

TOWN OF CHAPEL HILL SPLASH PAD AND INCLUSIVE PLAYGROUND SITE FEASIBILITY STUDY

FINAL REPORT
1 June 2023

Prepared by



For
Town of Chapel Hill
Parks & Recreation Department



Splash Pad and Inclusive Playground Feasibility Assessment Project Acknowledgments

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- Wes McMahon, Former Chair
- Tyler Steelman, Chair
- Leah Boucher, Vice Chair
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FOCUS OF STUDY

The Town of Chapel Hill contracted with Thomas & Hutton (formerly CJT PA) and 80 West Group to study 8 Town-owned properties and analyze their suitability for installation of a splash pad facility and/or installation of an accessible playground facility. The consultant was also to provide concept plans for such facilities with cost estimates. Recognizing an opportunity to examine options for both amenities collectively, this study was commissioned.

Thomas & Hutton's Durham-based Landscape Architecture and Civil Engineering office partnered with 80 West Group to study the sites with respect to splash pad use feasibility.

PROJECT CRITERIA

Consistent with the Town's commitment to the One Orange Racial Equity Plan, the report recommends giving preference to locations for these amenities that expand rights and choices for marginalized populations, mitigate historical inequities, and reduce disparities in access to parks and recreation facilities. We have and will continue to use several tools to identify neighborhoods most impacted by these disparities and historical inequities. Qualified Census Tracts (as defined by the American Rescue Program Act) is a vital indicator of areas affected by historical segregation and disinvestment, and increasing access to amenities in these areas is our priority. Other related data include access to public transit, walkability, and proximity to public housing.

The selection criteria for the proposed facilities were developed using the Town's Goals including:

- Connected Community
- Environmental Stewardship
- Vibrant and Inclusive Community

Advise on Accessible vs. Inclusive and Accessible Playgrounds; Pocket Park vs. Destination Splash Pads

- Park location assessment includes the following criteria:
- Diversity, equity and inclusion such as
 - A location that allows people throughout the community to walk, bike and/or ride the bus to enjoy these amenities
 - A location that provides an investment in facilities that are at or near the end of their life span, or that have not seen significant financial improvements such as older or underutilized parks with fewer recreational amenities
- Adequate site size
- Access and connectivity (public transit, pedestrian, bicycle)
- Availability of parking
- Infrastructure
 - Availability of utilities
 - Restrooms
 - Shelter
- Socioeconomic data of nearby neighborhoods
- Proximity to other parks and Town amenities (shopping, restaurants, etc.)
- Site impacts (utility relocation, environmental, cultural and natural resources, etc.)

- Evaluation of splash pad system types and pros and cons of recirculated water system versus a flow-through system
- Estimated design and construction, start-up, operations, and maintenance costs
- Community input options / processes
- Identification of most feasible build-out/phases of development

OVERVIEW

The Town of Chapel Hill contracted with Thomas & Hutton (formerly CJT PA) and 80 West Group to study 8 Town-owned properties and analyze their suitability for installation of a splash pad facility and/or a playground with both inclusive and splash pad features to increase outdoor summer activities that include staying cool. The sites assessed are:

Cedar Falls Park - 501 Weaver Dairy Road
 Community Center Park - 120 S Estes Drive
 Hargraves Center - 216 N Roberson Street
 Homestead Park - 100 Aquatic Drive
 Southern Community Park - 1000 Sumac Road
 Umstead Park - 399 Umstead Drive
 Eastwood Public Housing Community - NE corner Piney Mountain Road and Eastwood Road
 Oakwood Public Housing Community - 605 Oak Avenue

The Durham branch of Thomas & Hutton, a Landscape Architecture and Civil Engineering firm, partnered with 80 West Group to study the sites with respect to splash pad use feasibility. 80 West Group has been involved with design and installation of over 200 splash pad facilities in the past 20 years.

The Town was interested in investigating the possibility of adding one or more splash pad facilities to expand the recreational opportunities for the residents of Chapel Hill. At the same time, the Parks Department had planned to install an accessible playground at Cedar Falls Park, but plans have only been partially completed.

In 2021, a petition with over 800 signatures in support of construction a splash pad was provided to the Town Council. The Town established a splash pad work group and committee to further explore options for construction in Chapel Hill and this project started with a meeting between that committee, multiple parks staff, and the design team. After the project kick-off meeting, the consultant team looked at the 8 Town owned sites with respect to their suitability for both splash pad and inclusive accessible playground facilities. In addition to input from Town staff, there have been community and public information meetings, presentation and feedback from the Parks, Greenways and Recreation Commission during two meetings and initial presentation and feedback from Town Council.

PROCESS AND METHODOLOGY

At the start of the study, the consultant team, with Town staff, made visits to all sites to get an overall view and impression of the facilities at each site and to talk to the staff about perceived assets and deficiencies with respect to additional facilities. Specifically, the team looked at site size and open space development availability, parking, restrooms, shelters, existing pedestrian connectivity, and utilities. At this time the consultant team also scanned the sites for appropriate locations for large- and small-scale splash pad facilities, and for appropriateness of accessible playgrounds.

