



CLUB SOURCE DESIGN, PLC

**IMPACT STUDY FOR
UNIVERSAL ACCESS MODEL IMPLEMENTATION**

For

THE BRANDERMILL COMMUNITY ASSOCIATION
3001 East Boundary Terrace
Midlothian, Virginia

19 December 2012

ARCHITECTURE • INTERIOR DESIGN • MASTER PLANNING

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Table of Contents

- I. Purpose & Scope**
- II. Background**
- III. Facilities Description**
- IV. Comparable Examples**
- V. Analysis**
- VI. Observations**
- VII. Recommendations**
- VIII. Next Steps**
- IX. Budget Range Projections**
- X. Summary**

I. Purpose & Scope

Club Source Design, PLC was commissioned by Brandermill Community Association (BCA) to perform the following tasks:

- A. Determine the capacities of the existing pools, pool decks, restrooms and parking facilities.
- B. Analyze the feasibility (pros and cons) of instituting a Universal Access Model for the pools.
- C. Develop budget ranges for findings & recommendations.

The assessment began with a preliminary review of available information, including site plan and G.I.S. information obtained from Chesterfield County, as well as a review of BCA's Master Plan. A walk-through of the facility was conducted on 14 September 2012 (*it should be noted that all observations occurred several weeks after the official close of pool season, and observations made may be affected thereby*). The walk-through was conducted with Al Raimo and Jennifer Strader of BCA, and Kurt Schuster from SwimMetro, the company which manages and staffs the pools for BCA. During the walk-through, observations were made to note the general extent and conditions of the facilities.

The assessment team included:

- Fred Thompson, Architect of Club Source Design, PLC
- Susan Lacy, Architect of Club Source Design, PLC
- Douglas Aurand, Aquatic/Landscape Architect of Siska Aurand, Landscape Architects, Inc.

References to code concerns may relate to requirements that have changed since the facilities were originally constructed. Comments made are in reference to and in accordance with the following present day codes and standards:

U.S.A. Swimming – 2012 rules & regulations
Standards for Public Swimming Pools – ANSI/NSPI-1 – 2003 edition
Standard for Pool Water Quality in Public Pools & Spas – ANSI/APSP-11 – 2009 edition
Handicapped Accessibility Code – ICC/ANSI A117.1 – 2003 edition
2010 ADA Standards for Accessible Design – effective 15 March 2012
State Health Code "Regulations Governing Tourist Establishment Swimming Pools & Other Public Pools"
Virginia Construction Code, 2009 edition
Virginia Rehabilitation Code, 2009 edition

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II. Background

Brandermill is a 2,600 acre master-planned community located on the 1,700 acre Swift Creek Reservoir in Chesterfield County. Developed starting in 1973, Brandermill was one of the first communities in the country to embody the concept of living a resort lifestyle year-round, offering a wide array of recreational amenities to its residents. In 1977, Brandermill was named the "Best Planned Community in America" by *Better Homes & Gardens* magazine and by the National Association of Home Builders (NAHB). The Brandermill community is comprised of approximately 3,700 residences and is home to about 13,800 residents.

When originally developed, even with the premise of resort-style living, access to Brandermill's pools was an "extra cost" amenity. Since the 1970's, many developers' philosophies regarding pool membership have changed. Now, it is common in newer developments for all residents to have automatic access to their community pool (and the costs therefor to be part of regular community dues). In order for Brandermill to stay competitive with nearby and newer developments, BCA is considering changing its pool membership model to a *Universal Access Model*, in which all residents automatically have pool memberships, and the costs for the pool amenities are borne by all households through their HOA dues structure.

Scope Limitations – The scope of this analysis is limited to the pools, pool decks, rest rooms and parking facilities. It excludes the assessment of nearby amenities such as the Harbour Pointe clubhouse, playgrounds and sporting courts (volleyball, basketball, etc.), boardwalks, docks and boat storage facilities, etc.

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III. Existing Facilities Description

Brandermill has approximately 21,000 SF of existing pools, and almost 40,000 SF of existing pool deck between three complexes: Harbour Pointe, North Beach and St. Ledgers. A brief description of each facility follows:

A. Harbour Pointe Pool – facility believed to have been constructed about 1980

Pool Surface: about 4,050 SF

- Main pool – about 3,240 SF
 - Fitness/Recreational – 2,310 SF
 - Recreational – 930 SF
- No marked lap lanes
- Has spa jets which are non-operational
- 1-piece painted concrete coping, deteriorating
- Separate Kiddie Pool – about 810 SF

Pool Deck: about 11,385 SF

- Concrete slab surfaced w/ a "Kool Deck"-type concrete topping
- Surrounding fencing is 6-foot plastic privacy and 4-foot aluminum picket, non-climbable

Parking: about 115 spaces

- Paved: 25 spaces
- Unpaved: 90 +/- spaces

Rest Room Facilities: (not ADA compliant)

- Men: 1 toilet, 1 urinal, 2 lavatories, gang shower for 3
- Women: 2 toilets, 2 lavatories, 3 stall showers
- Open cubby lockers and central benches
- Baby changing station in each rest room

Drinking Fountains: 1 (not ADA compliant)

