in creating a sense of scale and to define spaces.

Where possible, bio-retention swales should be incorporated into the design of parking resources. These are facilities that collect storm water runoff, allow for infiltration and clean water before out-letting into the nearby drainage ways. The Maryland Department of the Environment has developed several excellent resources to guide the planting of such facilities and these may be referenced for specific plant material selections. Other innovative techniques to be considered include the use of pervious paving materials such as unit paver systems, gravel, or pervious asphalt and concrete materials (Figure 6.12).

Events requiring more parking than is provided in the paved lots are anticipated on an occasional, recurring basis. Overflow parking for such events is accommodated on the east side of the site. This area would be a flat lawn area that would serve as a multi-use and passive recreation resource most of the time.

#### Plantings Around Buildings

As mentioned above, plant materials were historically used in a utilitarian and restrained manner. This should be the approach for new buildings proposed at the center. Plantings should be used to highlight entrances, gateways and portals. These can serve as visual queues for visitors to assist in providing direction and way-finding. They should serve to create spaces. Large shade trees can help in defining large outdoor gathering areas. Smaller trees and shrub plantings can create scale and a sense of place for more intimate outdoor spaces. This is particularly important where indoor-outdoor relationships between spaces are part of the programming of a building or use area. Plantings can be



Figure 6.12: Innovative Pervious Paving Materials



Figure 6.13: Existing Buffer Plantings



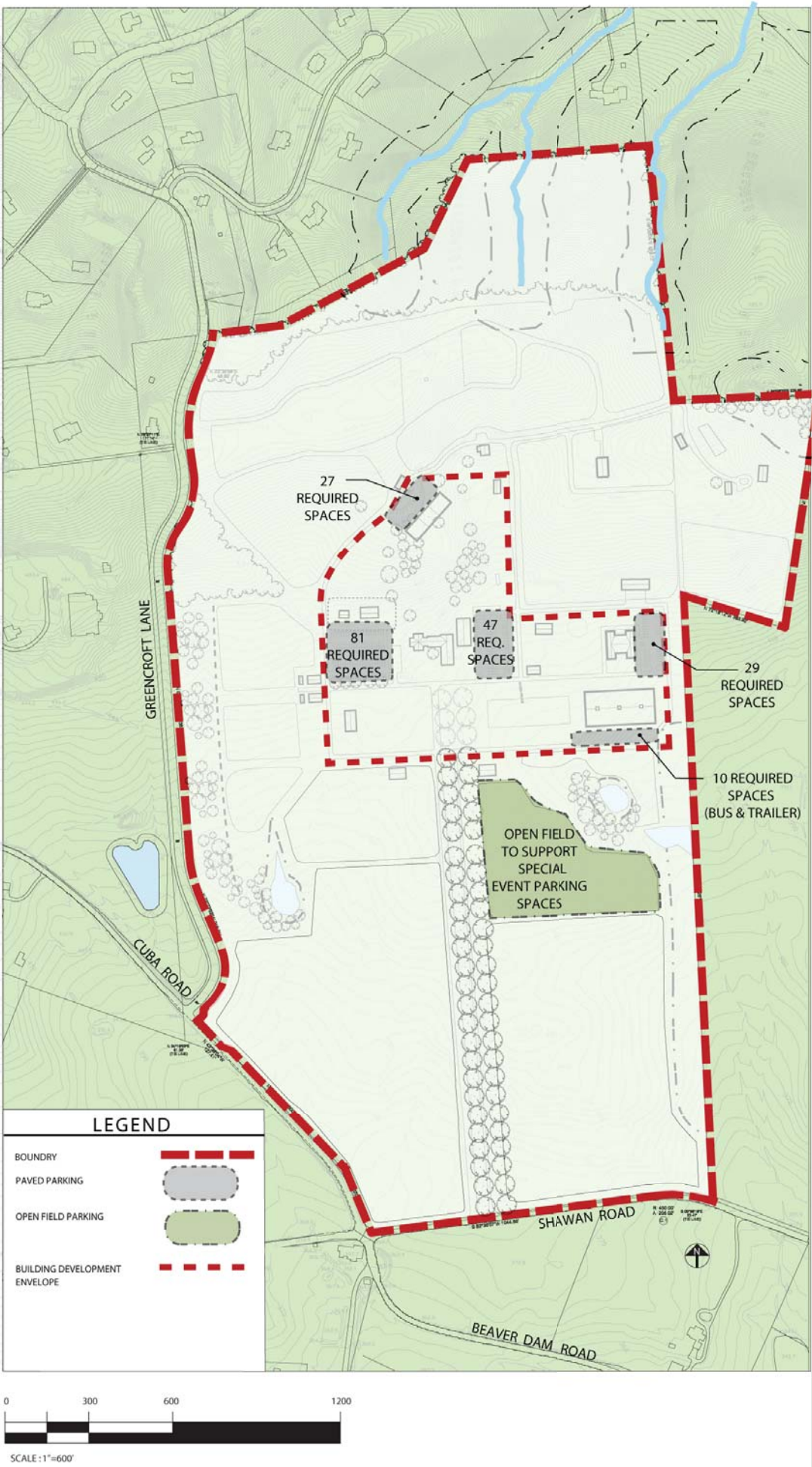


Figure 6.14: Parking Diagram

used to soften large facades, frame certain building elevations and screen service-side uses. Detailed and specialty plantings should be reserved for areas that will receive a high level of pedestrian use, are in high visibility areas, or may be part of an interpretive experience. These types of showy and interesting plantings are ones that people enjoy. They also require a high level of on-going care, so it is important to understand the level of maintenance that will be available before designing and installing such plantings.

These principles can be appropriately applied to the Core Facility. The proposed building is designed as an “L” creating an entry court or “farmyard.” While facilitating access to the building, this area should also include some expanded hardscape areas to accommodate small gatherings. In addition,

specialty plantings could be included to provide interpretation, express a theme, or simply for enhanced aesthetics.

The north side of the building could be designed to include an informal outdoor gathering area, framed by trees and shrub massings, to create a sense of enclosure. Some additional hardscape areas could be provided to accommodate small groups for picnicking and sunning on a south-facing slope.

The remaining edges of the building should include simple plantings that soften facades, anchor corners and highlight doors and other architectural features. A palette of native plants could further the interpretation of the facility and minimize long term maintenance and replacement costs.



# 6. master plan

recreational pedestrian paths

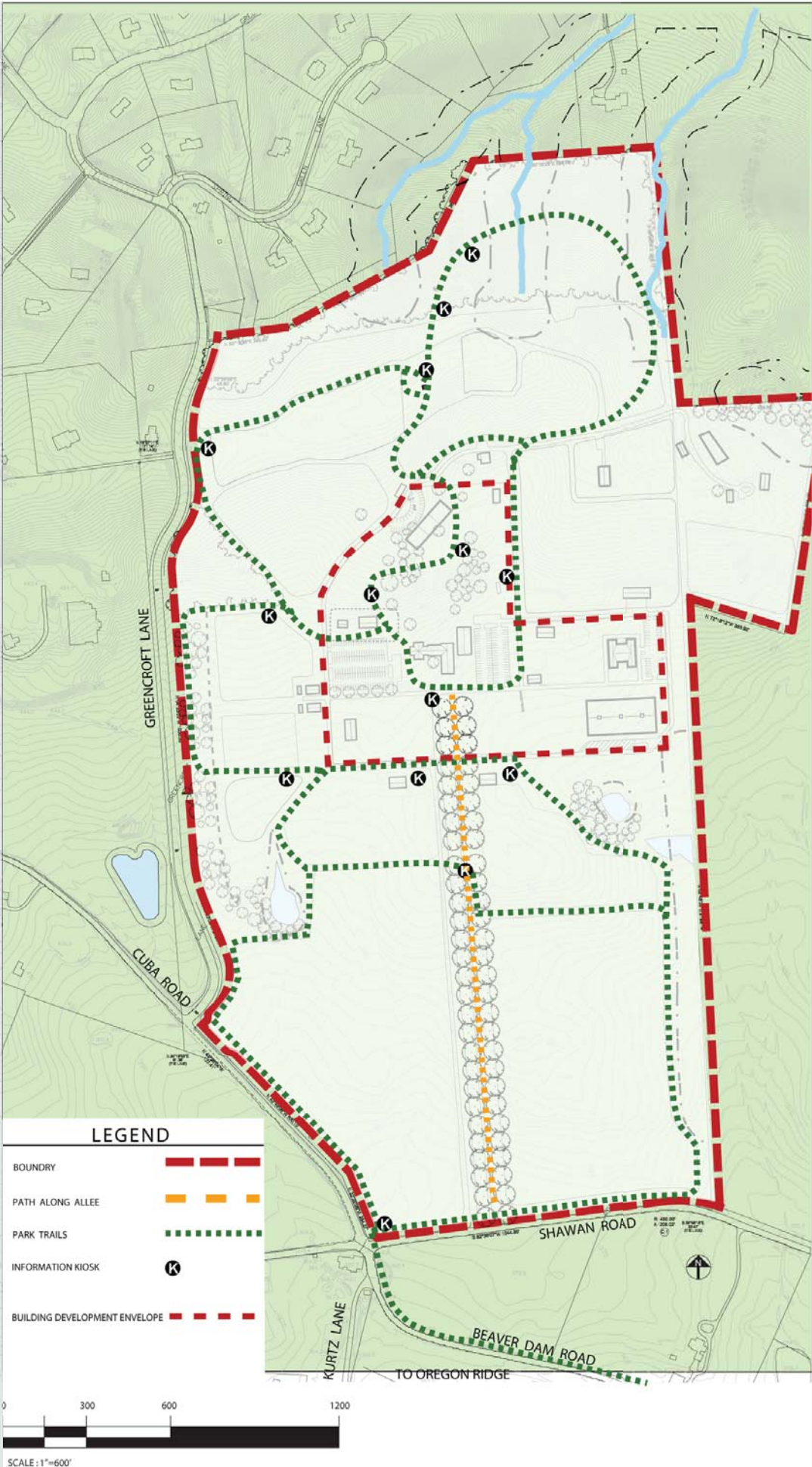


Figure 6.15: Recreational Pedestrian Trails Diagram

## Recreational Trails

Recreational and interpretive trails are planned to connect all major facilities of the site. The trails link a series of educational kiosks that will describe the various activities that go on in the facilities and on the demonstration plots. These kiosks will link the activities on the site to agricultural activities in Baltimore County. The most generous path will be that located within the existing allée of Sugar Maples, which will allow for beautiful views into the demonstration agricultural fields and shaded areas for small gatherings and picnicking.

The intent of connecting the trails with Oregon Ridge Park is that a pedestrian visitor can cross Shawan Road and walk through

the BCCMA site, observing the educational activities that are situated around the entire facility and taking in the many beautiful vantage points. Care will need to be taken to establish a safe, viable connection with Oregon Ridge Park, particularly with the crossing of Shawan Road at the Cuba/Shawan/Beaver Dam Road intersection.

Only pedestrian paths will be available at the BCCMA site. Other types of trails (bicycle, equestrian, etc.) were deemed not appropriate for this site. Horse Riding opportunities may be periodically available in the Indoor Arena or Outdoor Show Ring.



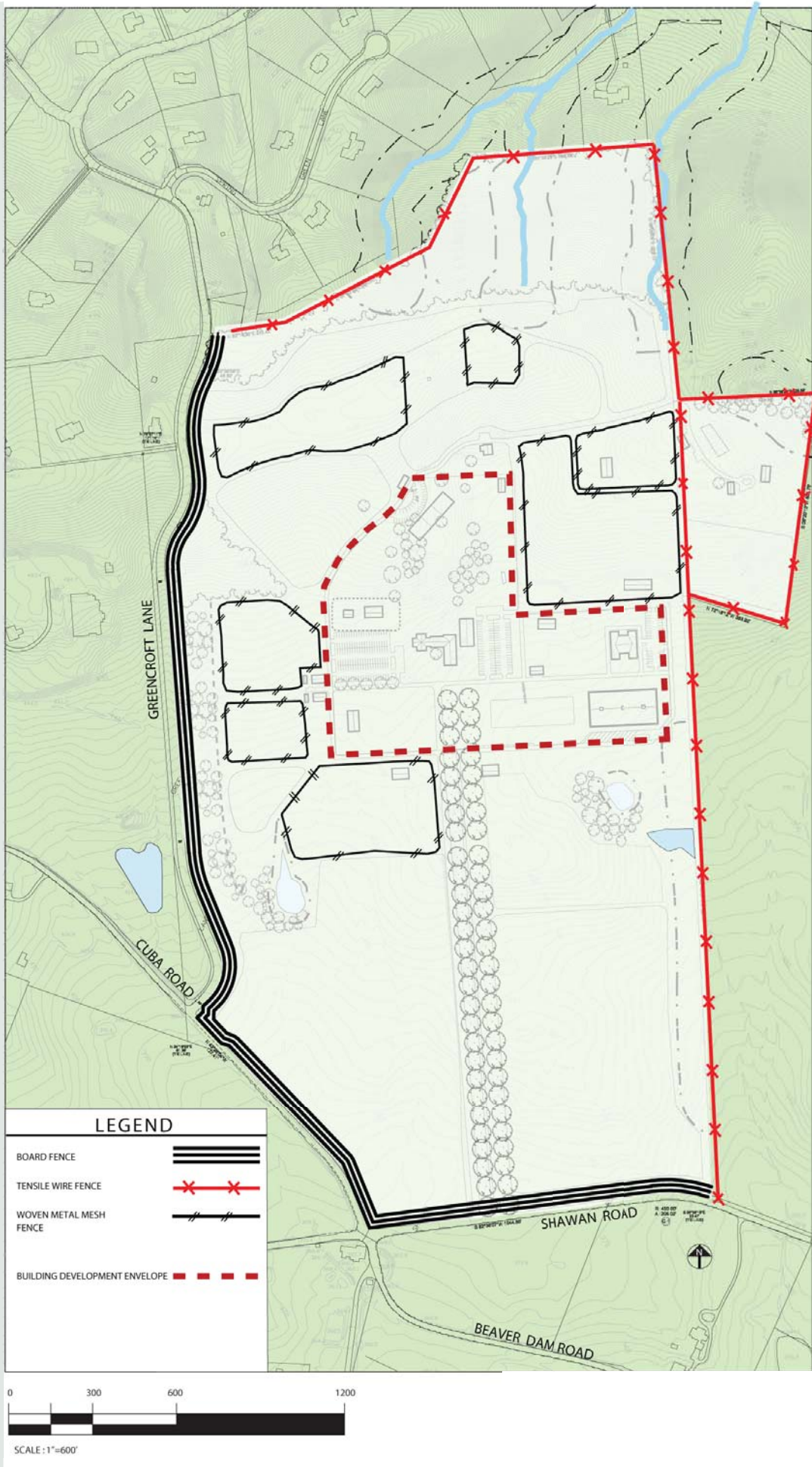


Figure 6.16: Fencing Diagram

### Fencing

A significant visual component to the site will be the fencing. A variety of different fence designs were reviewed that address different site-related issues. An attractive, three-board wooden post-and-rail fence will be installed to delineate the boundaries of the site most visible to the public along Shawan Road and Greencroft Lane. Woven metal mesh fencing must be provided to contain the horses and livestock that will be on-site. Woven metal mesh fencing for deer control must be provided at the demonstration gardens and sensitive crop areas, such as the vineyard. A fence must also be provided to protect the perimeter of the site and the site service areas that are not accessible to the public; this will be a tensile wire fence. Electric fencing will

not be used on-site. For images and some further discussion of fencing, see the Concept Design Guidelines section of this document.

# 6. master plan

## stormwater management

### Stormwater Management

The proposed development at the BCCMA will have several drainage areas and outfalls based on the existing and proposed topography and proposed improvements. The site is topographically divided along a north–south drainage divide, basically following the existing entrance/exit roadway up to the existing ridge line at approximate elevation 550'. Therefore the narrative includes a West and East analysis.

The FEMA floodplain map, FIRM Panel # 240010 0235B indicates the site is classified in the Class C Zone; therefore no 100-year flood limits occur on site. The site is located in the Loch Raven Watershed. The site soils have been identified; see the Site Analysis section of this document. The existing site slopes from the top ridge, north to south, with varying slopes between 25% to 4%.

Development (structures and supporting parking) is consolidated to approximately 50 acres, at the middle section of the site. The southern portion of the site is programmed to remain agricultural as a demonstration crop area. Per Baltimore County Code Section 14-155 Applicability (B) (1) (I): “Agricultural land management practices” are exempt from requirements to provide stormwater management.

A conceptual stormwater management scheme was prepared for the Master Plan. Two proposed stormwater management reserve areas, dedicated to stormwater management best management practices (BMP's), have been located (Figure 6.17). Preliminary pond size at the west side of the site is approximately 1.0 acre. Preliminary pond size at the east side of the site is approximately 1.1 acres. This area allows for grading and design parameters. Proposed grading for the overall site is assumed and not shown graphically. Non-structural, low impact features will be proposed throughout the site as structures and grading are developed in detail. Stormwater management associated with improvements along Shawan Road are not considered with this summary.

SWM design will be provided following the DEPRM (County) and MDE (State) code requirements. Proposed BMP measures are to be located outside of wetland and forest buffers, to avoid MDE permit requirements. Stormwater management (SWM) requirements include Water Quality (WQv), Recharge (Re) and Channel Protection Volume (Cpv) control, for water quality and quantity control. The site is located in the Loch Raven Watershed; therefore no 100-year control is required for stormwater management.

#### West Side Drainage Divide

The existing impervious coverage was estimated at approximately 2.7 acres. The proposed impervious coverage was estimated at approximately 4.4 acres. Calculations for the drainage areas to the existing farm pond and two existing culverts at the intersection of Cuba Road and Shawan Road were performed. Preliminary runoff curve numbers (RCN) and time of concentration were evaluated to determine stormwater management requirements for WQv, Re & Cpv.

The drainage area to Shawan Road Culvert (W1) is 15.0 acres pre- and post-construction of a possible impervious increase due to a cross roadway connection from the existing entrance roadway to Cuba Road, as illustrated in the Traffic Study section of this document. This coverage stormwater management would be addressed with grass swale adjacent to the proposed roadway.

The drainage area to Cuba Road Culvert (W2) is 47.2 acres pre-construction and 49.2 acres post-construction. This area is then broken down into an analysis at the existing farm pond as this area includes all the improvements proposed except the cross roadway connection from the existing entrance to Cuba Road. An off-site drainage area of 4.2 acres drains through the site from an inlet system in Greencroft Lane down to an existing culvert at Cuba Road. This drainage area will be graded to by-pass the proposed stormwater management control features and drain to the existing farm pond as is does in current conditions.

The drainage area to existing farm pond (W3) is 13.2 acres pre-construction and 33.6 acre post-construction. The post-construction controlled drainage area will be designed to split outfall drainage to the existing pond (to match pre-developed drainage area) and also to sheet flow out over the crop area. This area includes the stormwater management control features required to meet regulations.

#### East Side Drainage Divide

The existing impervious coverage was estimated as approximately 2.7 acres. The proposed impervious coverage was estimated as approximately 5.1 acres. No off-site drainage contributes to this drainage area. Calculations for the drainage areas to the existing farm pond and three exit points along the property to an established stream were performed. Preliminary RCN and time of concentration were evaluated to determine stormwater management requirements for WQv, Re & Cpv.