Following these visits, the consultant team reviewed Orange Water and Sewer Authority (OWASA) supply information, site accessibility, demographics, and through doing so gained a deeper understanding and analysis of each site's assets and deficiencies. Criteria used in analyzing suitability of each site includes:

- Site size and location
- Accessibility of the site
- Suitability of existing amenities to complement the proposed splash pad/playground
- Capacity of required amenities such as parking and restrooms
- Availability of splash pad space near parking and restrooms
- Capacity of existing utilities
- Staffing on site
- Age of existing facilities and whether they are due for replacement

The splash pad consultant investigated nearby splash pad facilities to analyze the product offered and installation costs for those projects. They have also investigated general costs for installing splash facilities on Chapel Hill properties, working with OWASA construction and operating costs used as a basis to compare different water circulation systems.

SECTION 3 – Site Investigation and Site-Specific Recommendations

CHAPEL HILL DEMOGRAPHICS

The Parks and Recreation Department asked the consultants to consider 8 sites, 6 of which are existing parks and 2 of which are Town-owned public housing communities. The consultant team along with Town staff visited all 8 sites on August 4, 2022.

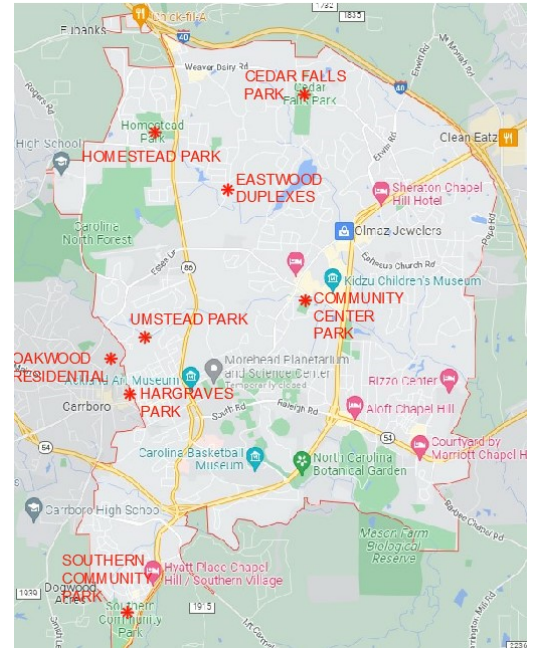
Census data reports that as of April 2020 Chapel Hill had a population of 61,906. By age the breakdown is:

3.8% under 5 years – approx. 2,355

17.1% under 18 years – approx. 10,600

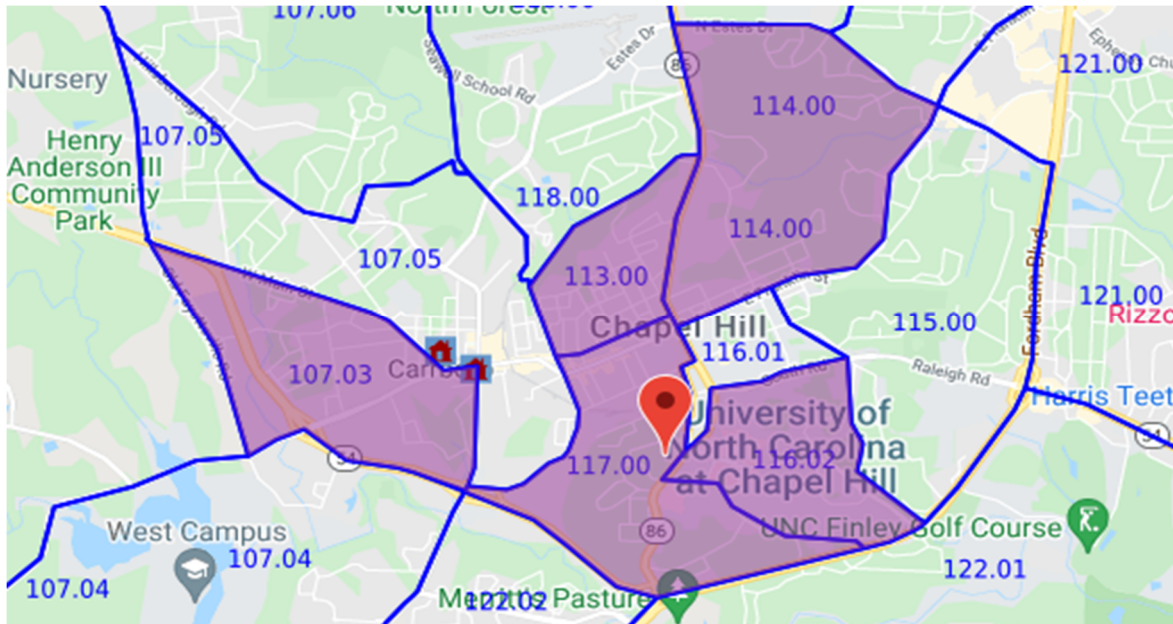
The parks investigated are concentrated along the western part of town, and also included Cedar Falls Park to the north and the Community Center Park just off Fordham Blvd.

