

WARD FARM RECREATION AND NATURE PARK

Comprehensive Master Plan



Prepared for
Calvert County, Maryland
Parks and Recreation Division
Natural Resources Division

Prepared by
Mahan Rykiel Associates, Inc.
Whitman, Requardt & Associates, LLP

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Dunkirk, Maryland

JUNE 2015

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ACKNOWLEDGEMENTS

The Master Plan was prepared under the direction of the Calvert County Division of Parks and Recreation and the Division of Natural Resources. We acknowledge and thank all those individuals who contributed their time, knowledge and passion in guiding this process.

Steering Committee

Paul D. (Doug) Meadows	Parks and Recreation, Division Chief
Karyn Molines	Natural Resources, Division Chief
Walter McKain	Parks and Recreation, Park Supervisor
Andrew Brown	Natural Resources, Senior Naturalist
Anne Sundermann	Battle Creek Nature Education Society
Fran Younger	Board of Parks and Recreation
Mary Beth Cook	Community Planning and Building, Deputy Director
Frank Schlotter	Engineering, Deputy Director

Board of Parks and Recreation

Calvert Nature Society Board

Note: The Ward Farm Recreation and Nature Park Master Plan was approved by the Calvert County Planning Commission on January 21, 2015. This approval allows for individual site plans to be developed and implemented without additional Planning Commission review. However, any Category 1 building (structures over 5,000 square feet) must be submitted to the Calvert County Planning Commission for review and approval.

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COST ESTIMATE 3



INTRODUCTION

The Board of County Commissioners of Calvert County acquired the 209 acre Ward Farm in Dunkirk in March of 2013 for the development of a regional park. The northern area of the county lacked, and continues to lack, active sports fields and the Ward property was acquired for the specific purpose of addressing this shortage. Funds for the purchase were provided by the Calvert County Youth Recreational Opportunities Fund, a program created by the Maryland State Legislature that utilizes a portion of gaming revenues generated in Calvert County to provide recreational facilities.

The Division of Parks and Recreation issued an RFP for master planning services in the fall of 2013 and selected Mahan Rykiel Associates in early 2014 to lead the planning effort over the following 12 months. The planning process included a thorough investigation and analysis of the site's natural and cultural resources, the refinement of a program suited to the needs of the regional community, and the development of a master plan to best fit the agreed upon program on the park site.

The planning effort was jointly guided by the Division of Parks and Recreation and the Division of Natural Resources. Representatives

from both agencies, along with members of the Board of Parks and Recreation, the Calvert Nature Society Board, and representatives from the Departments of Public Works and Community Planning and Building, made up a steering committee that guided the process. Presentations were made at project milestones to the Steering Committee and Boards for input and approvals. Two public meetings were held to share information, review the plans, and solicit feedback from the broader community. At the June 12, 2014 meeting, a survey was circulated to receive input on the park program and park name. At this meeting, a presentation of the physical characteristics and natural and cultural resources of the park were also shared. Following the presentation, attendees were invited to comment and their input was recorded. Some provided additional written materials and photographs which were accepted and also recorded.

Based on the site information gathered, and with the input from the Steering Committee, Boards, and the community, the consulting team developed three alternate layouts for the park. Each alternative explored a variety of program elements located and arranged on the site in different ways. Access and circulation varied depending upon how uses



were located, and on the relationships to and between uses. The consulting team met with the Steering Committee on several occasions to select the preferred mix of facilities and uses and to refine the layout of a Draft Master Plan. The Draft Master Plan was presented to the two Boards on September 18, 2014, where it was unanimously approved.

A second public meeting was held on October 2, 2014, to present the Draft Master Plan to the community and to receive additional input. Based on feedback received at this meeting, along with that from the Steering Committee and the two Boards, the plan was finalized and presented to the Board of County Commissioners on November 18, 2014. The Final Revision of the Park Master Plan (the “Master Plan”) was unanimously approved by the Board and the park name was selected: *Ward Farm Recreation and Nature Park*.

On January 21, 2015, the Master Plan was approved by the Planning Commission, which permitted moving forward with phased implementation of the Master Plan.

The following pages outline the site assessment and provide a description of the Master Plan recommendations.



The existing Ward Property is a well-preserved landscape, filled with a range of diverse, natural, and cultural resources



SITE ANALYSIS

SECTIONS

1. Location and Context
2. Maryland Historic Trust (MHT) Review
3. Circulation and Access
4. Structures
5. Existing Utilities
6. Phase 1 Environmental Site Assessment
7. Topography
8. Slope Analysis
9. Soils
10. Wetlands, Waters of the U.S. and Floodplain
11. Forested Areas
12. Land Bay Plan

LOCATION AND CONTEXT

The site is approximately 209 acres and is located in northwestern Calvert County, just east of Dunkirk Town Center. Ward Road cuts through the property and serves as the dividing line between the 31.6 acres to the north (zoned Rural Community (RC) District) and the 177.4 acres in the southern segment (zoned Farm and Forest (FF) District). A Park use is allowed by right in the RC district, but requires a special exception in the FF district. A special exception request to allow the park use in the FF district was submitted to, and approved by, the Calvert County Board of Appeals in August 2014.

The site is bordered to the west by the historic Red Hall property, the Southern Memorial Gardens, and the Apple Greene Community, which is made up of single-family residential homes. To the north is a residual and undevelopable portion of the Red Hall property. To the east are the Woodlawn Farms and Dunkirk Fields single-family residential communities. The southern edge is largely defined by Hall Creek and its associated flood plain, which are part of several large parcels in private ownership.

MARYLAND HISTORIC TRUST (MHT) REVIEW

The following is excerpted from an MHT response letter dated July 15, 2014 regarding the property in general and the existing structures in particular.

No archeological sites or historic properties have been identified within the project area to date. The project submittal, however, notes that the property is located in the vicinity of several sites that have been recorded in the Maryland Inventory of Historic Properties (MIHP), including the 18th century house known as Red Hall (CT-4) and a Russian Orthodox chapel (CT-73) that has been moved from its original location. MHT files also indicate that several archeological sites (both prehistoric and historic) have been identified to the north and south of the Ward Farm Recreation and Nature Park property, including one prehistoric site (18CH491) that has been determined to be eligible for listing in the National Register of Historic Places. Given the proximity of these resources, cultural resources investigations may be necessary prior to any construction or ground disturbing activities associated with the Park development. The MHT is therefore requesting that they be provided with the

FIGURE 1. EXISTING CONDITIONS

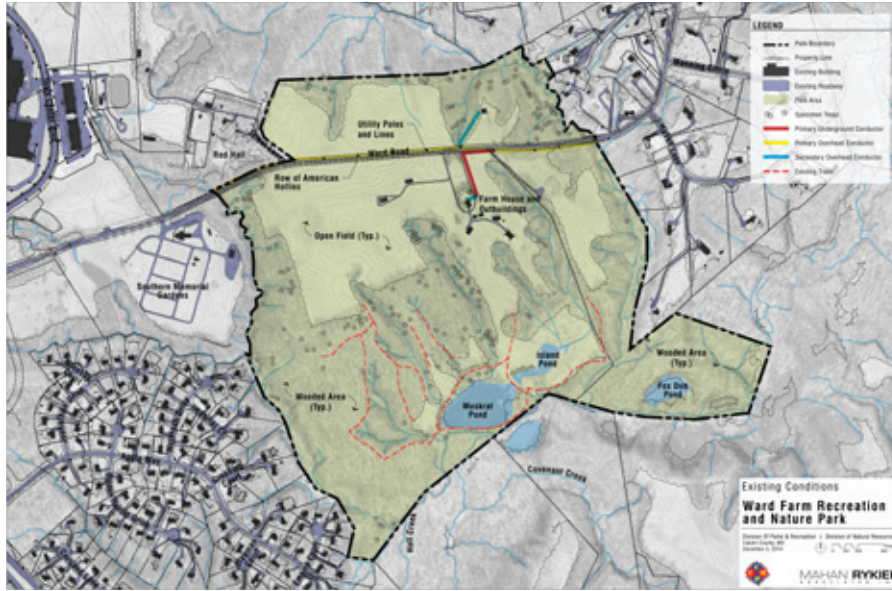


FIGURE 2. ZONING MAP

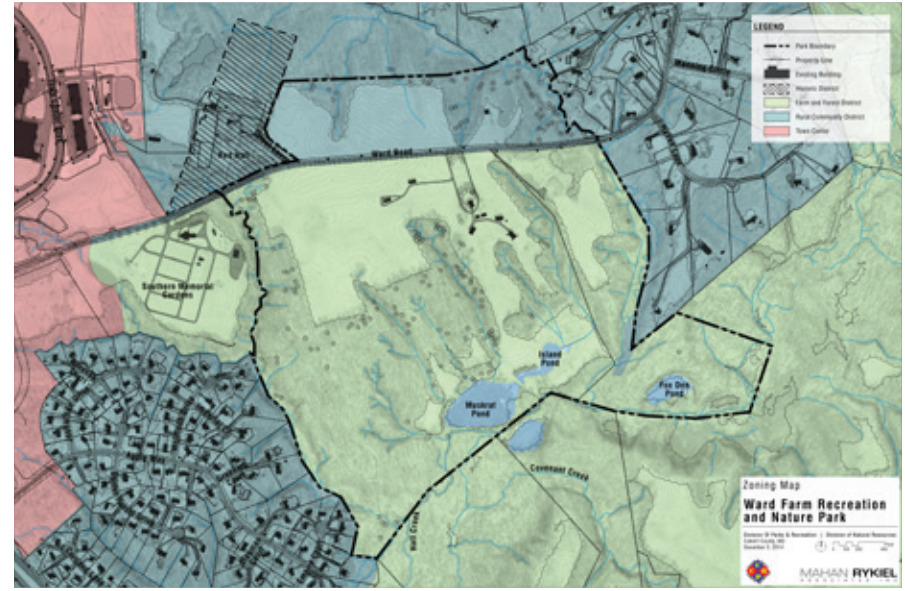


FIGURE 3. FARMHOUSE & OPEN FIELDS



information listed below prior to initiating any site development plans so that they may continue their review of the proposed undertaking and determine whether or not any architectural or archeological investigations are warranted:

- Photographs (print or digital) of all buildings, structures, or ruins located within the project area.
- Information regarding the original dates of construction for the buildings located within the project area.
- Site plans, other drawings, and/or a written scope of work illustrating the proposed project.
- A description of the planned treatment (renovation, demolition, etc.) of each building over 50 years of age.