The drainage area to Southern Stream point (E1) is 20.7 acres pre- and post-construction. No disturbance is proposed in this area. Existing fields will be used as demonstration crop fields.

The drainage area to Mid-property Stream point (E2) is 36.0 acres pre-construction and 33.5 acres post-construction. This area is then broken down into an analysis at the existing farm pond as this area includes all the improvements.

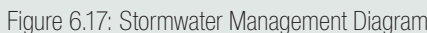
The drainage area to existing farm pond (E3) is 27.2 acres pre-construction and 31.7 acres post-construction. The post-construction controlled drainage area will be designed to have a by-pass drainage area of 4.6 Acres that is not treated prior to entering the existing farm pond. All proposed impervious coverage should be graded away from this area. This area includes the proposed grass channel for the natural spring. The remainder of the drainage area to be controlled by stormwater management features which meet regulations.

The drainage area to Northern Stream point (E4) is 4.2 acres pre- and post-construction. This area is on the northern side of the ridge and drains northeast. The improvements proposed will add minimal impervious coverage. Dry wells and an infiltration trench are proposed for stormwater management in this area.

Low-impact best management practices (BMP's) will be proposed for all drainage areas such as; overland flow through fields, permeable pavement, grass swales, rain gutters and bioretention. Such practices will reduce the WQv & Re management quantities. Credits for low impact devices and other “green” measures can be taken into account when determining the Cpv control. Quantitative credits can be determined through coordination with DEPRM during detailed design.

Currently the existing farm ponds manage water quality and infiltration of the 1-year storm for 40.4 acres. The increase in impervious coverage, creating the faster corrosive moving rain water, will be slowed and managed by creating less steep





# 6. master plan

## water and septic

### Water and Septic

This site is located outside of Baltimore County's Urban Rural Demarcation Line (URDL); therefore, public water and sewer are not available. The site is currently serviced by on-site well and septic; however, there is no data confirming the location of the existing wells and septic areas. Additional field-run surveys will be required in future design phases to confirm the number and location. Preliminary data indicates that there are three existing wells and three septic areas on the property. To note, most of the existing buildings will be demolished. The few structures that will be reused will require new water and sewer service connections. Existing septic(s) and well(s) will be abandoned or removed as necessary.

The County Department of Environmental Protection and Resource Management (DEPRM) has performed an analysis for estimated peak sewage flow demand for this site based on the proposed Master Plan.

#### Water Analysis

This Master Plan proposes a well or looped well system be installed to service the site. Well yield testing will be required. The well yield testing will provide design data required to determine the size and location of proposed wells. Based on surrounding sites well drill information, it is anticipated that a well drill on-site can generate the 10 or more gallon per minute (gpm) yield rate required for a 5,000 gallon per day (gpd) system demand. Well depth can be estimated at 300 feet deep, per current regulations. The Master Plan shows two possible locations for wells (Figure 6.18). These locations are selected based on layout regulations and accessibility but can not be finalized without yield and quality test results.

The anticipated water demand can be assessed from the peak sewage flow estimations performed by DEPRM in November 2007.

Existing well(s) may be utilized for irrigation (e.g., for crops), fire suppression or possibly as a back-up system. Testing and county regulations will determine if existing wells can be utilized.

- The following potable well location design guidelines are provided:
- At least 10' from the property line.
  - At least 15' from roads or dedicated ROW.
  - At least 30' from any building foundation.
  - At least 100' from septic systems or other "sources of contamination".
  - At least 100' from adjacent wells (on or off site).
  - At an elevation higher or equivalent to the highest elevation of the septic system.

Fire protection needs for facilities have not been assessed nor included in the average gallon per day draw proposed. Assume storage tanks and separate plumbing system will be required if fire suppression is required per building codes. Future project development will follow County standard design development review and inspection process.

The proposed well system will service more than 25 people; therefore the system will be classified as "non-transient, non-community". A non-transient, non-community system is required to be tested, per EPA regulations and enforced by MDE code. It is anticipated that this site will require a state permit to build and state mandated quarterly water testing.

An amendment to the Baltimore County Master Water & Sewer Plan must be obtained if proposed private wells will use 5,000 or more gpd. The usual amendment procedure entails a written request and justification to DPW prior to May 1st of each year and will typically be voted on by the Planning Board by November of the same year.

This site is classified as a "multi-use facility" for water consumption. A Water Balance Assessment (WBA) is required for all non-residential properties. The WBA should follow Baltimore County DEPRM "Requirements for Hydrogeologic Studies".

#### Wastewater (Septic) Analysis

Based on the Baltimore County Soil Survey (see the Site Analysis section of this document), the site soils do not require a wet season perc test. The soils do not fall under the "excluded" (unsuitable) soil types listing. Perc tests were performed in May 2006 in a grid area running east to west, along the ridge where existing barn buildings are now located. The soils in the perc test area are classified as the Baltimore Gneiss formation. The perc test findings indicate proper infiltration rates to support a septic system design. Additional perc tests may be required to accurately locate the proposed septic systems based on the final space program usage and project phasing. The majority of the southern portion of the site is classified as the Cockeysville Marble formation. Baltimore County DEPRM considers the Cockeysville Marble formation to traditionally not be supportive of septic design infiltration rates. Therefore the proposed septic collection systems will avoid the southern portion of the site. The break in soil formations can be identified on the site as to generally follow the 440' contour line.

Existing septic cleanouts have been located near the old farmhouse pool area. These systems will be removed or abandoned as necessary. New septic systems must be a minimum of 50' from this location.

This Master Plan proposes three separate septic collection systems (Figure 6.18). The estimated peak sewage flow demand



performed by DEPRM in November 2007 has been used in the following system summaries.

System 1 would include Buildings 1,3,4,5,6,7, 9, and 11. The estimated average daily flow is 1500 gpd. The estimated peak flow is 7880 gpd. Due to the proposed building locations and the site soils, gravity sewer lines are proposed from the buildings to a holding tank, located in the 5,000 SF septic reserve area, south of the proposed Equine Vet Clinic. This section of the system will include a grease trap from the kitchen area, pre-treatment, flow equalization, tank(s) and pump(s). The effluent will then be pumped to one of three pressure dosed drain fields located in the 3.8 acre septic reserve area north of the proposed Equine Vet Clinic.

The design of Phase 1 improvements should investigate the upgrade and/or additional sizing required for the ultimate Master Plan development. The Phase 1 design will incorporate usage space for the ultimate Master Plan development.

System 2 would include Building 2 with an estimated average daily flow of 585 gpd. This system is proposed as gravity fall to a deep trench system located in the 1 acre septic reserve area down the slope from the proposed Maryland Horse Breeders facility.

System 3 would include Buildings 17 and 19 with an estimated average daily flow of 750 gpd. This system is proposed as gravity fall to a deep trench system located in the 10,000 SF septic reserve area, east and down the slope from the proposed Farm House and Maintenance Buildings. Buildings 9, 10 & 11 would have no restroom facilities or potable water service.

The following septic location design guidelines are provided:

- At an elevation lower or equivalent to the well, unless approved by DEPRM.
- At least 20' from any proposed building.
- At least 100' from nearest wells. (on or off site) At least 50' from abandoned well location.
- At least 10,000 square feet is required for each residential type use septic and reserve area. The systems over 5,000 gpd require 30,000 sf septic and reserve area.
- At least 10' from property lines or dedicated easements.
- At least 100' from any stream or body of water.
- Outside of forest buffer and forest conservation area.

None of the proposed systems are sized to accommodate large festivals with greater than 300 attendees. Portable restroom facilities will be required to service these types of events. Access to permanent restrooms in the buildings must be restricted from public use during special events.

Follow County standard design development review and inspection process.

A Subsurface Discharge Permit (SDP) must be obtained from MDE for discharge over 5,000 gpd. A SDP application must be submitted to MDE through DEPRM prior to Hearing Officers Hearing (HOH). DEPRM will approve and forward SDP to MDE following approval of Hearing Officer.

### Geothermal Energy

A ground source heat pump may be proposed to service some or all of the proposed buildings. A ground source heat pump is an electrically powered system that taps the earth's natural heating/cooling constant temperate strata. A closed loop system can have vertical or horizontal pipes embedded in the ground near the target structure. Water or an antifreeze solution is circulated through the pipes. In the winter the fluid collects heat from the earth and carries it through the system into the building. The system reverses itself in the summer by pulling the heat from the building and placing it in the ground. A ground source piping system has been located under the proposed parking lot to the west of the proposed Core Facility. The system will have to be designed for traffic loading. Maintenance access to the manhole covers will be easily assessable. Soil parameters will determine the design depth and spacing.

### Dry Utilities

Dry utilities serving this site are located in the vicinity of Shawan Road. Baltimore Gas and Electric (BGE) currently provide electrical service to the site via overhead utility lines located along Shawan Road. Cable television (CATV) service is provided in this region by Comcast. Verizon provides telephone service.

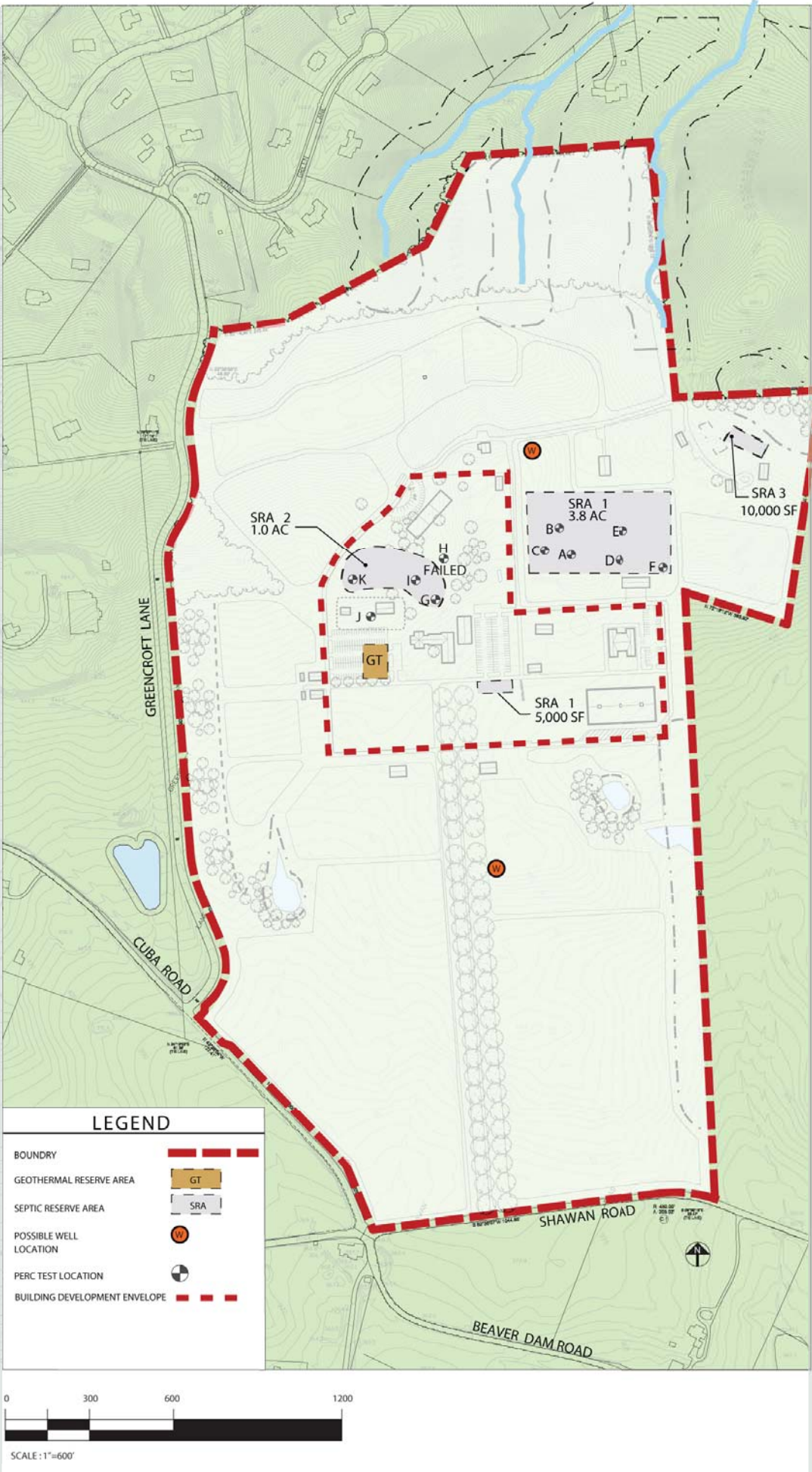


Figure 6.18: Wells and Septic Reserve Areas Diagram



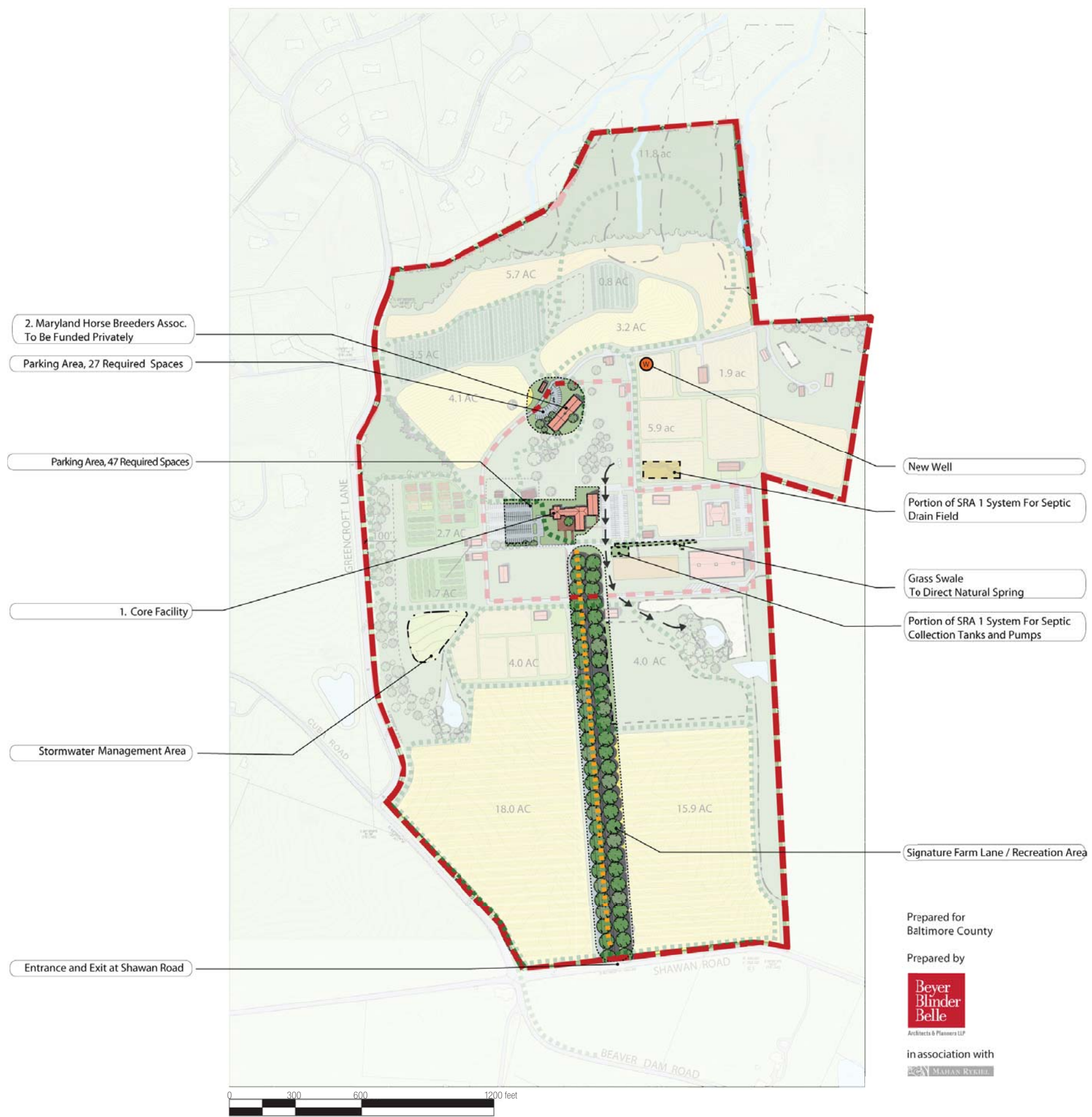


Figure 6.19: Phase 1 Initial Construction Diagram

### Phase 1: Initial Construction

Phase 1 of the Master Plan will include the following items:

- Core Facility – Construction of the 14,100 SF Core Facility.
- Parking – Partial parking build-out to account for parking needs of Core Facility.
- Utilities – Partial utility infrastructure implementation to support Core Facility.
- Site Work – Required grading to allow for construction of Core Facility and infrastructure support.
- Site Demolition – Demolition of only the structures that directly conflict with construction of the Core Facility.
- Partial Road Demolition – Demolition of only portions of the road that conflict with the construction of the Core Facility.

- Phase 1 Stormwater Management – Installation of SWM area on the west side drainage divide only; BMPs and grass swales to address the Core Facility, supported parking areas, sidewalks, and entrance road improvements; vegetated swale on the east side drainage divide to address the natural spring.
- Phase 1 Well and Septic – Installation of septic tanks, pumps and reserve areas from septic system 1 to address the Core Facility; the number and location of water wells should be tested and confirmed.
- Maryland Horse Breeders Association Facility – To be funded privately.



# 6. master plan

future construction



Figure 6.20: Phase 2 Future Construction Diagram

## Phase 2: Future Construction

The future phasing will include the following:

- DEPRM Community Reforestation Nursery.
- DEPRM Central Crew Office and Workshop.
- Future Expansion to Core Facility.
- Demonstration Theater.
- Relocation and Restoration of Corn Crib.
- Relocation and Restoration of Cottage for Gardening Shed.
- Educational Classrooms and Comfort Station.
- Greenhouses.
- Restoration of Relocated Ban Barn to become Farm Museum.
- Livestock Barns and Paddocks.
- Restoration of Old House for Farm Manager.
- Site Service Shed and Shop for Maintenance and Vehicles.
- Renovate Existing Caretakers House for Intern Farmers.
- Indoor Arena.
- Outdoor Show Ring.
- Equine Vet Clinic and Support Pens and Paddocks.
- Demonstration Vineyard Storage Shed.
- Completion of Site Circulation.
- Completion of Parking and Roadways that were not implemented in Phase I.
- Completion of Utilities that were not implemented in Phase I.
- Completion of Stormwater Management Plan that was not implemented in Phase I.
- Installation of Fencing.
- Installation of Recreational Pedestrian Trails and Interpretive Kiosks.



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# 7-concept design

guidelines

## Introduction

Over the course of the master planning process, the planning team toured many different agricultural sites including a series of local working farms to inform an understanding of not just farms, but local Baltimore County farms. Farms visited ranged from a vineyard to a multi-variety organic nursery, from a poultry farm to an Angus cattle farm:

Boordy Vineyard	Vineyard
Caves Farm	Horse Breeding and Training
Colhoun Farm	Equestrian
Freshfields Farm	Organic Produce
Friendly Farms	Corn
Greene Sheep Farm	Sheep
McGinnis Farms	Beef Cattle, Hay, Soybeans
Manor View Farm	Landscape Nursery
Maryland Stallion Station	Thoroughbred Stallions
One Straw Farm	Organic Produce Nursery
Oxon Hill Farm	Dairy Cows
Roseda Black Angus Farm	Beef Cattle
Sagamore Farm	Thoroughbred Horses
Shelter Island	Horse Farm
Springfield Farm	Organic Poultry

In the end, Baltimore County farms have the same design approach as many farms across the United States. They tend to be one with the land, bringing the outdoors in and using honest materials that reference nature. These materials form a local and rural palette. They employ simple forms and often initially use symmetry, which may change as the structures grow over time. Over the following pages, examples are given for all of the primary design moves and materiality of farms in general and farms in Baltimore County in particular. With an amassed number of examples from the County, a conceptual design language for the Core Facility and Maryland Horse Breeders Association was established.