Each of the park sites has different accessibility aspects related to their location, which will influence how easily users can get to the proposed new facilities. One quarter mile is a distance easily accessible on foot for most users. This is a distance frequently used by studies as an acceptable range that the average person will routinely walk to get to desired destinations. The following table breaks out uses and facilities within a quarter mile of each of the sites investigated.



<u>Town Site</u>	<u># Households within ¼ mile</u>	<u>Nearby Facilities</u>
Cedar Falls Park:	262	High school, gas station, restaurants
Community Center Park:	486	University Place, restaurants, retail, greenway trail
Eastwood Community:	299	n/a
Hargraves Park:	1286	Elementary school, daycare, downtown restaurants and services, greenway trail
Homestead Park:	582	Limited retail, daycare, multiple new residential projects proposed for the area, greenway trail
Oakwood Community:	785	Wilson Park, bike trail
Southern Community Park:	340	Elementary school, daycare, transit hub, Southern Village retail and restaurants, greenway trail
Umstead Park:	1252	Elementary school, greenway trail

This plan illustrates the census tracts within Chapel Hill where more than 50% of households are at an income level less than 60 % of the area's gross median income. In the summary chart on page 14 it has been noted which of the Town properties considered are in one of these qualifying census tracts.



Census tract plan from the American Rescue Plan Act Program website.

There is a summary of the facilities found at each park on the following pages.

FACILITY CONDITION ASSESSMENT CHECKLIST

CEDAR FALLS PARK

501 Weaver Dairy Road

BASIC SITE INFORMATION			
Park Size	66.58 acres		
Public Access	Weaver Dairy Road, pedestrian nature trail access from Cedar Fork Trail Rd (west) and from Lakeshore Lane (south)		
Public Transit:	1 route with nearby stops		
PARKING		COMMENTS	STAFF COMMENTS
# spaces	180 approx	gravel, 70 spaces in RCD possibly compliant with tree clearing	
ADA spaces	6		
Expansion	possible		
OTHER FACILITIES			
Playground		not inclusive or ADA compliant nature trails, mountain biking bathroom building small attached to bathrooms	new insufficient facilities
Trailhead			
Bathrooms			
Shelter			
Multipurpose fields - 2		poor drainage in parking lot	well used facility needs rebuilding occasionally used
Tennis Courts - 6			
Baseball fields - 3			
Recycling Center			
UTILITIES			
Existing water?	yes	Nearest Water	from Weaver Dairy Rd
Is there adequate water supply	yes	Meter size	
Existing sanitary sewer?	no - septic, frequent failures during heavy rains		
Existing storm mitigation facility	No		
Existing building for splash pad equipment	No		
FACILITY APPROPRIATENESS			
large splash pad facility			
pro:	space, access	con:	no sanitary sewer, insufficient bathrooms
small splash pad facility			
pro:	space, utilities, access	con:	insufficient bathrooms & parking
inclusive playground			
pro:	parking availability	con:	insufficient bathrooms, tree clearing would be required
staff on site:	No	topography is hilly = major grading	
STAFF COMMENT			
-The playground has 8-10 years useful life left -Additional amenities should include additional toilet facilities and replacement of existing facilities -Soccer fields are well used, and used for tournaments			
CONSULTANT NOTES			
Nearest sanitary sewer service is uphill at Country Road (1,600 LF) or uphill at Muir Lane (1,500 LF)			

FACILITY CONDITION ASSESSMENT CHECKLIST

COMMUNITY CENTER PARK

120 South Estes Drive

BASIC SITE INFORMATION			
Park Size	12.06	acres	
Public Access	S Estes Drive, Plant Road, pedestrian access from Bolin Creek greenway trail and from battle creek nature trail		
Public Transit:	4 routes with nearby stops		
PARKING		COMMENTS	STAFF COMMENTS
# spaces	66	paved	-parking is often insufficient
ADA spaces	3	appear compliant	
Expansion	not easily accessible	new lot could be added from Plant Rd	
OTHER FACILITIES			
Playground		not inclusive or ADA compliant	insufficient facilities
Trailhead			
Bathrooms		inside community building single stall restrooms (2)	
Shelter		gazebo in rose garden	insufficient staffing
Change space		in pool wing	
Gym		inside community building	
Climbing wall		inside gym	
Pool		limited hours	
Basketball, bocce ball		outdoor	
UTILITIES			
Existing water?	yes	Nearest Water	8", from Plant Rd
Is there adequate water supply	yes	Meter size	
Existing sanitary sewer?	yes	8" DI to Estes	
Existing storm mitigation facility		No	
Existing building for splash pad equipment		No	
FACILITY APPROPRIATENESS			
large splash pad facility			
pro:	space, utilities, access	con:	insufficient bathrooms & parking
	ex impervious deck available		
small splash pad facility			
pro:	space, utilities, access	con:	insufficient bathrooms & parking
inclusive playground			
pro:	public transit	con:	insufficient bathrooms & parking
staff on site:	Yes		
STAFF COMMENT			
-The playground is nearing the end of its useful life			
-Additional amenities should include additional toilet facilities			
CONSULTANT NOTES			
-There is space off Plant Road that could be developed for parking			
-Well used playground and community center on site			