Upon their review of this information, they will be able to provide informed recommendations regarding what, if any, cultural resources investigations are needed. For reference, see the Maryland Historical Trust Letter in the Appendix.

CIRCULATION AND ACCESS

Vehicular access to the site is provided off of Ward Road. Ward Road is classified by the county as a Residential/Local Roadway — Rural. The right-of-way is 50 feet wide; the roadway is an open section with a 40 mile-per-hour typical design speed, 300 foot minimum turning radius, and 10% maximum grade. Due to the horizontal and vertical alignment of the road, potential access is limited to an area in the middle of the site. Furthermore, due to entrance spacing requirements, it is recommended that access



Existing structures on the site

be limited to one location that would ideally serve the northern and southern portions of the site at the same intersection.

Potential entrances will need to conform to the Calvert County Roadway Ordinance and Calvert County Construction Standards for Roads, Streets, and Incidental Structures. County Entrance Details state that roads/intersections with a greater than 400 Average Daily Traffic (ADT) count shall be required to meet the State Highway Administration's (SHA) requirements. Note that ADT is the average number of vehicles that pass a specific point

in both directions over a 24 hour period. The Ward Road location will likely exceed 400 ADT.

No paved driveways currently exist on site beyond the access drive to the farmhouse. There is, however, a network of existing unpaved farm roads and trails which connect the farmhouse to the Hall Creek corridor along the south edge of the property.

STRUCTURES

Residential Structures

An existing farmhouse is located on the south side of Ward Road on the high point of the property and is accessed by a looped driveway off of Ward Road. It is believed to be a Sears Kit House, but has been determined to be of no significant historic value. On the north side of Ward Road is a small, vacant caretaker's cottage.

Barns

Three barns are located just south of the main farmhouse. Organized in a semi-circle, they have been constructed to take advantage of the topography and the natural "bowl" that defines the land immediately south of the structures. They appear to be structurally sound and are currently used to store miscellaneous materials and supplies. There is a fourth barn located just west of the current farm entrance that had been used to cure tobacco. It was slated by the former owner to be demolished, but that project was not completed. It is not anticipated that this barn will be re-purposed.

Outbuildings

There are two sheds immediately south of the farmhouse, which are also currently used for storage. A third outbuilding located near the central barn was used as a pig pen.

EXISTING UTILITIES

Domestic Water and Sanitary Sewer

The existing farmhouse is served by a residential-sized well and a recently reconstructed septic field located adjacent to the barn, just south of the house.

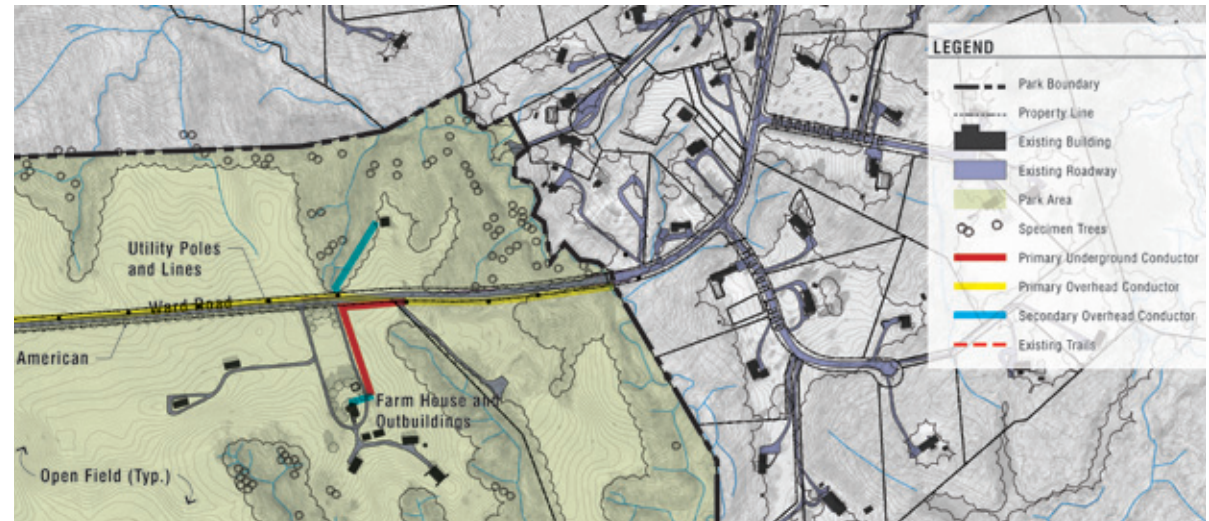
Public water and sanitary sewer is not available to the site or the surrounding Dunkirk area. According to County representatives, there are no immediate plans to provide public water or sewer to the area. Adjacent residences and businesses are served by wells and sewage disposal systems (septic tanks and fields), or by large package treatment systems.

Wells

Community water wells in the region are drilled into confined aquifers. It is common for community water supply wells in this vicinity to be in the Aquia Aquifer, located at a depth of approximately 400 to 600 feet. There is naturally occurring arsenic in the Aquia Aquifer groundwater, which may be treated depending on the actual concentration, the intended use of the water, and the decision of the owner.

Published geologic information indicates that deeper aquifers are also present in the vicinity, beneath the Aquia Aquifer. These include the Upper Patapsco Aquifer, the Lower Patapsco Aquifer, and the Patuxent Aquifer. Wells in these deeper aquifers are estimated to be as deep as 1,000 to 2,000 feet.

FIGURE 4. EXISTING CONDITIONS, UTILITY DETAIL



Depending on the determined water needs of the project, further on-site testing may be required. For instance, if more than 10,000 gallons/day is determined to be needed, Maryland Department of the Environment (MDE) requires a water appropriation and use permit. To obtain such a permit generally requires a hydrogeologic study which is based on data from drilling a well(s), interpreting the data, and providing specific calculations.

Septic Systems

Septic system requirements are dictated by MDE regulations. On-site septic systems can be designed to serve development requiring up to an accumulative flow of 5,000 gallons per day (GPD). GPD flow calculations are based on building size and use. This limit should be adequate for the structures and uses proposed for Ward Farm Park.

Natural Gas

Public natural gas service is not available at the site or in the immediate area. County representatives have indicated that natural gas service is available in the central and southern portions of the County. Gas service may be expanded to other portions of the County as demand dictates. For the purpose of this study, it was assumed that natural gas will not be available to the site. Should natural gas be extended to the Park property in the future, the County may want to revisit its use for Park facilities. It should be noted that any gas needs for this facility, including heating, could be provided by propane, which is currently utilized at the farmhouse for its fireplace.

Power

The existing farmhouse is served by an underground line that extends from the Southern Maryland Electric Cooperative (SMECO) overhead line that runs along the north side of Ward Road. Based on the anticipated power demands of the development, the service connection will require upgrading.

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

Whitman, Requardt & Associates (WR&A) prepared a Phase 1 Environmental Site Assessment (ESA) for the property that surveyed the site on April 11, 2014, for unusual above and below ground environmental conditions.

Evidence of three underground storage tanks, one underground propane tank, and a pad-mounted transformer were found surrounding the main farmhouse. Several empty 55-gallon drums were observed in one of the barns, along with a number of smaller chemical containers. No evidence of staining was found. Two drinking water wells, one near each house, were also observed. Evidence of dumping — of a variety of materials, from miscellaneous household trash to construction debris, tires, and furniture — was observed in three areas. No spills, leaks, or noxious odors or indications of monitoring wells were observed on the project site.

WR&A submitted a written request to the Calvert County Department of Health regarding

spills, releases, wells, and other reported environmental concerns associated with the project site. On April 17, 2014, WR&A received a written response which included well and septic information stating that there are no records or information available documenting any violations regarding the property.

Based on the results of WR&A's ESA, it is unlikely that contamination has adversely impacted the subsurface of the site. The findings are available in the Phase I Environmental Site Assessment in the Appendix.

TOPOGRAPHY

The highpoint of the site is located along a ridge that runs parallel to, and just south of, Ward Road. From there, the site falls to the north and south in a series of well-defined drainage divides characterized by steep side slopes. These result in the creation of a series of spaces or “rooms” that define the middle portion of the site — between the large open agricultural fields at the highpoint and the Hall Creek floodplain at the low point. The southern edge of the property is bound by the Hall Creek stream valley and its associated floodplain and wetlands. There is an elevation change