## Siting, Plan, Scale and Massing

A handful of overarching characteristics define the feel of a farm. Initial design moves made in siting, plan, scale, and massing set the stage. First and foremost, farm structures are placed carefully within the site. They are sited to minimize exposure to the climate and to maximize an economy of means. This means that the buildings are usually clustered together in order to share resources and have oversight of the agricultural plots. This includes the farmhouse as well as the barns and out-buildings. The plans of farm structures are typically rectilinear, proportioned according to the local climate and available materials. Over time, generational growth accounts for added wings to the main structure. The main structure is often gable-roofed with the additions shed-roofed.

Examples of this can be seen over and over again throughout Baltimore County. The long profile of the corn crib at the Greene Sheep Farm is striking (Figure 7.02). It is set free of other buildings to allow for air circulation and solar-drying. The elevation is simple and planar. A cluster of farm buildings at Boordy Vineyards is a perfect example of tightly knit structures with the same scale and massing (Figure 7.03). Note the simple beauty that can be accomplished (Figure 7.01). A farm at Cromwell Valley Park, however, is an example of where the language takes on a local flavor. The cylindrical silo stands proud in the composition, while the gambrel roof of the barn takes on a shape popular in the wider Pennsylvania region (Figure 7.04). Similarly, the barn at the Colhoun Farm is an exception to the rule with its modified roof shape (Figure 7.05).

In the conceptual design guidelines, it is proposed that traditional siting, plans, scale, and massing be considered for both the Core Facility and Maryland Horse Breeders Association building. Slightly modifying the shapes where needed is appropriate.



Figure 7.1: Barn at Boordy Vineyards



Figure 7.02: Corn Crib at Greene Sheep Farm



Figure 7.03: Barns at Boordy Vineyards



Figure 7.04: Cromwell Valley Farm



Figure 7.05: Barn at Colhoun Farm



# 7-concept design guidelines

## precedents



Figure 7.06: Barn at Colhoun Farm



Figure 7.07: Farmhouse in Maryland <sup>1</sup>



Figure 7.08: Winery at Boordy Vineyards



Figure 7.09: Spring House at Greene Sheep Farm

### Stone Walls and Foundations

The use of rough, irregular fieldstone in early American construction was more affordable than milling lumber. On some Baltimore County properties, the stone may even have been gathered from the site. Stone also has advantageous architectural properties. Unlike timber, stone will not rot, and it becomes very strong when mortared into a monolithic wall. This gives stone advantages over lumber when it comes to holding back earth as a landscape or retaining wall. Stone is also a superior insulator.

Baltimore County is rich with examples of local farms that employ the use of local fieldstone for retaining walls, foundation walls, and even exterior walls. In Baltimore County, stone is available, but it is not abundant. Therefore, it is more often used in small applications such as in a low retaining wall or as the foundation for a farm structure. A window in the low stone foundation wall at the Colhoun Farm reveals the typical thickness of such walls (Figure 7.06). Stone walls can experience cycles of care coupled with deferred maintenance. In the case of a 19th-century bank barn, a patchwork developed in which differing types of stone, concrete, and mortar were used to repair the wall (Figure 7.10). Sometimes stone is used in greater quantities in a farmhouse, a manor house, or in a stone fence—all special instances where the use of larger amounts of stone highlights the importance of the structure on the site, the wealth of the farmer, or both (Figure 7.07).<sup>1</sup> In a special example in Baltimore County, the winery at Boordy Vineyards is housed in a nineteenth-century stone barn. The thick stone walls, in this case, provide an ideal environment for the production and aging of wine (Figure 7.08).

In the conceptual design guidelines, it is proposed that stone walls and foundations be considered for both the Core Facility and Maryland Horse Breeders Association building.



Figure 7.10: Foundation Wall of 19th-Century Bank Barn

1. Source: Jean Rehkamp Larson, *The Farmhouse: New Inspiration for the Classic American Home*, Newtown, CT: The Taunton Press, 2004, p. 52.



## Board-and-Batten Siding

Board-and-batten siding is a composition of wide vertical boards with narrower strips (battens) applied over the butt-joint between the boards. When the height of the structure exceeds the standard length of the boards, a lap-joint detail is used. It is a traditional way of cladding a building that uses extra material but provides superior durability and weather-proofing.

Farms across Baltimore County employ the use of board-and-batten siding. This practice is particularly employed on horse farms. Board-and-batten siding is the primary type of cladding used at Caves Farm, an equestrian facility in Baltimore County. On the double-height structures, one can see where lap joints were used to extend the cladding system (Figure 7.12). In this case, this detail adds to the height and importance of the structure. A barn on the Colhoun Farm also exhibits this detail (Figure 7.13). Sometimes cladding details happen at the human-scale, such as at Caves Farm where board-and-batten siding is manipulated at the window to highlight not only the importance of the structure but also the fine skills of the builders (Figure 7.14). Other regional structures that use board-and-batten siding have found their way to area farm museums where they are preserved and maintained. A relocated bank barn at the Carroll County Farm Museum reveals not only the board-and-batten siding, but also hewn timbers, peg joints, nailed connections, and painting practices (Figure 7.11). In a modern twist, the width of the exterior siding boards and density of the battens can be changed to distinguish different interior spaces as was done at a Maryland farmhouse near the Potomoc River (Figure 7.15).<sup>2</sup>

In the conceptual design guidelines, it is proposed that board-and-batten siding be considered for both the Core Facility and Maryland Horse Breeders Association building.



Figure 7.11: Bank Barn at Carroll County Farm Museum



Figure 7.12: Horse Barn at Caves Farm



Figure 7.13: Barn at Colhoun Farm



Figure 7.14: Horse Barn at Caves Farm



Figure 7.15: Farmhouse in Maryland <sup>2</sup>

2. Source: Jean Rehkamp Larson, *The Farmhouse: New Inspiration for the Classic American Home*, Newtown, CT: The Taunton Press, 2004, p. 50.



# 7-concept design guidelines

precedents



Figure 7.16: Barn in Baltimore County



Figure 7.17: Blacksmith Shop at Carroll County Farm Museum



Figure 7.18: Horse Barn at Sagamore



Figure 7.19: Metal Roofing at Lady Bird Wildflower Center in Texas

## Metal Roofing

While the earliest structures in Baltimore County likely employed wood-shingle roofs, standing seam metal roofs are popular on Baltimore County farms today. Metal roofs were introduced in the nineteenth century and were popular among farmers. Metal roofs are low-cost, lightweight, reflect solar heat, and are easily maintained, all qualities advantageous for farm structures.

Standing seam metal roofs can be seen over and over again across the countryside of Baltimore County (Figures 7.16 through 7.18 and 7.20). Sometimes the vertical seams of the roof play against the horizontal siding of the walls. At other times, the vertical seams of the roof play with the vertical planks of the walls. The density of the seams can vary. In nearby Carroll County, the planning team photographed what appears to be a notable variation: a shingle-stamped metal roof (Figure 7.17). The color can also vary greatly. The examples illustrate red, green, gray, and natural metal roofs.

In the conceptual design guidelines, it is proposed that standing seam metal roofing be considered for both the Core Facility and Maryland Horse Breeders Association building.



Figure 7.20: Barns at Friendly Farms



## Windows, Doors, and Hardware

The windows, doors, and hardware of farm structures vary in size and design between the farmhouse, barns, and out-buildings. In barns, openings can vary greatly. Barn doors are often oversized to accommodate equipment or a particular animal or crop. The same is true for any special hatches, windows, or vents. When glazed windows occur in a barn they are usually smaller openings sized to conserve heat. Barn openings are often aligned to take advantage of cross- and stack-ventilation. In the farmhouse, however, openings are human-scaled. The double-hung window is a popular and traditional feature of farmhouses. They are easy to manipulate, are good ventilators, and bring in plenty of daylight. Across the farm, openings are used to increase visibility of the property. The hardware on openings—especially doors—is scaled to the particular opening. Metal and wrought hardware is often used and contributes to the rustic feel of many farms, but the hardware mechanisms can also be humble assemblies of wood and string (Figure 7.22).<sup>3</sup>

Examples across Baltimore County display these principles. One of the historic hay barns at Hayfields County Club exhibits a series of smaller punched windows and hatches specific to storing hay (Figure 7.23). A horse barn at Caves Farm has sliding 12-by-12 ventilating windows that open onto the horse stalls (Figure 7.24) and large barn doors aligned for sightlines, ventilation and moving horses (Figure 7.21). Visible hardware on the window shutters and barn doors at Caves Farm is metal as is the wrought hinge on a structure at the Colhoun Farm (Figure 7.25).

In the conceptual design guidelines, it is proposed that a combination of openings that are both human-scaled and agriculture-scaled be considered for both the Core Facility and Maryland Horse Breeders Association building.



Figure 7.22: Latch on Farmhouse Door <sup>3</sup>



Figure 7.23: Historic Barn at Hayfields



Figure 7.24: Horse Barn at Caves Farm



Figure 7.25: Shutter Hinge at Colhoun Farm



Figure 7.21: Horse Barn at Caves Farm

3. Source: Jean Rehkamp Larson, *The Farmhouse: New Inspiration for the Classic American Home*, Newtown, CT: The Taunton Press, 2004, p. 39.



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Figure 7.26: Barn at Colhoun Farm



Figure 7.27: 19th-century Bank Barn in Baltimore County



Figure 7.28: Foyer of a Farmhouse<sup>4</sup>



Figure 7.29: Horse Barn at Stallion Station

4. Source: Jean Rehkamp Larson, *The Farmhouse: New Inspiration for the Classic American Home*, Newtown, CT: The Taunton Press, 2004, p. 38.

### Timber Framing

Just as the use of fieldstone was popular in early American construction so too was the use of hand-hewn or rough-hewn timbers. While stone is great in the massive assembly and compressive strength needed for retaining walls, timber is good in the light assembly and tensile strength needed for open frameworks. In barns, longer, thicker logs are used for posts and beams and thinner, shorter logs are used for supporting members. Triangulation allows fewer pieces of wood to be used and is also stronger structurally. Timber frames can easily be modified as equipment and agricultural standards change.

In Baltimore County, hand-hewn timbers can be found in several older barns including at the Colhoun Farm (Figure 7.26) and in a 19th-century historic bank barn that is a candidate for relocation to the BCCMA site (Figure 7.30). Here, longer, thicker logs were hewn, spaced closely, and anchored in stone retaining walls to support the open barn framework above (Figure 7.27). In barns, the secondary framework is also left exposed; however, in farmhouses plaster can be applied between timbers for insulation and for a clean wall surface (Figure 7.28). Sometimes the framework connections are visible, as in the case of a horse barn at Stallion Station, where the fine pegged joinery can be seen (Figure 7.29).

In the conceptual design guidelines, it is proposed that timber framing be considered for both the Core Facility and Maryland Horse Breeders Association building. Because today such framing is more expensive than milled lumber using this detail in special public areas such as the main lobby and multi-purpose room is encouraged.



Figure 7.30: 19th-century Bank Barn in Baltimore County



## Other Architectural Features

In addition to the aforementioned forms and honest materials, some farm structures have additional architectural interest: cupolas, silos, weather vanes, or fencing, for example. Cupolas bring in natural light (Figure 7.34), allow for stack ventilation (Figure 7.35), and give a place for the weather vane to sit (Figure 7.36). In larger barns or structures, multiple cupolas can be used (Figure 7.34). Silos also bring visual interest. Silos have the very practical function of storing grain, but they also bring a round form into otherwise angular composition. Sometimes silos are a different color and material than the primary structure adding to the contrast (Figure 7.37). Weather vanes similarly bring a decorative element to a building while telling the direction of the wind. Finally, fencing is another operational necessity that also adds a layer of architectural interest and texture to a farm site. Differing types of fencing are appropriate for different purposes. Wood post-and-board fencing is often used for equine fencing (Figure 7.31); woven wire mesh fencing for other livestock fencing (Figure 7.32); and woven wire mesh fencing (sometime scent-treated) for deer control (Figure 7.33).

In the conceptual design guidelines, it is proposed that a variety of architectural features be considered for both the Core Facility and Maryland Horse Breeders Association buildings.



Figure 7.31: Wood Fencing at Stallion Station



Figure 7.32: Woven Mesh Fencing at Carroll County



Figure 7.33: Deer Control Fencing at Cromwell Valley



Figure 7.34: Exhibit Barn at Carroll County Farm Museum



Figure 7.35: Barn at Boordy Vineyards



Figure 7.36: Barn at Colhoun Farm



Figure 7.37: Dickinson-Gorsuch Farm Museum



Figure 7.38: Horse Barn Stallion Station





# 8-concept design

core facility

## Introduction

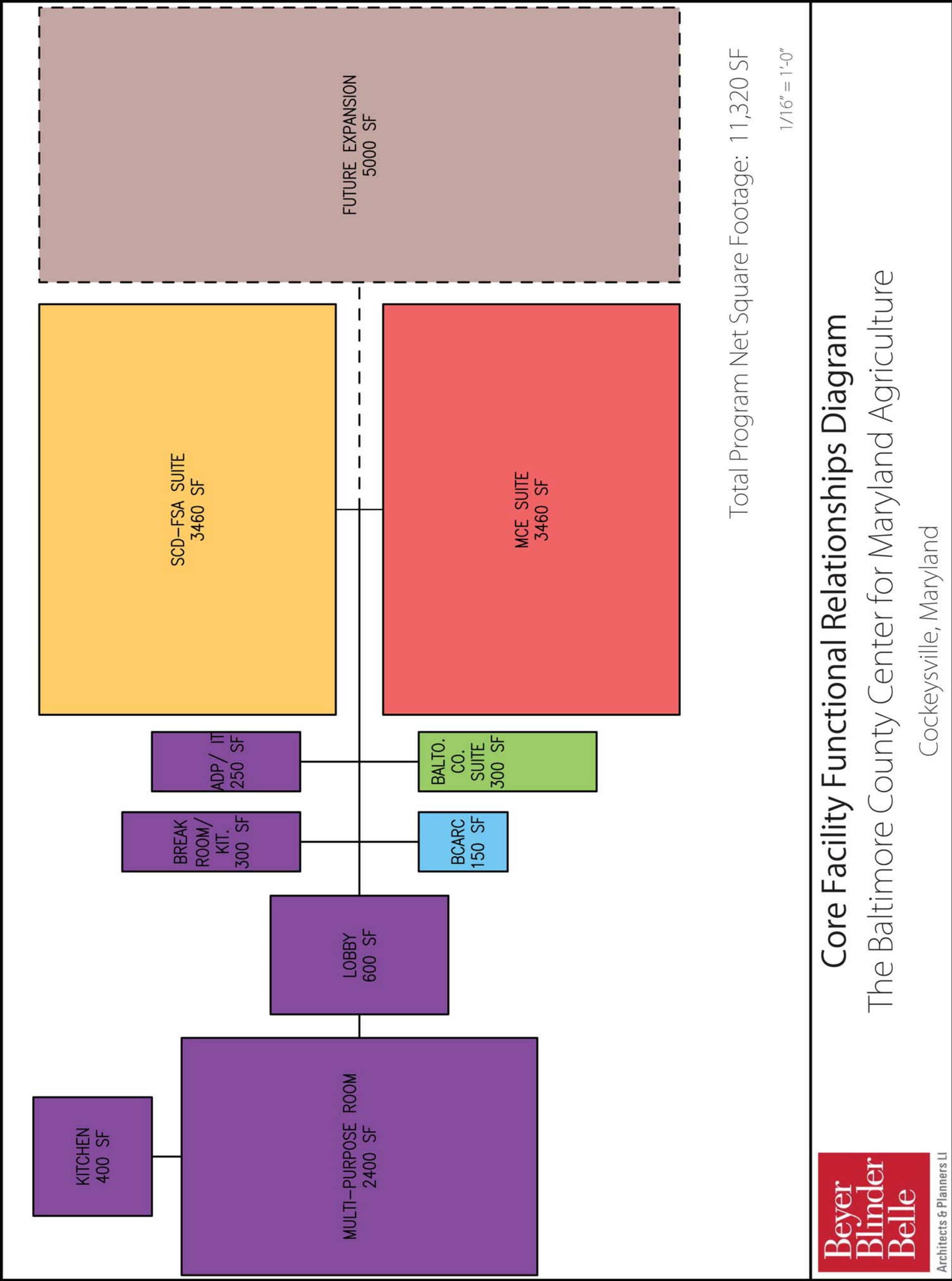
The Core Facility for The Baltimore County Center for Maryland Agriculture will house the Maryland Cooperative Extension of Baltimore County, Baltimore County Soil Conservation District, Natural Resources Conservation District, Maryland Department of Agriculture, USDA – Farm Service Agency – Baltimore County Service Center, various Baltimore County agencies, and BCARC, as described earlier in the Master Plan Report in Section 2 – Program Study Report.

Two concepts are illustrated in the Master Plan Report. In both, the Core Facility is a two-story facility of approximately 14,100 SF total. Both plans are L-shaped with the primary bar oriented on an east-west axis and the secondary bar oriented to the south. Having the primary orientation of the building on an east-west axis maximizes south-facing elements, which is advantageous for solar control. All corridors are double-loaded for efficiency. The primary bar houses some office spaces but is primarily shared spaces such as the Multi-Purpose Room, Lobby, and Conference Rooms. Building services are also located along this spine. The secondary, perpendicular bar houses office spaces for the largest agencies. The resulting L-shape hugs a front court or “farmyard” that can be used as outdoor gathering space. The supporting parking lot for the Core Facility is to the west, close to the Multi-Purpose Room. The Future Expansion of the Core Facility is proposed to the east in another bar connected to the main spine of the Core Facility.

Construction and materiality of the Core Facility follows the guidelines established in Section 7 – Concept Design Guidelines.