FACILITY CONDITION ASSESSMENT CHECKLIST

HARGRAVES COMMUNITY PARK

216 North Roberson Street

BASIC SITE INFORMATION			
Park Size	6.81	acres	
Public Access	N Roberson Street, Mitchell Lane		
Public Transit:	1 route with nearby stops plus 3 routes with stops 2 blocks away		
PARKING		COMMENTS	STAFF COMMENTS
# spaces	60	paved, 4 separate lots	
ADA spaces	7	some appear compliant	
Expansion	not easily		
OTHER FACILITIES			
Playground		in community center	-nearing end of useful life -used for other purposes
Bathrooms			
Community Center			
Gym			
Pool - built 1970's		with kiddie pool	
Baseball		good shape	
Shelter			
Tennis Courts - 3			
Basketball		indoor and outdoor	
Daycare		in community center, use playground	
UTILITIES			
Existing water?	yes	Nearest Water	from N Roberson & Mitchell
Is there adequate water supply	yes	Meter size	
Existing sanitary sewer?	yes	8" to Mitchell Street	
Existing storm mitigation facility		No	
Existing building for splash pad equipment		Possible	
FACILITY APPROPRIATENESS			
large splash pad facility			
pro:	utilities, access, change rooms	con:	limited parking for a large destination pad
small splash pad facility			
pro:	space, utilities, access	con:	
	on site daycare uses play area		
inclusive playground			
pro:	on site daycare uses playground	con:	
	playground nearing end of useful life		
staff on site:	Yes		
STAFF COMMENT			
-Not much baseball played, but the green lawn used for other uses			
CONSULTANT NOTES			
This park is well used and centrally located. Lots of children live nearby.			
Street parking only for people coming from elsewhere in Town. Local streets are residential.			

FACILITY CONDITION ASSESSMENT CHECKLIST

HOMESTEAD PARK

100 Aquatic Drive

BASIC SITE INFORMATION			
Park Size	43.6	acres	
Public Access	Aquatic Drive north of Homestead Road, New Parkside Drive access pedestrian path connection from residential community to the west		
Public Transit:	1 route with nearby stops plus 1 route 2 blocks away		
PARKING		COMMENTS	STAFF COMMENTS
# spaces	288	incl 2 EV	paved appear compliant
ADA spaces	9		
Expansion	easier off Stateside		
OTHER FACILITIES			
Playground	older aquatic center + playground		doesn't need immediate replacement
Bathrooms			
Pool - built 2008/9			
Soccer fields - 2			
Baseball - 2			
Batting Cage			needs renovating well used, needs renovating
Skate park			
Shelter			
Dog park			
Basketball	indoor and outdoor	needs repainting	
UTILITIES			
Existing water?	yes	Nearest Water	8" from Aquatic Dr,
Is there adequate water supply	yes	Meter size	and line to the east
Existing sanitary sewer?	yes	between pool building and baseball fields	
Existing storm mitigation facility		Yes	
Existing building for splash pad equipment		Possible, but not likely	
FACILITY APPROPRIATENESS			
large splash pad facility			
pro:	utilities, access, change rooms		con:
	space, parking, on-site staff		
small splash pad facility			
pro:	space, utilities, access		con:
inclusive playground			
pro:	parking, bathrooms, shade		con: playground not needing immediate replacement
staff on site:	Yes		
STAFF COMMENT			
-The Town has a difficult time keeping all pools staffed with lifeguards			
CONSULTANT NOTES			
This park is centrally located with lots of nearby residential and plans for more residential. Has good accessibility, parking and access from two directions, and staff who could handle water quality maintenance. Appears to be appropriate for a large scale splash pad.			

FACILITY CONDITION ASSESSMENT CHECKLIST

SOUTHERN COMMUNITY PARK

1000 Sumac Road

BASIC SITE INFORMATION			
Park Size	71.08 acres		
Public Access	Sumac Road, Dogwood Acres Drive, pedestrian access from Southern Village greenway trail		
Public Transit:	2 routes with nearby stops		
PARKING		COMMENTS	STAFF COMMENTS
# spaces	117+ 40 (at dogpark)	paved	
ADA spaces	7	appear compliant	
Expansion	yes	adjacent to University of North Carolina (UNC) satellite lot	
OTHER FACILITIES			
Playground		semi-inclusive, semi-ADA	in good shape
Trailhead		Southern Village greenway	
Bathrooms		bathroom building	
Shelter		large, leaning	
Soccer Fields - 3			well used, tournaments
In-link rink/Pickelball		boarded rink, lighting	
Dog park			insufficient staffing
Basketball		outdoor	
UTILITIES			
Existing water?	yes	Nearest Water	from NC 15-501
Is there adequate water supply	yes	Meter size	
Existing sanitary sewer?	yes	assume to main west of park	
Existing storm mitigation facility		Yes	
Existing building for splash pad equipment		No	
FACILITY APPROPRIATENESS			
large splash pad facility			
pro:	space, utilities, access	con:	insufficient bathrooms, parking
small splash pad facility			
pro:	space, utilities, access	con:	
inclusive playground			
pro:	good accessibility	con:	existing facility is in good shape
staff on site:	No		
STAFF COMMENT			
-There was space designated for a splash pad in the original park master plan			
CONSULTANT NOTES			
This site appears to be appropriate for a large scale splash pad park			