FIGURE 5. ELEVATION STUDY

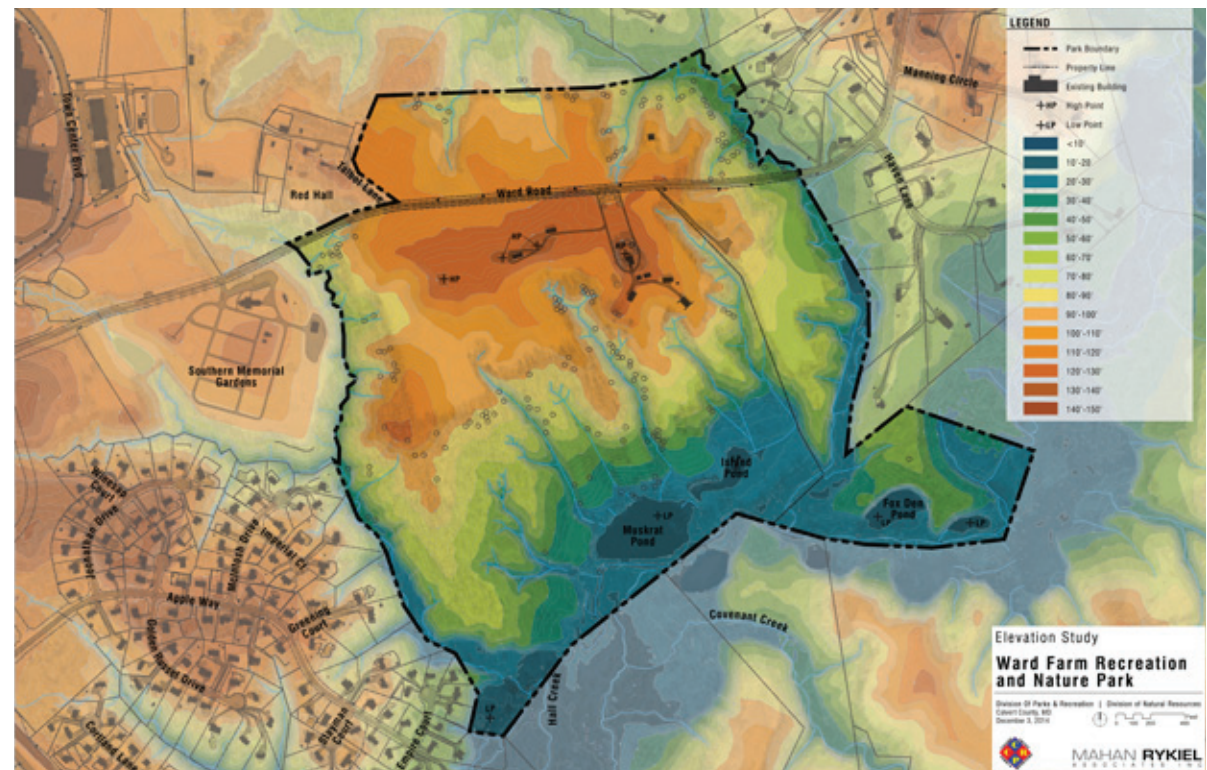
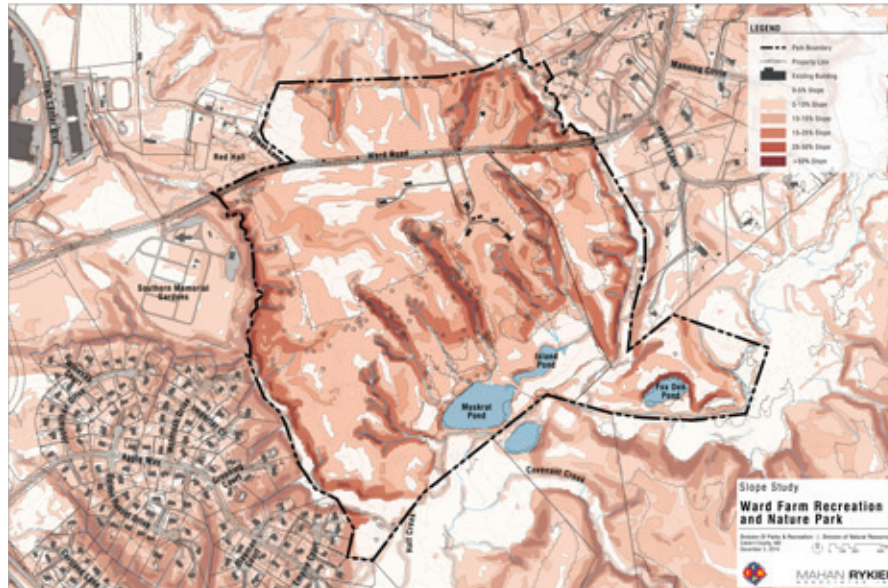


FIGURE 7. SLOPE STUDY

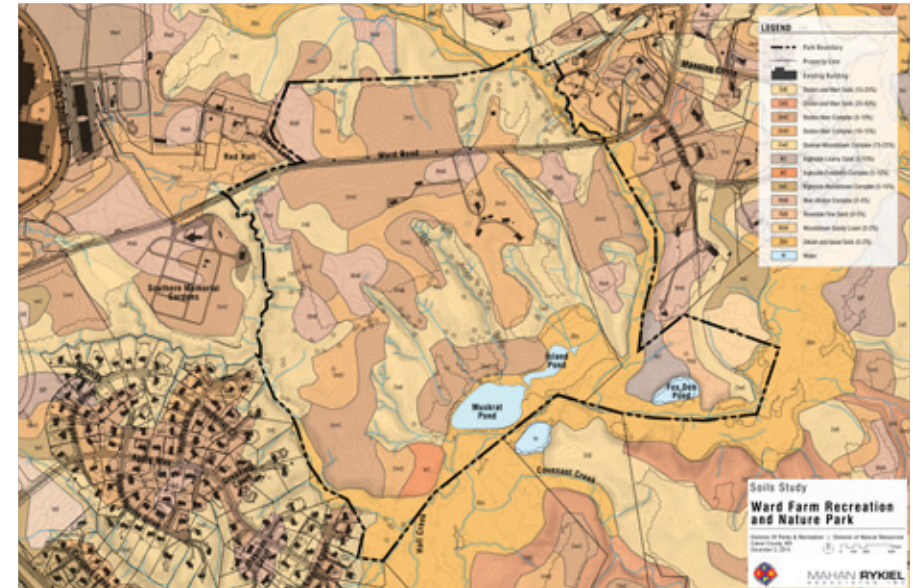


of over 150 feet from the highest portion of the site to the lowest point in the southwest corner of the property. Both the eastern and western boundaries are comprised of steep, wooded stream valleys, which function as a natural buffer to the Park from neighboring communities.

SLOPE ANALYSIS

Existing slopes on the site were mapped using the County’s Geographic Information Systems (GIS) database. The ranges used included; 0-5%, 5-10%, 10-15%, 15-25%, 25-50%, and greater than 50%. The steepest slopes on the site are associated with the drainage ways that run in a predominantly north-south

FIGURE 6. SOILS STUDY



orientation. The flattest areas are the recently cultivated fields that are visible from Ward Road and the floodplain associated with Hall Creek. In between is a range of sloping land that may be appropriate for locating a variety of small- to medium-footprint Park program elements.

SOILS

Based on the available United States Department of Agriculture (USDA) and Natural Resources Conservation Service (NRCS) soils information, much of the flatter, previously cleared and farmed portions of the site consist of Dodon and Marr soils. These soils are common to the area and are typically well-

drained, consisting of sandy loam with some clay characteristics. Much of the steeper, wooded, environmentally constrained and flood-prone portions of the site consist of Downer-Woodstown, a moderately well-drained loamy sand, as well as Zekiah and Issue soils, which are typical for flood plains and are not ideal for development.

USDA soils information is preliminary in nature. Further detailed soils evaluation should be conducted by a geotechnical engineer as the site design of the Park is initiated. (See the USDA Custom Soil Resource Report for Calvert County in the Appendix.)

FIGURE 8. HYDROLOGIC FEATURES



WETLANDS, WATERS OF THE U.S. AND FLOODPLAIN

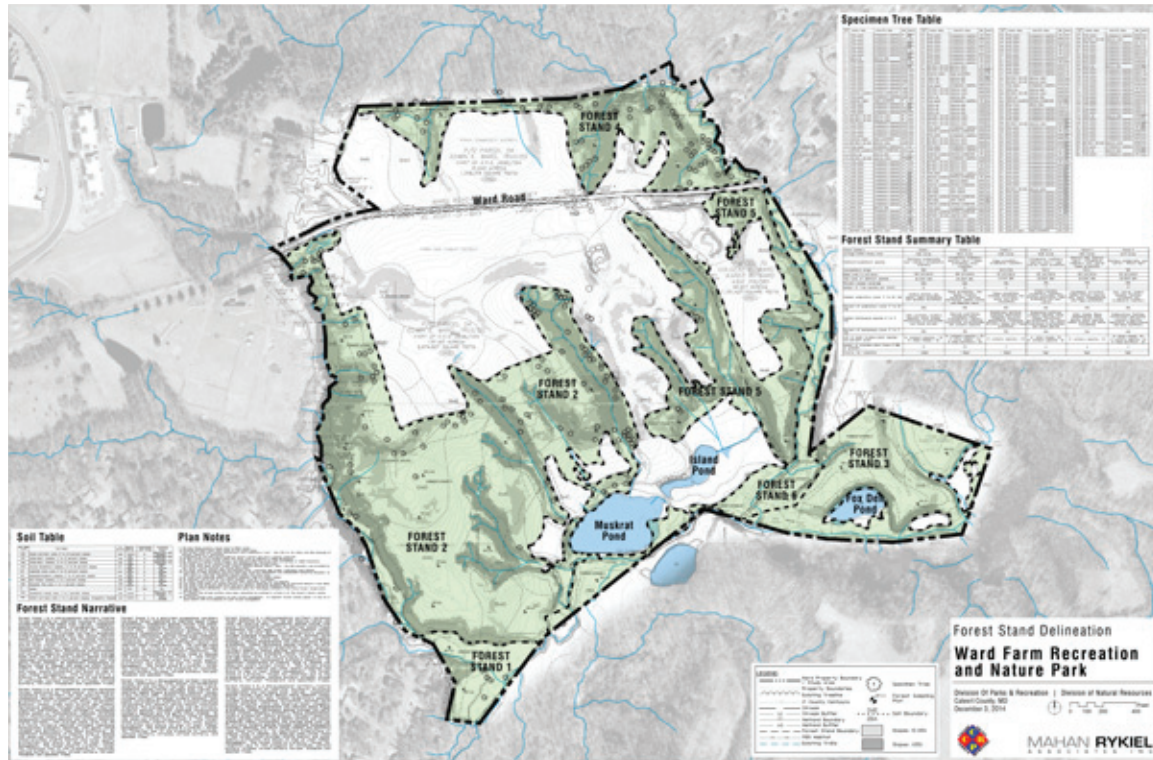
A wetland delineation study performed for the property identified 15 non-tidal wetlands, in addition to several perennial and intermittent streams. All on-site streams are identified by Maryland Department of the Environment (MDE) as USE-I streams, designated for Water Contact Recreation, and Protection of Nontidal Warmwater Aquatic Life. Non-tidal wetland and stream buffers illustrated on the Hydrologic Features and Forest Stand

Delineation plans have been calculated per Article 8 of the Calvert County Zoning regulations. The site also contains a 100-Year Floodplain as identified on FEMA's Flood Insurance Rate Map (FIRM), Panel Numbers 24009C0057F and 240090059F — both effective December 16, 2011. Any impacts to non-tidal wetlands, waters of the US or the 100-Year Floodplain will require a Federal/State Joint Permit Application be submitted to Maryland Department of the Environment and the United States Army Corps of Engineers.