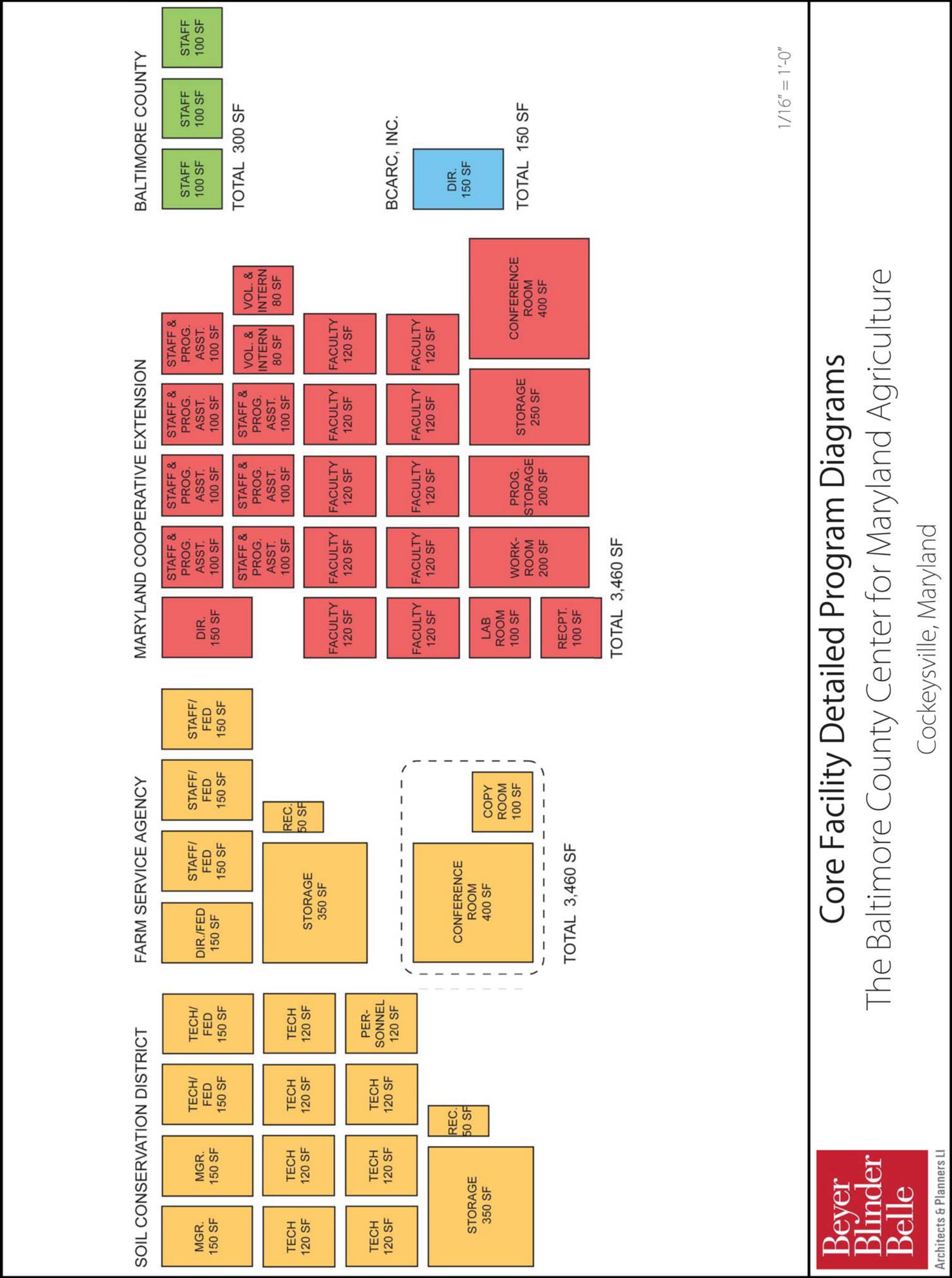
CORE FACILITY	
FSA-SCD-NRCS-MDA Office Suite	3,460 SF
MCE Office Suite	3,460 SF
Balto. Co. Office Suite	300 SF
BCARC Office Suite	150 SF
ADP/ IT/ Storage	250 SF
Staff Break Room/ Kitchenette	300 SF
Multi-Purpose Room	2,400 SF
Kitchen	400 SF
Lobby	600 SF
Core Facility Subtotal NET	11,320 SF net
Building Services Multiplier	2,830 SF
Core Facility Total GROSS	14,150 SF gross





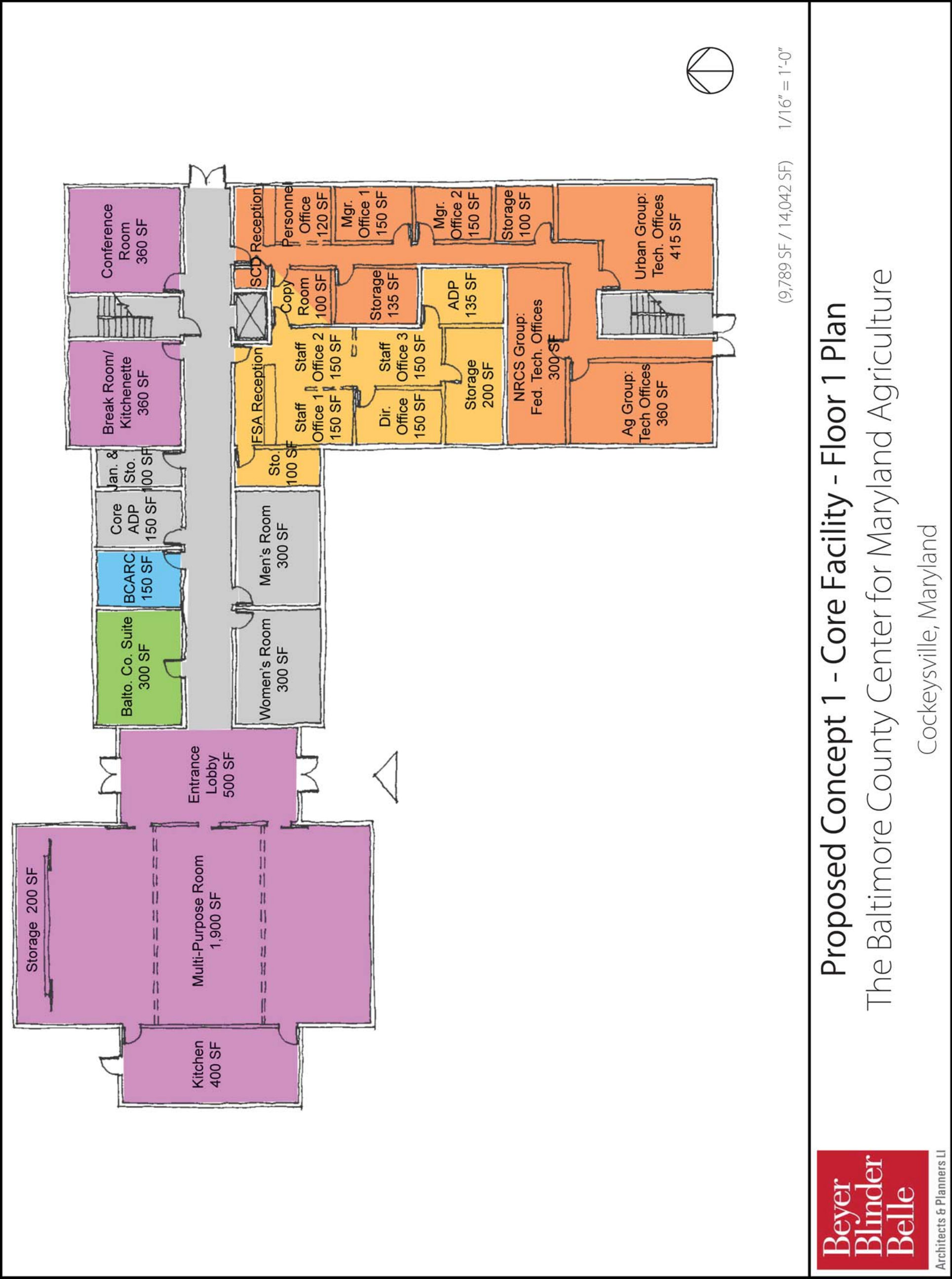
SCD-NRCS-MDA OFFICE SUITE	
Private Manager Offices (2)	300 SF
Technical Staff Workstations (federal positions) (2)	300 SF
Technical Staff Workstations (federal positions) (7)	840 SF
Personnel Staff Semi-Private Workstation (1)	120 SF
Office Storage	175 SF
Files Storage	175 SF
Reception Area	50 SF
SCD-NRCS-MDA Subtotal NET	1,960 SF net
FSA OFFICE SUITE	
Private Directors Office (1)	150 SF
Staff Workstations (federal positions) (3)	450 SF
Files Storage	350 SF
Reception Area	50 SF
FSA Subtotal NET	1,000 SF net
FSA-SCD-NRCS-MDA SHARED SPACES	
Conference Room (1)	400 SF
Copy Room (3)	100 SF
FSA-SCD-NRCS-MDA Shared Spaces Subtotal NET	500 SF net
FSA-SCD-NRCS-MDA Office Suite Subtotal NET	3,460 SF net
MCE OFFICE SUITE	
Private Executive Director Office (1)	150 SF
Private Faculty Offices (10)	1,200 SF
Staff & Program Asst. Workstations (7)	700 SF
Volunteer & Intern Workstations (2)	160 SF
Lab Room	100 SF
Conference Room	400 SF
Workroom	200 SF
Office and File Storage	200 SF
Program Storage	400 SF
Reception Area	100 SF
MCE Office Suite Subtotal NET	3,460 SF net
BALTIMORE COUNTY OFFICE SUITE	
Dept. of Economic Development Workstation (1)	100 SF
DEPRM – Land Preservation Workstation (1)	100 SF
Dept. of Recreation & Parks Workstation (1)	100 SF
Baltimore County Office Suite Subtotal NET	300 SF net
BCARC OFFICE SUITE	
Executive Director (1)	150 SF
BCARC Office Suite Subtotal NET	150 SF

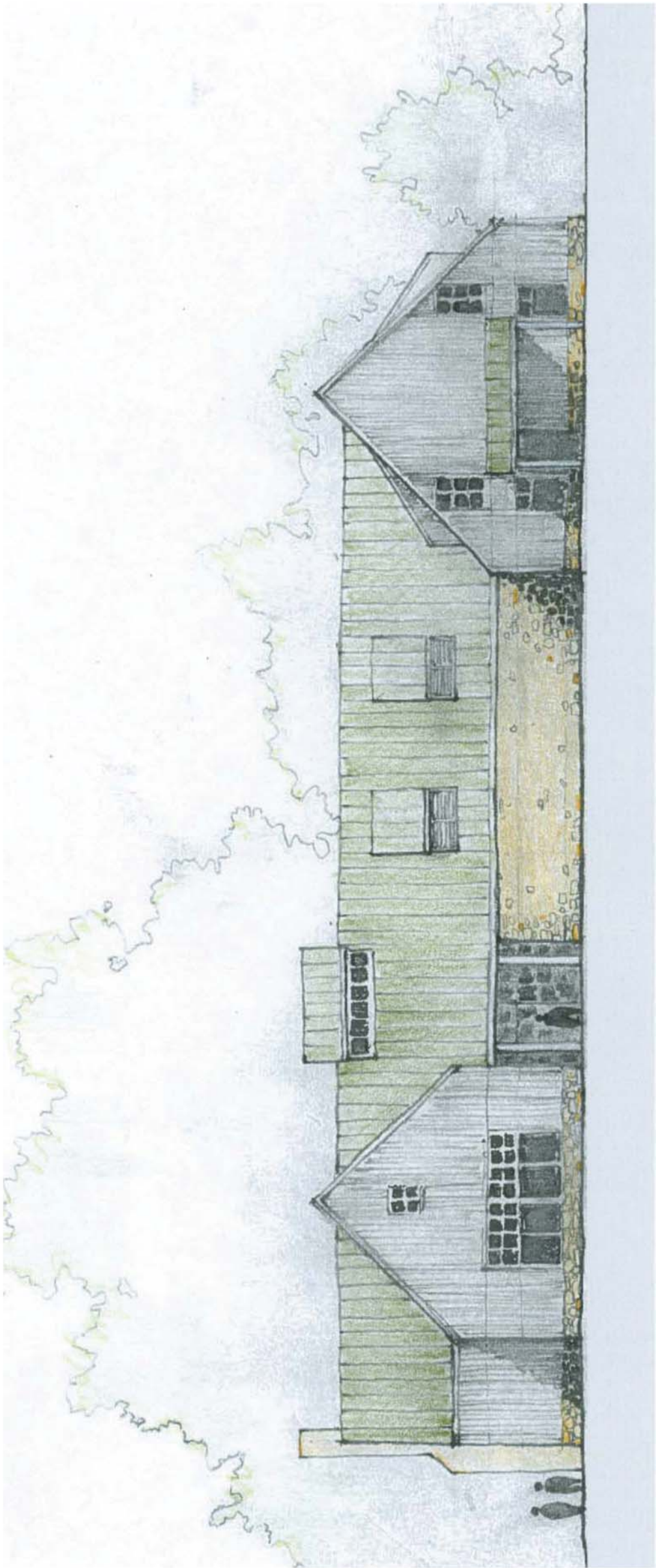












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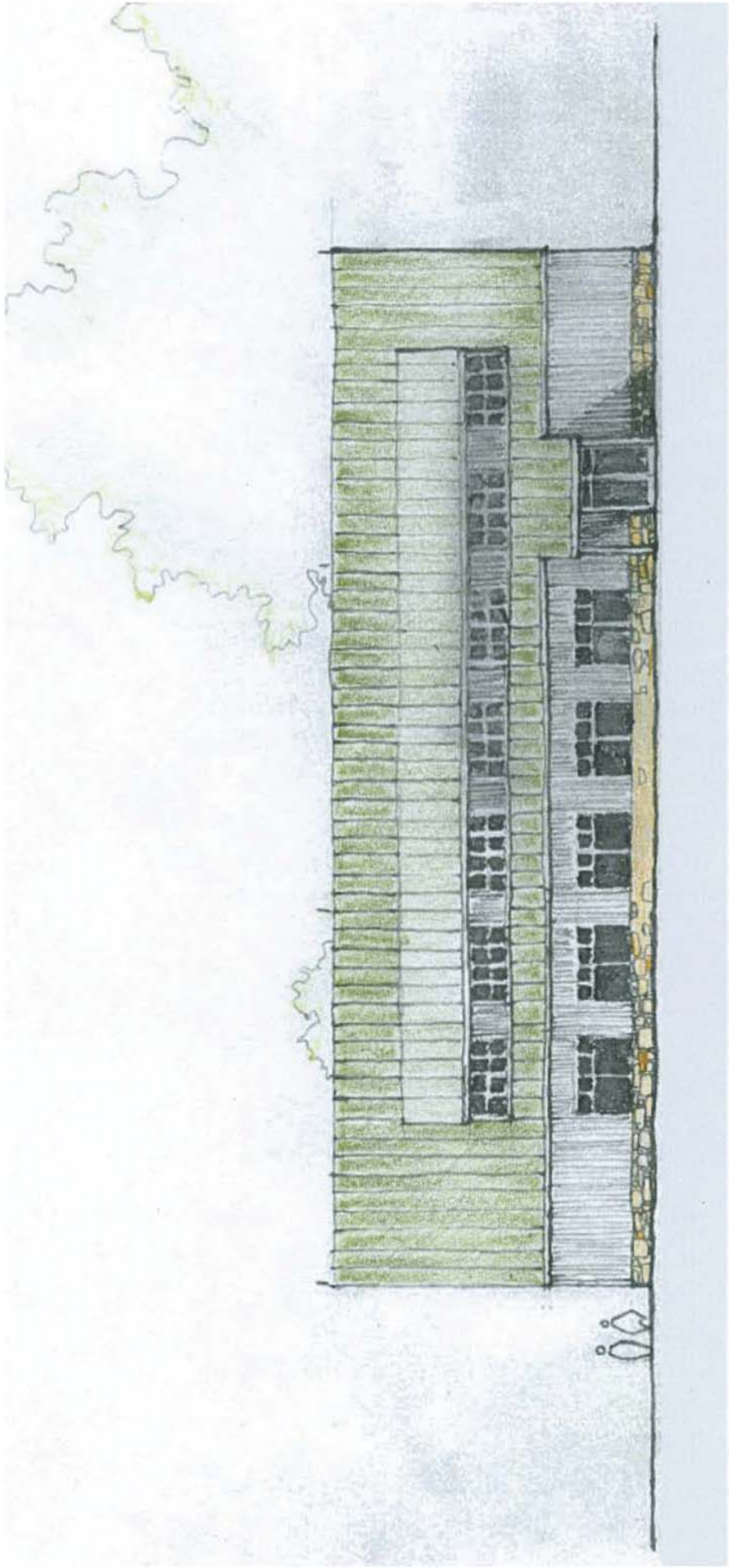


Architects & Planners LI

Proposed Concept 1 - Core Facility - South Elevation  
The Baltimore County Center for Maryland Agriculture

Cockeysville, Maryland





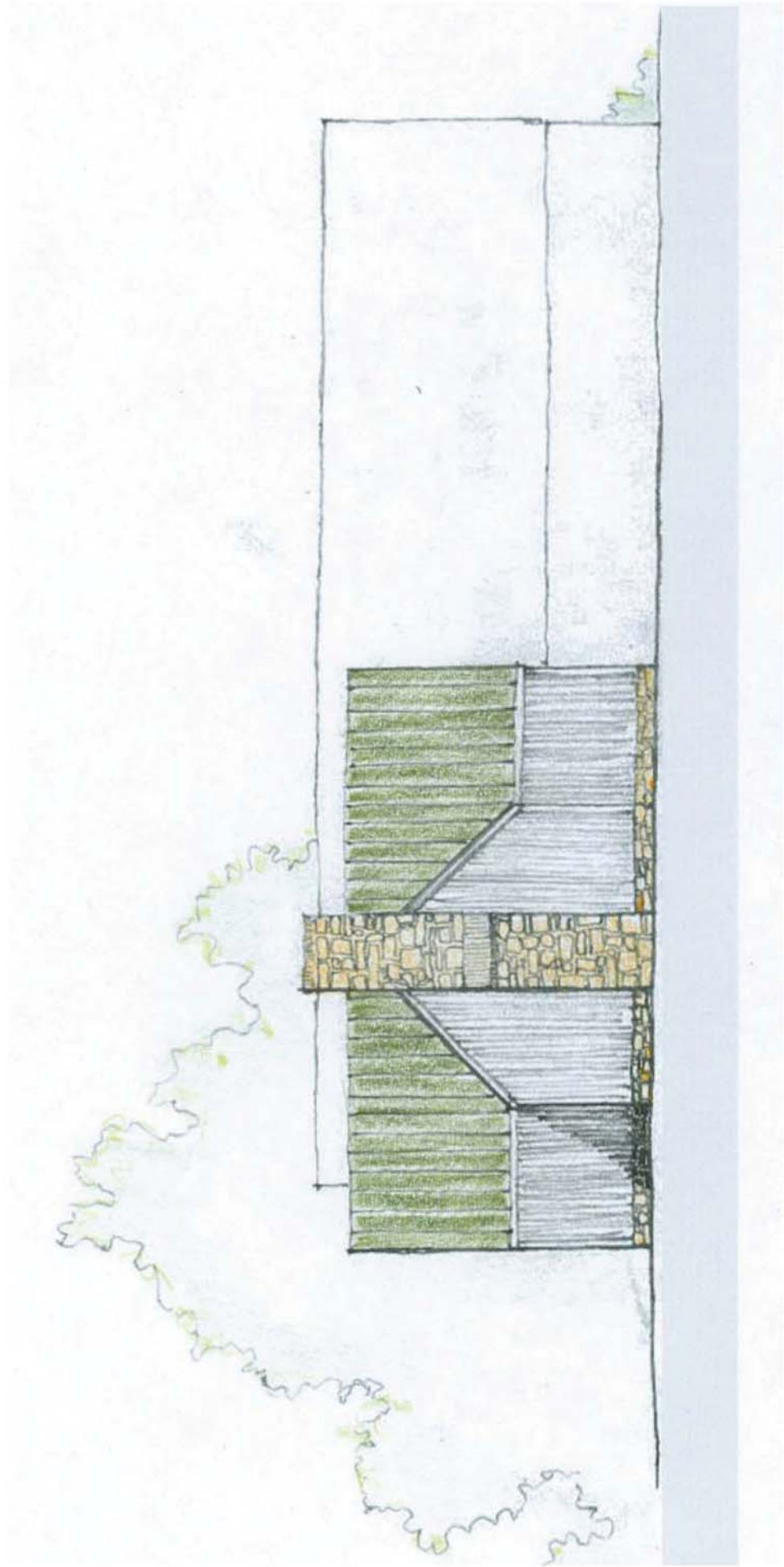
1/16" = 1'-0"