B. North Beach Pool – facility believed to have been constructed about 1978

Pool Surface: about 8,570 SF

- Main pool – about 8,100 SF
 - Competitive/Fitness – 4,950 SF
 - Diving – 1,575 SF
 - Recreational – 1,935 SF
- (8) 25-meter lap lanes
- Diving well w/ (2) boards 1 @ 1-meter, 1 @ 2/3 meter
- Shallow recreational area
- Precast concrete coping with bullnose safety edge – pieces do not match (partially replaced during a previous renovation?)
- Separate Kiddie Pool – about 470 SF

Pool Deck: about 12,950 SF

- Concrete slab – kiddie pool deck may be surfaced w/ a "Kool Deck"-type concrete topping
- Wire fencing on 2 x 4's is flimsy, may be climbable or easy to break into
- Wood picket fence at kiddie pool is less than code-required 4-foot height

Parking: about 126 spaces

- Paved: 16 spaces
- Unpaved: 110+/- spaces

Rest Room Facilities: (not ADA compliant)

- Men: 1 toilet, 1 urinal, 1 lavatory, gang shower for 2
- Women: 2 toilets, 1 lavatory, gang shower for 2
- Wall bench, but no lockers or cubbies
- Baby changing station in each rest room

Drinking Fountains: 1 (not ADA compliant)

C. St. Ledgers Pool – facility believed to have been constructed about 1981

Pool Surface: about 8,520 SF

- Main pool – about 8,520 SF
 - Fitness/Recreational – 3,155 SF
 - Diving – 1,565 SF
 - Recreational – 3,800 SF
- (6) 25-yard lap lanes
- Slide
- Diving well w/ (2) boards
- Shallow recreational area
- No separate kiddie pool
- Precast concrete, square-edge coping units

Pool Deck: about 15,380 SF (13,905 SF at pool level, 1,475 at entry level)

- Concrete slab surfaced w/ a "Kool Deck"-type concrete topping, small section of exposed aggregate concrete
- Wire fencing on 2 x 4's is flimsy, may be climbable or easy to break into

Parking: about 114 spaces

- Paved: 14 spaces
- Unpaved: 100 +/- spaces

Rest Room Facilities: (not ADA compliant)

- Men: 1 toilet, 1 urinal, 2 lavatories, gang shower for 2
- Women: 2 toilets, 2 lavatories, 2 stall showers
- Central bench but no lockers or cubbies
- Baby changing station in each rest room

Drinking Fountains: 1 (not ADA compliant)

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IV. Comparable Examples

A. Pool Square Footage Per Residence

While there are rules of thumb for community planning purposes regarding pool surface square footage per residence, the data below reveals a wide variation in the actual size of pool facilities from community to community.

Following are factors that may affect a community's pool size:

1. Developer philosophy – Some developers see a community's pool as a major sales tool, and invest in larger, showier pools with beach entries, water play structures, dedicated adult areas, etc. as a means to generate sales. Other developers make a more modest investment in a community's pools, seeing them as a necessity, but not a major sales tool.
2. Community size – For small communities, square footage per residence may be skewed by the fixed size of a 6 or 8 lane competition lap pool.
3. Modern trends – In newer communities, pools are commonly provided with beach entries and other shallow water recreational areas which were unheard of 20 or more years ago. Beach entries provide both required handicapped accessibility and a family-friendly recreational area, but result in higher pool surface square footages due to the slopes which must be maintained to reach lap pool depths.

Smaller Communities

	<u>Approx. Residences</u>	<u>Approx. Pool SF</u>	<u>Approx. Pool SF Per Residence</u>	<u>Universal Access</u>
Charter Colony	1,200	5,800 SF	4.8 SF	Yes
Eagle Harbour	1,000	7,400 SF	7.4 SF	No
Hampton Park	1,000	10,000 SF	10.0 SF	Yes
Ladysmith Village, Phase I	1,000	7,500 SF	7.5 SF	Yes
Magnolia Green, Phase I	700	5,700 SF	8.1 SF	Yes
Riverfront at Harbour View	1,100	9,200 SF	8.4 SF	No
Twin Hickory	1,450	9,000 SF	6.2 SF	Yes

Larger Communities*

	<u>Approx. Residences</u>	<u>Approx. Pool SF</u>	<u>Approx. Pool SF Per Residence</u>	<u>Universal Access</u>
<i>Brandermill</i>	<i>3,700</i>	<i>21,000 SF</i>	<i>5.7 SF</i>	<i>No</i>
Kingsmill	2,500	12,500 SF	5.0 SF	Yes
Ladysmith Village, build-out	3,000	14,500 SF	4.8 SF	Yes
Magnolia Green, build-out	3,500	13,600 SF	3.9 SF	Yes

*Attempts were made to ascertain data for the neighboring community of Woodlake. However, due in part to the time of year in which this analysis was conducted, comparable information about the types of water to be found in Woodlake's pools was unavailable.

B. Types of Water

In addition to variations in square footage of water provided per residence, there is also a wide variation in the types of water found in many community pools. The most striking difference between older and newer facilities is that newer community pools are being developed without diving wells, but with shallow water recreational areas. There are also diverging trends regarding kiddie pools: some developers consider the shallow water recreational area also to act as the kiddie pool (this approach is not recommended for both safety and sanitary reasons), while other developers are providing larger kiddie pools with water play amenities such as fountains, and splash mats with water toys.