Portions of the site contain non-tidal wetlands

FIGURE 9. FOREST STAND DELINEATION



A forested edge on the property

FORESTED AREAS

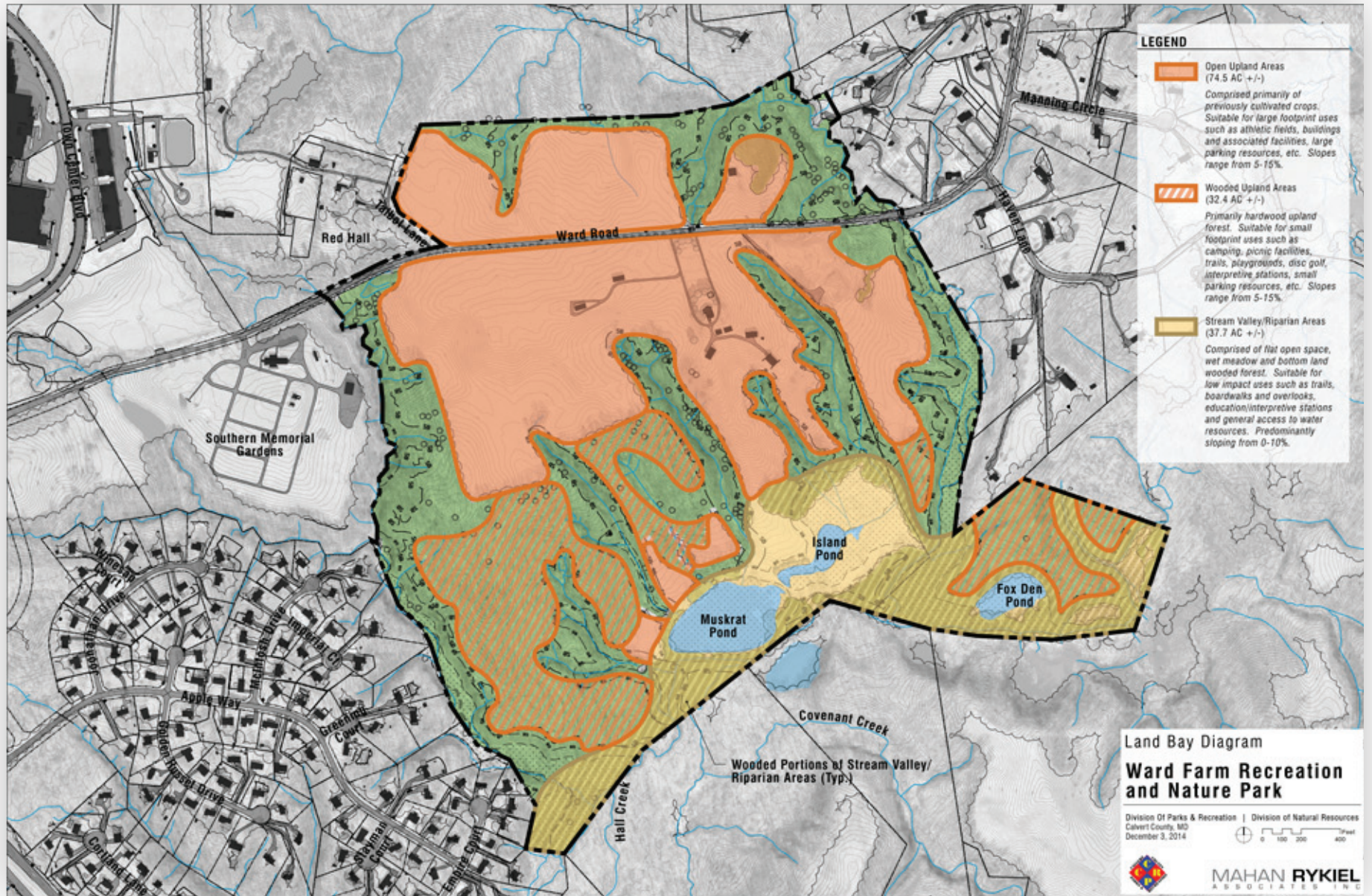
Using the methods outlined in the State Forest Conservation Manual, a Forest Stand Delineation Study was completed for the entire property (see the Forest Stand Delineation in the Appendix). The forest stand delineation identified six forest stands, totaling 119.01 acres including 188 specimen trees. In addition, the Calvert County Planning and Zoning Department GIS data indicates that the site contains Forest Interior Dwelling Species (FIDS) habitat, where particular plants and animals require interior forest for at least a portion of their life.

Rare, Threatened, & Endangered Species

Correspondence was sent to the Maryland Department of Natural Resources (DNR) Wildlife and Heritage Division requesting any known records of Rare, Threatened, and Endangered Species. DNR responded in a letter dated May 29, 2014, stating that no records of state listed Rare, Threatened, and Endangered Species are known to exist within the Ward Farm Recreation and Nature Park project area. They did, however, confirm the presence of FIDS habitat within the project area. DNR provided recommendations to help minimize the project's impact on FIDS and other native forest plants and wildlife (see the Maryland Department of Natural Resources Letter in the Appendix).

United States Fish and Wildlife Service (USFWS) indicated in a draft letter (Included in the Appendix of the Comprehensive Master Plan Report) that no federally listed Rare, Threatened, and Endangered Species are known to be present within the Ward Farm Recreation and Nature Park parcels.

FIGURE 10. LAND BAY DIAGRAM



MAHAN RYKIEL

LAND BAY PLAN

A Land Bay Plan was developed based on a summary analysis of the physical, natural, cultural, and other site resources documented in the information gathered above. The Land Bay Plan identifies those areas of the property that are suitable for locating various Park program elements and their associated support facilities. This plan further identifies areas of the property that are appropriate for specific uses based on their size, access requirements, Park impacts, and relationship to the existing resources. The three primary use zones include:



The Land Bay Plan determined that approximately 38 acres of the property were Stream Valley/Riparian Areas

Open Upland Areas (74.5 AC +/-)

These are open areas comprised primarily of previously cultivated fields or croplands, and are suitable for large footprint uses such as sports fields, buildings, parking resources, etc. Slopes in these areas range from 5-15%.

Wooded Upland Areas (32.4 AC +/-)

These areas are primarily made up of upland hardwood forests. These are suitable for small footprint uses such as camping, nature oriented playgrounds, small structures such as picnic shelters, trails, etc.

Stream Valley/Riparian Areas (37.7 AC +/-)

These are areas associated with the Hall Creek floodplain. They are suitable for trails, environmental education and interpretation, boardwalks and overlooks, and water access.

The remaining site area of approximately 64.4 acres is made up of environmentally sensitive, or otherwise undevelopable, land comprised of constraints such as steep slopes, streams, ponds and wetlands, and their associated setbacks.

The Land Bay Plan established a framework for beginning the master planning process. Once a program was determined, the Land Bay Plan would be critical in determining what uses were to be located in which areas of the property.



PROGRAM

SECTIONS

1. Large Footprint/Active Uses
2. Small Footprint/Active Uses
3. Park Facilities/Structures
4. Access and Low Impact Program Elements
5. Secondary Park Program (for consideration)

A preliminary program was developed by the County based on familiarity with local needs. At the June public meeting, the program was shared with the participants, who were asked to rank the five most important activities/elements included in that program list. In addition, attendees were asked to include any additional program items they thought should be considered. Below is the list of program elements and uses identified for the park.

LARGE FOOTPRINT/ACTIVE USES

- Minimum of one 90-foot baseball diamond with full size multi-purpose field overlay
- Minimum two full size multi-purpose fields (as many as possible)
- Junior fields (as many as possible). Note that two junior fields can be overlaid on each full size multi-purpose field.
- Open field non-sport specific areas to use for special events, free play

SMALL FOOTPRINT/ACTIVE USES

- Multiple small playgrounds/natural playground(s)
- Skate spot
- Dog park
- Parking within walking distance of ponds and creek
- Bus turnaround and parking (school busses)

PARK FACILITIES/STRUCTURES

- Multiple restrooms (including some year-round)
- Maintenance facility
- Park office
- Nature Center/environmental center at 150 person capacity—doesn't need to have self-contained restrooms if other heated restrooms are nearby.
- Covered campfire, group program area (approximately 150 person capacity)



Scenes from the Ward Property

ACCESS AND LOW IMPACT PROGRAM ELEMENTS

- Wide, paved, measured-distance walking paths connecting facilities (and around perimeter), suitable for walking, running, biking, and skateboarding. Incorporate exercise equipment. Provide links to nature trails.
- Natural surface trails/nature trails
- Handicapped access to stream and/or pond
- Picnic shelters/picnic area
- Multiple, intimate interpretative spaces that accommodate 20 to 25 children; connected via trail
- Boardwalks and overlooks at ponds and wetlands
- Access to Hall Creek, streams, and Fox Den Pond
- Fishing pier/boardwalk

SECONDARY PARK PROGRAM (FOR CONSIDERATION)

- A site for a minimum 60,000 square foot indoor facility (non-specific), with parking
- Disc golf course
- Spray/Splash pad
- Amphitheater
- BMX trails/pump track
- Demonstration house/yard to show gardens, rain barrels, energy efficiency, etc.
- Wildlife friendly design
- Themed nature trails
- Overnight primitive camping
- Tennis*
- In-line skating*

**Items added from community input.*

The Steering Committee refined the program elements and uses considered for the park, and alternative site layouts were developed and evaluated as the master plan evolved.

Care was taken to ensure that the program and recreational offerings at Ward Farm Recreation and Nature Park complemented, but did not duplicate those at Dunkirk District Park. Several of the program suggestions offered by participants at the June public meeting were subsequently proposed to be located or retrofitted at Dunkirk District Park including tennis courts and a BMX pump track.



ALTERNATIVES DEVELOPMENT

Between mid-June 2014 — when the initial findings were shared with the County Commissioners and approved — and early October 2014 — when a refined Draft Master Plan was presented at a public meeting — the consulting team met with the Steering Committee on multiple occasions to advance the plan. The consulting team developed three preliminary Master Plan alternatives that explored various ways to accommodate the various programs on the site (refer to the Master Plan Alternatives in the Appendix). The alternate concepts looked at various means of access and circulation, locations of program elements, orientations of park facilities, and the relationships of the program elements to the site and to each other. These were reviewed in an initial work session with the Steering Committee. The outcome of the meeting was a series of recommendations that drew upon the most desirable parts of several alternatives with the goal of developing a refined, preferred alternative. The consulting team combined those selected elements together into a revised plan. That plan was shared with the Steering Committee and a number of additional recommendations were made. Those were incorporated into the Draft Master Plan. That plan was subsequently

presented to the Park Board and the Calvert Nature Society. With their approval, the plan was shared with the community at a public meeting in October 2014 and ultimately presented to, and approved by, the Board of County Commissioners in November 2014.

MASTER PLAN DESCRIPTION

SECTIONS

1. General Overview
2. Access/Roadways
3. Trails
4. Parking
5. Lighting
6. Grading
7. Stormwater Management
8. Utilities
9. Playgrounds/Skate Spot
10. Group Picnic Area
11. Park Office
12. Maintenance Facilities
13. Nature Center Complex
14. Athletic Fields
15. Pavilions and Shelters
16. Dog Park
17. Landscaping and Planting
18. Signage
19. Conservation and Restoration

The design intent for the Master Plan is to accommodate the active, passive, and interpretive program elements identified by the Steering Committee and the community in a park setting that is respectful of the site's inherent qualities. The stated priorities for the Master Plan are to:

- Provide for as many active sports fields as reasonably possible in order to address the deficiency in this part of the County,
- Preserve, provide access to, and interpret the rich cross section of natural and environmental features of the property, and
- Develop the park in such a manner that both the active and passive/natural areas of the park have an identity, such that one does not overwhelm the other.