FACILITY CONDITION ASSESSMENT CHECKLIST

UMSTEAD PARK

399 Umstead Drive

BASIC SITE INFORMATION			
Park Size	23.68	acres	
Public Access	Umstead Road, with pedestrian access from Tanyard Branch greenway trail and Bolin Creek greenway trail		
Public Transit:	1 route with nearby stops plus 1 route nearby		
PARKING		COMMENTS	STAFF COMMENTS
# spaces	42	paved, most in RCD	-parking is often insufficient
ADA spaces	2	appear compliant	
Expansion	not easy	new / separate lot could be added near volleyball court	
OTHER FACILITIES			
Playground		new, appears ADA compliant, not inclusive	-roof needs replacement -host tournaments
Trailhead			
Bathrooms			
Shelter - 2			
Sand volleyball - 7			
Basketball		outdoor	
UTILITIES			
Existing water?	yes	Nearest Water	8", from Umstead Dr
Is there adequate water supply	yes	Meter size	
Existing sanitary sewer?	yes	30" DI to Umstead Dr	
Existing storm mitigation facility		No	
Existing building for splash pad equipment		No	
FACILITY APPROPRIATENESS			
large splash pad facility			
pro:	utilities, access	con:	insufficient bathrooms, parking, most accessible area is in RCD
small splash pad facility			
pro:	space, utilities, access	con:	
handicap accessible playground			
pro:		con:	insufficient bathrooms, parking
staff on site:	Yes		playground is already fairly accessible
STAFF COMMENT			
<p>-The playground is fairly new and has many accessible features</p> <p>-Between the trailhead and the volleyball courts, parking is often insufficient</p> <p>-This park gets flooded often</p>			
CONSULTANT NOTES			
<p>This park has great accessibility due to its location on the Tanyard and Bolin Creek Greenway trails and all the neighborhoods that can access the park via those trails.</p> <p>Wouldn't put a recirculating pad system in an area that floods often.</p>			

FACILITY CONDITION ASSESSMENT CHECKLIST

EASTWOOD PUBLIC HOUSING

NE corner Piney Mountain Rd and Eastwood Rd

BASIC SITE INFORMATION			
Parcel Size	5.5 acres		
# Residences:	32 units		
Public Access	Piney Mountain Road to Louis Armstrong Court, and Eastwood Road to Billie Holliday Court		
Public Transit:	No		
PARKING		COMMENTS	STAFF COMMENTS
# spaces		paved	
ADA spaces		appear compliant	
Expansion	minimal opportunity		
OTHER FACILITIES			
Playground		not yet	small facility being installed
Open Space		multiple locations	
UTILITIES			
Existing water?	yes	Nearest Water	6" DI from Piney Mountain
Is there adequate water supply	yes		8" AC from Eastwood Road
Existing sanitary sewer?	yes	8" ESVCP northeast to cross country main	
Existing storm mitigation facility		Yes - appears to be a bioretention	
Existing building for splash pad equipment		No	
FACILITY APPROPRIATENESS			
large splash pad facility		con:	No public bathrooms
pro:		con:	insufficient nearby population and access is from residential streets
small splash pad facility			insufficient space, parking & accessibility
pro: utilities, space		con:	may serve only the immediate neighborhood & vicinity
inclusive playground		con:	no space, and would serve only a small population
pro:			
staff on site:	No		
STAFF COMMENT			
CONSULTANT NOTES			
This site has an old basketball halfcourt in disrepair which could be removed to offset impervious additions. There are two locations that would be appropriate for smaller splash elements: one internal to site and one on the Eastwood Road frontage			

FACILITY CONDITION ASSESSMENT CHECKLIST

OAKWOOD PUBLIC HOUSING

605 Oak Avenue

BASIC SITE INFORMATION			
Parcel Size	5.96 acres		
# Residences:			
Public Access	Sumac Road, Dogwood Acres Drive, pedestrian access from Southern Village greenway trail		
Public Transit:	1 route with nearby stops		
PARKING		COMMENTS	STAFF COMMENTS
# spaces		paved	
ADA spaces		appear compliant	
Expansion	minimal opportunity		
OTHER FACILITIES			
Playground		very small, does not appear to get a lot of use	
Open Space		very little	
UTILITIES			
Existing water?	yes	Nearest Water	6" DI from Geensboro Street
Is there adequate water supply	yes	Meter size	
Existing sanitary sewer?	yes	southeast to Hillview Street	
Existing storm mitigation facility		Yes	
Existing building for splash pad equipment		No	
FACILITY APPROPRIATENESS			
large splash pad facility			
pro:		con:	insufficient nearby population
small splash pad facility			lack of parking
pro: utilities		con:	would serve only this street
inclusive playground			lack of parking
pro:		con:	no space, and would serve only a small population
staff on site:	No		
STAFF COMMENT			
CONSULTANT NOTES			
This site appears densely developed with little open space that feels communal. There is a small existing playground but it's very close to the adjacent residential units.			