Proposed Concept 1 - Core Facility - East Elevation

The Baltimore County Center for Maryland Agriculture

Cockeysville, Maryland



1/16" = 1'-0"

Proposed Concept 1 - Core Facility - West Elevation  
The Baltimore County Center for Maryland Agriculture

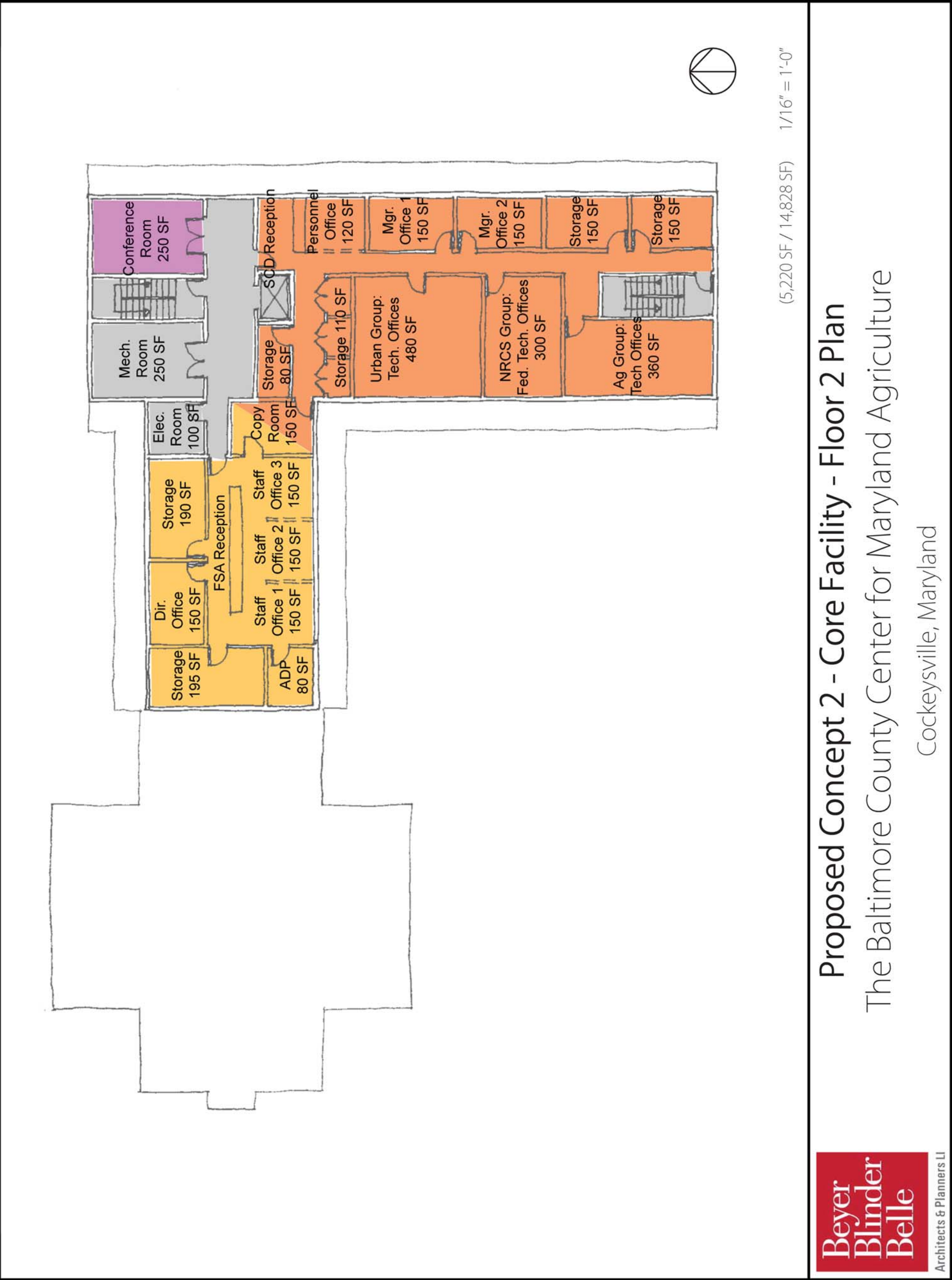
Cockeysville, Maryland



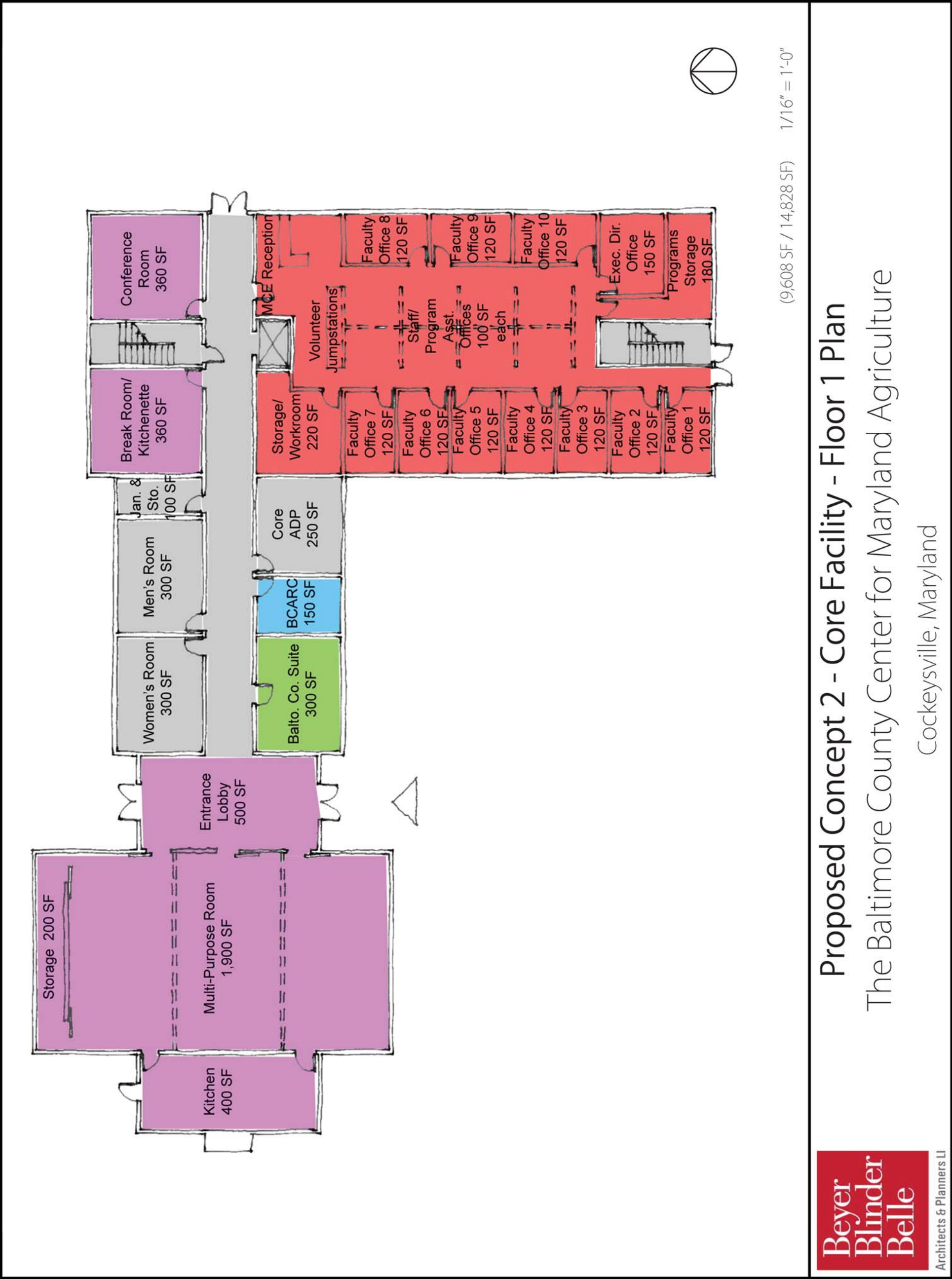
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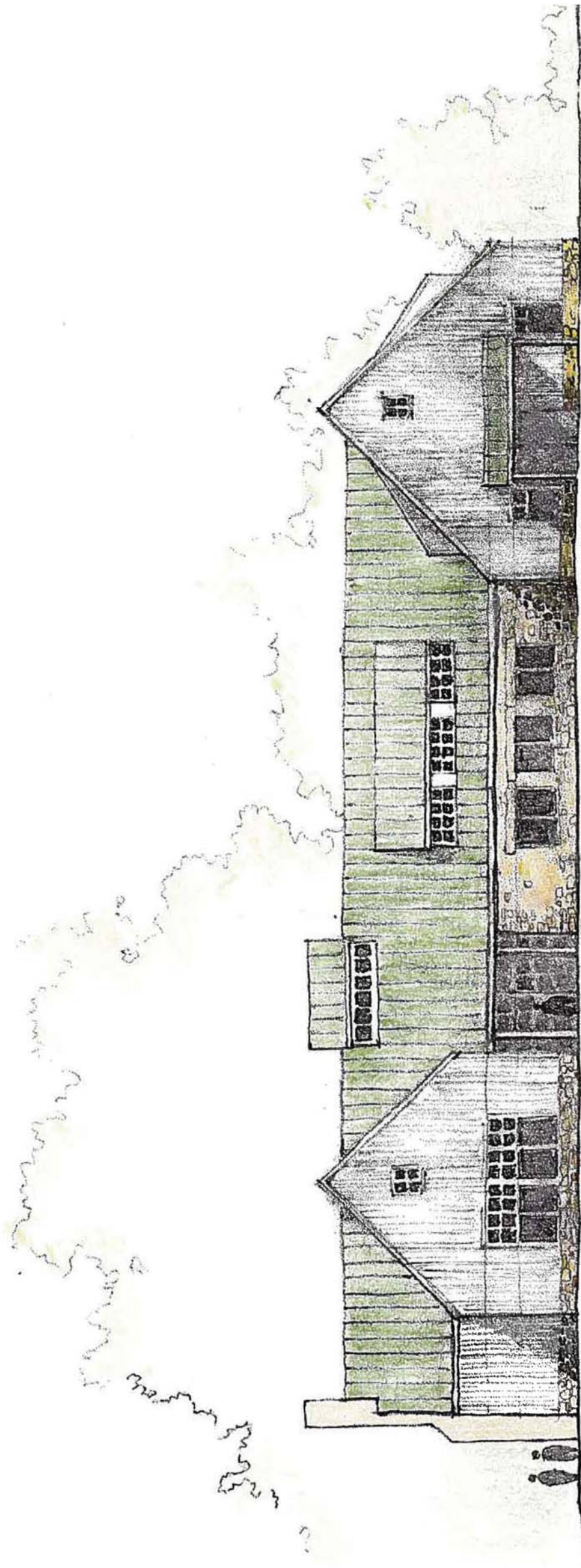




Proposed Concept 2 - Core Facility - Floor 1 Plan

The Baltimore County Center for Maryland Agriculture

Cockeysville, Maryland



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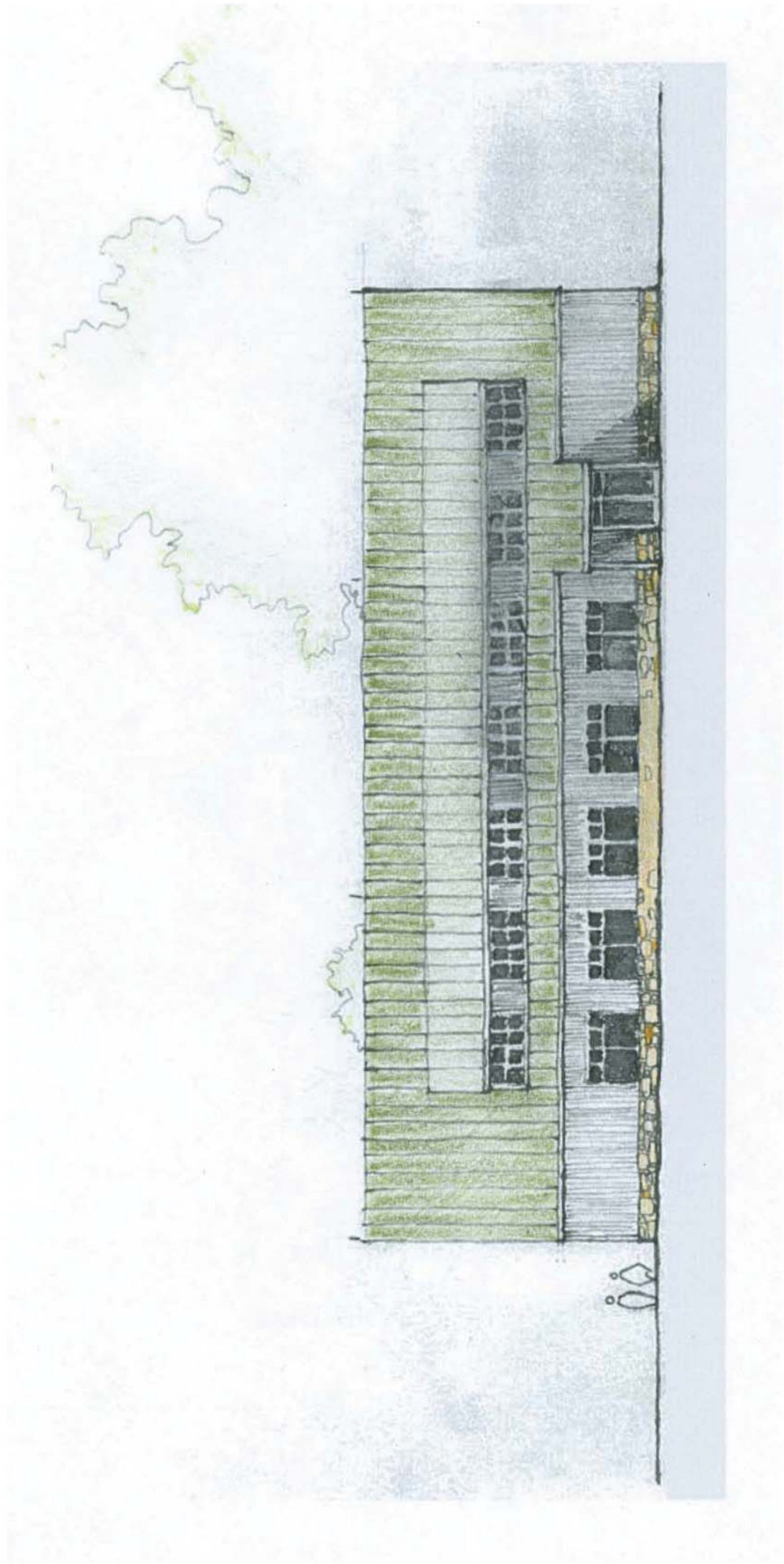
Proposed Concept 2 - Core Facility - South Elevation  
The Baltimore County Center for Maryland Agriculture

Cockeysville, Maryland



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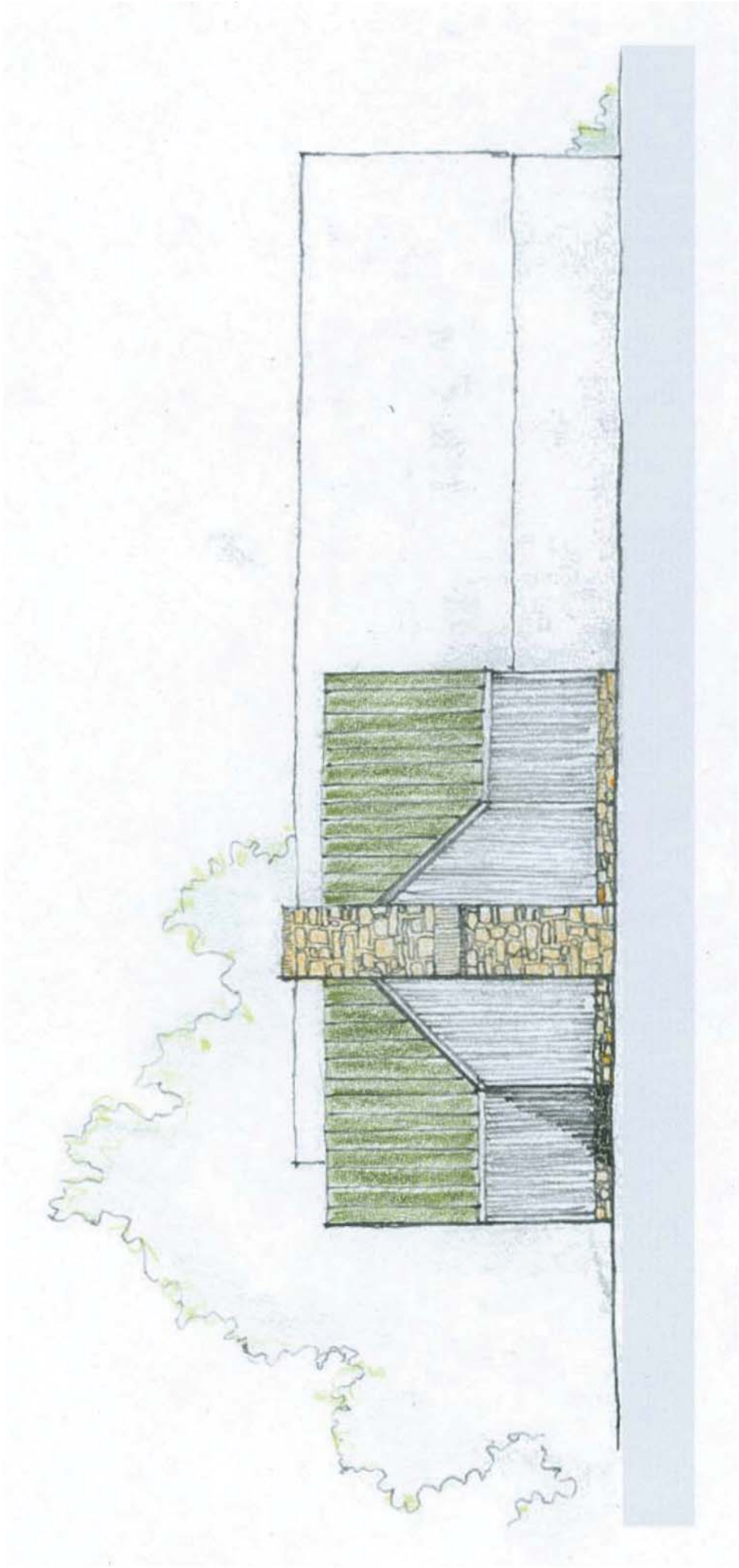
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Proposed Concept 2 - Core Facility - East Elevation