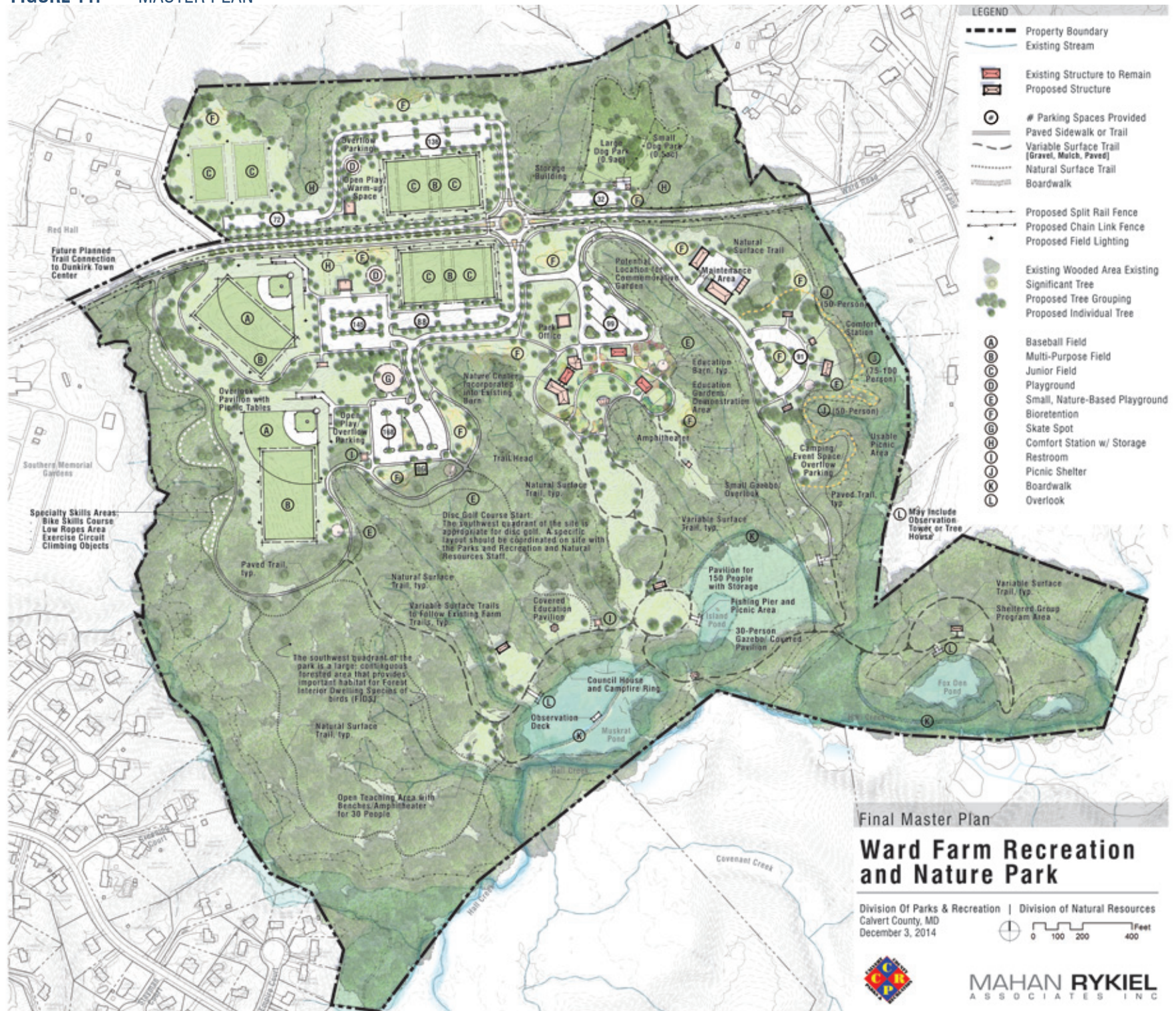
GENERAL OVERVIEW

The Master Plan has been developed to take greatest advantage of the park's existing resources and characteristics by locating uses in those areas most appropriate for their size and function. The property naturally forms a series of spaces, or "rooms," as one moves from the open agricultural fields along Ward Road, through the wooded fingers defined by the drainage patterns of the site, down to the floodplain of Hall Creek. The park uses have been laid out to respect these existing qualities and offer the visitor a varied experience as they move from one space to another, having the opportunity to circle back to their starting point by a variety of differing routes.



The landscape forms a series of naturally-framed "rooms," like this undulating and sloped room

FIGURE 11. MASTER PLAN





A barn in the distance is framed by the landscape

A single roundabout is recommended on Ward Road to provide access to both the northern and southern portions of the site. Two temporary access drives onto Ward Road are recommended to the west of the roundabout, from both the north and the south. These are to be gated during normal park use, but could be utilized for ingress or egress during large events or in case of an emergency.

On the north side of Ward Road, a multi-purpose field and two junior fields will be provided. They will be served by parking

resources, a comfort station, a playground, and some additional flexible open space that may be utilized for warm-up, overflow parking, and/or as a septic field. East of the roundabout is an approximately one and a half acre Dog Park that will be served by a small parking lot, a composting toilet, and a small storage facility.

Entering the south side of the park from the round-about, the location of the existing farm house will act as a focal point. Prominently located on the high point of the site, this

facility will serve as the park office. The existing landscape surrounding the building will remain largely undisturbed, preserving a distinctive part of the cultural landscape of the property. Within this setting, there is the potential for a Volunteer Recognition area in keeping with a desire to make this park a location honoring all who volunteer in Calvert County. Specifically, there is a stand of existing cedars on the north side of the house that frame a circular space that would be appropriate for such a use.

Directly south of the park office will be a Nature Center. This facility will be constructed as part of the re-purposing of the three existing barns co-located here. The barns will include education and demonstration facilities, and may also serve maintenance functions as well as house some of the park's central utility services, such as water and/or electric. An amphitheater is proposed just down grade from the barns, anchoring the south edge of the complex. This complex will serve as the primary trailhead providing access to the Hall Creek corridor to the south. A parking field will be located east of the park office and north of the Nature Center, and should serve both uses.

A complex of active sports fields will be located to the west of the entry drive. Included in this area will be two baseball fields with skinned infields and 90-foot baselines. Each will have the opportunity for an overlapping multi-purpose field. In addition, there will be a third, stand-alone, multi-purpose field just west of the entry drive. Each field will be served



The Ward Farm Recreation and Nature Park will allow visitors to experience and appreciate nature

by a parking resource sized to accommodate currently anticipated needs.

Also to be provided, and centrally located to support the sports field complex, is a playground, a skate spot, and a picnic pavilion. The picnic pavilion will take advantage of its location at the top of a grade change between the two baseball fields to provide dramatic views to the south.

The largest parking lot, to be located to the south, is designed to serve the adjacent baseball and multi-purpose fields, and also to function as a trail head for access to the passive uses and natural areas in the southern portion of the park. A restroom is proposed adjacent to the parking area and may also serve the ball fields to the west and a small nature-based playground to be located just within the wooded edge. Just south of the parking area is the proposed starting point for a disc golf course. The course will make its way through the open, wooded areas of the southwest section of the park, across the open Hall Creek floodplain and back up to the starting point.

A maintenance facility with space for offices will be located east of the south entry drive, and will also provide space for both enclosed and open storage of various materials. Just beyond the maintenance area will be a group picnic area served by parking and a comfort station. This area will also have an open, flexible space to the south that could be used for camping or overflow parking. A nature-based playground will be located near the

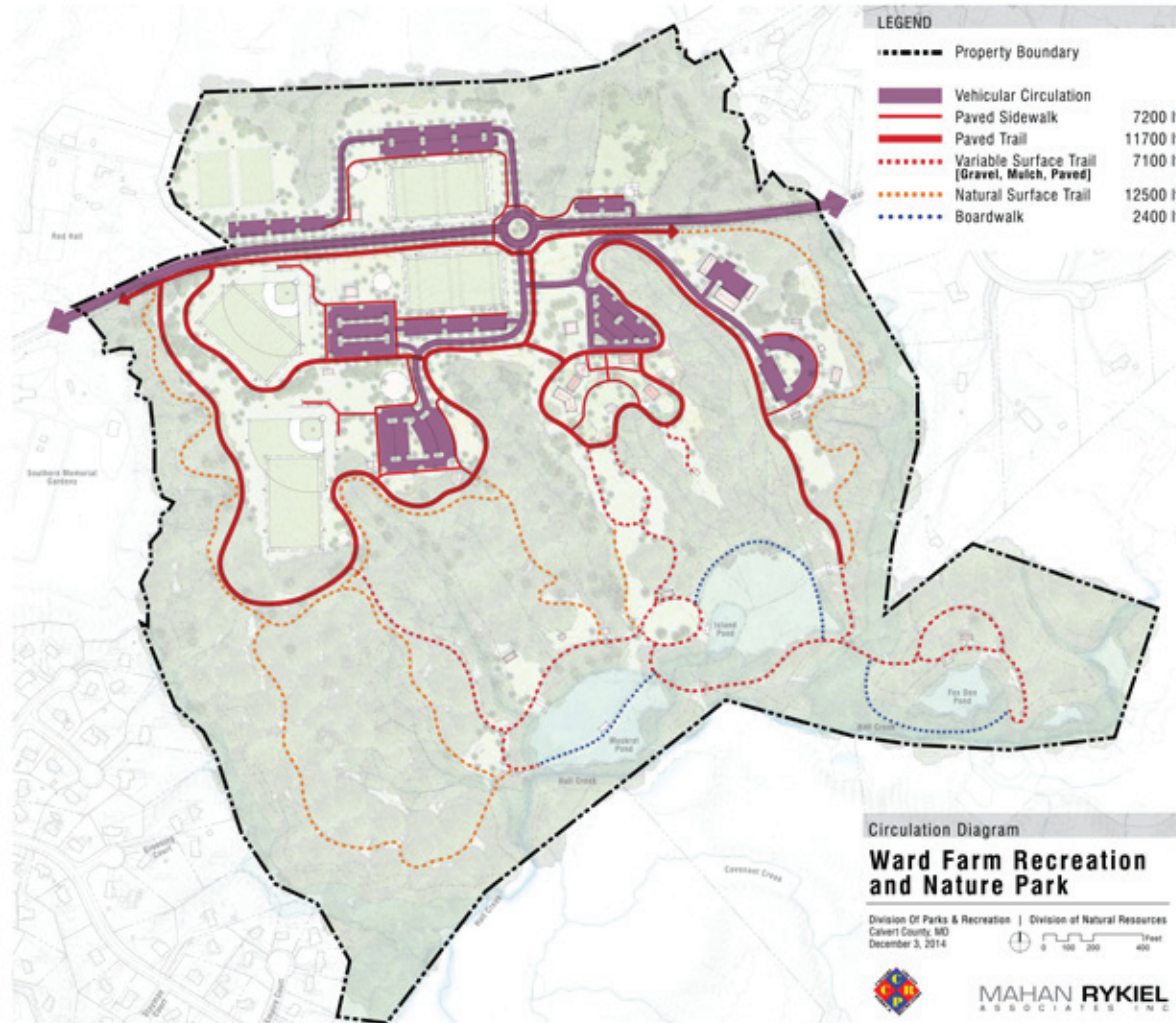
wooded edge. An expanded area around the picnic pavilions has been identified that may be utilized by picnickers and may include activities such as horseshoes, volleyball, or may simply provide access into the woods with dramatic views down to the stream valley to the east.