SITE SUMMARY TABLE

The chart below summarizes some of the basic park facility and location data from each of 8 Town owned properties under consideration for a new splash pad/and or inclusive playground facility.

Property	Size (ac)	Public Transit	Households within 1/4 mile	Water Service	Sanitary Sewer Service	Playground	Restrooms	Pool	Public Parking	Affordable Housing Community Within Walking Distance	Property Site in Qualifying Census Tract
Cedar Falls Park	66.6	Y	262	Y	N	Y	Y	N	180	N	N
Community Center Park	12	Y	486	Y	Y	Y	1980	1980	66	Y	N
Hargraves Community Park	6.8	Y	1285	Y	Y	Y	Y	1979	60	Y	Y
Homestead Park	43.6	Y	582	Y	Y	Y	Y	2008	288	Y	N
Southern Community Park	71	Y	340	Y	Y	2006	2006	N	157	N	N
Umstead Park	23.7	Y	1252	Y	Y	new	Y	N	42	Y	Y
Eastwood Public Housing	5.5	N	299	Y	Y	small	N	N	N	Y	N
Oakwood Public Housing	6	Y	785	Y	Y	small	N	N	N	Y	N

SECTION 4 – Splash Pad Options

SAMPLING OF NEARBY EXISTING FACILITIES

Prior to the start of this study, Town staff worked with other Parks and Recreation Department staff, and Parks, Recreation, and Greenway Commissioners, a Town Council representative, and community members (Kate Sayer and Danita Mason-Hogans). They toured some nearby splash pad facilities in Burlington, Mebane, and Pittsboro, which included meetings with Burlington and Mebane Town staff overseeing maintenance and operations and engineers involved in the design of these facilities. Details of these facilities have been included in the splash pad examples below.

Burlington Splash Pad has about 5,500 sq ft of total deck space and 3,800 sq ft of that as a splash deck. Their aquatic features and recirculation system and installation was approximately \$900,000. It opened in the summer of 2016. The cost of the building attached is unknown but it houses an approved recirculation system design. System start-up for season approx. 1.5 days, and shut-down 1 day for a recirculation system. A splash pad like this would require daily water sample log and daily maintenance checks. Expect 10-15 minutes on operation days to log water levels, calibrate systems, check and test features, and run a sequence.



Pittsboro Splash Pad has about 2,600 sq ft of splash deck space. Their turn-key project cost approximately \$750,000. The splash park opened in the summer of 2021. The building housing the recirculation system costs are unknown. The same maintenance listed for Burlington would apply to Pittsboro. The costs to budget for yearly operation would be hourly maintenance rates, water, sewer and electrical, and under proper operation and maintenance systems should last 8-15+ years well past newer technology to make systems operate with more automation and less staff maintenance.

Mebane Splash Pad was constructed in late 2018 and has about 3,400 sq ft of splash deck and 3,800 sq ft of deck space. This project is estimated turn-key around \$400,000. This is a pocket park designed for low flow drain to waste systems. It is a flow-through system and therefore does not require a health department permit, because water is not being captured and reused for human contact. The owner is paying for water and sewer costs associated with the gallons per minute required to operate for the hours of operation. The maintenance for this system is fairly low, approximately 8-10 hours per year for weekly checks on a manifold and controller and to check sequence and aquatic feature functions. There is no need for maintenance of pumps, filters, and water holding tanks for this flow-through system.



Mebane Community Park
Splash Pad (\$450k)
3,800 Sq ft Deck
Flow Through System
8-10 aquatic features

DESTINATION SPLASH PAD FACILITY DEFINITION

Destination splash pads are aquatic spaces that are worth packing up the crew and making the afternoon of it. Typically destination splash pads are over 5,000 sf to accommodate larger groups, they have at least 30 spray features, and a wider array of water effects and experiences for all ages and abilities. These designs almost always have a system to capture the water, filter, and treat the water for reuse. Recirculated splash pads in North Carolina are regulated by the state health department. Destination splash parks are often themed which affects the outward appearance, but not generally the splash elements.



Flower Concept layout,
destination sized splash parks.

Jungle Theme,
Blue Springs MO, Landscape Structures



Quarry Splash Park, Austin TX

RECIRCULATION WATER SYSTEMS VERSUS FLOW THROUGH SYSTEMS

A recirculation system involves filling the splash pad system from the local water authority initially, then catching the water in a holding tank where it is filtered and treated before sending the water back to the nozzles at the splash pad surface – similar to how pool water is treated. This system has higher water rate turnover and water cleanliness can be improved with secondary ultraviolet (UV) disinfection system.

A flow-through or pass-through system takes potable water from the local water authority and pumps it through the splash pad system where it then drains into either a sewer drain or into a holding tank or pond to allow the chlorine to air out before letting the water seep into the ground.

The pros and cons of each system are listed here.