The Baltimore County Center for Maryland Agriculture

Cockeysville, Maryland





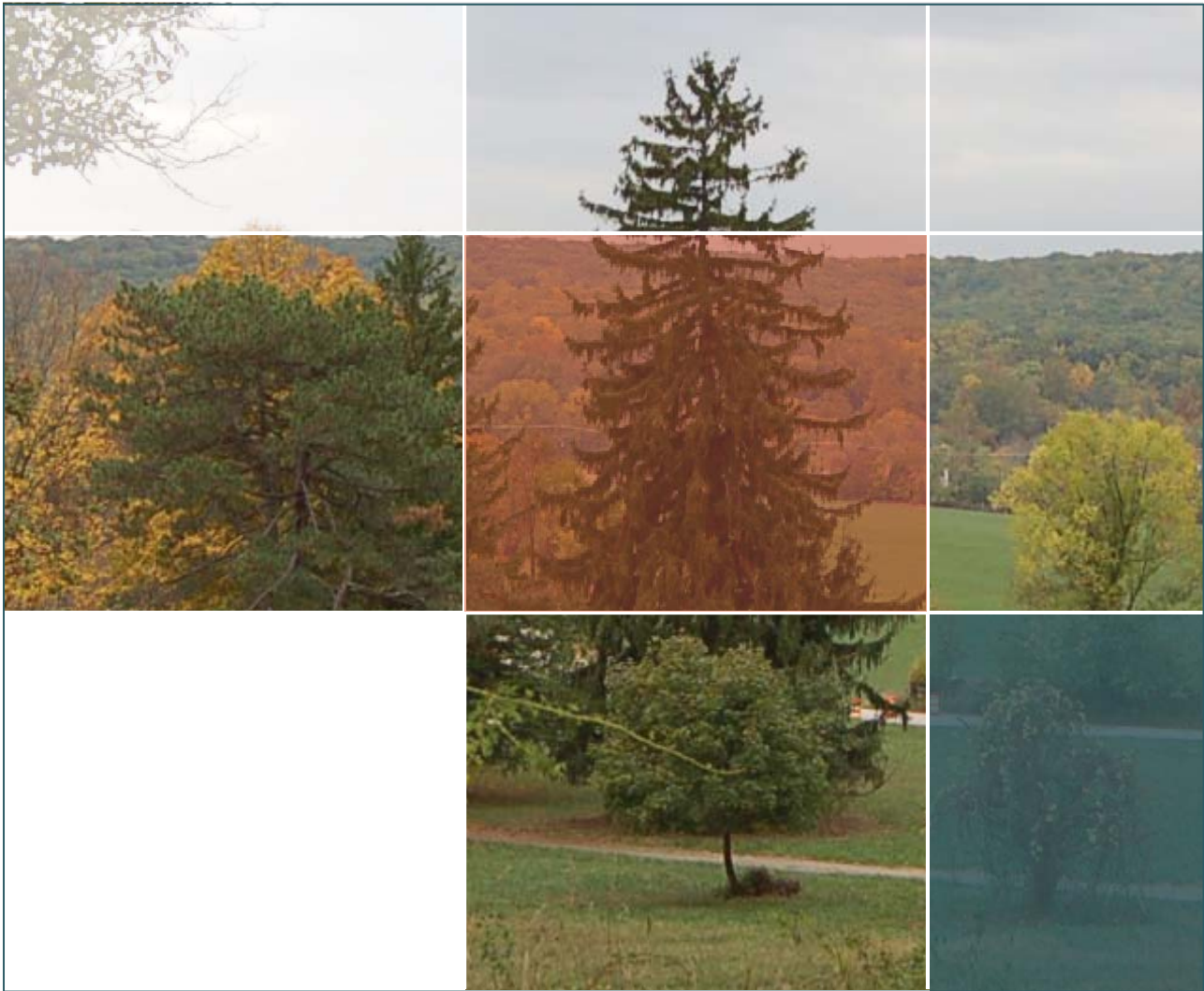
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Proposed Concept 2 - Core Facility - West Elevation  
The Baltimore County Center for Maryland Agriculture  
Cockeysville, Maryland



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# 9-concept design

mhba

## Introduction

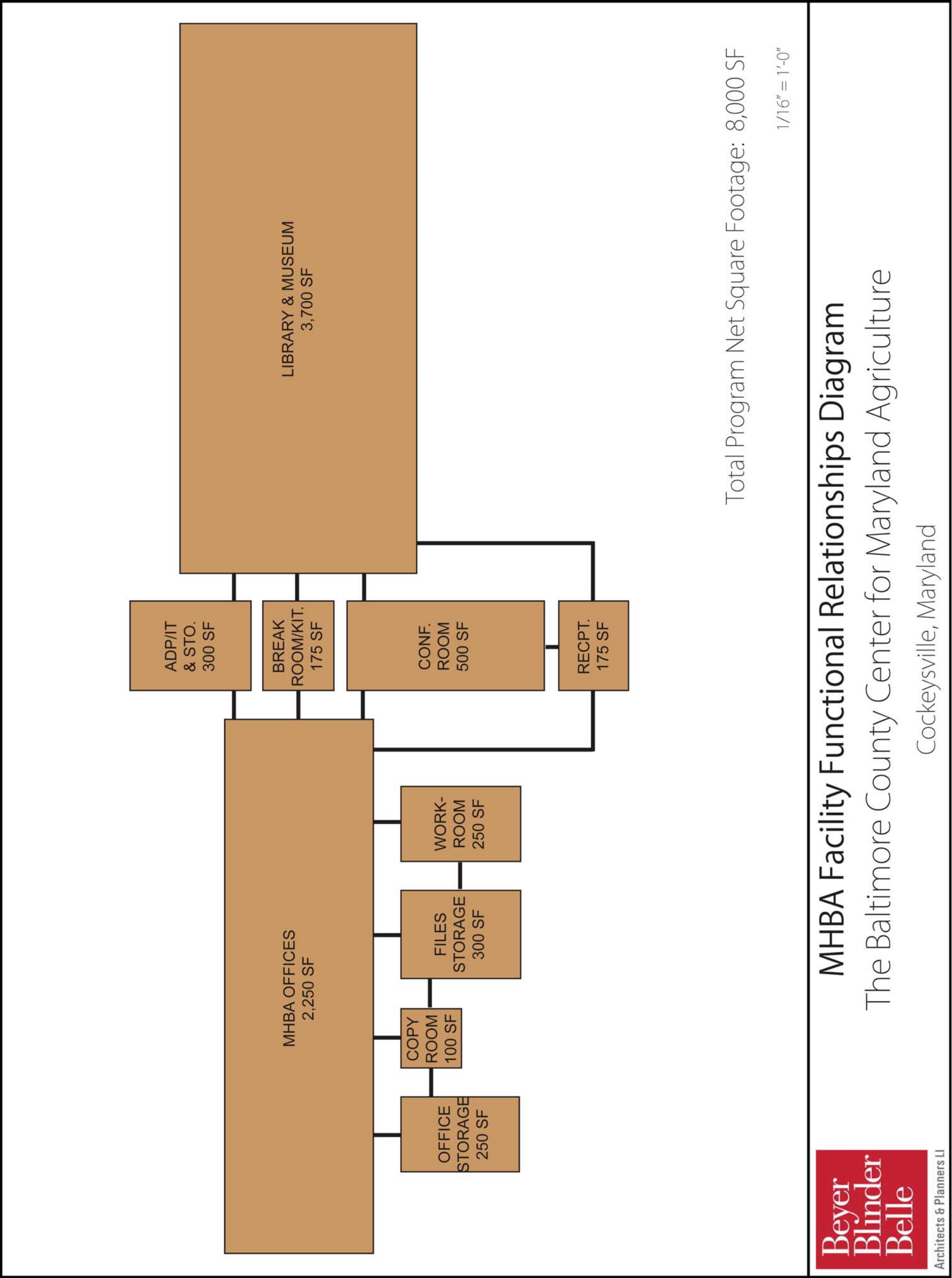
The Maryland Horse Breeders Association (MHBA) facility for The Baltimore County Center for Maryland Agriculture will be funded privately and will house only the Maryland Horse Breeders Association, as described earlier in the Master Plan Report in Section 2 – Program Study Report.

One concept is illustrated in the Master Plan Report. In the concept, the MHBA Facility is a one-story facility of approximately 10,000 SF total. The plan is bar-shaped oriented on a northeast-southwest axis. Having the primary orientation of the building on a more-or-less east-west axis maximizes south-facing elements, which is advantageous for solar control. All corridors are double-loaded for efficiency. One end of the bar houses the office spaces while the opposite end of the bar houses the library and museum spaces; the lobby space is central to the office, library, and museum spaces. Building services are also centralized. The resulting bar-shape faces the rear yard of the Core Facility with open lawn that could be used as outdoor gathering space. The supporting parking lot for the MHBA facility is to the north and centered on the lobby with easy access to the offices, library, and museum spaces.

Construction and materiality of the MHBA facility follows the guidelines established in Section 7 – Concept Design Guidelines.

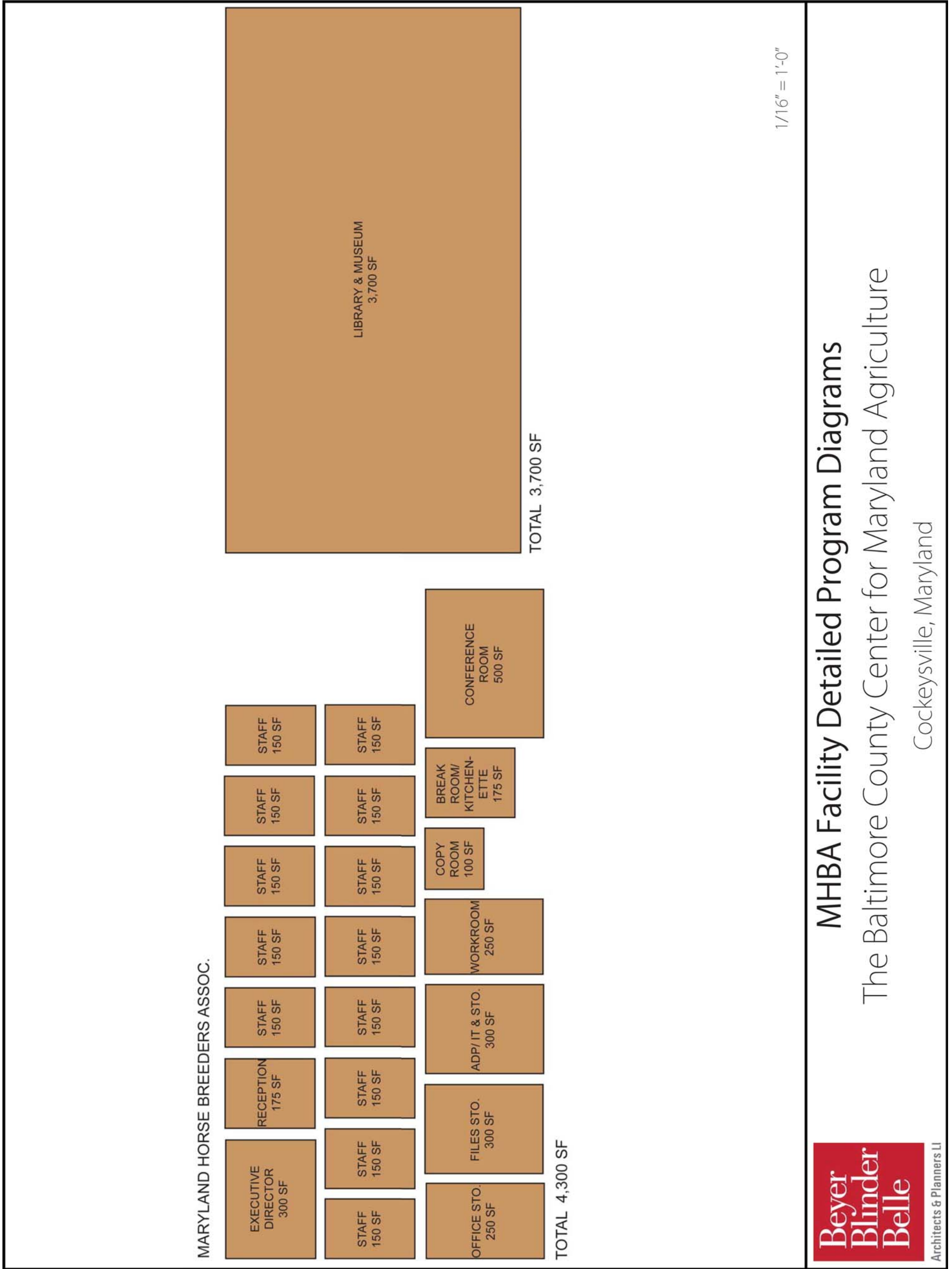
MHBA FACILITY	
Office Suite	4,300 SF
Library and Museum	3,700 SF
MHBA Facility NET	8,000 net SF
Building Services Multiplier (1.25)	2,000 SF
MHBA Facility GROSS	10,000 gross SF

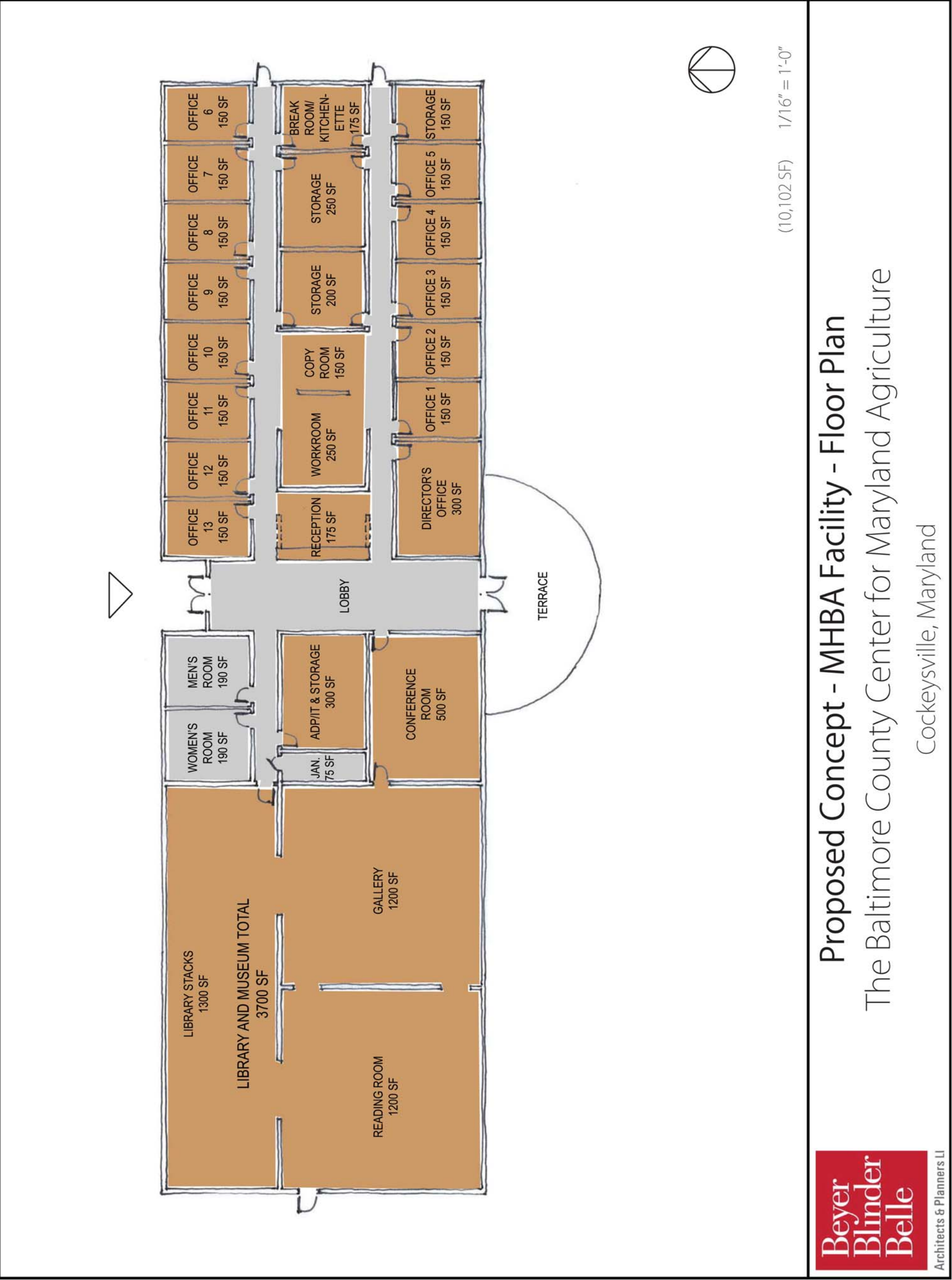




MHBA OFFICE SUITE	
Executive Director Office (1)	300 SF
Private Staff Offices (13)	1,950 SF
Conference Room (1)	500 SF
Workroom (1)	250 SF
Copy Room (1)	100 SF
Office Storage (1)	250 SF
File Storage (1)	300 SF
ADP/ IT/ Storage (1)	300 SF
Staff Break Room/ Kitchenette (1)	175 SF
Reception Area (1)	175 SF
MHBA Office Suite Subtotal NET	4,300 net SF
Building Services Multiplier (1.25)	1,075 SF
MHBA Office Suite Subtotal GROSS	5,375 gross SF
MHBA LIBRARY AND MUSEUM	
Library Stacks	1,300 SF
Reading Room	1,200 SF
Exhibit Gallery	1,200 SF
MHBA Library and Museum Subtotal NET	3,700 net SF
Building Services Multiplier (1.25)	925 SF
MHBA Library and Museum Subtotal GROSS	4,625 gross SF







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Proposed Concept - MHBA Facility - Floor Plan

The Baltimore County Center for Maryland Agriculture

Cockeysville, Maryland



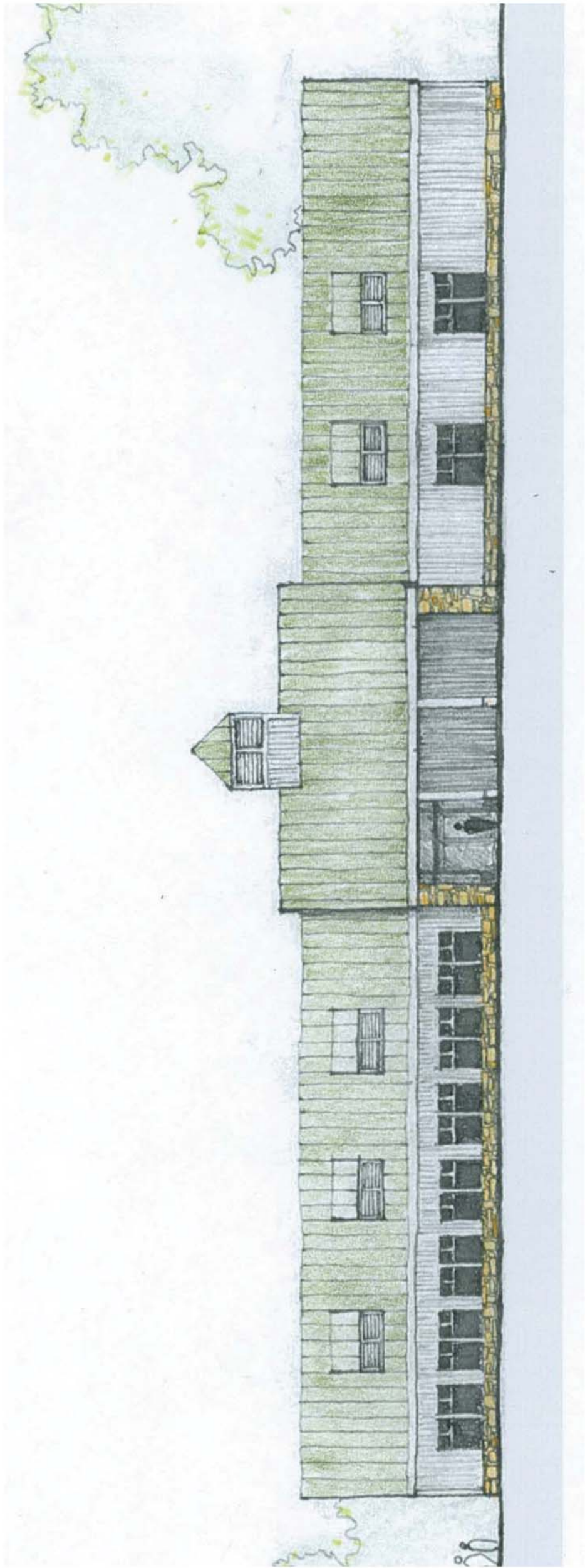


1/16" = 1'-0"

**Proposed Concept - MHBA Facility - South Elevation**  
The Baltimore County Center for Maryland Agriculture  
Cockeysville, Maryland







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Proposed Concept - MHBA Facility - North Elevation  
The Baltimore County Center for Maryland Agriculture

Cockeysville, Maryland



Architects & Planners LLP





1/16" = 1'-0"



Architects & Planners LI

Proposed Concept - MHBA Facility - East Elevation  
The Baltimore County Center for Maryland Agriculture  
Cockeysville, Maryland



# 10-sustainable design

## Introduction

The BCCMA site and individual buildings will be designed with sustainability in mind, in keeping with the natural condition of the site, the agricultural program and the missions of the resident organizations. The Owners may choose to pursue a third-party certification for some or all of the facility buildings, such as the LEED program of the U.S. Green Building Council (USGBC). LEED (Leadership in Energy & Environmental Design) is a green building rating system which is voluntary (except where it has been adopted by local municipalities or counties) and has become the de facto standard for certification of green and high-performance buildings in the U.S.