The southern portion of the park will be primarily dedicated to access by trail to the various environmental areas and features of the property. Several trail types are proposed — paved, stabilized, and natural surface — as well as boardwalks in the more environmentally sensitive areas.

Several structures are to be provided for gathering and educational purposes, including three pavilions of differing sizes, a gazebo, and a “Council House.” Overlooks and piers will be located on the three ponds and on the ridge at the east edge of the open meadow for viewing and water access as grade allows. A restroom facility will be centrally located, recommended as a composting toilet.

Along the west edge of the park, just south of Ward Road, are three areas that could accommodate one or more uses — such as a bike skills course, low ropes course, exercise circuit, or climbing course. The ultimate use of these areas should be determined based on demand/need closer to the time of installation.

FIGURE 12. CIRCULATION DIAGRAM



ACCESS/ROADWAYS

Vehicular access will utilize a single entrance off of Ward Road. A roundabout is to be located in the general vicinity of the existing farm house driveway. It will provide access to both the north and south sides of the park and is intended to offer several benefits, including:

- Promoting a continuous flow of traffic,
- Slowing traffic (there’s no traffic signal to “beat”),
- Enhancing safety for pedestrians,
- Avoiding the costs associated with a signalized intersection,
- Providing easy control for gating the park, and
- Assisting in preserving the majority of the holly trees along Ward Road by eliminating the need for acceleration and deceleration lanes.

The configuration and dimensions of the roundabout will need to be determined as part of the final site design for the park. For the purpose of the Master Plan, a roundabout that is similar in size to the one recently constructed on Auto Drive (near the Hall Aquatic Center in Prince Frederick) is shown. This is a large facility at approximately 145 feet in diameter. The one at Ward Farm Recreation and Nature Park could likely be a smaller diameter.

At the time when site development plans are developed, further study of the traffic conditions in and around the park will be required. The study network to evaluate

the traffic impacts should, at a minimum, include four intersections: MD-4 at Ward Road (currently signalized), Ward Road at the park entrance, Brickhouse Road at Ward Road, and MD-260 at Brickhouse Road/Jewell Road (currently signalized).

Roadways within the park will be built to county standards and will primarily be designed as a curb and gutter section, due to space limitations. Where there is adequate dimension, a combination of curb and gutter and open section roadway may be viable. Note that an open section roadway is one without curb and gutter, where the edge of pavement simply transitions to a grass shoulder with an adjacent swale for collecting stormwater runoff. All roads and intersections shall be lit. Conduit should be placed during the initial implementation of the roads so that lighting may be added in future phases.

TRAILS

An extensive trail network will provide access throughout the park and link various park facilities and areas to each other. The network, including a perimeter trail, is designed to provide a hierarchy of circuits and connections, providing park visitors with a variety of ways to use and experience the park. The trail network will include trail types described below and shown in the Master Plan legend.



The only existing paved road on-site is the driveway to the farmhouse

Regional Trail

A regional trail is proposed to run along the south side of Ward Road, providing a connection to Dunkirk Town Center and ultimately to Dunkirk District Park. This will be a vital link that connects the facilities of the two parks, and is especially important to the bicycling community. On the Ward Farm Recreation and Nature Park property, the trail will be located south of the existing holly trees that line Ward Road. This will provide for enhanced safety and allow users to have a stronger relationship to the park than to the road.



Existing trails on the property

Paved Trails and Sidewalks

Paved trails and sidewalks will be provided throughout the park. The width of these will be determined based on location, use and site features. For example, facilities intended to serve larger numbers of people such as those for main loop walks or those serving restrooms and other buildings shall be wider, while paths intended for fewer users or providing minor access may be narrower. All primary facilities shall be accessed by walkways that meet the current American's with Disabilities Act (ADA) requirements.



Existing trail on the property

Variable Surface Trails

Variable Surface Trails will provide connections between the open upland areas and the stream valley corridor that runs along the south edge of the park and Hall Creek. These trails will extend from the Nature Center, the trail head at the central parking lot, and the group picnic area on the east side of the Park. While these trails are to be initially natural surface materials, it may be appropriate to use gravel, stone dust, shredded tires, or other loose, but substantially compacted materials. The selection of material should be made based on an evaluation of maintenance requirements and level of use.

Natural Surface Trails

Natural surface trails are stabilized earth trails. They are multi-use trails that may be used by hikers and “off road” bicyclists. The width of natural surface trails in Ward Farm Recreation and Nature Park should be determined at



Existing trail on the property

the time of final design based on criteria, such as whether some or the entire network should be single or double track width, and to accommodate maintenance and emergency equipment. There is a strong local Natural Surface Trail advocacy community and they should be looked to as a resource for the design and implementation of this trail network. While the design and engineering of the system should be provided by a consulting professional, the advocacy group can be of assistance in proposing possible layout alternatives, construction and maintenance of the facilities.

Boardwalks

Boardwalks will be utilized to access and make connections through environmentally sensitive areas. The Hall Creek corridor has a variety of aquatic habitats: ponds, marshy areas, wet meadows, etc. These offer some of the highest quality education and interpretation opportunities. Boardwalk access should be carefully laid out to take advantage of these resources without damaging them. Boardwalks will vary in width and height depending on location, and shall have railings, if required.

It should be noted that the trails and boardwalks shown on the Master Plan are diagrammatic in nature. The intent is for proposed trails to follow the existing farm roads and trails to the greatest extent possible. In particular, use of these existing trails should be maximized in early phases of park development, as these are well-established and provide excellent access around the site for little or no initial

cost of installation. New trails, especially those located in wooded and wet areas, are to be field-located at the time of installation to take greatest advantage of the park property and to do minimal harm to any of the existing natural resources.



The site features extensive rolling terrain

PARKING

Parking areas, ranging in size from approximately 32 to 168 spaces, will be provided near different use areas in eight separate areas of the park. The number of parking spaces required for different uses are determined by the criteria established in the County Zoning Ordinance Section 6-3. Overall athletic field parking space quantities have been calculated based on the Park's maximum of ten fields.

The larger of the parking areas are divided into "bays," allowing them to be constructed incrementally. They incorporate planted medians, tree islands, and/or bioretention functions. Parking lots are to be lit. As with the roadways, conduits will be placed during

the initial parking lot implementation so that lighting can be added in future phases. Lots should be constructed using curb and gutter to direct runoff to stormwater management (SWM) facilities. The use of permeable paving should be considered as part of the ultimate SWM design where space for bio-engineered solutions is limited.

LIGHTING

Road, Intersection, and Parking Lot Lighting

Roads and intersections are to be lit with sharp cutoff fixtures meeting the standards of the County Lighting Ordinance, including "dark sky" criteria. In early phases of the park construction, conduit may be installed to allow for street and parking lot lights to be added in the future. Consideration should be given to using LED lighting, solar lighting, or whatever the most energy efficient and cost-effective means of lighting is at the time of installation.

Field Lighting

Field lighting throughout the park is to be designed to incorporate "dark-sky" technologies that minimize glare and light pollution, and to adhere to all County Lighting standards as outlined in the lighting regulations. Supplemental shade tree plantings around the fields will provide some separation between fields and parking areas and will provide shade for players and spectators. Care should be taken to coordinate light locations with tree plantings and underground utilities to avoid future conflicts as plantings mature.

Nature Center, Picnic Shelters, and Education Pavilion Lighting

Buildings, other park structures, and outdoor gathering areas will employ low level task lighting to highlight key locations such as entrances and exits, main paths and sidewalk connections, areas intended for public gathering, and other locations integral to the function of the specific facility.

GRADING

Disturbance to the existing topography will be minimized where possible. Grading and earthwork approaches are to be used that maintain and enhance the predominant landform of the site. Smooth transitions at the top and toe of graded slopes should be utilized to avoid "unnatural" appearing grading conditions. The phasing of the park development takes into consideration issues of balancing earthwork. This might mean that, while one phase of the park moves ahead with construction, mass grading of adjacent future phases will be accomplished at the same time with the actual implementation of those to occur at a later date. The grading details will be developed through the Site Plan process for each phase of development.

STORMWATER MANAGEMENT

The approach to Stormwater Management (SWM) in the park is laid out in the Master Plan based on the strategy known as Environmental Site Design (ESD). This is a practice targeted at maintaining predevelopment runoff characteristics and protecting natural

resources by treating runoff as close to the source as possible and only using structural practices, such as larger SWM ponds, where absolutely necessary. This strategy relies on integrating site design, natural hydrology, and the use of smaller controls to capture and treat runoff.

Micro-scale practices appropriate for the park include but are not limited to:

- Sheet flow to conservation areas
- Infiltration practices
- Micro-bioretenion
- Submerged gravel wetlands

Areas reserved for bioretention will be located in proximity to all impervious surfaces, such as building roofs and parking lots. In all instances, the facilities shown in the Master Plan are located at a lower elevation than the source of the runoff so that they may be gravity-fed. In addition to bioretention facilities, there will be opportunities to include other ESD techniques, such as the provision of grass swales, bioswales, and/or rain gardens. If these approaches fall short of meeting target runoff treatment, the use of pervious paving materials should be considered as part of the parking lot design or in the specification of sidewalk and trail materials.