	<u>Competitive</u>	<u>Recreational</u>	<u>Diving</u>	<u>Shallow Water*</u>	<u>Kiddie Pool</u>
<i>Brandermill</i>	4,590	12,130	3,140	0	1,280
Charter Colony	3,690	1,685	0	400	0
Eagle Harbour	3,690	1,180	0	580	1,935
Hampton Park	3,690	4,450	0	1,700	160
Kingsmill	3,690	7,800	0	940	500
Ladysmith Village, Ph. 1	4,920	1,500	0	960	0
Magnolia Green, Ph. 1	3,690	1,496	0	545	0
Riverfront at Harbour View	3,690	5,020	0	450	0
Twin Hickory	3,690	3,400	1,200	0	645

*Shallow water is recreational water that is 0 to 18 inches in depth, such as a beach entry or play ledge.

In lieu of diving wells and diving boards, many developers are providing slides. In addition, newer pools are being provided with more features and amenities such as underwater seats (with and without jets), fountains and splash mats, water play equipment, and beach entries.

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V. Analysis

Based on the comparable examples discussed above, it is reasonable to assume that Brandermill's existing pool square footage can support usage by a larger community.

However, while the pool surface area may be sufficient, Brandermill's pools are dated in comparison to the pools at newer neighborhoods in the area. The table above indicates that Brandermill's pools provide too much deep water and not enough shallow water in relation to newer facilities. In addition, Brandermill's pools lack more modern features – such as beach entries, dedicated slide areas, adult areas with underwater seats and over-water shade structures, splash mats, water play equipment, etc. – which enhance the pools to potential buyers in the community, enhance pride in the community's facilities to the residents, and enhance the experience of the resident users. Such modern features are discussed and proposed in BCA's Master Plan. As facilities are renovated or replaced, upgrading to include modern features and amenities in accordance with the Master Plan will help the Brandermill community keep pace with its newer neighbors.

Guidelines and recommendations for safe pool design have also changed since Brandermill's pools were built thirty-plus years ago. There are new depth and glide length recommendations for diving boards, more stringent directions regarding depth markers, new guidelines for wall targets, etc. With the institution of *Universal Access*, the pools would be open to many more individuals, thus increasing potential liability for BCA. A thorough inventory of pool components should be conducted in order to bring to light all deficiencies with regard to present day guidelines and recommendations. BCA should consider changes such as lowering diving boards or replacing them with slides, reconfiguring wall targets, etc. to improve the safety of the existing pools. A clear understanding of all deficiencies will also be helpful in determining when one or more of the pools have reached the point where it must be replaced.

Of concern is the lack of a kiddie pool at the St. Ledgers facility. St. Ledgers is, by word and by attendance records, the most popular pool in the community. Without a kiddie pool, toddlers must play on the steps along an area of water that is inappropriately deep. The safety of these youngest and least skilled at both walking and swimming may be compromised due to the nearby activities and distraction of older and more rambunctious swimmers. In addition, with nowhere else provided for them, the very youngest of children (i.e. not toilet trained) use the St. Ledgers pool. Thus, there is a higher likelihood than in most recreational pools that there will be a fecal accident, which would contaminate the waters in the entire 8,000 SF pool, requiring it to be shut down to the residents until the water is cleared of contaminants.

Higher attendance at the Brandermill pools due to *Universal Access* would tax the pumping and filtration systems to a greater extent than they are being taxed now. The existing 8 to 10 hour water turnover rate at these pools may be sufficient in concert with the current low rates of pool usage; however, more people in the water will mean dirtier water. A detailed study of the existing systems should be performed in order to determine improvements to be made to bring the systems closer to the current State Health Code requirement for 6 hour water turnover rates and to assure that good water quality will be maintained despite an increase in users.

A. Capacities of Existing Pools - The Virginia State Public Bathing Code requirement of 27 SF per occupant is a realistic model for maximum pool capacities. Using 27 SF per occupant, following are the pool capacities for each complex:

- Harbour Pointe occupancy: about 150
 - North Beach occupancy: about 318
 - St. Ledgers occupancy: about 316
- Total about 784 occupants

This figure of **784** represents the maximum safe number of pool occupants for the BCA pools at a *single point in time*. However, most people do not visit the pool from opening until close. Pool visitors come and go throughout the day. Therefore, the *daily* capacity of the BCA pools is far greater. Factoring in changeover in attendance, it is estimated that the BCA pools could accommodate approximately **2,100** pool-goers *per day*.

A review of attendance records for 2011 & 2012 seasons shows BCA pools to be underutilized:

	<u>Average Daily Total</u>	<u>Est. Avg. at Any Point in Time</u>	<u>2 Year Daily High</u>
Harbour Pointe	31	13	101 Holiday
North Beach	137	52	483 Holiday
St. Ledgers	<u>186</u>	<u>70</u>	<u>510</u> Community Day
Totals	354	135	1,094

In other words, the pools can accommodate approximately 2,100 occupants daily, but currently only serve 354 on average. Even the two year daily high for all three facilities (1,094) is only about half the daily capacity of the pools.