The BCCMA buildings would most likely fall under the LEED for New Construction (LEED-NC) program and could also make use of certain guidelines and interpretations, which USGBC has issued for on-campus and multiple building projects. The LEED rating system is comprised of prerequisites, which must be met, and optional credits or “points” from which the team can target those which are most feasible and cost-effective for the project. Certification is granted for achieving certain point thresholds at the Certified, Silver, Gold, and Platinum levels.

Regardless of whether the BCCMA pursues actual LEED certification, Ownership and the Design Team may decide to employ the LEED framework as a guideline for incorporating sustainable strategies into the project design. The LEED-NC rating system is organized into several categories, which address the various environmental and health impacts which are related to the design and construction of buildings:

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation & Design Process

In this section of the Master Plan, we will address sustainability as it relates to both the BOCMA site and the individual buildings with respect to the LEED categories listed above.

## Site Related Issues

### Site Layout and Orientation

The BCCMA Master Plan will be planned to preserve open space and for efficient utilization of the site. The core buildings



and facilities have been arranged in a cluster, to allow sharing of infrastructure (such as access roads and parking lots) in order to minimize the overall footprint, extent of impervious paving and preserve a majority of the site as open space (Figure 10.01). Providing vegetated open space on a site offers numerous benefits, such as fostering habitat for wildlife, allowing infiltration of stormwater and reducing the “heat island effect”, whereby urbanized, paved areas are often several degrees warmer than surrounding less developed areas.

The Master Plan design strives to work with the natural topography and slopes in terms of placing and orienting building elements on the site. Cut and fill will be minimized to encourage natural drainage flows (Figure 10.02).

New trees will be located to provide shade in order to reduce solar heat gain on buildings and paved surfaces and parking lots. Deciduous trees planted on the south sides of building can provide shade in summer and allow penetration of sunlight in winter after losing their leaves. Evergreen, coniferous trees can be strategically located to provide wind breaks to shelter buildings and people from winter prevailing winds, which come from the West or Northwest.

Individual buildings, in general, have been sited with their primary axis oriented in an east-west direction to allow solar control on south-facing facades during warm months and permit desirable solar gain during the winter. In addition, the architectural design may draw on local vernacular building traditions, such as earth-sheltered “bank barns,” which are partially nestled into sloping sites which helps to insulate the buildings.

### Site Landscaping and Vegetation

The landscape design will, to the greatest extent possible, incorporate vegetation which is native or well-adapted to the local regional climate in Baltimore County. Since such species are indigenous or adapted to a particular region, they tend to be more drought-tolerant and typically need less or minimal irrigation once they are established. Native or adapted plants also typically require less active maintenance and minimal chemical inputs such as fertilizers, pesticides or herbicides. The Master Plan scheme will avoid aggressive plants which are considered invasive or noxious weed species.

The site’s planned Demonstration Areas will also utilize a more sustainable approach. Demonstration Crop fields will emphasize organic produce, grown without pesticides or chemicals, as a means to promote local, organic farmers and markets (Figure 10.03). The Demonstration Forest and re-forestation areas will include trees and other vegetation which are adapted to the local climate and soils.

The site landscaping scheme will, in general, strive for a diversity of plant species, and avoid monoculture plantings. This approach fosters biodiversity and natural habitat for flora and fauna on the site.

In addition, exterior site lighting will be designed to avoid uplighting and light pollution in the nighttime sky, which can not only disrupt and confuse birds but can also be a waste of energy.

### Site Maintenance

As mentioned above, native or adaptive species typically require less maintenance (i.e., mowing, irrigation). However, to ensure that sustainable methods and practices are carried through into the operations phase, Ownership may consider using non-toxic or least-toxic methods for site maintenance, including soil preparations, pest control, cleaning agents, snow removal, etc.

Integrated Pest Management could be implemented, which employs non-chemical methods of pest control and avoids the use of pesticides wherever possible.

A “green” compost pile could also be installed, for composting of yard waste and trimmings which could then be reused on the site (Figure 10.04).



Figure 10.01: Cluster of Farm Buildings at Cromwell Valley Park



Figure 10.02: Natural Topography and Slopes on Site



Figure 10.03: Organic Produce Farming at One Straw Farm



Figure 10.04: Garden Compost Area at Cromwell Valley Park





Figure 10.05: Bicycle Racks



Figure 10.06: Shuttle Service



Figure 10.07: Pervious Paving



Figure 10.08: Existing Concrete Cistern on Site

### Transportation Issues

The Master Plan could incorporate several measures to reduce the overall fossil fuel-burning travel miles associated with the facility and its operations. One method is to make provisions for bicycle racks and convenient changing and shower facilities to encourage and facilitate biking amongst staff and visitors to the BCCMA (Figure 10.05).

Another opportunity is to employ electric re-chargeable vehicles for any maintenance vehicles needed on site. Dedicated charging stations can be installed in or near the Ground Maintenance Buildings. Electric vehicles do not burn fossil fuels – hence they have zero emissions – and are less noisy than conventional cars or trucks, which would be in keeping with the natural, agricultural use of the site.

Parking areas could also designate preferred spaces for drivers of hybrid cars or other low-emission vehicles, as well as carpools or vanpools.

Ownership may also consider operating a shuttle service for staff and visitors to connect with local modes of public transportation, such as buses or regional or commuter train service (Figure 10.06).

The above measures are as much operational as they are design issues and would have the effect of reducing the overall “carbon footprint” of the BCCMA facility.

### Water Issues

The BCCMA Master Plan has been designed with careful attention to natural water flows and management of stormwater. The drainage scheme incorporates stormwater management (SWM) areas, wetlands, bio-swales and retention areas to promote infiltration on the site and reduce runoff, which can wash dirt and pollutants onto adjacent properties and ultimately into nearby water bodies.

The materials used for pavement and paving on the site can encourage infiltration as well, if they are pervious and allow water to percolate into the ground rather than runoff. Pervious concrete and pavers, crushed stone, gravel, and open-grid grass pavers are some of the options available for surface parking lots, access roads, sidewalks, and outdoor recreation areas (Figure 10.07). Certain grass paving systems are designed to support vehicle loads and can be installed on multi-use fields which may be used periodically for special event parking.

The site design also presents an opportunity to collect a portion of the rainwater which falls on the site (for example, on the roofs) store it in cisterns and reuse it on-site for irrigation, toilet flushing, or janitorial or maintenance uses. After minimal treatment and filtering, captured rainwater can be used to irrigate vegetation growing in the Demonstration Crop or reforestation areas. An existing concrete cistern and pump house, located at the highest point of the site, may be incorporated into such a system, if feasible.

Irrigation systems can also utilize high-efficiency technologies, such as drip irrigation or rain sensors to ensure that systems are turned on only when needed.

The above methods are aimed at conserving water. This can be accomplished on the supply side (e.g., by capturing and reusing rainwater) or by addressing water demand (e.g., using native plants which require less irrigation, or installing low-flow water fixtures).

### Site Energy Issues

#### Geothermal Heat Pump System

Besides providing opportunities for stormwater infiltration and management, surface parking lots may be utilized for siting of underground geothermal facilities. Geothermal heat pump systems may be considered for heating and cooling of one or more of the BCCMA's buildings, in particular the Core Facility. The feasibility and viability of a geothermal system will depend on the subsurface conditions on the



site, particularly the depth of the water table below the surface and the quantity and flow rate of underground water. To determine the viability of a geothermal system, it would be necessary to dig test wells on site, or monitor existing wells if they are available. Geothermal heat pump systems utilize the relatively constant temperature of the earth below the frost line to more efficiently heat and cool the building, thereby reducing utility bills. (Figure 10.09).

To heat and cool the main Core Facility building, a closed-loop geothermal system may require roughly 40 wells, each about 300 feet deep. Ideally geothermal wells should be situated relatively close to the building it serves in order to minimize piping runs. For example, the well field could be situated under the surface parking lots adjacent to the Core Facility.

Geothermal heat pump systems can carry a high first-cost, so the potential savings in annual heating and cooling costs would need to be evaluated to determine if the break-even payback period is acceptable. From an environmental standpoint, closed loop geothermal systems are preferable to open loop systems since there is less chance of contaminating underground aquifers.

### Central Plant

A geothermal heat pump system can also serve as a central “plant” serving multiple buildings; of course if this were the case more wells would be required. Alternatively, a central plant can consist of a small central chiller which produces chilled condenser water, which is then distributed in a piped loop around the site to serve multiple buildings.

“Cogeneration” technology (i.e., on-site power generation using, for example, gas-fired microturbines) is most likely not applicable given the relatively small scale of this project. Cogen efficiencies are based on the reuse of waste heat, which is a by-product of the power generation. In this relatively small project such opportunities are limited.

If a Central Plant approach was determined to be not viable for the BCCMA, then each building would be designed with its own individual heating and cooling system.

### Renewable On-Site Energy

The BCCMA site also presents opportunities for generating “renewable energy” within the site boundaries, as opposed to importing grid-supplied energy from the local electricity and gas utility. The south-facing, sloped site for the BCCMA may be conducive to solar photovoltaic (PV) systems, which can be installed on or near buildings, or in a central location on site (i.e., ground mount array). PV technology is typically high first-cost, but rebates and government incentives can reduce the initial investment and payback period. PV is often not cost-effective since the life span of the panels is typically shorter than the payback period, however it may be considered for other reasons, such as a demonstration of sustainable technology which is apparent to visitors (Figure 10.10).

The sun’s energy can also be harnessed to generate hot water for some or all of the BCCMA buildings. An active solar hot water system employs collection panels, heat transfer components and hot water tanks to heat domestic water for use in buildings, thereby reducing operating costs (Figure 10.11).

Another opportunity for on-site energy is wind power, which may be feasible given the extent of open space on the site. If there is sufficient wind to drive on-site turbines, this option may be considered by the Owners. Given the history of windmills associated with farming in this country (Figure 10.12) and throughout the world, wind power may fit with the architectural vision and agricultural context of the BCCMA site with a 21st-century technological expression.

A third option which may be feasible is to utilize the waste from livestock on site to generate usable energy for the facilities. A “biomass” system would burn manure,

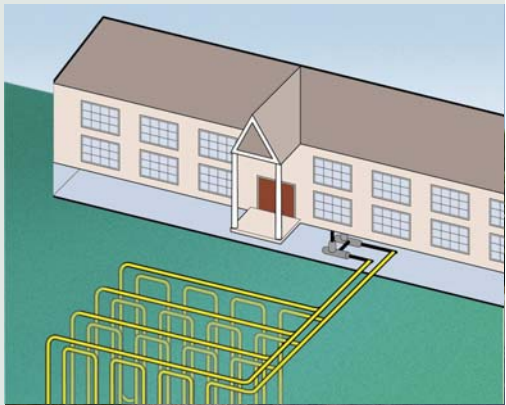


Figure 10.09: Closed-Loop Geothermal System



Figure 10.10: Roof-Mounted Array of Photovoltaic Panels



Figure 10.11: Above-Ground Components of a Solar Hot Water System at Adams County Ag Center



Figure 10.12: Working Farm Windmill at Oxon Hill Farm





Figure 10.13: Stone Fence on Site



Figure 10.14: Pervious Paving



Figure 10.15: Cottage on Site



Figure 10.16: Construction Waste Management

which is a “renewable” resource on farms and available in continuous supply. Manure can be burned directly in a biomass boiler, or transferred to “anaerobic digester” tanks, where it would be broken down by bacteria into a “biogas” (methane), which would then be burned to generate power or hot water. This energy solution also addresses another issue prevalent on farms: disposal of manure, which can pollute groundwater if not handled properly.

Renewable energy sources (such as PV, wind, or biomass) would most likely generate only a portion of the energy needed for the BCCMA facilities and would need to be supplemented with grid-supplied power. Unless these systems include battery storage they can not provide continuous power. However, they represent a visible, tangible demonstration of sustainability in keeping with the educational mission of the BCCMA.

### Materials and Resources

Materials and products which are specified for installation on the site (such as site concrete, steel or wood fabrications, pavement and pavers, fences, awnings or canopies, etc.) will be selected to meet certain environmental criteria including:

- Recycled content (e.g., flyash in concrete, recycled tires in rubber pavers, recycled steel, etc.).
- Locally or regionally manufactured, and containing raw materials which are also extracted locally or regionally (preferably within 500 miles of the project site).
- Materials which are salvaged either from on- or off-site, and reused in the project (e.g., stone from site fences) (Figure 10.13).
- Rapidly renewable building materials, made from agricultural products with short growth cycles (e.g., bamboo).
- Wood from certified sustainable forests, mills, and woodworkers (certified by the Forest Stewardship Council).
- Site paving materials which are light in color, and reflect rather than absorb heat from the sun (light colored pavers, high reflectance/high emissivity roofing materials for open air roof structures).
- Site paving materials which are pervious and permit infiltration of stormwater to reduce runoff (e.g., pervious concrete, open grid paving blocks which allow grass to grow in between, gravel paving) (Figure 10.14).

To the extent feasible, portions of existing historic structures will be retained and incorporated into new construction (Figure 10.15).

In addition, the facility will make provisions for recycling of waste generated by staff and visitors during the ongoing occupancy phase. Bins or receptacles for recycling of paper, cardboard, metal, glass and plastic will be provided and accessible in office areas, cafeterias, and public areas to encourage occupant recycling. Designated spaces will be set aside in each building, or in a central location, for collection and storage of recyclable materials awaiting pickup.

### Construction Issues

Construction on the site should be performed in such a way as to minimize disturbance of the existing site, particularly sensitive areas containing wetlands, habitats and ecosystems. Design phase drawings and specifications should include clearly marked boundaries for construction on the site, which limit activities such as driving construction vehicles and digging trenches for utility and infrastructure. Project drawings may indicate recommended lay-down, staging, recycling and disposal areas.

Contractors will also be required to take precautions to minimize erosion from the site due to water or wind. Such requirements are often covered under stormwater pollution prevention permits which are required for many sites.

Project specifications will also require contractors to recycle and salvage a high percentage of the inevitable waste which is generated during land clearing, demolition and construction. Contractors must locate outlets which will accept or purchase waste materials (such as concrete, masonry, scrap metal, wood, etc.) so as to divert these materials from landfills (Figure 10.16).



The Master Plan approach of clustering the core facilities in a relatively compact zone on the site will also help minimize site degradation by limiting the extent of site earthwork and excavation.

## Building-Specific Issues

The individual buildings planned for the BCCMA site will also be designed in a sustainable manner, to minimize their environmental impact and promote healthy indoor environments for all occupants.

### General Design Issues

Building designs will draw on local vernacular examples, which in many cases evolved historically as a response to local climate conditions. These time-honored principles are sustainable in a low-tech, low-cost way and represent good design practices which apply to many buildings.

Primary buildings such as the Core Facility are configured with narrow floor plates and double loaded corridors, which provide good access to daylight, views, sunlight penetration, and opportunities for natural ventilation. As mentioned above under Site Issues, many of the BCCMA buildings are oriented with a primary east-west axis, which allows beneficial south-facing glazing. South facades allow better solar control, through the use of overhangs, light shelves, or other horizontal shading devices. Shading devices will be designed to block solar penetration during the summer when the sun is high in the sky and allow penetration in the winter when the sun is at lower angles. Controlling sun and heat gain will make the south-facing occupied spaces (offices, conference rooms, etc.) more comfortable in summertime. As described above, carefully planned landscaping around buildings can also help with shading and blocking winter wind (or conversely permitting desirable summer breezes) (Figure 10.17).

### Water Efficiency

In addition to the water protection and conservation measures discussed above under Site-Related issues, individual building design can promote water efficiency in the following ways:

- Reusing captured rainwater for toilet flushing, make-up water for HVAC systems, janitorial or maintenance uses, etc.
- Installing low-flow fixtures which consume less potable water. Low-flow options are available for toilets, urinals, lavatories, kitchen faucets and showerheads. The BCCMA may also consider fixtures which use no water (e.g., waterless urinals, composting toilets), which are becoming more common in the marketplace, and may be appropriate for this agricultural setting.
- Specifying plants which require less watering, and where irrigation is needed using high-efficiency systems such as micro-irrigation (Figure 10.18)

### Building Envelope

The BCCMA buildings will be carefully detailed to provide a well-insulated, air- and water-tight envelope, which addresses occupant comfort, good air quality and reduces condensation potential (Figure 10.19).

Windows can incorporate thermal breaks in the frames and high-performance glazing, such as low-e or “spectrally selective” glass. High performance glazing provides greater insulating value, blocks solar heat gain, and makes perimeter spaces more comfortable in both summer and winter. The latest glazings on the market typically have good visible transmittance, so clarity and views are not sacrificed.

Buildings will most likely be covered with metal roofing (e.g., standing seam), which fits with the local and agricultural context. Metal roofs typically have high reflectivity, which is desirable to reflect rather than absorb solar heat, but low emissivity, which means that any radiation which is absorbed is shed slowly. High reflectivity/high emissivity roofing is preferable, and addresses the “heat island effect” described above under Site-Related issues. Metals roofs which meet these criteria are typically in the lighter color range, but several manufacturers now offer compliant medium and darker colors as well (Figure 10.20).