Creative design and informational signage should be incorporated into the SWM facilities, where possible, such that they serve as educational elements in the landscape.

UTILITIES

Development of the park requires a thoughtful approach to providing utility service. Public sewer, water, and gas are not currently available to the property and are not planned for in the near future. The park will utilize septic systems, well water, and electric power.

Sewer and Septic

The recommended approach to sewer service is to provide individual septic fields at each location where toilets and domestic water are proposed. The precise location of septic fields will need to be identified by on-site soil testing and percolation tests. These tests should be done early in the park development process to identify where the soils best suited for percolation fields are located. Minor adjustments to the location of park facilities and/or program elements may be required based on the outcome of these early soil tests. Septic fields may be sited in a number of locations including the following, listed in order of preference:

- Adjacent open or green space,
- Beneath active recreation fields, or
- Beneath parking resources.

The two exceptions are the restrooms recommended at the Dog Park and the one centrally located along the Hall Creek corridor. Those two facilities are recommended to be composting toilets so will therefore not require septic fields.

It should be noted that composting toilets require water and power to adequately treat waste. These utilities will need to be extended to the composting toilets or, alternatively, these facilities can be designed to function based on solar and rain collection as their source of power and water. A determination of the appropriate approach will need to be made during final design.

Water

Because of the depth to the aquifer(s) that serve as the source of water for the park, and the associated cost to drill and pump, a future determination will need to be made regarding the number and locations of wells appropriate to serve the park. There are two possible approaches that should be considered. One large well could be developed to service the entire park. The single well should be centrally located (e.g. in the vicinity of the Nature Center complex). One of the barns could be renovated to house the required equipment (pumps, water storage tank, etc.). From this location, water would be extended throughout the park with each phase of development.

Alternatively, because of its somewhat remote location, a second well could be provided for the east side of the park to serve the Maintenance Yard and the Group Picnic Area. Water from this location could also be extended north to serve the Dog Park and its associated composting toilet.

Initial infrastructure costs will need to be balanced against available budgets to determine the appropriate approach to providing water for the park. In any event, the comprehensive water requirements of the park at build out, including the future desire to irrigate the sports fields need to be factored into the initial calculations to ensure an adequate volume of water.

Electricity

Electric power to the park will come from the main line that runs parallel to Ward Road. Initial engineering analysis indicates that service for the entire park could be accommodated from one central location such as in the vicinity of the Park Office or Nature Center. However, similar to the water service, a more detailed study of up-front infrastructure costs relative to available budgets and early phase needs should be conducted to determine if providing two smaller connections and linking them may be more appropriate. A second location could be accommodated on the west side of the park near the Comfort Station.

For the purpose of this study, it is assumed that medium voltage service at 13.2 kilovolts (or 4.16 kilovolts) will be provided to one or more pad-mounted transformers. Secondary service voltage will most likely be required at 480/277 volts (3-phase, 4-wire). Once on-site, it may be stepped down to either 120/208 (3-phase, 4-wire) or 120/230 (single-phase, 3-wire) depending on usage. Service will then be extended to future phases as build out occurs over time.

PLAYGROUNDS/SKATE SPOT

Playgrounds will be located throughout the park: at the sports fields, at the Nature Center complex, at the group picnic area, and at the trail head near the centrally located parking resource. All of the playgrounds will be relatively small facilities that provide support to adjacent uses, rather than serve as larger destinations unto themselves.

Effort should be made to provide a variety of play equipment and experiences, avoiding duplicate playground designs around the park. Several of the playgrounds are identified as “nature-based.” These will be located in or near wooded edges and are intended to be spaces that, instead of being made of standard metal and plastic structures, incorporate the surrounding landscape and vegetation with the goal of fostering a more meaningful relationship between children and nature.

A skate spot is also recommended, to be located central to the sports field complex. Similar to the playgrounds, this facility will serve as a support function, rather than as a destination. Because it is located in a place on the site that will have some grade change, the elevation difference could be incorporated into the design of the facility.

GROUP PICNIC AREA

An area with three picnic pavilions will be located on the east side of the park, just south of the maintenance facility. Two of the pavilions are intended to accommodate 50 people, and one is sized for 75 to 100 people.

The facility will be serviced by a parking area and a comfort station. An open flex space to the south is provided and could accommodate open field games and activities, group camping, or could serve as an overflow parking area. A small nature-based playground will be provided and there will be sufficient space around the pavilions to provide for horseshoes and/or a volleyball court. A natural surface trail will extend into the wooded edge to the east — providing access to overlook points and views across and down the adjacent stream valley that defines the east side of the

FIGURE 13. PICNIC AREA



park. An ADA-compliant trail will extend south along the prominent ridge to an observation area which overlooks the ponds and wetlands of the Hall Creek valley. The structure could be constructed as a raised observation deck or tree house.

PARK OFFICE

The park office will be located in the existing farm house. This location is well suited for this function in that it is centrally located and is therefore conveniently accessible to the majority of the site. This location also sits on the high point of the site, providing good visual access to a fairly large portion of the park. In the early years of the park's operation, the existing farm house structure will serve as the office. In later years, as the park develops more fully and the needs of the park office potentially expand, it may be appropriate to consider a substantial renovation to, or new construction of, the office building.

To the north of the building is an existing stand of mature cedar trees planted in a circle that defines a small intimate space within. This space is an ideal site for a memorial to honor the volunteers of Calvert County. Further detailed design will be needed to specify any specialty plantings, benches or memorial plaques or sculptures.

NATURE CENTER COMPLEX

A nature center will be located just south of the park office. It will incorporate one of three existing barns co-located on this part

of the site. The center will be a relatively small facility of no more than 10,000 square feet that could accommodate some meeting/classroom space, exhibit space, lab space, staff offices, storage space, and restrooms.

The other two barns are recommended for renovation — one to serve an education function, which could be accommodated by a simple open structure, and one to serve a maintenance, storage, and/or utility function. For instance, this could be used to house the central water or electric facilities needed to service the entire park.

An amphitheater will be located at the south end of the complex to take advantage of

the naturally sloping landform in this area. This could be developed as a simple stage initially and expand over time to include a roof structure, sound, and lighting as demand dictates.

A number of themed gardens will be located in and around the complex, including rain gardens, native plant gardens, butterfly gardens, gardens for wildlife, and others. In addition, several demonstration areas could be located here, including a beekeeping area, organic gardening, wildflower meadow, and composting facility. A trail will extend to the southeast to connect to a small gazebo, "tree house," or overlook located in the center of a small, existing open space.

FIGURE 14. NATURE CENTER & PARK OFFICE



FIGURE 15. MAINTENANCE AREA



MAINTENANCE FACILITY

A maintenance facility will be provided on the east side of the park. This location will serve to minimize the visual impact of the facility on the majority of the park. The layout of the facility is clustered to utilize the buildings to further screen any undesirable views into the complex. The combination of the building façades and the gate that face the road can also be designed with screening and a park aesthetic in mind.

ATHLETIC FIELDS

A total of ten athletic fields will be provided as part of the Master Plan, located in the open upland portion of the site previously cultivated for agricultural purposes. These flatter areas are conducive to the large footprints of the fields as well as their accompanying support facilities. The proposed fields will include two baseball fields (90-foot base paths and 300-foot foul lines), four multi-purpose fields (360 feet by 200 feet; two of which overlap the outfields of the baseball fields), and two junior fields (210 feet by 120 feet). It should be noted that two junior fields can be overlaid onto one full-size field. This will allow for flexibility in meeting varying demand by user groups as well as allowing for field rotation to minimize wear on the fields.

All fields are designed to have support facilities in close proximity, including parking areas, comfort stations with space for storage of sports and maintenance equipment, a playground, a picnic pavilion, and a skate spot on the south side of Ward Road. All baseball

FIGURE 16. STREAM VALLEY STRUCTURES



and multi-purpose fields, not including the overlaid fields, should meet current ADA access requirements at time of construction.

The multi-purpose fields will be fenced to comply with County design standards for backstops and sideline fencing. Baseball fields are planned to have dugouts for the players and bleachers for spectators. Bleachers will be provided for multi-purpose fields, with the exception of the overlaid fields.

All fields should be planned and designed to accommodate irrigation, as either part of the initial installation or as a phased improvement at a future date. The irrigation needs for the athletic field facilities should be factored in to early calculations for water needs and distribution systems.

PAVILIONS AND SHELTERS

The pavilion and sheltered structures located throughout the park are primarily envisioned as open air, free-standing, slab-on-grade facilities. Those include:

- The pavilion between the two baseball fields,
- Three picnic shelters on the east side of the park,
- The program shelter at Fox Den Pond,
- The 150-person pavilion northwest of Fishing Pond,
- The 30-person gazebo south of Fishing Pond,
- The Council House north of Muskrat Pond, and
- The education pavilion northwest of Muskrat Pond.

Furnishings, such as tables, seating, and equipment will be provided based on the programs and activities planned at each location. Because of the history of the farm property, consideration should be given to selecting an aesthetic for the park structures that is in keeping with the character of the existing barns and other buildings found on site.

Several structures will be located along the Hall Creek corridor for gathering and education purposes. Different sized structures will be provided to accommodate as few as 30 people, and as many as 150.

A Council House will be located north of Muskrat Pond. This facility is envisioned as a pavilion with seating in the round. The central focus is to be a fire pit. An opening in the roof will be provided to vent smoke from the fire.

A small amphitheater for teaching will be located in an open space at the west end of Muskrat Pond.

DOG PARK

The Dog Park is intentionally designed to be located close to Ward Road with its own separate access to parking. It is advantageous to have a separate access because the hours of use often differ from those of the larger park. People often use facilities of this type in the early morning hours before going to work or in the evening. Depending on the time of year, the remainder of the park may be closed and a separate access would allow use of this facility on a different schedule. It is also beneficial to

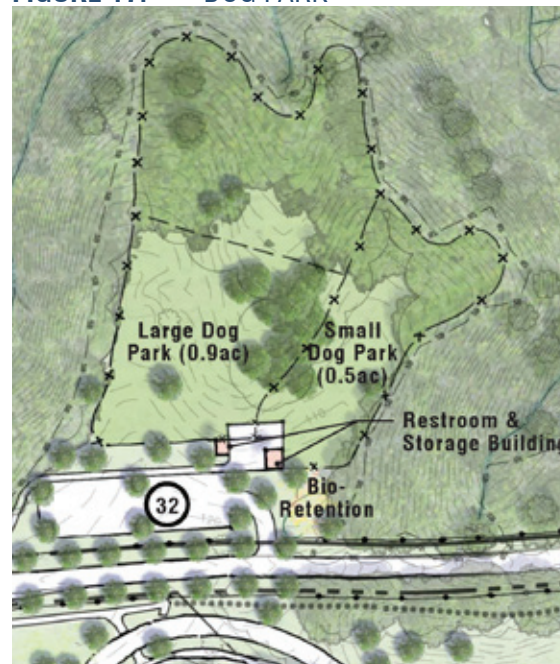
have the Dog Park parking and entrance close to Ward Road for surveillance purposes. Park Staff, or local police, can easily drive by and see who is in the parking lot or in and around the facilities near the Dog Park entrance. Further traffic study will be required at the time of Site Development to determine if this separate access is feasible.