Residents and non-residents who are currently purchasing memberships are the dedicated pool users in the community, and are likely to remain the core group of users. With *Universal Access*, the percentage of residents who visit a BCA pool at some time during the course of the year may be predicted to rise to 60% or more, but very few of these new users will become dedicated users. Most will only use the pool:

- as a novelty
- in order to get their perceived money's worth for any associated increase in annual dues
- when a new or improved facility or amenity is offered

With *Universal Access*, staff may have to be prepared for more busy days, and for the more popular hours at the pool to be as busy as current holidays or special events. On actual holidays and at special events, attendance at certain times may have to be limited so as not to exceed safe capacities. BCA may also wish to or need to experiment with expanded pool hours and programs designed to spread pool usage over a greater portion of the day. For example, providing early morning hours for fitness lap swimmers or for parents with very young children who wish to avoid the hottest sun of the day.

Recent experience with a similar community (larger, older, universal access, multiple older pool facilities) reveals the following: Average pool attendance at all three of their pool facilities was 5 to 7 percent of the community's total population, although 64% of residents reported using the pool at some time during the pool season. After the 2 oldest of the community's 3 pool facilities were renovated (the renovations included: a) a dedicated adult lap pool with fountains, over-water gazebo and jetted benches, b) a new recreation pool with beach entry, 75-foot fitness lap area and slide, c) 2 new beach entry kiddie pools with splash

mats with deck jets and play toys, and d) a renovated 6-lane competition lap pool, as well as new locker rooms and shade structures) attendance at the newly renovated facilities doubled, while that at the remaining un-renovated facility did not materially change. Thus, at this comparable neighborhood, the average pool attendance jumped to 10 to 13 percent of the total community population. It is anticipated that a jump in pool attendance would occur at Brandermill should *Universal Access* be implemented, followed by a slow leveling off of attendance. It is also anticipated that a jump in attendance would follow any renovation or improvement effort.

B. Capacities of Other Facilities

1. Pool Deck – Following are the sizes of the pool decks at BCA's three pool complexes:

	<u>Pool Surface</u>	<u>Pool Deck</u>	<u>Ratio</u>
Harbour Pointe	4,050 SF	11,385 SF	1:2.80
North Beach	8,570 SF	12,950 SF	1:1.51
St. Ledgers	<u>8,520 SF</u>	<u>15,380 SF</u>	<u>1:1.81</u>
Totals	21,140 SF	39,715 SF	1:1.88

Pool decks 2 to 3 times the size of the associated pool surface are recommended. This recommended ratio allows for sufficient area for lounge chairs and other seating, as well as an unencumbered safety zone around the pool perimeter to allow safe ingress, egress and, if necessary, rescue.

2. Parking – The Chesterfield County Zoning Ordinance requires 1 parking space per 90 SF of swimming or wading water surface.

It should be noted that, at the Harbour Pointe pool complex, about 2,300 SF of the adjacent building is devoted to clubhouse meeting/activity space and kitchen. Chesterfield County requires 1 parking space for each 100 SF of floor area used for assembly. Therefore, roughly 23 parking spaces of the 115 spaces available should be assumed to be reserved for clubhouse use.

	<u>Pool Surface</u>		<u>County Min. Req'd. Parking</u>	<u>Parking Available</u>
Harbour Pointe	4,050	/ 90 =	45	92
North Beach	8,570	/ 90 =	96	126
St. Ledgers	8,520	/ 90 =	95	114

3. Plumbing Fixtures – Current building code requirements for plumbing fixtures have changed since these pool facilities were built 30 years ago. Among the changes are requirements for additional toilet fixtures for women in facilities devoted to recreational uses, and requirements for handicapped accessibility.

Current Building Code Requirements As Applied to Existing Plumbing Fixtures:

- 1 toilet & 1 urinal support 150 men
- 2 toilets support **80** women (most restrictive limiting factor)
- 1 lavatory supports 200 men
- 1 lavatory supports 150 women

Plumbing code requires that facilities accommodate equal numbers of men and women (Virginia Construction Code, 2009 edition, Section 2902.1.1). Therefore, by current code, the maximum occupancy at any point in time which each pool facility's rest rooms can accommodate is 160 people or 480 people across all three facilities. At the North Beach and St. Ledgers complexes, this figure is more limiting than the maximum pool capacities outlined above. However, as discussed below, this deficiency can be addressed at the same time handicapped accessibility is addressed.

None of the existing rest room and shower facilities are handicapped accessible. Examples of existing non-compliant elements include: toilet stall size, toilet and urinal heights, shower compartment size and configuration, shower controls, grab bars (or lack thereof), heights and locations of accessories such as soap and towel dispensers, and space available for wheelchair access and turning. Significant reconfiguration, including building additions, would be required in order to make the existing rest room and shower facilities handicapped accessible without a decrease in the number of plumbing fixtures.

Current codes also require a separate accessible family or assisted-use restroom in facilities serving large numbers of occupants (Virginia Construction Code, 2009 edition, Section 1109.2.1). Further, in recreational facilities where separate-sex bathing rooms are provided, an accessible family or assisted-use bathing room is required. In existing facilities where it would be difficult, if not impossible, to reconfigure current restroom and/or shower facilities to be accessible, building codes allow the construction of one or more unisex, family or assisted-use restroom/bathing facilities (Virginia Rehabilitation Code, 2009 edition, Sections 605.1.10 and 605.1.11). This approach is often a more cost effective alternative than additions to and renovations of existing facilities. Further, these family/assisted-use restrooms are often a benefit to parents with small children, multiple young children, or children of the opposite sex who require assistance, particularly when the facilities can be located close to the kiddie pool area.