Figure 10.17: South-Facing Mount Pleasant Farm Manor House (Now Demolished)



Figure 10.18: Micro-Irrigation at Cromwell Valley Park



Figure 10.19: Carefully Detailed Building Envelope at Caves Farm



Figure 10.20: Standing Seam Metal Roofing



Figure 10.21: Compact Fluorescent Bulb



Figure 10.22: Wood Timber Structural Framing



Figure 10.23: Nineteenth-Century Bank Barn is a Candidate for Relocation and Reuse on Site



Figure 10.24: Salvaged Wood for Fencing

Roof planes can also be covered with vegetation, which aids in stormwater management and provides habitat, however “green” roofs are most likely not applicable to the BCCMA buildings, which – at least in the conceptual design – emphasize pitched roofs.

### Energy Efficiency

In addition to the envelope, the BCCMA buildings can be designed to use less energy by incorporating measures such as:

- Efficient HVAC systems – There is a wide range of possibilities, such as systems with heat pump units, condensing boilers, heat recovery, etc.
- Efficient lighting – Use compact fluorescent, LED and other energy efficient lamps wherever possible. Reduce lighting power densities (Watts per sq. ft.) where possible to code minimums (Figure 10.21).
- Lighting controls – Occupancy sensors can be installed in spaces with variable occupancy (e.g., conference or meeting rooms), or spaces which are seldom occupied (e.g., stairwells, mechanical rooms) to switch lights off when spaces are not occupied. Daylight dimming lighting controls can be used to turn off electric lighting in perimeter spaces when there is sufficient daylight to perform occupants' tasks.
- Plug loads (equipment which is not hard-wired) – Energy Star rating can be specified for office equipment (e.g., computers, monitors), kitchen appliances (e.g., microwaves), plug-in lighting, etc.
- Renewable energy – PV panel arrays can be integrated into the building design on roofs or canopies, or integrated into building facades. Building mounted wind turbines are also available, though less common.

### Materials and Products

Vernacular buildings also tended to use natural materials, such as wood or stone, which were grown or found in the local region. The BCCMA buildings will reference this local context and strive to incorporate sustainable materials, which are more environmentally responsible and better for indoor air quality:

#### Structural Materials

- Cast in place concrete with recycled content – flyash or blast furnace slag to replace a portion of the Portland cement.
- Steel framing or deck with recycled content.
- Wood timber certified by the Forest Stewardship Council (FSC) (Figure 10.22).

#### Finish Materials

- Materials with recycled content – steel and metal fabrications, "synthetic" gypsum board, insulation, acoustical ceiling tile, carpet, ceramic tile, etc.
- Rapidly renewable materials – bamboo flooring, linoleum, cork flooring.
- Wood products which are FSC certified – wood doors, paneling, flooring, hardwood veneers, blocking, plywood substrates.
- Salvaged materials obtained from off-site sources – wood plank flooring, timber framing, stone (Figure 10.23).
- Low-emitting (off-gassing) products – paints, adhesives, sealants, coatings, composite wood substrates in millwork and casework, carpet, insulation.
- Locally manufactured products which contain locally-harvested/extracted raw materials (within 500 mile radius of the site) – poured concrete, stone from local quarries (which is also finished locally).

In addition, there may be creative opportunities to incorporate materials salvaged from the site itself into new construction. This approach is not only sustainable but can also help newly built structures appear grounded, architecturally and historically, to the site (Figure 10.24).

- Trees which need to be removed may be milled and fabricated into millwork for the buildings. Tree removal can be accomplished in a low-impact manner without using heavy construction equipment, to minimize disruption to the site.
- Field stone taken from existing building foundations slated for demolition may be re-used in new buildings, or for site fencing.



## Indoor Air Quality (IAQ)

IAQ inside buildings can have a great impact on health, particularly for more vulnerable occupants such as children, who may comprise a significant portion of the BCCMA's visitors. The project buildings will be designed to ensure good IAQ with ventilation systems that provide adequate fresh, outdoor air and materials which do not off-gas contaminants.

More advanced systems can incorporate a computerized Building Automation System (BAS), which monitors thermal comfort conditions such as temperature, relative humidity, and carbon dioxide. For the latter, sensors can be mounted in ductwork or spaces to alert the BAS when spaces are fully occupied and additional fresh air is required.

## Construction Issues

Contractors on the BCCMA project may be required in the Design phase drawings and specifications to take certain precautions to safeguard indoor air quality in the buildings for the benefit of future occupants and the workers themselves.

Beneficial control measures include protecting absorptive materials to ensure that they do not get wet, sealing ductwork during construction, using high efficiency filters to protect HVAC units, installing low off-gassing products, and scheduling work to allow high-emitting products time to air out. In addition, buildings can be run through a flush-out period using fresh outside air, after construction is completed and before the building is occupied.

## Conclusion

Sustainability is an important consideration in the Master Plan design for the BCCMA site as well as the individual buildings. Regardless of whether or not Ownership decides to validate their achievement by pursuing LEED green building certification, incorporating sustainable design principles into the Master Plan will allow the BCCMA to reduce its environmental "footprint" and be a responsible steward of the land. Sustainable design can also reduce the BCCMA's operating costs, and ensure that the facility is a healthy and safe environment for all occupants and users.



Figure 10.25: Display Panels for Photovoltaic Energy Harvest



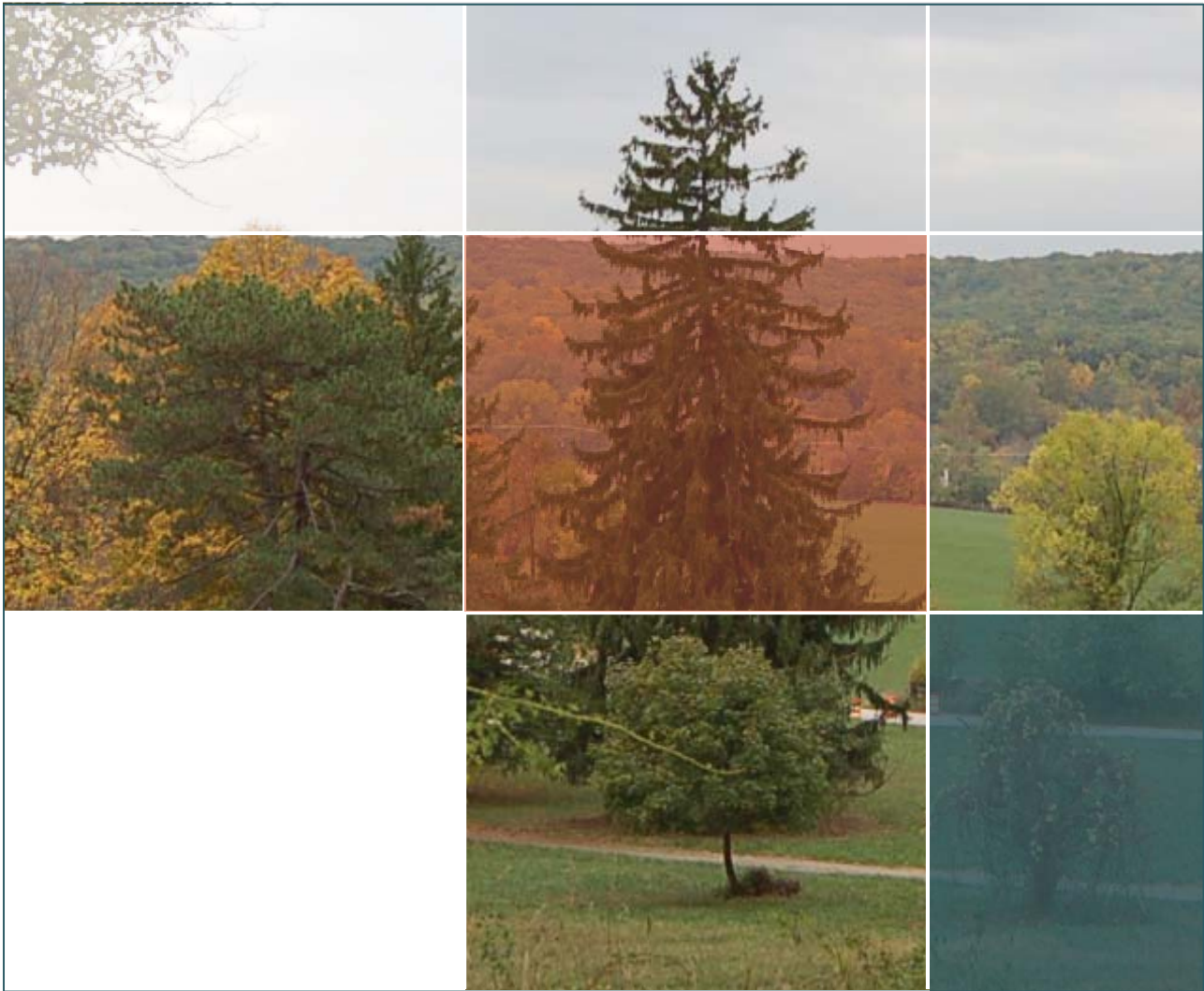
Figure 10.26: Solar Chimneys



Figure 10.27: Rooftop Weather Station



Figure 10.28: Waste Water Treatment System



# 11-cost estimate

The following Master Plan Conceptual Construction Cost Assessment for The Baltimore County Center for Maryland Agriculture in Hunt Valley, Maryland, was prepared for Beyer Blinder Belle by DMS International WBE/MBE, Inc. This assessment is dated March 18, 2008.



<p><b>Baltimore County Center for Maryland Agriculture Hunt Valley, Maryland.</b></p> <p><b>Masterplan Conceptual Construction Cost Assessment Final</b></p> <p><b>March 18, 2008</b></p> <p><b>Introduction:</b></p> <p>These final conceptual construction cost assessments for the new Baltimore County Center for Maryland Agricultural have been prepared by reference to the descriptive information and preliminary sketches contained in the master plan report prepared by Beyer Blinder Belle dated December 17, 2007 and from discussions with BBB/DMS in a meeting held on January 23, 2008 to refine scope and pricing.</p> <p>The estimates have also been modified to incorporate the following items (as requested by PWG) which were previously excluded from the construction cost assessments.</p> <ul style="list-style-type: none"><li>- Loose furniture and fittings allowance.</li><li>- A/V equipment and wiring allowance.</li><li>- Telecom/data wiring and hardware allowance.</li><li>- Allowance for design fees.</li><li>- Construction contingency.</li></ul> <p><i>Note: The allowances for loose furniture, a/v equipment and wiring and telecom/data wiring and hardware are based on costs associated with a standard medium quality office type facility.</i></p> <p>The cost assessments are subdivided into Phase 1 construction and Future construction and encompass the following scope of work:</p> <p>Phase 1:</p> <ul style="list-style-type: none"><li>• Construction of the Core Facility Building ( 14100 GSF). The estimate for the core facility building has been presented as construction of the base facility which excludes the multi purpose room and kitchen (11660 GSF) and an “add alternate” for the construction of the multi purpose room and kitchen (2440 GSF).</li><li>• Parking and roads associated with the core building.</li><li>• Associated site utilities and storm water management facilities.</li></ul> <p><i>Note: The square foot cost forming the basis of the cost assessment has been generated by establishing approximate quantities for the various material types and systems from the preliminary sketches and materials descriptions included in the master plan report. The level of interior finishes and MEP systems assumed in developing this SF cost is commensurate with that of a medium quality office building.</i></p>	<p>Future Construction:</p> <p>This encompasses the scope of work defined in Categories 1-8 of the Program Summary as outlined briefly below:</p> <p>Category 1- Facilities within Building Development Envelope</p> <ul style="list-style-type: none"><li>• Construction of Maryland Horse Breeders Association (MHBA) offices, library and museum (10,000GSF)</li><li>• Construction of leasable space addition to the Core Building (5000GSF)</li><li>• Construction of equine vet clinic (11,600GSF) together with circular pen and covered paddock.</li><li>• Construction of a 50 seat demonstration theater.</li><li>• Site utilities associated with the above.</li></ul> <p>Category 2-Parking</p> <ul style="list-style-type: none"><li>• Demolition of existing wooden fences, overhead power lines and existing roads as defined on the drawings.</li><li>• Demolition of existing perimeter fence and installation of new fence.</li><li>• Construction of new roads.</li><li>• Construction of additional parking for the above facilities</li><li>• Construction of parking for the agricultural museum, classrooms, buses, trailers and service vehicles.</li></ul> <p>Category 3-Educational Facilities</p> <ul style="list-style-type: none"><li>• Construction of classrooms and public comfort station (2950GSF).</li><li>• Relocation and renovation of an existing barn for the agricultural museum.</li><li>• Relocation and renovation of an existing on site cottage.</li><li>• Construction of greenhouses (2EA).</li><li>• Fencing to garden plots</li><li>• Associated site utilities.</li></ul> <p>Category 4-Equestrian and Livestock Facilities</p> <ul style="list-style-type: none"><li>• Construction of indoor arena (31,250GSF).</li><li>• Remodeling an existing barn.</li><li>• Construction of two new livestock barns(3060GSF each) and new hen house (270GSF).</li><li>• Fencing to outdoor show ring and fencing to demonstration crop lots and livestock paddock.</li><li>• Associated site utilities.</li></ul>
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<p>Category 5-Demonstration Crops and Facilities</p> <ul style="list-style-type: none"><li>• Construction of new storage shed for the vineyard (1000GSF).</li><li>• Fencing to demonstration vineyards</li><li>• General preparation of crop areas.</li><li>• Associated site utilities.</li></ul> <p>Category 6-Recreational Facilities</p> <ul style="list-style-type: none"><li>• Construction of recreational/educational pavilion.</li><li>• Construction of information stations.</li><li>• Construction of pedestrian trails.</li></ul> <p>Category 7-Best Management Practices</p> <ul style="list-style-type: none"><li>• Construction of additional storm water management areas.</li><li>• Construction of compost enclosures.</li></ul> <p>Category 8-Farm Manager and Site Service</p> <ul style="list-style-type: none"><li>• Renovation of existing on site houses for farm manager and intern farmer.</li><li>• Renovation of existing building for DEPRM nursery.</li><li>• Construction of grounds maintenance storage building.</li><li>• Construction of workshop/garage for DEPRM crew.</li><li>• Fencing to reforestation nursery and farm manager compound.</li><li>• Associated site utilities.</li></ul> <p>The level of pricing forming the basis of these cost assessments is representative of current day costs of construction in the metropolitan Baltimore areas, assuming that the construction packages for both phases of the project will be procured in a competitive bid environment. (Note: In compiling the cost estimates it has been assumed that all the work encompassed under “Future Construction” will be procured as a single construction package).</p> <p>An allowance has been included on the summary page of each construction phase to cover anticipated increases in costs of construction from the date of preparation of the estimates to the currently projected midpoint of construction.</p> <p>Phase 1 - construction start assumed as February 2009 with an anticipated construction duration of nine months, midpoint of construction is mid June 2009.</p> <p>Future Construction - construction start assumed as January 2010 with an anticipated construction duration of fifteen months, midpoint of construction is mid July 2010.</p>	<p>The escalation allowances have been computed assuming a rate of escalation of 7% per annum.</p> <p>In preparing these conceptual construction cost assessments it has been assumed that the construction contractor and his subcontractors will be permitted unrestricted access to the site of the work.</p> <p>No allowance has been included in the cost estimate for the following:</p> <ul style="list-style-type: none"><li>• Legal fees.</li><li>• Permits.</li><li>• Impact or other Government costs.</li><li>• Exhibits/Artwork for the museums.</li><li>• Relocation of existing exhibits to the new facilities.</li><li>• Costs of owners on site representation during the course of construction.</li><li>• Any costs arising from “sole source” procurement requirements.</li><li>• Hazardous material abatement/removal.</li><li>• Removal/replacement of unsuitable material.</li><li>• Farm / agricultural equipment.</li><li>• Veterinary/ surgical equipment.</li><li>• Equipment for indoor/ outdoor arenas.</li></ul>
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<p>Baltimore County Center for Maryland</p> <p>Hunt Valley, Maryland</p> <p>Conceptual Construction Cost Assessment (Final)</p> <p>Phase 1 Construction</p>	<p>March 18, 2008</p>
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					2,891,436
Subtotal Phase 1 Construction Base					433,715
Add: Price and Design Contingency			15.0%		3,325,145
Subtotal					
Add: Allowance for General Conditions, Insurances, Bonds, etc.			9.5%		315,889
Subtotal					
Add: Allowance for Overhead and Profit			5.5%		200,257
Subtotal					
Add: Escalation to midpoint of construction - June 2009			11.0%		422,542
Subtotal					
Add: Construction Contingency			5.0%		213,192
Total Estimated Cost of Phase 1 Hard Construction					<b>4,477,024</b>
Add: Allowance for FF & E	SF	11660	9.50		110,770
Add: Allowance for A/V equipment and wiring hardware	SF	11660	2.50		29,150
Subtotal	SF	11660	4.50		52,470
					192,390

Subtotal Phase 1 Construction Base					
Add: Price and Design Contingency		15.0%			2,891,430
Subtotal					433,715
Add: Allowance for General Conditions, Insurances, Bonds, etc.		9.5%			3,325,145
Subtotal					315,889
Add: Allowance for Overhead and Profit		5.5%			3,641,033
Subtotal					200,257
Add: Escalation to midpoint of construction - June 2009		11.0%			3,841,290
Subtotal					422,542
Add: Construction Contingency		5.0%			4,263,832
					213,192

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<div>Baltimore County Center for Maryland Hunt Valley, Maryland Conceptual Construction Cost Assessment (Final) Phase 1 Construction</div> <div>March 18, 2008</div>					<div>Baltimore County Center for Maryland Agriculture Hunt Valley, Maryland Conceptual Construction Cost Assessment (Final) Future Facilities</div> <div>March 18, 2008</div>																																																																																																																																																																																																																																																																												
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Baltimore County Center for Maryland					March 18, 2008
Hunt Valley, Maryland					
Conceptual Construction Cost Assessment (Final)					
Future Construction					
Item Description	Quantity	Unit	Rate	Subtotal	Total
Information/ signage stations	12	EA	1200.00	14,400	230,400
Pedestrian trails	18500	LF	4.00	74,000	
Allowance for clearing, grubbing and generally levelling and grading play area	5	Acre	2000.00	10,000	
Allowance for site utilities	1	LS	60000.00	60,000	284,500
Subtotal Recreational Facilities.					
7: Best Management Practices.					
Allowance for stormwater management areas	1	LS	250000.00	250,000	284,500
Allowance for construction of compost enclosures	5	EA	3500.00	17,500	
Overflow structures to ditto	2	EA	8500.00	17,000	
Subtotal Best Management Practices.					
8: Farm Manager and Site Service.					
Renovate existing house for farm manager	2050	SF	180.00	369,000	1,811,550
Renovate existing caretakers house for intern farmers	1440	SF	125.00	180,000	
Renovate existing stallion barn for DEPRM nursery	2900	SF	90.00	261,000	
New grounds maintenance building	5000	SF	85.00	425,000	1,811,550
DEPRM crew workshop/garage	2160	SF	100.00	216,000	
Allowance for clearing, grubbing and generally levelling and grading reforestation nursery area	1.5	Acre	2000.00	3,000	
Woven mesh fencing to reforestation nursery and form manager compound	2700	LF	6.50	17,550	1,811,550
Allowance for geothermal wells and piping	1	LS	75000.00	75,000	
Allowance for septic tanks, piping etc	1	LS	30000.00	30,000	
Allowance for site utilities	1	LS	225000.00	225,000	1,811,550
Allowance for landscaping	1	LS	10000.00	10,000	
Subtotal Farm Manager and Site Service.					