System	Pros	Cons
Recirculation	-better water conservation	-more expensive to install and requires a rainwater bypass system -requires scheduled water monitoring and use of chemicals -more maintenance by staff and for owner
Flow-through	-access control personnel are not always required on site -grey water could be used for irrigation -lower maintenance by staff for owner	-wastes water -may mean splash pad wouldn't operate during droughts / dry hot summers



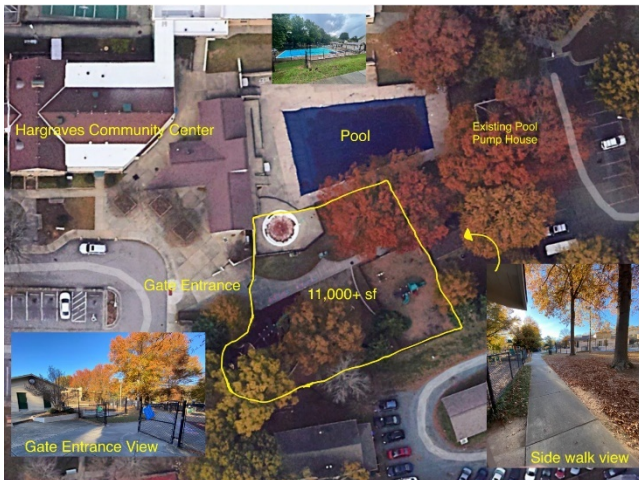
Recirculation mechanicals



Recirculation mechanicals need to be protected in a small shelter

SUITABILITY OF CHAPEL HILL PARKS AND PUBLIC HOUSING PROPERTIES FOR A DESTINATION SPLASH PAD

Three Chapel Hill parks can be feasible locations for any size splash pad from destination to pocket park. All have aquatic staff and/or staff on site, available space, utilities from existing building (Tap fees). A secondary water treatment system with ultraviolet disinfection would be used at all locations.



Hargraves Park / AD Clark Pool

Hargraves Park is recommended to accommodate any size splash pad up to 4,000 sq ft with the existing playground for a total of over 11,000 sq ft. This park also has older facilities so a splash park would contribute to updating some of the auxiliary facilities (access, play areas) and would provide water play in the event that the pool needs major repairs or replacement which would preclude use during a summer season.

Chapel Hill Community Center/Pool

Chapel Hill Community Center has current outdoor pool deck space over 6,000 sq ft and could accommodate any design up to 8,000 sq ft. This site is central in Town, and historically has had shorter pool hours due to staffing shortages. A splash park would provide a cooling water feature to extend outdoor recreation play time for Town residents. A splash pad at this location would need a change/restroom facility separate from the pool facilities as the pool facilities would only be available when a lifeguard was available. The splash pad would be located close to the playground and with the new change/restroom facility would provide an accessible restroom which would benefit other park facilities.



Homestead Aquatic Center

Homestead Aquatic Center has an 8,000+ sq ft cleared grassy area in front of the building to accommodate a new aquatic play space. Previously this was envisioned as the future location of a gym. It is somewhat removed from the playground area.

SMALL POCKET PARK OR MEDIUM SIZED SPLASH PAD FACILITIES

Pocket park splash pads are typically smaller - from 3-8 features - and usually low flow (less than 72 gallons per minute or gpm). Medium sized pads range from 8-16 features and usually low flow (60-150+ gpm). Pocket or Medium pads have one big question to answer with several factors to weigh. Should I pay for water and sewer or recirculate?

Single Use:

- - Water and sewer costs are important to calculate during the design phase.
 - Hours of operation and sequences are ways to control water budget.
- For maintenance expect 2-3 visits weekly (10-15 minutes per visit for splash pad duties) Depending on use, add time for items like trash and clean-up, 1-2 hour season start-up and 1-2 hour season shut down.
- Here are a few example project budgets for pocket parks with your water and sewer costs calculated.

EXAMPLE 1:

This flow through design is 800 sq ft with one above grade spray feature and 7 ground sprays. This design would need 7,000-15,000 gallons per day of use sequenced between 5-10 hours or cost \$126-\$251 per day. (37 GPM)

Turn-Key Splash Pad Estimated \$180k +site prep and utility connection.



EXAMPLE 2

This single use Pad is 970 sq ft with a couple of tall features and 6 ground sprays. This design would use 13k-26k gallons of water per day or cost \$200-\$420 per day. (60 gallons per minute (GPM))

Turn-Key Splash Pad Estimated \$210k +site prep and utility connection.





EXAMPLE 3

This 1,110 sq ft design pass through has 4 above grade features and 4 ground level sprays. This would use 16k-33k gallons of water per day or cost \$270-\$540 per day. (80 GPM)

Turn-Key Splash Pad Estimated \$225k +site prep and utility connection.