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VI. Observations

There are a number of deficiencies which BCA should be address whether or not Universal Access is implemented. They relate to safety and accessibility and are as follows:

- A. Handicapped (ADA) Access – The Americans with Disabilities Act (ADA) and current building codes require non-residential facilities to be made usable by people with disabilities. In existing facilities, this is done by requiring owners to have an overall plan for achieving eventual accessibility throughout the facility, and by requiring that at least 20 percent of all monies spent on renovations or improvements must be devoted to achieving accessibility. None of the three existing pool facilities are handicapped accessible (although Harbour Pointe does have non-compliant ramping). BCA should have a plan in place (or should create one) for achieving eventual accessibility throughout the pool facilities. In addition, measures should be taken to make the facilities accessible to disabled residents and guests. The potential penalty for not having a plan in place, and for not endeavoring to make facilities accessible when changes, renovations or improvements are made, could be a civil lawsuit.

Examples of items which need to be made accessible include, but are not limited to:

- properly marked and located handicapped accessible parking spaces
- an accessible route from the parking space(s) to the entrance to the facility
- an accessible entrance/exit
- a compliant route through the facility to the primary function area(s) – in this case, the pool and pool deck – including access to accessible restrooms, drinking fountains, and other amenities/facilities (such as the snack bar or vending machines) along the way
- accessibility of the primary function itself – in this case, the pool and pool deck

- B. Pool Safety Issues – Brandermill's pools are 30-plus years old, and were built under more lenient safety guidelines and recommendations. A detailed study should be performed to ascertain where the existing pools do not comply with current pool design guidelines and recommendations (i.e. diving wells that do not meet current safety recommendations). A program of remediation should then be implemented to ameliorate safety issues and reduce liability.

The lack of a kiddie pool at St. Ledgers is both a safety and a sanitary concern. Babies and toddlers at the St. Ledgers pool have nowhere to play in the water except along the edge of water that is potentially unsafe because it is inappropriately deep. In addition, as babies and toddlers are using the St. Ledgers pool, there is a higher than usual likelihood that the water may become contaminated due to a fecal accident.

- C. Other Safety Issues – While this review of the existing BCA pool facilities was general in nature, and focused primarily on capacities, some obvious deficiencies and safety issues were noted, such as gates with incorrectly installed latches, gates swinging in the wrong direction for egress, fencing of insufficient height, and the lack of a guardrail at a change in grade greater than 30 inches in height. A more detailed study should be performed to identify and address safety issues for the areas and features which serve the pools.

Should BCA choose to adopt a *Universal Access Model*, the following items should also be considered and addressed:

- A. Pools – On the most popular pool days (i.e. holidays and special events), attendance at the pools may have to be limited in order to stay within the maximum capacities for egress, safe pool usage, etc. BCA may want to, or may need to, reconsider offering pool memberships to non-residents in order to provide sufficient accommodations for residents, and to help create an atmosphere of exclusivity.
- B. Pool Decks – BCA may need to expand the deck areas, particularly at North Beach and St. Ledgers (the community's most popular pools), to provide 2 SF of deck, or more, for every square foot of pool surface, in order to provide both a sufficiently sized safety zone around the perimeter of the pools, and sufficient deck space for lounge chairs and other seating to properly accommodate all pool-goers.
- C. Rest Rooms – In order to be in compliance with current building codes, the maximum allowable number of users at any one of the three pool complexes at any one time is 160 people, with the limiting factor being the number of toilets in the women's rest rooms. While the pools were built under different, more lenient, building codes, lines of people waiting to use the women's rest room may be expected to occur with an increased number of users. Additional toilet fixtures may be added to the existing women's rest rooms in order to bring them into compliance with current codes and to alleviate the potential for waiting; however it may be difficult or impossible to do so without adding on to the buildings, which would significantly increase costs. Therefore, the construction of unisex, family or assisted-use restrooms as discussed above may be a more cost effective way address this situation and will bring the pool complexes closer to compliance with current codes.
- D. Deck furnishings – Pool users (especially adults) expect that there will be a lounge chair or a chair at an umbrella table available to them when they visit the pool. BCA may need to purchase additional deck furnishings to provide the proper amenities for an expected increased number of users. More deck furnishings will tax the capacities of the existing decks at North Beach and St. Ledgers, which are below the minimum recommended 1:2 ratio.
- E. Parking – While the number of existing parking spaces meets County requirements for the existing amount of pool surface, this number of spaces may not meet actual needs for an expected increased number of users. Adding to or reorganizing the existing parking fields to accommodate more cars will likely trigger a requirement for County approval thereof. As discussed below, newer and more restrictive development requirements will likely mean that, in addition to building more parking spaces, measures for retention and dispersal of storm water will also be required to be constructed at the same time. BCA may therefore wish to explore and exhaust more economical alternatives first, such as encouraging carpooling, walking and bicycling to the pool facilities.

Special care may need to be taken at Harbour Pointe, when scheduling clubhouse events during pool hours, in order to assure that demands for available parking are not exceeded.