The Dog Park will be approximately one and a half acres, and should be enclosed by a fence. Consideration should be given to using a more decorative — yet equally sturdy — fence type on the edge that fronts onto Ward Road because of the visibility from the street. The acre and a half can be divided into three, roughly equal sections with one

for large dogs, one for small dogs, and one that is allowed to rest so that the turf has a chance to regenerate. These three areas can be rotated on an as-needed basis so that one area is always at rest. Gated access will be provided for users in to each area of the Dog Park. Double-wide gates will also be provided for access by maintenance vehicles.

A restroom, recommended as a composting toilet, will be provided near the Dog Park entrance. A small storage building or shed for supplies and maintenance materials will also be located near the entrance. A water connection will be provided to the Dog Park. There will be a trail connection to the west to link with the rest of the park.

FIGURE 17. DOG PARK



LANDSCAPING AND PLANTING

Landscaping will be selected to support and reinforce the uses and facilities of the park. Trees will be used to define spaces, reinforce circulation patterns, separate use areas, and provide shade and comfort for park users. Shrubs will be used to accentuate key locations, such as entrances, and to define smaller spaces. Evergreen trees will be used for screening and as accent plants providing variety and contrasting textures. Supplemental shade tree plantings are to be located around the fields to provide some separation between fields and parking areas and to provide shade for players and spectators. Future designers should plan tree plantings with their ultimate size and habitat in mind so that mature trees will not interfere with field lighting, turf management, or ball play.



The property offers a variety of dynamic landscapes and habitats

A diversity of native wildflowers and grasses will be used in meadows, edges, and planting beds to attract a variety of wildlife. Plant selection will emphasize the use of plants that provide seasonal interest throughout the year.

All new plantings will emphasize native species, but should also consider non-native but “adapted” species. An emphasis will be placed on using a broad diversity of species, and the use of invasive species such as Burning Bush or Barberry will be prohibited. In developing a plant palette, care should be taken to preserve and celebrate the variety of plantings installed around the property by Mr. Ward. There are a number of individual specimens and collections of plants installed by Mr. Ward that could serve as the beginnings of an arboretum.

Control of invasive species should be addressed early in the development of the park. An eradication and control plan should be established jointly by the Parks and Recreation and Natural Resources Divisions. Volunteer groups can often be enlisted to assist with these kinds of efforts and this work can begin before a first phase of the park is even open.

SIGNAGE

The Master Plan allows for the identity of both the active sports facilities and the environmental resources of the park to be apparent to visitors as they enter the park. As part of the roundabout design, appropriate locations for main park entry/identity signs should be considered. Once visitors enter the park, directional signage will facilitate their movement to the various destinations. At key locations, such as the Nature Center complex and the Trail Head parking lot, park maps will provide context and orient visitors to the facilities of the park.

Interpretive stations with signage, and possibly seating or small gathering areas, will be provided at various locations throughout the park. The stations will provide educational information on the history of the property and the environmental and ecological features. There are many potential locations for interpretive stations and these will need to be identified specifically as part of the design of the park facilities and based on the types and locations of important resources within the park.

Because of the proximity of surrounding land uses and property owners, and due to the fact that it is not apparent where the park boundary is in many instances, a system of signs or markers will be developed to identify the limits of the park property.



CONSERVATION AND RESTORATION

Due to the presence of Forest Interior Dwelling Species (FIDS) and the 188 specimen trees, care should be taken to cause as little disturbance as possible within the forested areas of the property. Existing stands of mature trees are to be protected. Trail alignments through wooded areas are to be laid out to avoid damage to tree roots to the maximum extent possible. Placement of trails and small structures should avoid the stream and wetland buffers to protect the natural waterways, wetlands, and associated habitats.

The Hall Creek corridor is an important ecological resource to the park, to Dunkirk, and to the County. As such, this resource should be managed in a sustainable manner. Based on field observation, it is apparent that much of the creek that lies within the park boundary is suffering from erosion. Small localized restoration efforts are often ineffective as they don't necessarily address the cause of the problem which frequently lies upstream of the actual damage. A comprehensive analysis of the stream corridor should be conducted to evaluate what measures should be taken to address the current erosion problems.

The Park plan seeks to restore and conserve existing natural resources while protected habitats for wildlife, including a native Luna Moth (pictured bottom left) spotted during a site visit.

COST ESTIMATE

The estimate below represents detailed project costs (in current dollars) for the improvements recommended on the Master Plan. Costs are grouped by areas of the park that would logically be constructed together. Detailed costs for individual facilities and park elements within each area are provided in the Detailed Cost Estimate in the Appendix. The detailed breakdown allows for portions of one or more areas to be built depending on available funding. Note that the Park Development Area costs outlined below are

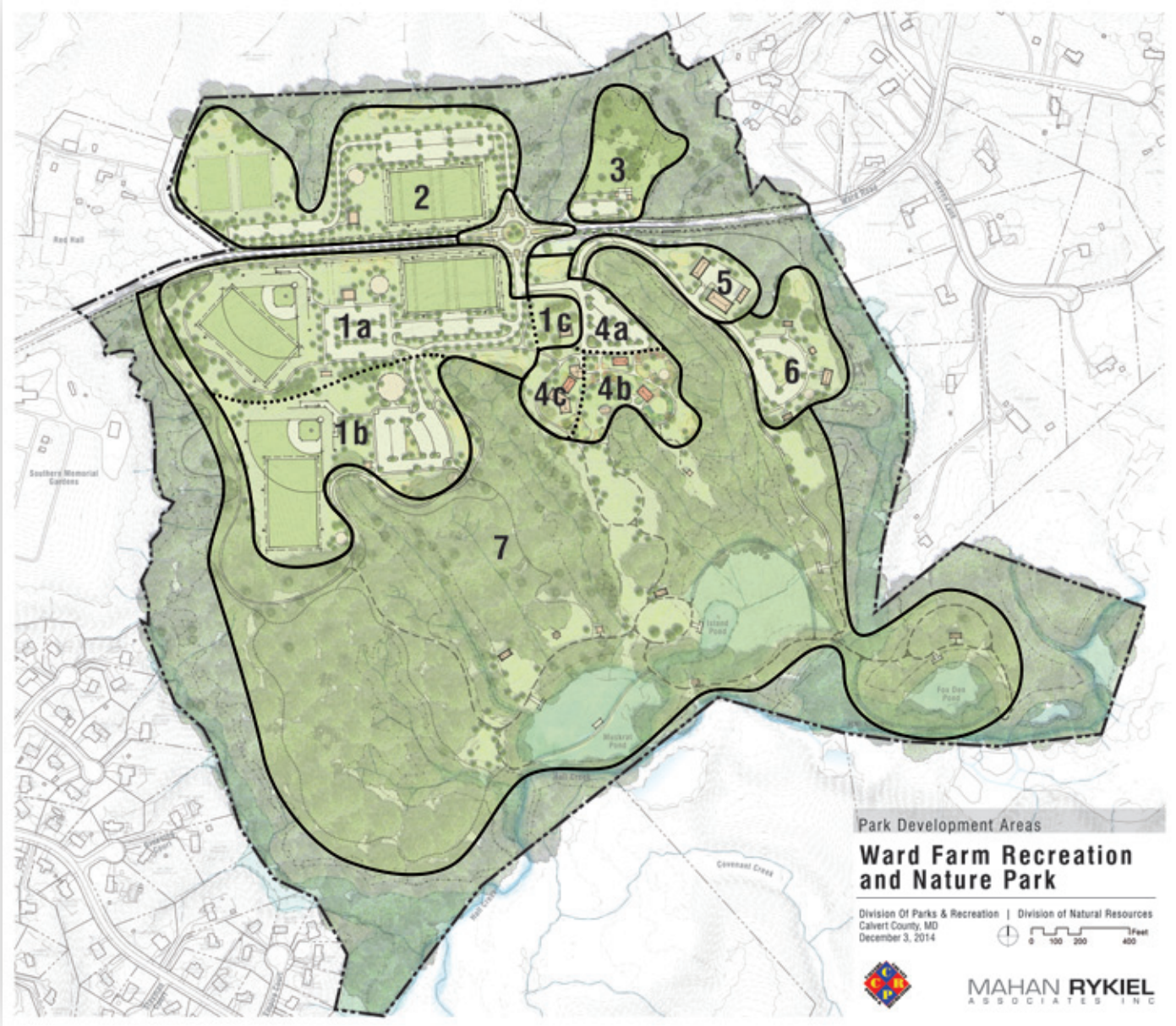
for complete build out and are inclusive of mobilization, sediment and erosion control, earthwork, utilities, contractor overhead and profit, and design fees.

Costs for Ward Road improvements and a central well and water distribution system are shown separately at the top of the estimate. These are costs that are substantial but are also fundamental to the park's operation and will need to be considered early in the development of the park.

Park Development Area	Cost
Ward Road Improvements	\$ 1,263,808
Well and Water Distribution System	\$ 1,237,600
Area 1a - Rec Fields South - Upper Terrace	\$ 5,939,609
Area 1b - Rec Fields South - Lower Terrace	\$ 4,560,450
Area 1c - Existing House Renovation	\$ 150,000
Area 2 - Rec Fields North	\$ 3,764,856
Area 3 - Dog Park	\$ 987,362
Area 4 - Nature Center Complex and Parking	\$ 4,197,524
Area 5 - Maintenance Facility	\$ 2,425,586
Area 6 - Picnic/Camp Area	\$ 1,846,474
Area 7 - Natural Area (south portion of park)	\$ 2,378,068
Total	\$ 28,751,343

See next page for development areas

FIGURE 18. PARK DEVELOPMENT AREAS



WARD FARM RECREATION AND NATURE PARK

MASTER PLAN

Prepared for
Calvert County, Maryland
Parks and Recreation Division
Natural Resources Division

Prepared by
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APPENDIX

Supplemental Reference Materials