Recirculate:

- The State Health Department dictates the requirements for each design and must give approval for order of equipment.
 - Highlights
 - (3) "Public swimming pool" means public swimming pool as defined in G.S. 130A-280. Public swimming pools are divided into five types:
 - (d) "Water recreation attractions" are pools designed for special purposes that differentiate them from swimming pools, wading pools, and spas. They include:
 - (i) water slide plunge pools and run out lanes, which transfer the kinetic energy of the users' velocity through friction to the slide;
 - (ii) wave pools;
 - (iii) rapid rides;
 - (iv) lazy rivers;
 - (v) interactive play attractions that incorporate devices using sprayed, jetted, or other water sources contacting the users and that do not incorporate standing or captured water as part of the user activity area;
- Higher initial costs, with minimal operating costs
- Many more design capabilities for 8-16 features and range in sizes from 2k-4k sq ft
- Expect 15-20 minutes daily to sample and log water sample, perform backwash or swap out cartridge filter
- See page 35 for the section in the NC Public Swimming Pool Code for Water Recreation Attractions

SUITABILITY OF CHAPEL HILL PARKS AND PUBLIC HOUSING PROPERTIES FOR A POCKET PARK SPLASH PAD

Seven of the eight sites visited would be appropriate places to install a smaller splash pad facility. The single location where even a small splash facility would not be practical is the Oakwood Public Housing site. At this site there is no green space which truly feels like community space. All the open space at this location is either right next to a parking lot or feels part of individual residential unit outdoor space. There is also no public parking at this location, and not much local street parking.

Cedar Falls Park



A pocket park sized facility would be appropriate at this location. A small splash facility near the restrooms or near the existing playground would provide a welcome cooling spot for families enjoying the playground or the tennis courts, and misters would provide a very beneficial amenity for the same group as well as athletes and spectators at the play fields.

This park does not currently have OWASA sanitary sewer service, and the existing septic field does not function properly when the park is overcrowded or when there has been a large rain event. The small splash

area or misting station would not require sanitary sewer facilities, and though it would act as an amenity for park users, it would be unlikely to attract a larger user group.

Community Center Park

A small splash facility could be accommodated near the playground and act as a beneficial extension of that play area. This is the most used playground in Town, and adding a water feature would provide a feature that would extend users' time at the park.



Eastwood Public Housing

There are two locations at the Eastwood development appropriate for a small splash feature. In the center of the community there is an older basketball half court which is in disrepair. This feature could be removed and provide a space for a smaller splash facility. There is also a large grassy space on the Eastwood Road frontage which is handy to the water utility service. Development of a small splash feature at this location would feel more like a public park and would be visible but slightly screened from the street. There is some availability of public street parking in this neighborhood. The argument against a facility in this location is that there is no public transportation available, and all nearby streets are residential and may not be appropriate for increased park traffic.



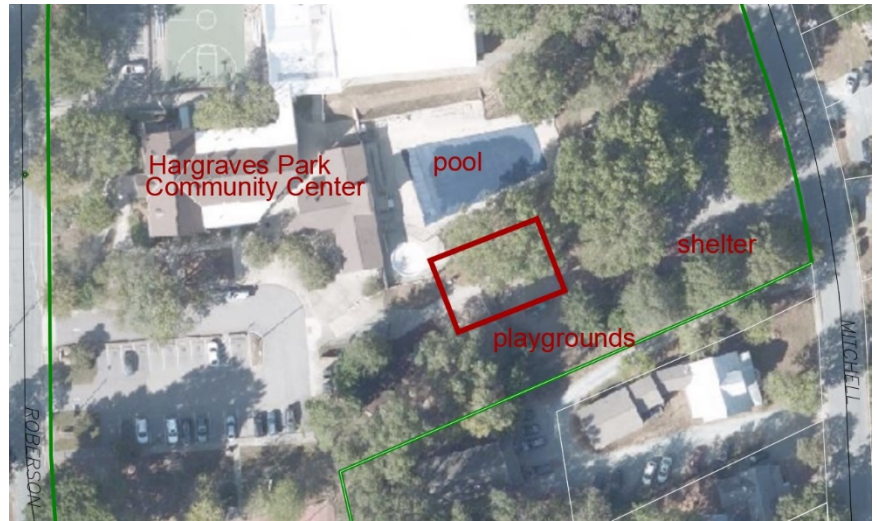
Homestead Park

There is a suitable location near the playground and restroom area for a small splash facility in this park. The restroom building contains an extension which is a sheltered picnic area. There are also many playfields at this park which see routine and tournament type use. A small splash facility in this park would also serve the athletes and spectators on the baseball and soccer fields.



Hargraves Park

Hargraves Park has an opportunity for a small or medium sized splash facility between the pool and the playground areas. This park has the highest number of households within walking distance, is close to downtown and public transit, and has multiple options/locations for parking. This park is older - the pool was built in the 1960's – and the neighborhood has been underserved historically. A splash facility at this location would provide an additional amenity at a popular community park.



Southern Community Center Park

Southern Community Park has a master plan which includes a splash feature, though this amenity was not built. There is space within a fenced playground area which could easily accommodate a small or medium size splash pad, which would be a complementary amenity to the playground, shelters, and walking trails already in place.



Like Cedar Falls and Homestead Parks, this park also has multiple playfields which attract large groups, and a small splash feature or mister located between the shelter and playfields would be a welcome amenity to field users as well as to families using the playground and picnic facilities here.

Umstead Park

There is a partially accessible playground at Umstead Park. This would be an appropriate place for a small to medium splash facility as a complimentary facility to the playground. This location has walking accessibility for almost as many households as the Hargraves Center Park and is located on the Tanyard Branch Greenway Trail.

There is an existing restroom building with picnic shelter.