- F. Staffing – Policing the movements of an expected increased number of users may require more staff to watch over both the water and the activities on the deck. Also, as discussed above, on the most popular pool days (i.e. holidays and special events), attendance at the pools may have to be limited for safety reasons. Therefore, extra staff may be required in those situations to keep track of the number of people entering and leaving the pool complexes.

- G. Hours – BCA may need to consider modifying pool hours to attempt to spread an expected increased number of users over a greater period of time. Increasing the number of hours the facilities are open will result in increased staffing needs, and therefore, increased costs.
- H. Systems – Existing pump and filtration systems are not taxed by the current usage of the facilities. With an expected increased number of users, it will be more difficult to keep the water clean and the chemicals balanced. A detailed engineering study should be performed to ascertain any deficiencies in the existing systems which are not apparent now, due to low usage, and to recommend repairs or improvements to handle expected increased demands on the systems.
- I. Possible Limitations to Amenity Expansion Opportunities – Since 1973 when development began at Brandermill, theories about and requirements regarding storm water runoff, water pollution control, and development along a shoreline have changed dramatically and significantly. The creation of the Chesapeake Bay Program introduced requirements for managing storm water runoff that did not exist in the 1970's, but will have to be complied with in any redevelopment of these pool facilities. In addition, the creation of Resource Protection Area (RPA) buffer requirements along the first 100 feet of the landward side of shorelines will limit the possible uses and development of these portions of the Harbour Pointe and North Beach parcels. These new requirements are likely to affect almost any change envisioned at these three pool complexes, from the construction of new facilities to make these complexes handicapped accessible, to the development of more parking, to the building of a new kiddie pool at St. Ledgers. These new requirements do not mean that changes and improvements cannot be made, however they will require a more sophisticated approach, more time, more usage of available land, and correspondingly more monetary investment.
- J. "Grandfathered" Facilities – A building or facility that is "grandfathered" is allowed to exist unchanged based on older rules even though new rules are in place. When changes are made, the changes must be in compliance with the new rules. However, leaving a building or facility as-is, with no changes, does not relieve the owner of potential liability. With regard to pool facilities, as pool design guidelines and recommendations continue to evolve in order to provide greater aquatic safety, allowing existing facilities to remain in place (such as diving boards and diving wells) may be actionable. Further, with regard to handicapped accessibility, since 1992 the Department of Justice has required the removal of those physical barriers that are readily achievable. While interpretations of what is readily achievable may vary widely, not having a plan of action for achieving handicapped accessibility and not undertaking to implement the plan may leave an owner open to a civil lawsuit.
- K. "Member Experience" – In order to give implementation of *Universal Access* every chance for success, BCA should make efforts to provide a pleasing overall member experience when it opens the pools to all residents. The success or failure of the implementation could be based on the presence or absence of long waiting lines at the rest rooms, insufficient deck space or deck furnishings, or the perception that the pools are dirty, and not just on the square footage of water available for the residents' use.

- L. Finally, more intensive use of facilities will result in greater wear and tear overall, and therefore, if a *Universal Access Model* is adopted, BCA should anticipate greater general repair and maintenance requirements, and consequent costs.

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VII. Recommendations

- A. Recommended Immediate Changes – The following are safety and accessibility issues which BCA should address regardless of whether or not *Universal Access* is implemented:
1. Provide handicapped access:
 - Re-stripe & properly mark handicapped parking spaces (re-grade & repave where necessary)
 - Provide code-compliant ramping at entrances and along route to pools
 - Provide unisex rest rooms – adding these elements will also address deficiencies in the number of women's toilets.
 - (1) at Harbour Pointe
 - (2) at North Beach
 - (3) at St. Ledgers
 - Provide 2 means of accessible access/egress at each pool
 2. Address pool safety issues, such as diving wells, depth markers, and railings. Encourage families with babies and toddlers to use the Harbour Pointe and North Beach facilities, both of which have kiddie pools. For babies and toddlers using the St. Ledgers pool, personal flotation devices should be required.
 3. Address other safety issues, such as:
 - Correctly install self-latching gates at all pool complex entrances and exits
 - Provide outswinging gates at all pool complex entrances and exits
 - Install guardrail adjacent to fireplace at Harbour Pointe
 - Install code-compliant fencing at North Beach kiddie pool
- B. In Order to Institute a *Universal Access Model* – Following are the minimum items which BCA should address prior to instituting *Universal Access* in order to accommodate increased usage:
1. Increase the pool deck area at North Beach & St. Ledgers pools
 2. Make repairs or upgrades to pool pump and filtration systems to accommodate increased usage, including increasing water turnover rates
 3. Construct a kiddie pool at St. Ledgers
 - In accordance with the ideas shown in the Master Plan, make it a showcase of what BCA pools can become over time, with elements such as a beach entry, deck jets and other play amenities, its own shade structure, etc.
 4. Purchase additional deck furnishings to accommodate additional users
 5. Parking: Explore and exhaust more economical alternatives to expanding the parking facilities, as new development requirements will make changes to the parking areas costly. Enhance the location of bike racks, relocating them front & center at each pool facility. Add prominent signage encouraging biking, walking, carpooling. Include articles and items in the community newsletter and on the website encouraging same. Institute a program of contests and prizes for bikers, walkers, and carpoolers.

The BCA Master Plan for St. Ledgers recommends keeping the existing pool while adding and remodeling features around it. Therefore, monies spent on repairs and improvements at St. Ledgers can and should be done so as to be salvageable or reusable as this pool facility is modernized over time. Fewer of these recommended changes will be salvageable or reusable at Harbour Pointe and North Beach as these two pool facilities are modernized in accordance with the Master Plan.

- C. Longer Term Improvements – As part of an on-going program of maintenance and improvement, BCA should address the following:
1. Repair pool decks, repair coping, repair plaster and tile
 2. Replace worn and splintering wood decking, guardrails, benches, shade structures, etc. with new wood or synthetic decking and other PVC materials.
 3. Develop a plan for complete handicapped accessibility in conjunction with the Master Plan
 4. Restore spa jets to working order
 5. Provide aquatic play toys: aqua climbing walls, water basketball, water volleyball
 6. Renovate existing restrooms, starting with North Beach
 7. Power wash, paint and/or stain existing buildings
 8. Replace and upgrade pool and parking lot lighting
 9. Provide shade structures at North Beach and all kiddie pools
 10. Mark parking spaces in gravel parking lots (such as with concrete bumper blocks) to maximize usage in existing parking areas
 11. Upgrade fencing at St. Ledgers & North Beach (both aesthetic and security concerns)
 12. Evaluate concession amenities and improve accordingly
 13. Other improvements in conjunction with the Master Plan

At some point, the costs for these and other maintenance and improvement projects at these 30-year old facilities will reach a point where BCA should consider complete renovation or replacement of one or more of the pool facilities in accordance with the Master Plan. The replacement facility or facilities will be built to current safety and filtration standards, and will offer residents greatly improved amenities which are more in keeping with those available at newer communities.

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VIII. Next Steps

- A. In order to move ahead, following are the recommended next steps that BCA should undertake:
1. Further study – Conduct a Facilities Condition Study, including a detailed engineering study of existing pool pump and filter systems, a more detailed examination of handicapped accessibility, and a detailed survey of all pools and associated elements and areas to note their condition and any safety or code-related issues or deficiencies.
 2. Based on the findings of this study, finalize a list of elements to be changed, added, or improved in order to provide increased accessibility and safety, and in order to implement *Universal Access* if so desired. Check budgets and adjust as necessary.
 3. Design & implement necessary elements.
 4. Pools open with increased accessibility and safety, and *Universal Access* if desired.
- B. In order to make the recommended changes in time to be ready for the 2014 pool season, an ambitious schedule and aggressive decision-making would be required. A more measured approach would be to plan for improvements to be ready for the opening of the 2015 pool season. Following is a timeline showing the necessary major tasks and a schedule for how they may be completed by May 2015:

Decision to move forward with safety & accessibility measures	Jan. 2013 – Mar. 2013
Decision to implement <i>Universal Access</i> & to move forward with associated improvements	Mar. 2013 – April 2013
Conduct a Facilities Condition Study	May 2013 – July 2013
Finalize list of elements to be implemented	Aug. 2013 – Nov. 2013
Design necessary changes	Dec. 2013 - April 2014
County reviews & approvals	May 2014 – June 2014
Bidding & construction contract development	July 2014 – Aug. 2014
Construction/implementation period	Sept. 2014 – April 2015
Pool opening	May 2015

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IX. Budget Range Projections

Following are our projections of probable cost for the recommended minimum items which should be addressed. It should be noted that these budget figures are "Project Budgets" and include our best projections at this time for all associated costs, such as design fees, utility upgrades and connections, associated storm water requirements, etc.

A. Recommended Immediate Changes to Address Safety & Accessibility: These items should be addressed by BCA whether or not Universal Access is implemented.

1. Provide handicapped access
 - Re-stripe & properly mark handicapped parking spaces (re-grade & repave where necessary)
 - Harbour Pointe: **\$1,500**
 - North Beach: **\$3,500**
 - St. Ledgers: **\$1,500**
 - Provide code-compliant ramping at entrances and along route to pools (assumes no commensurate storm water measures are required)
 - Harbour Pointe: **\$25,000** & up
 - North Beach: **\$20,000** & up
 - St. Ledgers: **\$17,500** & up
 - Provide unisex rest rooms – adding these elements will also address deficiencies in the number of women's toilets (if locality determines commensurate storm water measures are required, add **\$35,000** per pool complex).
 - (1) at Harbour Pointe: **\$50,000**
 - (2) at North Beach: **\$100,000**
 - (2) at St. Ledgers: **\$100,000**
 - Provide 2 means of accessible access/egress at each pool – Based on our 14 September 2012 walk-through with BCA and Swim Metro, it is our understanding that these measures will be in place for the 2013 pool season. If that is not the case, **\$10,000** per pool should be budgeted to accomplish this work (**\$50,000** total).
2. Address pool safety issues, such as diving wells, depth markers and railings – As the scope of this study does not include a detailed survey of all pools, we recommend carrying a budget line item of **\$15,000** for Harbour Pointe and **\$25,000** each for North Beach and St. Ledgers (**\$65,000** total) until the Facilities Condition Survey recommended above can be completed. Replacement of the diving boards at North Beach with a water slide: an additional **\$40,000** and up.
3. Address other safety issues, such as:
 - Correctly install self-latching gates at all pool complex entrances and exits, provide code-required outswinging gates at all pool complex entrances and exits: **\$5,000** per complex (**\$15,000** total)
 - Install guardrail adjacent to fireplace at Harbour Pointe: **\$2,500**
 - Install code-compliant fencing at North Beach kiddie pool: **\$7,500**
 - In addition, as the scope of this study does not include a detailed survey of the areas around the pools, we recommend carrying a budget line item of **\$10,000** per pool complex (**\$30,000** total), in addition to the items specifically addressed above, until the Facilities Condition Survey recommended above can be completed.

B. In Order to Institute a *Universal Access Model*: BCA should address the following items to accommodate increased usage.

1. Increase the pool deck area at North Beach & St. Ledgers pools:
 - North Beach – add up to 4,300 SF new concrete or synthetic decking: **\$150,000 - \$175,000** (cost includes allowance for implementation of commensurate storm water measures).
 - St. Ledgers – add up to 1,700 SF new concrete or synthetic decking: **\$65,000 - \$75,000** (cost includes allowance for implementation of commensurate storm water measures).
2. Make repairs or upgrades to pool pump and filtration systems to accommodate increased usage, including increasing water turnover rates – As the scope of this study does not include a detailed engineering study of the existing pool pump and filter systems, we recommend carrying a budget line item of **\$50,000** per pool complex (**\$150,000** total) until the Facilities Condition Survey recommended above can be completed.
3. Construct a kiddie pool at St. Ledgers – In accordance with the ideas shown in the Master Plan, make it a showcase of what BCA pools can become, with elements such as a beach entry, deck jets and other play amenities, its own shade structure, etc.
 - Storm Water Measures: **\$35,000 - \$45,000**
 - Large Kiddie Pool: **\$85,000 - \$100,000**
 - Splash Mat (water play area): **\$20,000 - \$50,000**
 - Play Equipment (deck jets, water play features): **\$20,000 - \$40,000**
 - Shade Structure – highly desirable at a kiddie pool to protect infants as well as parents who do not want too much sun: **\$20,000 - \$60,000**
 - Pump Building: **\$50,000**
 - Pool Deck & Fencing: **\$40,000 - \$50,000**
 - Deck Furnishings: **\$9,000 - \$18,000**
 - Optional Play Structure (similar to that at Hampton Park's Celebration Park pool) – this element would keep the kiddie pool fun for older toddlers who are still too small or too inexperienced for the main pool: **\$80,000 - \$100,000**
4. Purchase additional deck furnishings to accommodate additional users:
 - Harbour Pointe – purchase seating for 66 additional people: **\$23,000 to \$31,000**
 - North Beach – purchase seating for 56 additional people: **\$15,000 to \$25,000**
 - St. Ledgers – purchase seating for 98 additional people: **\$25,000 to \$45,000**
5. Parking:
 - Enhance the location of bike racks, relocating them front & center at each pool facility. Add prominent signage encouraging biking, walking, carpooling. Include articles and items in the community newsletter and on the website encouraging same. Institute a program of contests and prizes for bikers, walkers, and carpoolers: **\$6,000**.

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X. Summary

Based strictly on the water surface area of its existing pools, BCA could implement *Universal Access* at any point in time. However, the analysis of the types of water in place at the existing pools, and the capacities of the pool decks, restrooms and parking indicates that there are some deficiencies. These include items which should be addressed regardless of whether or not *Universal Access* is implemented, and further items which should be addressed before implementing *Universal Access*. The deficiencies are in the following areas:

Safety & Accessibility Deficiencies Which Should Be Addressed Whether or Not *Universal Access* is Implemented

- Insufficient or non-existent handicapped access & facilities
- Pool safety issues
- Safety issues at the facilities in areas other than the pools

Items to Accommodate Increased Usage

- Insufficient pool deck size at North Beach & St. Ledgers
- Insufficiently sized women's rest room facilities at North Beach & St. Ledgers to accommodate expected increased usage
- Concerns that increased usage may tax the capabilities of the existing pump & filtration systems
- Safety & sanitary concerns regarding the lack of a kiddie pool at St. Ledgers
- Insufficient number of deck furnishings to accommodate expected increased usage
- Parking capacities

Finally, Brandermill should be prepared to make adjustments to staffing and hours to be prepared to accommodate *Universal Access*.

Our preliminary projections of probable cost to address these deficiencies are summarized as follows:

Safety & Accessibility Items

• Handicapped access & facilities	\$319,000 & up
• Pool safety issues	\$65,000 - \$105,000
• Safety issues in areas other than the pools	\$55,000

Items to Accommodate Increase Usage

• Additional pool deck area	\$215,000 - \$493,000
• Pool pump & filtration systems	\$150,000
• New, feature kiddie pool at St. Ledgers	\$279,000 - \$493,000
• Additional deck furnishings	\$63,000 - \$101,000
• Parking	\$6,000

In order to address the deficiencies outlined above, it is recommended that a more detailed study of existing conditions be undertaken in order to finalize the scope of work to be accomplished to remedy the deficiencies. The final solutions can then be designed, approved as necessary by the locality, bid, and implemented by qualified contractors in order to open with improvements in place in time for the 2015 pool season.